DRAFT

ENVIRONMENTAL IMPACT REPORT

DEIR

Lake Merced West Project

520 John Muir Drive

San Francisco Planning
Case No. **2019-014146ENV**

State Clearinghouse No. 2021060231

Public Draft	*Draft EIR Publication Date:*	February 23, 2022	*Written comments should be sent to:* **Julie Moore, Environmental Planner** 49 South Van Ness Ave, Suite 1400 San Francisco, CA 94103 or CPC.LakeMercedWestEIR@sfgov.org
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San Francisco Planning

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SUMMARY

S.1 Introduction

This document is a draft environmental impact report (EIR) for the proposed Lake Merced West Project ("project"). This chapter provides a summary of the project; anticipated environmental impacts of the project and mitigation measures; areas of controversy to be resolved; and alternatives, including the environmentally superior alternative.

The San Francisco Recreation and Parks Department (RPD) proposes the project which would create a recreational facility on approximately 11 acres located at 520 John Muir Drive, on the southwest side of Lake Merced, in southwestern San Francisco (refer to **Figure S-1**). The proposed Lake Merced West recreational facility would offer an array of activities open to the public as described below.

The City and County of San Francisco (the city), under the jurisdiction of the San Francisco Public Utilities Commission (SFPUC) owns the project site. RPD and SFPUC collectively manage recreation at Lake Merced including the lease of the former site tenant; RPD will also manage recreation activities at the proposed Lake Merced West recreational facility through selection and oversight of a concessionaire to construct and operate the facility. Under the San Francisco Administrative Code, chapter 31, the San Francisco Planning Department's Environmental Planning Division is responsible for conducting the environmental review of all city projects pursuant to the requirements of the California Environmental Quality Act (CEQA). The planning department is the lead agency responsible for preparing this EIR in compliance with CEQA.

S.2 Background

The Pacific Rod and Gun Club built and operated skeet and trap shooting facilities at the site from 1934 to 2015.[1] These activities resulted in lead shotgun pellets and other debris falling onto the site and into the lake. After the Pacific Rod and Gun Club vacated the project site in 2015, the SFPUC conducted extensive soil remediation to excavate contaminated soils to depths of up to 10.5 feet. The site was backfilled with clean fill and historic features and vegetation were restored. The site is currently closed to the public. Refer to **Figure S-2** for an aerial photograph of the existing project site and description of features.

Four skeet fields separated by wooden fences and several small target launching stands remain on the northern portion of the property. A gravel parking area occupies the southern portion of the site, accessed by a driveway on John Muir Drive. There are five main buildings and three ancillary buildings on the site. Vegetation within the project site consists primarily of native grasses planted following soil remediation, along with trees and wetland vegetation.

Because most of the buildings and structures on the site are more than 50 years old, the entire site was evaluated for its potential historical significance during the environmental review for the soil remediation project. The historic resource evaluation determined that the site is a cultural landscape that appears eligible for listing in the California Register of Historical Resources (California Register) under Criterion 1 and the

[1] Skeet is a form of trap shooting. Trap is the oldest of shotgun games and was intended to replicate the experience and utilize the skills of shooting birds in the field.

National Register of Historic Places (National Register) at the local level of significance under Criterion A for its association with the broad pattern of history related to the increased popularity of sport hunting and the interrelated development of skeet, during the period prior to World War II in which skeet evolved from a shooting practice into a competitive sport.[2,3,4] For these reasons, the project site is considered a historical resource as defined under CEQA.

S.3 Project Description

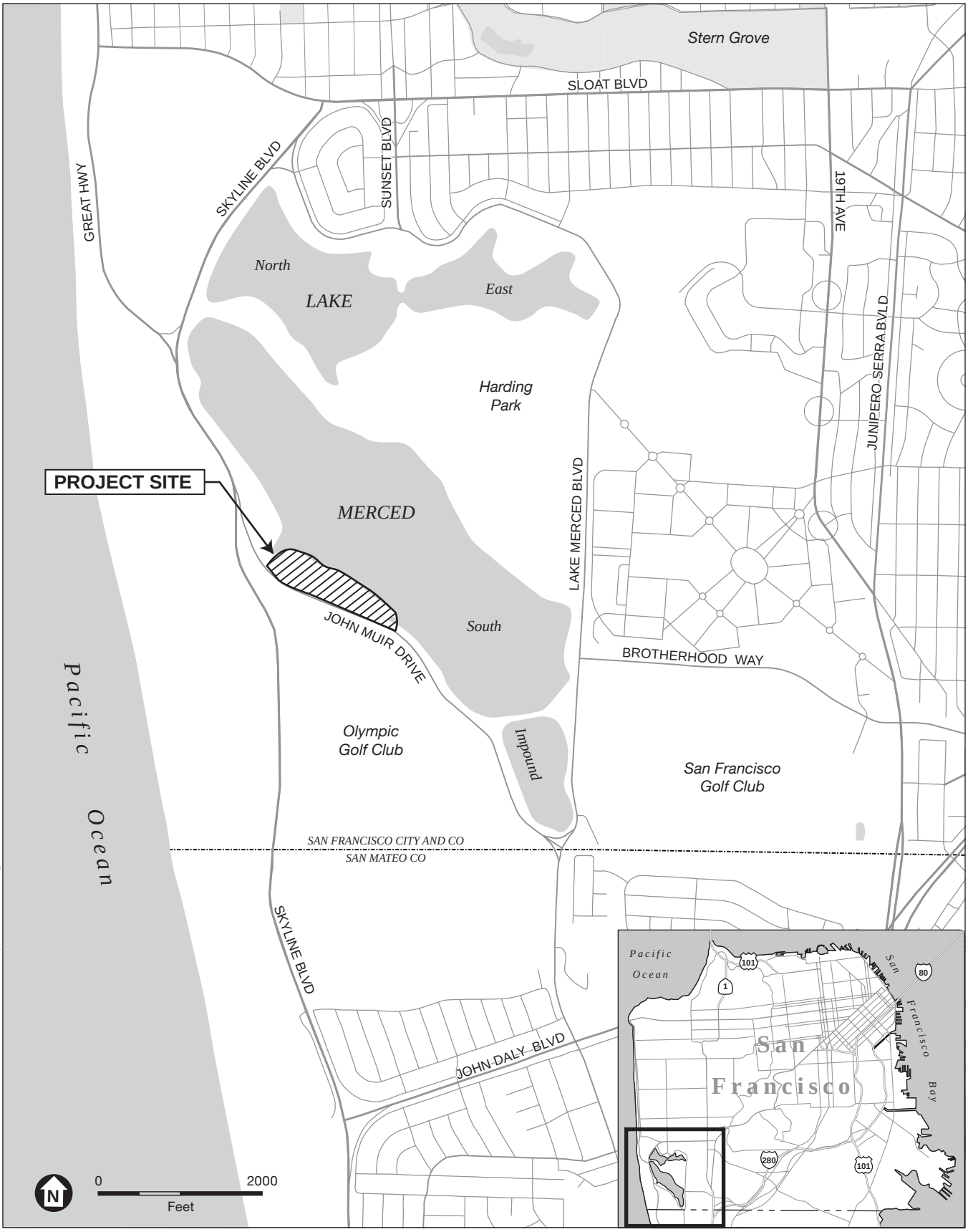
S.3.1 Project Location and Proposed Facilities

The project site generally encompasses the area between the southwest side of Lake Merced and John Muir Drive in southwestern San Francisco. Figure S-1 shows the project location.

The proposed recreational facility would offer an array of active and passive activities open to the public, such as trail use, picnicking, paddleboarding, kayaking, fishing, fitness activities, a ropes course, bird watching, space for outdoor exercise, skateboarding, multi-use courts for basketball and other activities, as well as restaurant dining, and indoor space for gatherings such as community meetings and birthday parties. The facility would include the following buildings and outdoor features shown on **Figure S-3**:

- Community building
- Restaurant and associated outdoor dining area
- Boathouse
- Restrooms and storage
- SFPUC arborist office and yard
- Picnic areas
- Playground
- Boat dock
- Watercraft soft landing area
- Walking paths
- Ropes course
- Birdwatching benches
- Basketball court
- Cantilevered bird viewing deck
- Multi-use sports court(s) (for activities such as volleyball, handball, roller skating/inline skating, tai chi, Zumba or other group cardio activities, bicycle polo, roller hockey)
- Skatepark

[2] Denise Bradley, Cultural Landscapes, 2014. Pacific Rod and Gun Club San Francisco CA Cultural Landscape Evaluation Report. May.
[3] A property can qualify as historic under Criterion A/1 if it is associated with events that have made a significant contribution to the broad patterns of our history and cultural heritage.
[4] San Francisco Planning Department, *Historic Resource Evaluation Response, Part I for 520 John Muir Drive*, Case No. 2019-014146ENV, June 2020.

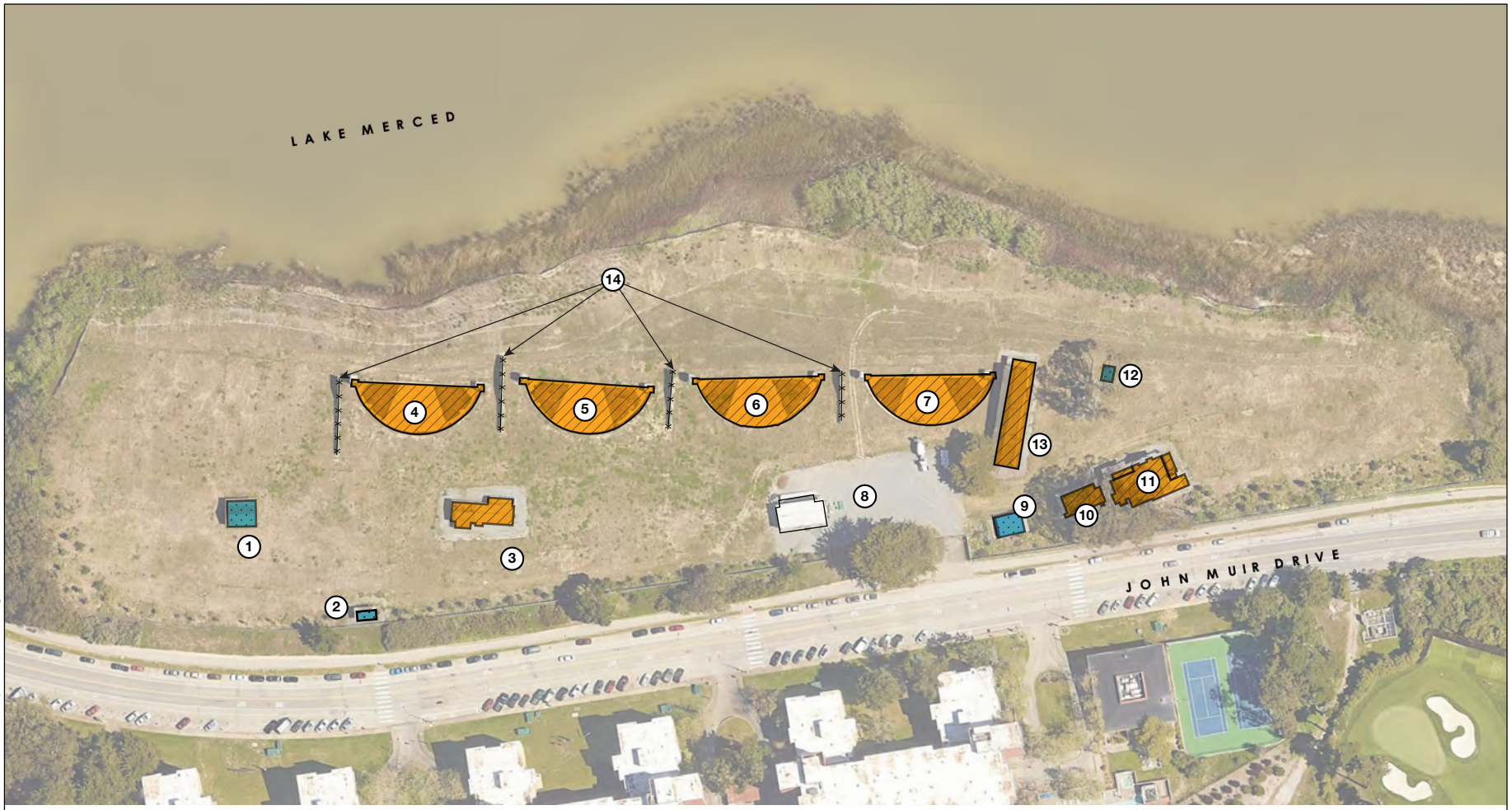


SOURCE: ESA

Lake Merced West

Figure S-1
Project Location

ESA



Contributing Features
A contributing building, site, structure, or object adds to the historic associations, historic architectural qualities, or archeological values for which a property is significant.

Non-Contributing Features
A noncontributing building, site structure, or object does not add to the historic architectural qualities, historic associations, or archeological values for which a property is significant.

1. Trap House
2. Restroom Building
3. Shell House
4. Skeet Field 4
5. Skeet Field 5
6. Skeet Field 6
7. Skeet Field 7
8. Parking Lot and Temporary Construction Trailer
9. Garage
10. Caretaker's House
11. Clubhouse
12. Barbeque Shed
13. Rifle Range Building
14. Safety Fences

N

0 100
Feet

SFO\17xxxx\D170626.00 - Lake Merced West Recreation\05 Graphics-GIS-Modeling\Illustrator

SOURCE: ESA, 2020

Lake Merced West

Figure S-2
Existing Project Site and Features

ESA

SFO\17xxxx\D170626.00 - Lake Merced West Recreation\05 Graphics-GIS-Modeling\Illustrator

SOURCE: San Francisco Public Works

Lake Merced West

Figure S-3
Conceptual Site Plan

ESA

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S.3.2 Construction

Project construction would proceed in the following three general phases:

- Phase 1: Building and Structure Demolition, Tree Removal, and Soil Remediation
- Phase 2: Upland Building, Structure, and Outdoor Feature Construction
- Phase 3: Shoreline Recreational Facilities Construction

While the three phases are described separately in Chapter 2, Project Description, some elements within each phase could overlap. In the first phase, existing structures would be demolished, and upland vegetation removed in areas where new facilities or paving would be constructed. Should any contaminated soil be encountered underlying the existing buildings (in particular, contaminated soil is anticipated to be beneath and adjacent to the rifle range building), soil remediation would occur. Once demolition and soil remediation are complete, construction would pause for up to 18 months while RPD identifies a concessionaire for the site. During the second phase, buildings and structures in upland areas would be constructed. Recreational facilities along the lake shoreline (boat dock and boathouse), including any sediment remediation, would be constructed in the final phase. All project construction and staging areas would be located within the 11-acre site.

The first phase of construction, anticipated to begin in early 2023, would take approximately three months and would precede the rest of project construction by up to 18 months. The second and third phases of construction would take approximately 24 months. Construction would occur Monday through Friday, from 7:00 a.m. to 6:00 p.m. No nighttime or weekend construction is anticipated or proposed.

S.3.3 Project Operation

RPD estimates that the park would receive an average of 200 visitors each day. During regular (daylight) hours the public could freely move about the site in areas that are not reserved or do not require fees, such as the site's path and trail system, open space, playground, basketball court, multi-use sport court, skatepark, viewing deck, parking areas, and non-group picnic and terrace patio. Some areas of the site that would require fees for participation include the ropes course, boat rentals, boat launch, programming, and group picnic areas. No entrance fee to the site is anticipated during normal operations. The restaurant could accommodate a total of about 220 people and would be open to 9 p.m. Special events hosting up to 500 people would be permitted up to twelve times per year.

Project operation would employ an estimated 15 to 20 full time equivalent employees. These staff would be employed by a concessionaire and would be drawn from the local and regional work force. No changes to city agency staffing levels are anticipated during project operation and maintenance; existing city employees would conduct site oversight and maintenance.

The SFPUC arborist team, approximately six existing employees, would operate an office at the project site and store equipment and vehicles at the yard. Typically, the arborist office and yard would operate between 6:30 a.m. to 3 p.m. Monday through Friday.

S.4 Summary of Project Impacts and Mitigation Measures

The initial study that is part of this EIR determined that the following topics would have either no significant impacts or impacts that would be reduced to less than significant with mitigation: land use and planning; aesthetics; population and housing; archaeological resources; tribal cultural resources; transportation and circulation; noise; air quality; greenhouse gas emissions; wind; shadow; recreation; utilities and services systems; public services; biological resources; geology and soils; hydrology and water quality; hazards and hazardous materials; mineral resources; energy; agricultural and forestry resources; and wildfire. Discussion and analysis of impacts for these resource topics are presented in Appendix A.

Chapter 3 of this EIR presents detailed environmental impact analysis for historical architectural resources. The impact analysis describes the environmental setting, identifies significance criteria used in the analysis, evaluates potential physical effects of the project on both a project-level and cumulative basis, and provides feasible mitigation measures that would reduce the severity of significant impacts.

Table S-1 (located at the end of this chapter) summarizes (1) impact descriptions, (2) level of significance prior to mitigation measures, (3) mitigation measures (if applicable), and (4) level of significance after mitigation (if applicable). The summary table includes all impacts and mitigation measures applicable to the project, with the EIR sections presented first, followed by the initial study sections.

This EIR determined that the project would result in significant and unavoidable impacts with mitigation on historical architectural resources for the following reasons:

- **Historical Architectural Resources**. The site is a historical cultural landscape that is eligible for listing in the California Register. The project would demolish most contributing features of the cultural landscape (Impact CR-1).

The initial study identified significant impacts that could be mitigated to a less-than-significant level with implementation of identified mitigation measures for the following topics:

- **Noise and Vibration**. The use of amplified sound equipment during special events has the potential for significant noise impacts in excess of standards established in the San Francisco General Plan or San Francisco Noise Ordinance (Impact NO-2).
- **Biological Resources**. Project construction could adversely affect the western pond turtle, riparian habitat, jurisdictional wetlands, and bat maternity colonies and may conflict with local policies or ordinances protecting biological resources (Impacts BI-1, BI-3, BI-6, BI-7).
- **Paleontological Resources**. Construction would involve excavation which could damage or destroy potential paleontological resources (Impact GE-5).

Chapter 4 evaluates the growth-inducing impacts of the project and determined that the project would not have a substantial growth-inducing impact.

S.5 Alternatives to the Proposed Project

Chapter 5 presents the CEQA alternatives analysis to identify potentially feasible alternatives that could avoid or substantially lessen the significant impacts identified for the project while still meeting most of the project objectives. The three alternatives analyzed in this EIR are:

- **No Project Alternative** — Represents what would reasonably be expected to occur in the foreseeable future if the project is not implemented. No changes would be made to the project site. All existing buildings, structures, and landscape features would remain in their current conditions and the site would remain closed to the public and no water access would be permitted. Impacts to the historical resource would be avoided and no further soil remediation would occur, resulting in residual hazardous materials remaining onsite.
- **Full Preservation Alternative** — The site would be redeveloped with a range of recreational facilities while retaining the majority of the buildings and landscape features (three buildings and four skeet fields) that contribute to the cultural landscape determined to be a historical resource. Under this alternative, the rifle range building, clubhouse, and caretaker's house would be rehabilitated according to the Secretary of Interior's Standards for the Treatment of Historic Properties (Secretary's Standards). The rifle range building would be reused as a restaurant, the clubhouse would be reused as a community building with public restrooms, and the caretaker's house would be reused to accommodate site storage, operational support, or administrative offices. All four contributing skeet fields would also be retained as would their related safety fences, and high and low houses. In this alternative, fewer new recreational facilities would be constructed and they would be located farther from the center of the site than in the proposed project.
- **Partial Preservation Alternative** — The project site would be redeveloped with a similar range of recreational facilities as the project while retaining two buildings (the caretaker's house and the clubhouse) and two skeet fields (skeet fields 4 and 7) that contribute to the historical resource. Under this alternative, the caretaker's house and the clubhouse would be rehabilitated according to the Secretary's Standards. The caretaker's house would be reused to accommodate site storage, operational support, or administrative offices. The clubhouse would be reused as a community building with public restrooms. Skeet fields 4 and 7 would be retained, including their associated high and low houses and security fences, and used as picnic areas. All other security fences and high and low houses would be removed. In this alternative, more recreational facilities would be constructed than in the Full Preservation Alternative but less than the proposed project.

The San Francisco Planning Department determined that these three alternatives are potentially feasible and adequately represent the range of alternatives required under CEQA for this project. The Full Preservation Alternative would avoid the significant and unavoidable adverse impact to the historical resource that was identified for the project. The Partial Preservation Alternative would lessen but not eliminate the significant and unavoidable adverse impact related to the historical resource that was identified for the project. A "no project alternative" is included, as required by CEQA, although it would not meet the basic project objectives.

S.6 Environmentally Superior Alternative

Pursuant to CEQA Guidelines section 15126(e)(2), an EIR is required to identify the environmentally superior alternative from among the alternatives evaluated if the project has significant impacts that cannot be mitigated to a less-than-significant level. The environmentally superior alternative is the alternative that best avoids or lessens any significant effects of the project, even if the alternative would impede, to some degree, the attainment of the project objectives. The Full Preservation Alternative is the environmentally superior alternative among the project alternatives (other than the No Project Alternative). The Partial Preservation Alternative would result in similar impacts as the project and would not entirely avoid the significant impacts on historic cultural resources. The Full Preservation Alternative would avoid the significant historical resource impact and would not cause any other significant impacts. The Full Preservation Alternative also meets or partially meets the project objectives.

S.7 Areas of Known Controversy and Issues to be Resolved

Section 15123 of the CEQA Guidelines requires that an EIR summary identify each significant effect with proposed mitigation measures and alternatives that would reduce or avoid the effect; areas of controversy known to the lead agency, including issues raised by other agencies and the public; and issues to be resolved including the choice among alternatives and whether or how to mitigate the significant effects.

On June 9, 2021, the San Francisco Planning Department issued a Notice of Preparation (NOP) of an EIR. The notice described the proposed project and requested comments on the scope of environmental issues that should be addressed in the EIR. The planning department provided the NOP to governmental agencies, organizations, and persons interested in the proposed project to initiate the 30-day public scoping period for the EIR, which started on June 9, 2021, and ended on July 9, 2021. The planning department held a public scoping meeting on June 23, 2021, to solicit comments on the scope of the EIR, including the initial study. The NOP is included in Appendix B of this document. Comments received in response to the NOP are described in Chapter 1, Introduction and Background.

Known controversy regarding project design is primarily focused on types of facilities proposed for the site. Many commenters from the rowing community recommended increasing the size of the project's boating facilities; other comments suggested less development and more site area preserved for open space, or that the project exclude the restaurant, or add an interpretive center.

Other public comments received on the NOP, while not controversial, address the following topics:

- Effects on aesthetic resources, including views and nighttime lighting
- Effects on wetlands, wildlife, and lake water quality
- Use of native and climate-appropriate plantings
- Project area maintenance, including management of invasive species and litter
- Effects of new facility on traffic congestion, travel patterns, and safety
- Noise, emissions, and pollution associated with new land use
- Cumulative impacts of the project along with other development around Lake Merced

Table S-1 Summary of Impacts and Mitigation Measures

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
HISTORICAL ARCHITECTURAL RESOURCES, EIR SECTION 3.2			
Impact CR-1: The project would cause a substantial adverse change in the significance of a historical resource as defined in section 15064.5.	S	**Mitigation Measure M-CR-1a: Documentation of Historical Resources** Before any demolition activities within the project site, the RPD and the SFPUC shall retain a professional who meets the Secretary of the Interior's Professional Qualification Standards for Architectural History to prepare written and photographic documentation of the Pacific Rod and Gun Club, with particular attention to the site as a cultural landscape and the contributing features including skeet fields 4–7 (including their associated high and low houses and safety fences), the rifle range building, the caretaker's house, the clubhouse, and the shell house. The documentation shall be based on the National Park Service's Historic American Building Survey (HABS) or the Historic American Landscapes Survey (HALS). This type of documentation is based on the Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation and the National Park Service's policy for photographic documentation, as outlined in the National Register and National Historic Landmarks Survey Photo Policy Expansion. The documentation shall include the following elements: • Accurate scaled mapping and architectural descriptions. If available, scaled architectural plans shall also be included; • Photographs in large-format (4-inch by 5-inch) black-and-white negatives and 8-inch by 10-inch enlargements. Digital photography may be substituted for large-format negative photography if archived locally; • A report containing site-specific history and appropriate contextual information. This information shall be gathered through site-specific and comparative archival research and oral history collection as appropriate; and	SUM

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
HISTORICAL ARCHITECTURAL RESOURCES, EIR SECTION 3.2 (CONT.)			
Impact CR-1 (cont.)		• A print-on-demand book. The electronic Print-on-Demand book shall be made available to the public for distribution. The RPD and the SFPUC shall make the content of the historical report, historical photographs, HABS photography, measured drawings, and field notes available to the public through a preexisting print-on-demand book service. This service shall print and mail softcover books containing the aforementioned materials to members of the public who have paid a nominal fee. The RPD and the SFPUC shall not be required to pay ongoing printing fees once the book has been made available through the service. The RPD and the SFPUC shall transmit such documentation to the San Francisco Planning Department and to repositories including the History Room of the San Francisco Public Library, San Francisco Heritage, the California Historical Society, the Northwest Information Center of the California Historical Information Resource System, and local or neighborhood historical societies. The qualified consultant shall determine the requested documentation type for each facility, and the RPD and the SFPUC shall conduct outreach to identify other interested repositories. All documentation shall be scoped and then shall be reviewed and approved by the planning department's preservation staff before issuance of the demolition permit. **Mitigation Measure M-CR-1b: Video Documentation** Before any demolition activities within the project site, the RPD and the SFPUC shall retain a qualified professional to undertake video documentation of the affected historical resource and its setting. This mitigation measure would supplement the traditional HABS/HALS documentation and would enhance the collection of reference materials that would be available to the public and inform future research. The documentation shall be conducted by a professional videographer with experience recording architectural resources. The professional videographer shall provide a storyboard of the proposed video recordation for review and approval by planning department preservation staff.	

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
HISTORICAL ARCHITECTURAL RESOURCES, EIR SECTION 3.2 (CONT.)			
Impact CR-1 (cont.)		The final video shall be reviewed and approved by the planning department preservation staff prior to issuance of a demolition permit for the project. Archival copies of the video documentation shall be submitted to the planning department, and the consultant shall contact the following repositories to determine whether they will request copies: the History Room at the San Francisco Public Library, San Francisco Heritage, the Prelinger Archives, and the California Historical Society. **Mitigation Measure M-CR-1c: Interpretive Program** The RPD and the SFPUC shall facilitate the development of an interpretive program focused on the history of the project site as a recreational shooting range. The interpretive program should be developed and implemented by a qualified preservation professional with demonstrated experience in displaying information and graphics to the public in a visually interesting manner. Coordination with local artists should occur, as feasible. The primary goal of the program is to educate visitors about the property's historical themes, associations, and lost contributing features within broader historical, social, and physical landscape contexts. One possible location for interpretation would be the skeet field that is to be retained and reused as a picnic area. This program shall be initially outlined in a proposal for a Historic Resources Public Interpretive Plan subject to review and approval by planning department preservation staff. The plan shall include the general parameters—substance, media, and other elements—of the interpretive program, which shall include in publicly accessible areas of the project site a permanent display(s) of interpretive materials concerning the history and architectural features of the historical resource (both the site as a whole and the individual contributing buildings and features). The interpretive plan should also explore contributing to publicly accessible digital platforms. The detailed content, display materials, and other characteristics of such an interpretive program shall be reviewed and approved by planning department staff before the issuance of a Temporary Certificate of Occupancy.	

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
HISTORICAL ARCHITECTURAL RESOURCES, EIR SECTION 3.2 (CONT.)			
Impact CR-1 (cont.)		**Mitigation Measure M-CR-1d: Oral Histories** The RPD and the SFPUC shall retain the services of a qualified historian to undertake an oral history of the Pacific Rod and Gun Club and shall make a good-faith effort to publicize the oral history project, conduct public outreach, and identify a wide range of potential interviewees. The RPD and the SFPUC shall employ a range of measures that may include installing booths that allow participants to record their recollections, and/or hosting a website that allows interviewees to contribute remotely. This oral history project shall consist of interviews of and recollections by members of the Pacific Rod and Gun Club if possible, and could include a video tour explaining the activities that took place on the site. The success of this effort will depend primarily on the ability of the RPD and the SFPUC to locate such persons, and on their willingness and ability to participate. Before undertaking this effort, the scope and methodology of the oral history project shall be reviewed and approved by planning department preservation staff. In addition to potentially being used for the onsite interpretive program, the recordings made for the oral history project shall be transcribed, indexed, and made available to the public at no charge through the planning department and other archives and repositories to allow for remote historical interpretation of the site.	
LAND USE AND PLANNING, INITIAL STUDY SECTION E.1			
Impact LU-1: The project would not physically divide an established community.	NI	No mitigation required.	NA
Impact LU-2: The project would not conflict with any applicable land use plans, policies or regulations of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect.	LTS	No mitigation required.	NA
Impact C-LU-1: The project, in combination with cumulative projects, would not result in significant impacts related to land use.	LTS	No mitigation required.	NA

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
AESTHETICS, INITIAL STUDY SECTION E.2			
Impact AE-1: The project would not have a substantial adverse effect on a scenic vista.	LTS	No mitigation required.	NA
Impact AE-2: The project would not have a substantial adverse effect on scenic resources, including those within view of a state scenic highway.	LTS	No mitigation required.	NA
Impact AE-3: The project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings, or conflict with applicable zoning and other regulations governing scenic quality.	LTS	No mitigation required.	NA
Impact AE-4: The project would not create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area.	LTS	No mitigation required.	NA
Impact C-AE-1: The project, in combination with the cumulative projects, would not result in significant cumulative impacts related to aesthetics.	LTS	No mitigation required.	NA
POPULATION AND HOUSING, INITIAL STUDY SECTION E.3			
Impact PH-1: The project would not induce substantial unplanned population growth in an area, either directly or indirectly.	LTS	No mitigation required.	NA
Impact C-PH-1: The project, in combination with cumulative projects, would not induce substantial unplanned population growth, either directly or indirectly.	LTS	No mitigation required.	NA
CULTURAL RESOURCES (OTHER THAN HISTORIC ARCHITECTURAL RESOURCES), INITIAL STUDY SECTION E.4			
Impact CR-2: The project would not cause a substantial adverse change in the significance of an archeological resource pursuant to CEQA Guidelines section 15064.5.	LTS	No mitigation required.	NA

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
CULTURAL RESOURCES (OTHER THAN HISTORIC ARCHITECTURAL RESOURCES), INITIAL STUDY SECTION E.4 (CONT.)			
Impact CR-3: The project would not have a substantial adverse effect on human remains, including those interred outside of formal cemeteries.	LTS	No mitigation required.	NA
Impact C-CR-1: The project, in combination with cumulative projects, would not result in significant impacts on archeological resources.	LTS	No mitigation required.	NA
TRIBAL CULTURAL RESOURCES, INITIAL STUDY SECTION E.5			
Impact TC-1: The project would not result in a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code section 21074.	LTS	No mitigation required.	NA
Impact C-TC-1: The project, in combination with cumulative projects, would not result in significant impacts on tribal cultural resources.	LTS	No mitigation required.	NA
TRANSPORTATION AND TRAFFIC, INITIAL STUDY SECTION E.6			
Impact TR-1: Project construction would not require a substantially extended duration or an intense activity, the effects of which would create potentially hazardous conditions for people walking, bicycling, or driving, or for public transit operations; would not interfere with emergency access or accessibility for people walking or bicycling; and would not substantially delay public transit.	LTS	No mitigation required.	NA
Impact TR-2: The project would not create potentially hazardous conditions for people walking, bicycling, or driving, or for public transit operations or interfere with accessibility for people walking or bicycling to and from the project site and adjoining areas or result in inadequate emergency access.	LTS	No mitigation required.	NA

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
TRANSPORTATION AND TRAFFIC, INITIAL STUDY SECTION E.6 (CONT.)			
Impact TR-3: The project would not substantially delay public transit.	LTS	No mitigation required.	NA
Impact TR-4: The project would not cause substantial additional vehicle miles traveled or substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow travel lanes) or adding new roadways to the network.	LTS	No mitigation required.	NA
Impact TR-5: The project would result in a loading deficit; however, the secondary effects of the deficit would not create potentially hazardous conditions for people walking, bicycling, or driving or substantially delay public transit.	LTS	No mitigation required.	NA
Impact TR-6: Special events would not result in significant site accessibility, hazardous conditions, or public transit delay impacts, nor create potentially hazardous conditions from unmet passenger and freight loading demand on the site.	LTS	No mitigation required.	NA
Impact C-TR-1: The project, in combination with cumulative projects in the vicinity of the project site, would not result in a considerable contribution to construction-related cumulative transportation and circulation impacts.	LTS	No mitigation required.	NA
Impact C-TR-2: The project, in combination with cumulative projects in the vicinity of the project site, would not result in a considerable contribution to operation-related cumulative transportation and circulation impacts.	LTS	No mitigation required.	NA

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
NOISE, INITIAL STUDY SECTION E.7			
Impact NO-1: Project construction would not generate a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	LTS	No mitigation required.	NA
Impact NO-2: Project operation could result in a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.	S	**Mitigation Measure M-NO-2: Noise Limits for Outdoor Amplified Sound.** The San Francisco Recreation and Parks Department shall require special event amplified noise permits to contain the following requirements: • The special-event sponsor shall comply with noise controls and restrictions in the amplified sound event permit. • Speaker systems shall be directed away from the nearest residences to the degree feasible. • Amplified sound equipment use shall be restricted to 5 hours between 9:00 a.m. and 10:00 p.m. • Outdoor speaker systems shall be operated such that amplified event noise levels do not exceed 80 dBA at a distance of 100 feet from the equipment. • The special-event sponsor shall notify residents within 300 feet of the project site in advance of each special event. The notice shall include the phone number of an RPD contact for noise complaints. The San Recreation and Park Department shall have a contact person available to respond to noise complaints, monitor noise levels to confirm compliance with permit requirements, and adjust noise levels (if needed).	LSM
Impact NO-3: The project would not result in generation of excessive groundborne vibration or groundborne noise levels.	LTS	No mitigation required.	NA
Impact C-NO-1: The project, in combination with the cumulative projects, would not result in significant cumulative impacts related to noise and vibration.	LTS	No mitigation required.	NA

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
AIR QUALITY, INITIAL STUDY SECTION E.8			
Impact AQ-1: The project would not conflict with or obstruct implementation of the 2017 Clean Air Plan.	LTS	No mitigation required.	NA
Impact AQ-2: The project's construction activities would generate fugitive dust and criteria air pollutants but would not result in a cumulatively considerable net increase of non-attainment criteria air pollutants within the air basin.	LTS	No mitigation required.	NA
Impact AQ-3: During project operation, the project would not result in a cumulatively considerable net increase in non-attainment criteria air pollutants.	LTS	No mitigation required.	NA
Impact AQ-4: Construction and operation of the project would generate toxic air contaminants, including diesel particulate matter, but would not expose sensitive receptors to substantial pollutant concentrations.	LTS	No mitigation required.	NA
Impact AQ-5: The project would not create objectionable odors that would affect a substantial number of people.	LTS	No mitigation required.	NA
Impact C-AQ-1: The proposed project, in combination with cumulative projects, would result in less than significant cumulative air quality impacts.	LTS	No mitigation required.	NA
GREENHOUSE GAS EMISSIONS, INITIAL STUDY SECTION E.9			
Impact C-GG-1: The project would generate greenhouse gas emissions, but not at levels that would result in a significant impact on the environment or conflict with any policy, plan, or regulation adopted for the purpose of reducing greenhouse gas emissions.	LTS	No mitigation required.	NA

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
WIND, INITIAL STUDY SECTION E.10			
Impact WI-1: The project would not create wind hazards in publicly accessible areas of substantial pedestrian use.	LTS	No mitigation required.	NA
Impact C-WI-1: The project, in combination with cumulative projects, would not create wind hazards in publicly accessible areas of substantial pedestrian use.	LTS	No mitigation required.	NA
SHADOW, INITIAL STUDY SECTION E.11			
Impact SH-1: The project would not create shadow that substantially and adversely affects the use and enjoyment of publicly accessible open spaces.	LTS	No mitigation required.	NA
Impact C-SH-1: The project, in combination with cumulative projects, would not create shadow that substantially and adversely affects the use and enjoyment of publicly accessible open spaces.	LTS	No mitigation required.	NA
RECREATION, EIR SECTION E.12			
Impact RE-1: The project would not result in an increase in the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated.	NI	No mitigation required.	NA
UTILITIES AND SERVICE SYSTEMS, INITIAL STUDY SECTION E.13			
Impact UT-1: The project would not cause significant environmental effects due to relocation or construction of new or expanded water, wastewater treatment, storm water drainage, electric power, natural gas, or telecommunication facilities and would not result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments.	LTS	No mitigation required.	NA

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
UTILITIES AND SERVICE SYSTEMS, INITIAL STUDY SECTION E.13 (CONT.)			
Impact UT-2: Sufficient water supplies are available to serve the proposed project and reasonably foreseeable future development under normal, dry, and multiple dry years; therefore, the proposed project would not require or result in the relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects.	LTS	No mitigation required.	NA
Impact UT-3: The project would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals.	LTS	No mitigation required.	NA
Impact UT-4: The project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste.	LTS	No mitigation required.	NA
Impact C-UT-1: The project, in combination with cumulative projects, would not result in significant utilities and service system impacts.	LTS	No mitigation required.	NA
PUBLIC SERVICES, INITIAL STUDY SECTION E.14			
Impact PS-1: The project would not result in an increase in demand for fire protection, police protection, schools, or other services to an extent that would result in substantial adverse physical impacts associated with the construction or alteration of governmental facilities.	LTS	No mitigation required.	NA
Impact C-PS-1: The project, in combination with cumulative projects, would not result in significant impacts associated with the provision of new or physically altered governmental facilities.	LTS	No mitigation required.	NA

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
BIOLOGICAL RESOURCES, INITIAL STUDY SECTION E.15			
Impact BI-1: Construction and operation of the project would have a substantial adverse effect on the special-status species western pond turtle.	S	**Mitigation Measure M-BI-1a: Worker Environmental Awareness Program Training.** A project-specific Worker Environmental Awareness Program (WEAP) training shall be developed and implemented by a qualified biologist for the project and attended by all construction personnel prior to beginning work onsite. The training could consist of a recorded presentation that could be reused for new personnel. The WEAP training shall generally include but not be limited to the following: • Applicable State and federal laws, environmental regulations, project permit conditions, and penalties for non-compliance; • Special-status animal species with potential to occur on or in the vicinity of the project site, avoidance measures, and a protocol for encountering such species including a communication chain; • Preconstruction surveys and biological monitoring requirements associated with each phase of work; • Known sensitive resource areas in the project vicinity which are to be avoided and/or protected (e.g. wetlands) as well as approved project work areas; and • Best Management Practices and their location on the project site for erosion control and/or species exclusion. **Mitigation Measure M-BI-1b: Avoidance and Minimization Measures for Western Pond Turtle.** During construction, RPD and SFPUC shall ensure a biological monitor is present during installation of exclusion fencing, during initial vegetation clearing and ground disturbance within grassland, riparian, and wetland habitats, and during all in-water construction. Also, the following measures shall be implemented: Within one week before construction commences, a qualified biologist shall supervise the installation of exclusion fencing along limits of vegetation removal and grading within riparian and wetland habitat as the biologist deems necessary to prevent western pond turtles from entering the work areas. Exclusion fencing may be installed with wings at the edges of locations where vegetation removal	LSM

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
BIOLOGICAL RESOURCES, INITIAL STUDY SECTION E.15 (CONT.)			
Impact BI-1 (cont.)		would occur within riparian and wetland vegetation to redirect species away from the work areas and back into suitable habitat that would not be disturbed by the project. This would avoid installation of fencing along the entire north (lakeside) boundary of the site if disturbance to riparian and wetland vegetation is localized to the dock and soft landing project components on the east end of the site. The construction contractor shall install CDFW-approved species exclusion fencing, with a minimum height of 3 feet above ground surface and with an additional 4–6 inches of fence material buried such that species cannot burrow under the fence. Fencing can be multipurpose silt fencing (see Mitigation Measure M-BI-3a, Restoration of Arroyo Willow Riparian Scrub and Freshwater Marsh Wetlands, below) and exclusion fencing. • Any erosion and sediment control materials used onsite shall be free of plastic monofilament material that could cause animal entanglement. • A qualified biologist shall survey the project area within 48 hours before the start of initial ground-disturbing activities and shall be present during initial vegetation clearing and ground-disturbing activities in grassland, wetland and riparian habitat within 100 yards of the shoreline. The extent of disturbance within aquatic, wetland, and riparian habitat areas to accommodate construction of in-water project components shall be minimized. A qualified biologist shall be present during installation of the coffer dam around the soft landing soil remediation area and during dewatering activities. • If western pond turtles are found during construction, construction that poses a threat to the individual shall be halted in the vicinity as determined by the qualified biologist. If possible, the individual shall be allowed to move out of the work area of its own volition (e.g., if it is near the exclusion fence that can be temporarily removed to let it pass). The qualified biologist shall relocate turtles to the nearest suitable habitat should they not leave the work area of their own accord. Construction shall resume after the individual is out of harm's way. If western pond turtles occur repeatedly onsite after the exclusion fencing has been installed, a qualified biologist shall initiate preconstruction sweeps of the project site for this species prior to start of construction on a daily basis and thereafter throughout the duration of the project.	

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
BIOLOGICAL RESOURCES, INITIAL STUDY SECTION E.15 (CONT.)			
Impact BI-1 (cont.)		• Excavations deeper than 6 inches shall have a sloping escape ramp of earth or a wooden plank installed at a 3:1 rise. • Openings, such as pipes, where western pond turtles might seek refuge shall be covered when not in use. • All trash that may attract predators or hide western pond turtles shall be properly contained each day, removed from the worksite, and disposed of regularly. • Following site construction, the contractor shall remove all trash and construction debris from the work areas.	
Impact BI-2: Construction and operation of the project would not have a substantial adverse effect on special-status birds.	LTS	No mitigation required.	NA
Impact BI-3: The project would have a substantial adverse effect on California Department of Fish and Wildlife-designated sensitive natural communities, riparian habitat or jurisdictional wetlands or waters.	S	**Mitigation Measure M-BI-3a: Restoration of Arroyo Willow Riparian Scrub and Freshwater Marsh Wetlands.** Arroyo willow riparian scrub habitat and freshwater marsh wetlands temporarily affected during construction to facilitate project components or sediment remediation shall be restored in-place to pre-project conditions. A Riparian and Wetland Restoration and Mitigation Monitoring Plan shall be prepared for the affected areas, subject to approval by the appropriate regulatory agencies, and shall generally include, but not be limited to, the following: • A final grading plan for the affected riparian scrub habitat and wetlands which would restore the topography of the affected habitat areas to pre-project conditions; • A planting plan, composed of native riparian scrub and freshwater marsh wetland plant species, consistent with these communities of Lake Merced; • A weed control plan that prevents the spread of invasive non-native plant species on the project site; • Performance criteria for the revegetated areas that establish success thresholds over a specific amount of time (typically five years) as determined by the regulatory agencies with jurisdiction over the affected areas;	LSM

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
BIOLOGICAL RESOURCES, INITIAL STUDY SECTION E.15 (CONT.)			
Impact BI-3 (cont.)		• A monitoring and reporting program under which progress of the revegetated areas shall be tracked to ensure survival of the mitigation plantings. The program shall document overall health and vigor of mitigation plantings throughout the monitoring period and provide recommendations for adaptive management as needed to ensure the site is successful, according to the established performance criteria. An annual report documenting monitoring results and providing recommendations for improvement throughout the year shall be provided to the regulatory agencies; and • A best management practices element describing erosion control measures to be installed around the affected areas following mitigation planting in order to avoid sediment runoff into the adjacent waters of Lake Merced. **Mitigation Measure M-BI-3b: Compensation for Permanent Fill of Wetlands and Waters.** RPD shall provide compensatory mitigation for placement of fill associated with installation of new structures in jurisdictional wetlands, waters and riparian habitat of Lake Merced as further determined by the regulatory agencies with authority over Lake Merced during the permitting process. Compensatory mitigation shall achieve at least at a 1:1 ratio of acreage impacted to acreage created/restored/enhanced to ensure no-net-loss of wetlands, waters, and riparian habitat. Compensatory mitigation obligations from permanent project fill could be satisfied through on-site or off-site creation, restoration, or enhancement of waters, wetlands and/or riparian habitat, or payment into an approved mitigation bank for in-kind habitat credits, or other compensatory actions that avoid a net loss in these aquatic resources and as determined by regulatory agencies.	
Impact BI-4: Construction and operation of the project would not interfere substantially with the movement of any native resident or migratory wildlife species or established migratory corridors.	LTS	No mitigation required.	NA

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
BIOLOGICAL RESOURCES, INITIAL STUDY SECTION E.15 (CONT.)			
Impact BI-5: Construction and operation of the project would not have a substantial adverse effect on nesting bird wildlife nursery sites or result in an increase in bird collisions with project features.	LTS	No mitigation required.	NA
Impact BI-6: Construction and operation of the project would substantially impede the use of bat maternity colonies as wildlife nursery sites.	S	**Mitigation Measure M-BI-6: Avoidance and Minimization Measures for Bats** A qualified biologist with at least a four-year degree and professional experience in biological sciences and related resource management activities, who is experienced with bat surveying techniques (including auditory sampling methods), behavior, roosting habitat, and identification of local bat species, shall conduct a preconstruction survey within one year prior to the start of construction, during the period when bat maternity roosts would be in use (April 15 – August 15) to identify potential bat habitat and potentially active maternity roost sites in the project area. If the preconstruction survey does not identify bat habitat or signs of potentially active bat roosts within the project area such as guano, urine staining, or dead bats, then no further action is required. A brief, written report documenting the results of the survey shall be provided to the planning department. The following measures shall be implemented if the preconstruction survey identifies potential roosting habitat or potentially active bat roosts in buildings to be demolished under the project: 1. In areas identified as potential roosting habitat during the preconstruction survey, building/structure demolition shall avoid the bat maternity roosting season and period of winter torpor (a state of decreased physiological activity with reduced body temperature and metabolic rate) when bats are most vulnerable. Building/structure demolition shall instead be conducted when bats are active and able to flee from disturbance activities, approximately between the periods of March 1 to April 15 and August 15 to October 15. Depending on the preconstruction survey outcomes discussed below, the qualified biologist shall conduct additional preconstruction surveys of potential bat roost sites identified during the initial preconstruction survey no more than 14 days prior to building/structure demolition	LSM

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
BIOLOGICAL RESOURCES, INITIAL STUDY SECTION E.15 (CONT.)			
Impact BI-6 (cont.)		2. If active bat roosts or evidence of roosting are identified during preconstruction surveys, a no-disturbance buffer shall be established around roost sites until the qualified biologist determines they are no longer active. The size of the no-disturbance buffer shall be determined by the qualified biologist and would depend on the species present, roost type, and existing screening around the roost site (such as dense vegetation or a building), as well as the type of construction activity that would occur around the roost site. 3. If maternity or hibernation roosts are detected during these surveys, appropriate species- and roost-specific avoidance and protection measures shall be developed by the qualified biologist. Such measures may include postponing the removal of occupied buildings or other structures, establishing exclusionary work buffers while the roost is active (e.g., 100-foot no-disturbance buffer), or other avoidance measures depending on the species present, their protection status, and roost type. If a maternity roost of any size supporting any bat species is detected during surveys, an avoidance buffer, as determined by the qualified biologist, shall be maintained until the young bats are flying. The qualified biologist shall determine the extent of protective buffers, and buffer placement would depend on: the species' sensitivity to disturbance, which can vary among species; the level of noise or construction disturbance; the line-of-sight between the roost and the disturbance; ambient noise (baseline noise) and other disturbances under existing conditions; and consideration of other topographical or artificial barriers. 4. The qualified biologist shall be present during building/structure demolition if potential bat roosting habitat or active bat roosts are present and roosts do not contain young. Buildings/structures with active roosts shall be disturbed only under clear weather conditions when precipitation is not forecast for three days and when daytime temperatures are at least 50 degrees Fahrenheit. 5. Removal of buildings/structures containing or suspected to contain active bat roosts shall be dismantled under the supervision of the qualified biologist in the evening and after bats have emerged from the roost to forage. Buildings/structures shall be partially dismantled to significantly change the roost conditions, causing bats to abandon and not return to the roost.	

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
BIOLOGICAL RESOURCES, INITIAL STUDY SECTION E.15 (CONT.)			
Impact BI-7: Construction and operation of the project would conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.	S	**Mitigation Measure M-BI-3a, Restoration of Arroyo Willow Riparian Scrub and Freshwater Marsh Wetlands** (refer to Impact BI-3) **Mitigation Measure M-BI-3b, Compensation for Permanent Fill of Wetlands and Waters** (refer to Impact BI-3)	LSM
Impact C-BI-1: The project, in combination with the cumulative projects in the vicinity, would not result in significant impacts on biological resources.	LTS	No mitigation required.	NA
INITIAL STUDY SECTION E.16, GEOLOGY AND SOILS			
Impact GE-1: The project would not directly or indirectly expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, seismic groundshaking, seismically induced ground failure, or landslides.	LTS	No mitigation required.	NA
Impact GE-2: The project would not result in substantial erosion or loss of topsoil.	LTS	No mitigation required.	NA
Impact GE-3: The project site would not be located on a geologic unit or soil that is unstable or that could become unstable as a result of the project.	LTS	No mitigation required.	NA
Impact GE-4: The project would not create substantial risks to life or property as a result of locating buildings or other features on expansive or corrosive soils.	LTS	No mitigation required.	NA
Impact GE-5: The project would directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.	S	**Mitigation Measure M-GE-5: Inadvertent Discovery of Paleontological Resources** *Worker Awareness Training*. Prior to commencing construction, and ongoing throughout ground disturbing activities (e.g., excavation, utility installation), the RPD and SFPUC and/or their designee shall ensure that all project construction workers are trained on the contents of the Paleontological Resources Alert Sheet, as provided by the planning department. The Paleontological Resources Alert	LSM

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
INITIAL STUDY SECTION E.16, GEOLOGY AND SOILS (CONT.)			
Impact GE-5 (cont.)		Sheet shall be prominently displayed at the construction site during ground disturbing activities for reference regarding potential paleontological resources. In addition, the RPD and SFPUC shall inform the contractor and construction personnel of the immediate stop work procedures and other procedures to be followed if bones or other potential fossils are unearthed at the project site. Should new workers that will be involved in ground disturbing construction activities begin employment after the initial training has occurred, the construction supervisor shall ensure that they receive the worker awareness training as described above. The RPD and SFPUC shall complete the standard form/affidavit confirming the timing of the worker awareness training to the Environmental Review Officer (ERO). The affidavit shall confirm the project's location, the date of training, the location of the informational handout display, and the number of participants. The affidavit shall be transmitted to the ERO within five business days of completion of excavation. *Paleontological Resource Discoveries.* In the event of the discovery of an unanticipated paleontological resource during project construction, ground disturbing activities shall temporarily be halted within 25 feet of the find until the discovery is examined by a qualified paleontologist meeting the qualifications stated by the Society of Vertebrate Paleontology standards (SVP 2010). Work within the sensitive area shall resume only when deemed appropriate by the qualified paleontologist in consultation with the ERO. The qualified paleontologist shall determine: 1) if the discovery is scientifically significant; 2) the necessity for involving other responsible or resource agencies and stakeholders, if required or determined applicable; and 3) methods for resource documentation or recovery. If a paleontological resource assessment results in a determination that the resource is not scientifically important, this conclusion shall be documented in a Paleontological Evaluation Letter to demonstrate compliance with applicable statutory requirements (e.g., Federal Antiquities Act of 1906, CEQA Guidelines Section 15064.5, California Public Resources Code Chapter 17, Section 5097.5, Paleontological Resources Preservation Act 2009). The Paleontological Evaluation Letter shall be submitted to the ERO for review within 30 days of the discovery.	

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
INITIAL STUDY SECTION E.16, GEOLOGY AND SOILS (CONT.)			
Impact GE-5 (cont.)		If the qualified paleontologist determines that a paleontological resource is of scientific importance, and there are no feasible measures to avoid disturbing this paleontological resource, the qualified paleontologist shall prepare a Paleontological Mitigation Program. The mitigation program shall include measures to fully document the resource of scientific importance and to determine if recovery is appropriate. The qualified paleontologist shall submit the mitigation program to the ERO for review and approval within 10 business days of the discovery. Upon approval by the ERO, ground disturbing activities in the project area shall resume and be monitored as determined by the qualified paleontologist for the duration of such activities. The mitigation program shall include: 1) procedures for construction monitoring at the project site; 2) fossil preparation and identification procedures; 3) curation of paleontological resources of scientific importance into an appropriate repository; and 4) preparation of a Paleontological Resources Report (report or paleontology report) at the conclusion of ground disturbing activities. The report shall include dates of field work, results of monitoring, fossil identifications to the lowest possible taxonomic level, analysis of the fossil collection, a discussion of the scientific significance of the fossil collection, conclusions, locality forms, an itemized list of specimens, and a repository receipt from the curation facility. The SFPUC (for demolition and soil remediation) or RPD (for all other construction) shall be responsible for the preparation and implementation of the mitigation program, in addition to any costs necessary to prepare and identify collected fossils, and for any curation fees charged by the paleontological repository. The paleontology report shall be submitted to the ERO for review within 30 business days from conclusion of ground disturbing activities, or as negotiated following consultation with the ERO.	
Impact C-GE-1: The project, in combination with other cumulative projects, would not result in a considerable contribution to impacts related to geologic hazards or paleontological resources.	LTS	No mitigation required.	NA

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
HYDROLOGY AND WATER QUALITY, INITIAL STUDY SECTION E.17			
Impact HY-1: The project would not violate water quality standards or otherwise substantially degrade water quality.	LTS	No mitigation required.	NA
Impact HY-2: The project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.	LTS	No mitigation required.	NA
Impact HY-3: The project would not alter the existing drainage pattern of the area in a manner that would result in substantial erosion, siltation, or flooding onsite or offsite.	LTS	No mitigation required.	NA
Impact HY-4: The project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.	LTS	No mitigation required.	NA
Impact HY-5: The project would not risk release of pollutants due to inundation by flooding, seiche waves, or tsunami waves.	LTS	No mitigation required.	NA
Impact HY-6: The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan.	LTS	No mitigation required.	NA
Impact C-HY-1: The project, in combination with cumulative projects in the site vicinity, would not considerably contribute to significant cumulative impacts on hydrology and water quality.	LTS	No mitigation required.	NA

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
HAZARDS AND HAZARDOUS MATERIALS, INITIAL STUDY SECTION E.18			
Impact HZ-1: The project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.	LTS	No mitigation required.	NA
Impact HZ-2: The project would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5; however, it would not create a significant hazard to the public or the environment.	LTS	No mitigation required.	NA
Impact HZ-3: The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.	LTS	No mitigation required.	NA
Impact C-HZ-1: The project, in combination with cumulative projects in the site vicinity, would not result in significant impacts related to hazardous materials.	LTS	No mitigation required.	NA
MINERAL RESOURCES, INITIAL STUDY SECTION E.19			
All impacts not applicable	NA	NA	NA
ENERGY, INITIAL STUDY SECTION E.20			
Impact EN-1: The project would not result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	LTS	No mitigation required.	NA
Impact EN-2: The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	LTS	No mitigation required.	NA

Table S-1 Summary of Impacts and Mitigation Measures (Continued)

IMPACT	Level of Significance prior to Mitigation	Mitigation Measure	Level of Significance After Mitigation
ENERGY, INITIAL STUDY SECTION E.20 (CONT.)			
Impact C-EN-1: The proposed project, in combination with cumulative projects, would not result in significant cumulative impacts to energy resources.	LTS	No mitigation required.	NA
INITIAL STUDY SECTION E.21 AGRICULTURE AND FOREST RESOURCES			
All impacts not applicable	NA	NA	NA
INITIAL STUDY SECTION E.22 WILDFIRE			
All impacts not applicable	NA	NA	NA

DEFINITIONS:

LTS = Less than Significant
NI = No Impact
NA = Not Applicable
S = Significant
LSM = Less than Significant with Mitigation
SU = Significant and Unavoidable
SUM = Significant and Unavoidable with Mitigation

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CHAPTER 1
INTRODUCTION AND BACKGROUND

1.1 Introduction

The San Francisco Recreation and Parks Department (RPD) proposes the Lake Merced West Project (project) to create a public recreational facility that could be used flexibly to offer a wide variety of outdoor recreational activities. The project site encompasses approximately 11 acres at 520 John Muir Drive, on the southwest side of Lake Merced in southwestern San Francisco. The project site was previously operated as a skeet and trap shooting facility, and subsequently underwent extensive soil remediation to remove contaminated soils.

The City and County of San Francisco (city), under the jurisdiction of the San Francisco Public Utilities Commission (SFPUC), owns the project site. The RPD and SFPUC jointly manage recreation at Lake Merced, including the lease of the former site tenant; RPD would also manage recreation activities at the proposed Lake Merced West recreation facility through selection and oversight of a concessionaire to construct and operate the facility.

1.2 Purpose of this Environmental Impact Report

This environmental impact report (EIR) was prepared by the San Francisco Planning Department (planning department) in conformance with the provisions of the California Environmental Quality Act (CEQA), the CEQA Guidelines (California Public Resources Code section 15000 et seq.), and chapter 31 of the San Francisco Administrative Code. The planning department, through its Environmental Planning Division, is the lead agency responsible for implementing CEQA for all projects sponsored by the city or located within San Francisco.

As described by CEQA and the CEQA Guidelines, public agencies are charged with a duty to avoid or substantially lessen significant environmental effects, where feasible. In undertaking this duty, a public agency has an obligation to balance a project's significant effects on the environment with its benefits, including economic, social, technological, legal, and other non-environmental characteristics.

As defined in CEQA Guidelines section 15382, a "significant effect on the environment" is:

> "... a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant."

CEQA requires an EIR to be prepared before a discretionary decision is made to approve a project that may cause a significant effect on the environment that cannot be mitigated. The EIR is a public information document for use by governmental agencies and the public to identify and evaluate potential environmental

impacts of a project, identify mitigation measures to lessen or eliminate significant adverse impacts, and examine feasible alternatives to the project.

The City must consider the information in this EIR and make certain findings with respect to each significant effect identified. The decision makers will review and consider the information in this EIR, along with other information available through the public review processes, before they decide to approve, disapprove, or modify the proposed project or adopt an alternative to the proposed project.

1.3 Type of EIR

This document is a project-level EIR pursuant to CEQA Guidelines section 15161. A project-level EIR focuses on the changes in the environment that would result from construction and operation of a specific development project. This EIR is also a focused EIR in accordance with CEQA Guidelines section 15063(c).

In accordance with section 15128 of the CEQA Guidelines, the planning department has prepared an initial study (**Appendix A**) for the project to identify topics for which the project's effects would be less than significant and therefore do not require further analysis, and those topics that warrant more detailed environmental analysis in the EIR. The initial study is being published concurrently with the EIR and is an integral part of the EIR. Comments on the initial study will be accepted during the public review period for the EIR. Thus, this EIR focuses the environmental analysis on those topics identified in the initial study with the potential to have significant and unavoidable impacts.

Based on the analysis in the initial study, the project would result in a significant impact on historic architectural resources. Therefore, this focused EIR has been prepared to examine the project's specific impacts on historic architectural resources; identify mitigation for potentially significant impacts; and analyze whether mitigation measures would reduce the significant environmental impacts to less-than-significant levels. This focused EIR also analyzes alternatives to the project that could substantially reduce or eliminate one or more significant impacts of the project but could still feasibly attain most of the basic project objectives.

The other environmental topics are addressed only in the initial study, which determined that the project's potential impacts related to those topics would be less than significant or would be reduced to less-than-significant levels with implementation of the mitigation measures identified in the initial study.

1.4 Environmental Review Process

The environmental review process for the project includes multiple steps: publication of a notice of preparation (NOP) of an EIR, public scoping period, publication of a draft EIR, public and agency review of the draft EIR, publication of responses to public and agency comments on the draft EIR, and certification of the final EIR. Each of these steps involves public outreach.

1.4.1 Notice of Preparation and Public Scoping Period

RPD filed a Public Project Application with the planning department, which was received on May 7, 2019, initiating the environmental review process. In accordance with sections 15063 and 15082 of the CEQA Guidelines, on June 9, 2021, the planning department published and distributed a NOP to responsible public

agencies, organizations, and interested parties to begin the formal CEQA scoping process for the project. The NOP is presented as **Appendix B.** The NOP informed agencies and the public about the project and the planning department's decision to prepare an EIR and requested comments on environmental issues that should be addressed in the EIR. The planning department also distributed a public notice of the availability of the NOP and notice of a public scoping meeting to additional public agencies, interested parties, and landowners/occupants located near the project site. These notices were posted on the planning department's website and placed in the legal classified section of the *San Francisco Examiner* on June 9, 2021.

Publication of the NOP initiated the 30-day public scoping period for this EIR, which started on June 9, 2021, and ended on July 9, 2021. The planning department held a virtual public scoping meeting on June 23, 2021, to receive oral comments on the EIR scope. **Table 1-1** summarizes written and oral comments received during the public scoping period and indicates the initial study and EIR sections that address comments pertaining to the project description or the scope and content of the environmental analysis. The planning department has considered all comments by the public and agencies that relate to environmental issues in preparing the initial study and EIR (see Appendix A for the initial study).

Table 1-1 Lake Merced West Project EIR Summary of Public Scoping Comments

EIR or Initial Study Section	Comment
EIR	
Chapter 2 Project Description	• **Project Objectives**. Requests that the EIR describe project objectives in general. • **Boathouse/Rowing Facility.** Recommends that the EIR include an expanded boathouse/rowing facility or area for aquatic activities and boat storage as part of the project or as an alternative to the project. Recommends rowing community be included in project development. • **Interpretive Center.** Recommends that the project include an interpretive center that addresses: considerable natural history and Ohlone cultural stories and wildlife management practices; the importance of restoring biodiversity; the hydrological cycle. • **Site Layout.** Recommends connections to surrounding trails, parks, and natural areas; recommends safety measures along lake shoreline; asks whether the site plan accounts for the historic water level; recommends partial or complete concealment of the parking by covering it by the restaurant and parking for food trucks on the roadway. • **Landscaping and Irrigation.** Requests information about types of plants to be introduced or restored, and that the project site be planted only with local, native plants, except in food gardens. Recommends project use recycled water for irrigation, requiring purple piping, to mitigate effects on water supply. • **Habitat Creation.** Suggests the project create a shoreline marsh and protect and expand willow habitat. • **Wildlife Considerations.** Requests the project incorporate bird safe building designs, limit lighting to limit disturbances to birds/insects; include a "day-use" snack bar instead of a restaurant on the project site as more compatible with birds and other wildlife. • **Low Impact Design.** Recommends installing infrastructure elements to address water quality, and creating marsh habitat to filter runoff and store carbon.

Table 1-1 Lake Merced West Project EIR Summary of Public Scoping Comments

EIR or Initial Study Section	Comment
	• **Construction Schedule.** Asks whether there is an approximate schedule for the project. • **Facility Operations.** Requests a set time each night when the park closes and guests are required to leave, with driveway and building access locked. Asks for estimates of activity usage. • **Renewable Energy.** Recommends that the project include renewable energy to support the new facilities and mitigate greenhouse gases.
Section 3.1.5 Cumulative Projects	• **Cumulative Projects.** Requests the EIR reflect Daly City Vista Grande Canal Project and cumulative impacts of the project along with other boat docks and shoreline facilities; asks if construction would overlap with the Ocean Beach Climate Change Adaptation project. Recommends project include establishment of connection between project site and walking trail around Lake Merced, and that beach trailhead be connected with maintained pathways and signage.
Chapter 5 Alternatives	• **More Open Space.** Suggests an alternative that removes the existing buildings and paved area of the site, and creates formal and informal picnic areas, but otherwise does not develop the site to emphasize habitat; suggests a "no-build" alternative that preserves natural areas and includes interpretive signs along walkways. • **Larger Boathouse.** Recommends an alternative with a larger boathouse • **No Build Alternative**. Recommends an analysis of the possible use of the already existing buildings around the lake that may fulfill many of the goals of the project.
Initial Study	
Section E.2 Aesthetics	• **Visual Resource Analysis**. Requests EIR conduct visual resource analysis and that views from and to Project site be included in visual resource analyses. • **Lighting**. Recommends project use minimal lighting and that impacts of lighting be examined.
Section E.3 Population and Housing	• EIR should consider effects of new population density that would be attracted to the site.
Section E.4 Cultural Resources	• Recommends contacting the regional California Historical Research Information System center for an archaeological records search and the Native American Heritage Commission for a Sacred Lands File Search and a Consultation List.
Section E.5 Tribal Cultural Resources	• Recommends consultation with California Native American tribes that are traditionally and culturally affiliated with area of Project site. Recommends including indigenous Ohlone people in EIR process.
Section E.6 Transportation and Circulation	• **Transportation Study**. Suggests EIR include a traffic study and parking analysis. • **Pedestrian Use**. Requests automatic flashing lights be added to crosswalks.
Section E.7 Noise	• **Skatepark**. Requests EIR analyze noise impacts from proposed skatepark. • **Special Events.** Recommends analysis include effects of noise from special events.
Section E.9 Greenhouse Gas Emissions	• Suggests EIR include analysis of a sustainable, energy efficient project design and asks how project addresses impacts of climate change at the project site.

Table 1-1 Lake Merced West Project EIR Summary of Public Scoping Comments

EIR or Initial Study Section	Comment
Section E.12 Recreation	• Recommends that the EIR include analysis of impacts on recreational resources currently provided by the rest of Lake Merced Park.
Section E.13 Utilities and Service Systems	• Notes Lake Merced is an emergency firefighting water supply and that such use for emergency services is non-negotiable. • Requests San Francisco Fire Department perform a Public Services Impact Review of project.
Section E.15 Biological Resources	• **Biological Studies**. Recommends conducting a wetland delineation and biological assessment at the project site. • **Trees and Native Plants**. Request EIR analyze impacts on existing trees and native plants and recommend landscaping with native plants. • **Wildlife.** Requests EIR evaluate effects on wildlife from: noise from the arborist facility and special events; increased boating and lighting; feeding or garbage and canine activity; new fencing; vegetation removal; increased human activity. • **Wetlands.** Requests evaluation of project effects on shoreline and water quality, including effects from boating, fishing, and boat anchoring. • **Lighting.** Address effects of lighting and building design on bird migratory movement. • **Cumulative.** Evaluate habitat impacts around the lake.
Section E.17 Hydrology and Water Quality	• **Hydrology**. Recommends EIR: reflect the Vista Grande project, which could raise lake level; consider construction effects on the water table; and describe the groundwater aquifer at the site. • **Water Quality**. Requests EIR evaluate water quality impacts from motor vehicles on site, trash deposited by visitors, residual lead shot and clay pigeons, and from increased activity on the lake. Also recommends project include infrastructure to address water quality at project site and use recycled water. Expresses concern over existing lake water quality.
Section E.18 Hazards and Hazardous Materials	• Recommends EIR address remediation and restoration efforts, verify prior cleanup of Project site, and outline plans for cleaning up any remaining contamination.

1.4.2 Draft EIR

The CEQA Guidelines and San Francisco Administrative Code chapter 31 encourage public participation in the planning and environmental review processes. The planning department provides opportunities for the public to present comments and concerns regarding this EIR and its appendices, including the initial study (Appendix A), throughout the environmental review process. These opportunities include a public review and comment period and a public hearing on the draft EIR before the San Francisco Planning Commission.

A public hearing for the historical architectural preservation alternatives was held at the San Francisco Historic Preservation Commission on July 7, 2021. The preservation commission reviewed and provided comments on alternatives developed and presented by department staff.

The public review period for the draft EIR is from February 23, 2022 through April 11, 2022. The historic preservation commission will hold a public hearing on this draft EIR to consider providing its comments on the draft EIR. This hearing will be held on March 16, 2022, beginning at 12:30 p.m. or later. Please note that public comments at the historic preservation commission hearing will not be treated as comments on the draft EIR and will not be responded to in the Responses to Comments on the Draft EIR document (described below). Public comments are made to the historic preservation commission to inform the historic preservation commission as it develops its comments on the draft EIR.

The planning commission will hold a public hearing on the draft EIR and initial study during the 45–day public review and comment period to solicit public comment on the information presented in the draft EIR and initial study. The public hearing will be held on March 31, 2022, at City Hall, Dr. Carlton B. Goodlett Place, Room 400, San Francisco, California, beginning at 1:00 p.m. or later. Please be advised that the historic preservation commission and planning commission may be required to conduct these hearings remotely via video and teleconferencing. Additional information may be found on the planning department's website at www.sfplanning.org.

The draft EIR, initial study, and all attachments are available for public review at https://sfplanning.org/sfceqadocs. Hard copies are available for in-person review at the planning counter of the city permit center at 49 South Van Ness Avenue. A USB or paper copy of the draft EIR will be mailed upon request. Referenced materials are also available online at https://tinyurl.com/LakeMercedWestEIR, and can be made available in other formats upon request. Please contact the EIR coordinator, Julie Moore (call 628.652.7566 or email CPC.LakeMercedWestEIR@sfgov.org), for such requests.

Governmental agencies, interested organizations, and members of the public are invited to submit written comments on the draft EIR and initial study during the public review period. The comments should address the sufficiency of the document with respect to identifying and analyzing possible physical environmental impacts and determining how they may be avoided or reduced. Written public comments may be submitted during the specified review period to:

> San Francisco Planning Department
> Attention: Julie Moore, Lake Merced West EIR Coordinator
> 49 South Van Ness Avenue, Suite 1400
> San Francisco, CA 94103
>
> or by email to:
> CPC.LakeMercedWestEIR@sfgov.org

Members of the public are not required to provide personal identifying information when they communicate with the planning department. All written or oral communications, including submitted personal contact information, may be made available to the public for inspection and copying upon request and may appear on the department's website or in other public documents.

1.4.3 Final EIR and EIR Certification

After the close of the draft EIR public review and comment period, the planning department will prepare and publish a document entitled "Responses to Comments on the Draft EIR." This document will contain a copy of all written, email, and oral comments received on the draft EIR, as well as the planning department's

written responses to substantive comments and any necessary revisions to the draft EIR. Together, the draft EIR and the response to comments document will constitute the final EIR. Not less than 10 days before the planning commission hearing to consider certification of the final EIR, the planning department will publish the final EIR and send notice of its publication to persons commenting on the draft EIR and to any board(s), commission(s), or department(s) that will carry out or approve the project. During an advertised public meeting, the planning commission will consider the documents and, if they are found adequate, will certify the final EIR. Certification of the final EIR by the planning commission represents that the document: (1) has been completed in compliance with CEQA; (2) was presented to the planning commission and the commission reviewed and considered the information contained in the final EIR; and (3) reflects the lead agency's independent judgment and analysis.

1.4.4 Project Approval and Adoption of Mitigation Monitoring and Reporting Program

The Recreation and Park Commission and all responsible or trustee agencies will review and consider the final EIR in their deliberations on whether to approve, modify, or deny the project or aspects of the project. If the Recreation and Park Commission and other responsible agencies approve the project, they will adopt CEQA findings that identify the project-related impacts and the mitigation measures or alternatives that have been adopted to reduce significant impacts. This EIR identifies and presents mitigation measures and standard construction measures that would form the basis of the mitigation, monitoring and reporting program. A mitigation monitoring and reporting program (MMRP) must be adopted as part of the adoption of the CEQA findings. The MMRP lists the mitigation and standard construction measures included in the project as identified in the final EIR, the entities responsible for carrying out the measures, the timing of implementation of the measures, and associated reporting requirements. If significant and unavoidable impacts would occur even with implementation of all identified mitigation measures, the Recreation and Park Commission and all responsible or trustee agencies must adopt a statement of overriding considerations documenting how the benefits of project implementation outweigh the project's significant and unavoidable impacts on the environment.

1.5 Organization of this EIR

Consistent with CEQA Guidelines sections 15120 through 15132, this EIR describes the project, required approvals, and existing land use plans and policies applicable to the project; identifies potential environmental impacts of the project, mitigation and standard construction measures for those impacts that would be significant, and cumulative adverse impacts to which the project could make a substantial contribution; discusses growth-inducing and significant unavoidable effects of the project; and evaluates alternatives to the project that could avoid or reduce significant impacts while still meeting most of the project's objectives.

This EIR is organized as follows:

- **Summary.** This chapter summarizes the project, identifies significant environmental impacts and mitigation measures, and describes the alternatives considered in this EIR, including the environmentally superior alternative. It also identifies areas of controversy and issues to be resolved.

- **Chapter 1, Introduction and Background.** This chapter describes the project background, the purpose and organization of the EIR, and the environmental review process and public outreach efforts, and summarizes public scoping comments.
- **Chapter 2, Project Description.** This chapter describes the project and project objectives, outlines project components, and provides information about project construction and operation. The chapter also lists permits and approvals necessary for the construction and operation of the project.
- **Chapter 3, Environmental Setting, Impacts, and Mitigation Measures.** This chapter provides analysis for the historic architectural resources topic previously determined to be significant. It describes the environmental and regulatory setting, the criteria used to determine impact significance, and the approach to the analysis. The chapter then presents analyses of potential environmental impacts and the project-specific mitigation measures developed to reduce significant and potentially significant impacts. This chapter also includes an evaluation of cumulative impacts with respect to the resource topic.
- **Chapter 4, Other CEQA Issues.** This chapter discusses the potential for growth-inducing effects, identifies significant environmental effects that cannot be avoided if the project is implemented, describes significant irreversible impacts, and presents any areas of controversy left to be resolved.
- **Chapter 5, Alternatives.** This chapter analyzes alternatives to the project, including the required No Project Alternative; compares their impacts to those of the project; and identifies the environmentally superior alternative. This chapter also summarizes the alternatives that were considered but eliminated from further analysis.
- **Chapter 6, EIR Preparers.** This chapter lists the persons involved in preparation of this EIR.
- **Appendices.** The following appendices are included in this EIR:
  - Appendix A: Initial Study
  - Appendix B: Notice of Preparation
  - Appendix C: San Francisco Recreation and Parks Department and San Francisco Public Utilities Commission Standard Construction Measures
  - Appendix D: Historical Cultural Resources Supporting Documentation
    - D-1: Historic Resource Evaluation Response Part 1
    - D-2: Historic Resource Evaluation Response Part 2
    - D-3: Cultural Landscape Evaluation Report and Addendum
  - Appendix E: Transportation Analysis Memorandum
  - Appendix F: Noise Analysis Supporting Documentation
    - F-1: Construction Noise Modeling Output
    - F-2: Traffic Noise Modeling Output
    - F-3: Noise Monitoring Summaries and Output
    - F-4: Stationary Source Noise Propagation Calculations for Amplified Sound
  - Appendix G: Air Quality Supporting Documentation
  - Appendix H: Biological Resources Supporting Documentation
    - H-1: Biological Resources Assessment
    - H-2: Aquatic Resources Delineation

CHAPTER 2
PROJECT DESCRIPTION

2.1 Project Overview and Location

The San Francisco Recreation and Parks Department (RPD) proposes the Lake Merced West Project (project), which would create a recreational facility on approximately 11 acres at 520 John Muir Drive, on the southwest side of Lake Merced in southwestern San Francisco (**Figure 2-1**). The Lake Merced West site (project site) is within assessor's block and lot number 7283-004, which includes properties zoned P (Public) around Lake Merced and is the largest area of flat land around the lake outside of the Harding Park Golf Course. The nearest cross street is Skyline Boulevard to the west.

The City and County of San Francisco (city), under the jurisdiction of the San Francisco Public Utilities Commission (SFPUC), owns the project site. RPD and SFPUC jointly manage recreation at Lake Merced—including the lease of the former site tenant, the Pacific Rod and Gun Club—pursuant to a memorandum of understanding between the departments. RPD would also manage recreation activities at the proposed Lake Merced West through selection and oversight of a concessionaire that would construct and operate the facility. The project consists of the construction and operation of the Lake Merced West recreational facility.

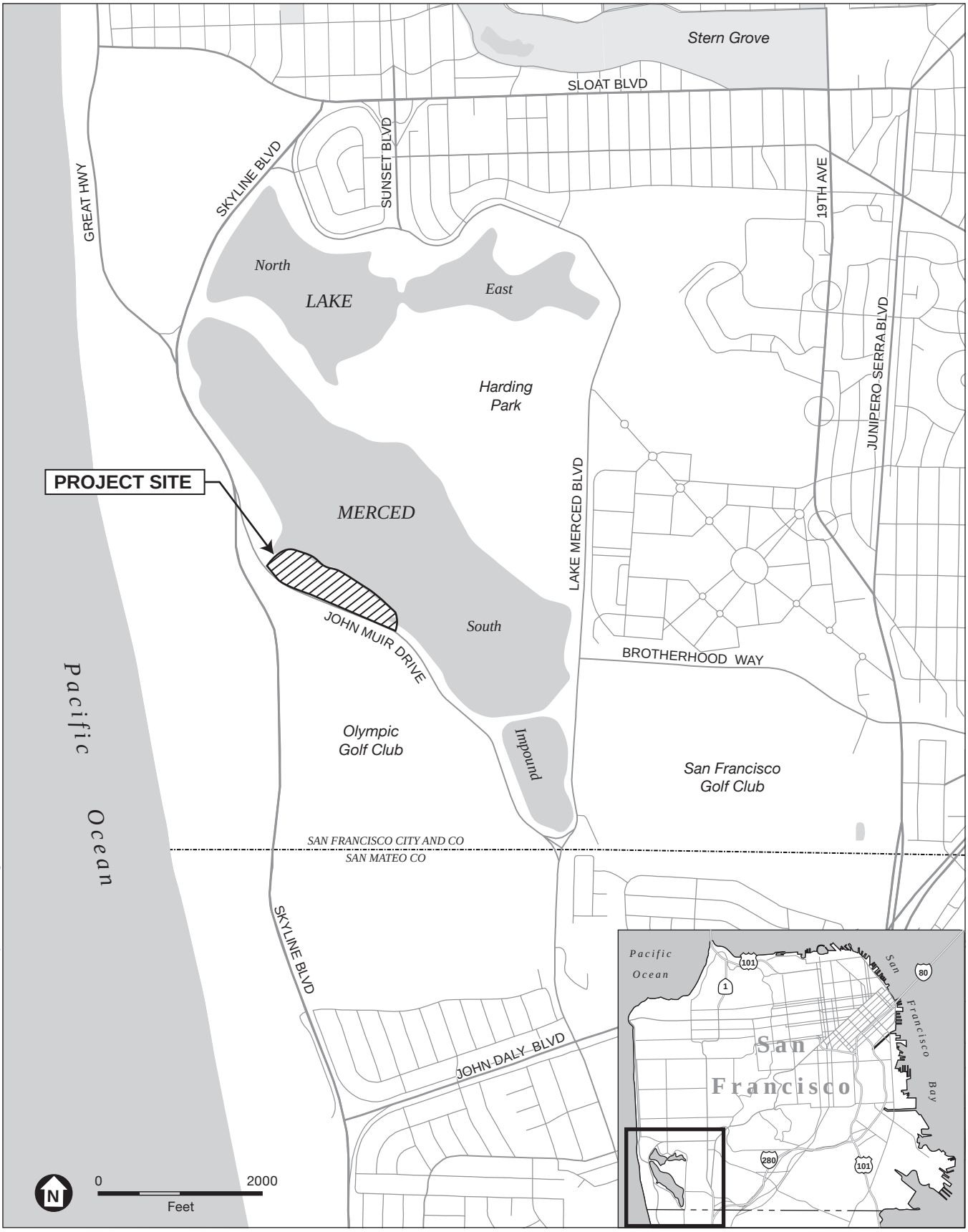
2.2 Project and Site Background

2.2.1 Pacific Rod and Gun Club

The Pacific Rod and Gun Club built and operated skeet and trap shooting facilities at the site from 1934 to 2015. During these activities, lead shotgun pellets and other debris fell onto the site and into the lake. The project site was vacated by the Pacific Rod and Gun Club in 2015 and is currently closed to the public. After the gun club vacated the site, SFPUC implemented the Pacific Rod and Gun Club Upland Soil Remedial Action Project (the soil remediation project), which included extensive soil remediation under the oversight of the San Francisco Bay Regional Water Quality Control Board (regional board) as discussed in greater detail below. Under the soil remediation project, contaminated soils were excavated to depths of up to 10.5 feet, the site was backfilled with clean fill, and some site features and vegetation were restored.[1]

Four skeet fields separated by wooden fences and several small target launching stands remain on the northern portion of the property (**Figure 2-2**). Paved and gravel parking areas occupy the southern portion of the site, accessed by a driveway on John Muir Drive. There are five main buildings and three small ancillary buildings on the site. Four of the main buildings were constructed between approximately 1937 and 1939. All of the buildings are one-story wood frame structures. The buildings include a clubhouse, rifle range building, caretaker's house, shell house, and trap house; the ancillary structures include a restroom building, garage, and barbeque shed. In addition to skeet and trap shooting, past activities and uses included barbecuing, picnicking, group meetings, food and kitchen service, and event rentals.

[1] In addition to the facilities currently onsite, other skeet fields and facilities associated with the Pacific Rod and Gun Club were present prior to the soil remediation project. The additional skeet fields and other facilities were not replaced after the soil remediation project for reasons discussed in Section 3.2, Historical Architectural Resources.



SOURCE: ESA

Lake Merced West

Figure 2-1
Project Location

ESA

Key to Location of Features

- Contributing Feature
- Non-Contributing Feature

1 Former Location of Trap Field 1
2 Former Location of Trap Field 2
3 Former Location of Trap Field 3
4 Skeet Field 4
5 Skeet Field 5
6 Skeet Field 6
7 Skeet Field 7
8 Former Location of Skeet Field 8
9 Former Location of Skeet Field 9
10 Trap House
11 Restroom Building
12 Shell House
13 Parking Lot
14 Entrance
15 Garage
16 Caretaker's House
17 Clubhouse
18 Rifle Range Building
19 Barbeque Shed
20 Eucalyptus Trees

High and low houses associated with skeet fields 4, 5, 6, and 7

Fences associated with skeet fields 4, 5, 6, and 7

SFO\17xxxx\D170626.00 - Lake Merced West Recreation\05 Graphics-GIS-Modeling\Illustrator

SOURCE: Denise Bradley Cultural Landscapes, 2020; Base Map Google Earth

Lake Merced West

A contributing feature is a building, site, structure, or object that adds to the historic associations, historic architectural qualities, or archeological values for which a property is significant.

A non-contributing feature is a building, site structure, or object that does not add to the historic architectural qualities, historic associations, or archeological values for which a property is significant.

ESA

Figure 2-2
Existing Project Site and Cultural Landscape Features

Vegetation in the center of the project site consists of native grasses planted after soil remediation. There are trees near the clubhouse, along the southeastern property boundary adjacent to John Muir Drive, and near the southwestern end of the site. At the north end, the property slopes steeply downward toward Lake Merced and vegetation consists of shrubs, rushes, and grasses, which limit access to the lake.

As discussed above, the Pacific Rod and Gun Club was established at the project site in 1934. Because most buildings and structures on the site are more than 50 years old, the entire site was evaluated for its potential significance as a cultural landscape during the environmental review for the soil remediation project. A *cultural landscape* is a type of historical resource that can include buildings, structures, and natural elements that are significant as a grouping.

The historic resource evaluation determined that the site is a cultural landscape that appears eligible for listing in the National Register of Historic Places and the California Register of Historical Resources at the local level of significance. Specifically, the site appears eligible under Criterion A/1 for its association with the broad pattern of history related to the increased popularity of sport hunting, and the interrelated development of skeet, during the period before World War II in which skeet evolved from a shooting practice into a competitive sport.[2,3,4] For these reasons, the project site is considered a historical resource as defined under the California Environmental Quality Act (CEQA). Figure 2-2 shows the existing site and the *contributing features* of the historic cultural landscape.[5]

2.2.2 Soil Remediation Project

At the Pacific Rod and Gun Club's skeet and trap ranges, patrons used shotguns to shoot pellets at clay targets, which caused debris containing lead and polycyclic aromatic hydrocarbons (PAHs) to fall in upland areas, along the shoreline, and into Lake Merced. Several investigations determined that elevated concentrations of carcinogenic PAHs, lead, and other heavy metals, including arsenic, were present in the site's soil and lake sediments, and in June 2013, the regional board issued Site Cleanup Requirements Order No. R2-2013-0023 to the Pacific Rod and Gun Club and SFPUC. The order considered the site as two separate units—upland soils and lake sediments—and established specific site investigation and remediation tasks and compliance schedules for each unit. For the upland portion of the project site, this order required preparation and completion of a remedial action plan for removing or managing soil to meet the human health cleanup standards. The site cleanup goals in the remedial action plan were based on the California Human Health Screening Level for residential properties, published by the Office of Environmental Health

[2] Bradley, Denise, *Pacific Rod and Gun Club San Francisco CA Cultural Landscape Evaluation Report*. Cultural Landscapes, May 2014. This document (and all documents referenced in this draft EIR, unless otherwise noted) is available for review at https://tinyurl.com/Lake-Merced-West-EIR.

[3] A property can qualify as a "historic property" under Criterion A/1 if it is associated with events that have made a significant contribution to the broad patterns of our history and cultural heritage. Refer to Section 3.2, Historical Architectural Resources, for additional information about Criterion A/1 and the historical resource.

[4] *Skeet* is a form of trap shooting. *Trap* is the oldest of shotgun games and was intended to replicate the experience and use the skills of shooting birds in the field.

[5] A *contributing feature* is a building, site structure, or object adds to the historic associations, historic architectural qualities, or archeological values for which a property is significant.

Hazard Assessment, and site-specific background concentrations, as approved by the regional board.[6,7,8] These cleanup standards were selected to allow unrestricted future use of the site.

Remediation of the upland soils began in May 2015 and was completed in April 2016. Under the soil remediation project, the project site was excavated in a grid pattern to remove contaminated soils. Soil samples from each grid were analyzed in a laboratory to confirm that all soils containing contaminants in excess of the cleanup standards were removed. Based on the sampling results, soils across the site were excavated to depths ranging from 0.5 foot up to 10.5 feet. Approximately 88,000 tons of contaminated material were hauled to a licensed disposal facility. The site was backfilled with clean fill, and historic features and vegetation were restored (Figure 2-2). After completion of the soil remediation activities, the regional board approved the project site for unrestricted land uses. The regional board has issued a cleanup case closure, which includes a soil management plan that specifies soil management protocols for treatment of soil in areas that were inaccessible during the soil remediation project, such as beneath the existing buildings.[9]

For lake sediments, Cleanup Order No. R2-2013-0023 required the preparation of an ecological risk assessment to determine whether elevated levels of lead, arsenic, and PAHs in lake sediments pose an unacceptable risk to *benthic organisms*[10] and wildlife. The ecological risk assessment was submitted to the regional board in 2016.[11] The results of the study indicated no significant impact on benthic organisms and recommended implementation of an updated bird survey. After approval by the regional board, the bird survey was conducted from October 2017 through September 2018. The survey was implemented to evaluate the potential that lead pellets present in shoreline and submerged sediments might adversely affect species of dabbling ducks in the area.[12] The results of the evaluation indicated no significant risk to the target species.[13] The regional board concurred with the findings of the final report and in June 2019 rescinded Cleanup Order No. R2-2013-0023,[14] granting regulatory case closure for both the upland soil and lake sediment cleanup units.

2.2.3 Preliminary Building Condition Assessments

Once remediation and restoration of the upland portions of the property were nearly complete, RPD began planning for the development and operation of the Lake Merced West site as a recreational facility. Building condition assessments found that all buildings except the trap house would need perimeter foundations, significant repair, Americans with Disabilities Act upgrades, and seismic upgrades to be compliant with the

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[6] California Office of Environmental Health Hazard Assessment, *Revised California Human Health Screening Levels for Lead*. September 2009. http://oehha.ca.gov/risk/pdf/LeadCHHSL091709.pdf.

[7] AMEC, *Remedial Action Plan: Pacific Rod and Gun Club, San Francisco, California.* Prepared for the San Francisco Public Utilities Commission. July 12, 2013.

[8] San Francisco Bay Regional Water Quality Control Board, 2013. *Water Board Staff Concurrence with the Human Health Cleanup Standards for the Pacific Rod and Gun Club Property Located at 520 John Muir Drive, Lake Merced, San Francisco*. August 29, 2013.

[9] Kennedy/Jenks Consultants, Soil Management Plan Former Pacific Rod and Gun Club, prepared for San Francisco Public Utilities Commission, February 16, 2016. The approved closure report for the soil remediation project includes a soil management plan, which includes measures applicable during future site development. Section 3 of the report summarizes the measures.

[10] Benthic organisms live in sediments at the lake bottom.

[11] AMEC, *Ecological Risk Assessment for Sediment, Pacific Rod and Gun Club San Francisco, California.* Prepared for the City and County of San Francisco. October 2014.

[12] AMEC, *Ecological Risk Assessment for Sediment, Pacific Rod and Gun Club San Francisco, California.* Prepared for the City and County of San Francisco. October 2014.

[13] Wood Environment & Infrastructure Solutions, Inc., *Bird Survey Validation Report, Former Pacific Rod and Gun Club Lake Merced, California*. January 2019.

[14] San Francisco Bay Regional Water Quality Control Board, *Order No. R2-2019-0018. Rescission of Site Cleanup Requirements Order No. R2-2013-0023 for: Pacific Rod and Gun Club and the City and County of San Francisco, San Francisco Public Utilities Commission.* June 5, 2019.

California Building Code. All buildings have significant dry rot and require new roofs. The structures consist mostly of typical deck pier blocks, makeshift supports, or wood on ground support, which as constructed do not meet current California Building Code requirements.

2.3 Project Objectives

The purpose of the project is to create a recreational facility that can be used flexibly to serve the current need of the local community for a facility offering a wide variety of outdoor recreational activities. Completing the project would achieve the following objectives:

- Create a recreational facility that enhances the unique waterfront setting to encourage public use and enjoyment of open space for visitors of all ages, fitness levels, and experience.
- Develop the site to maximize scenic lake views and facilitate access while retaining open spaces.
- Provide flexible use of a large site in the southwest quadrant of San Francisco with a range of recreational activities to serve diverse users throughout the region and accommodate groups of various sizes.
- Construct and operate an economically feasible recreation facility that sustains its long-term operations and maintenance.
- Provide an office and storage yard for the SFPUC arborist team.
- Provide an accessible and welcoming environment for all parkgoers regardless of what amenity they plan to experience.
- Construct code-compliant buildings and infrastructure designed for the spatial and programmatic needs of contemporary recreational uses.
- Complete remediation of upland site areas.
- Enhance public awareness of water quality, water supply, ecological, and watershed protection issues by providing compatible public recreational opportunities in the Lake Merced watershed.

2.4 Project Characteristics

The project consists of the construction and operation of the Lake Merced West recreational facility. The recreational facility would offer an array of active and passive activities open to the public, such as trail use, picnicking, paddleboarding, kayaking, fishing, fitness activities, use of a ropes course, birdwatching, outdoor exercise, skateboarding, basketball and other activities on multi-use courts, as well as restaurant dining, and indoor space for gatherings such as community meetings and birthday parties. The facility would include areas that could be used flexibly for a wide variety of uses such as picnics and larger gatherings, as well as areas designated for programmed activities.

The following sections describe the facilities and features of the proposed recreational facility.

2.4.1 Buildings and Structures

Based on their poor condition and lack of compliance with current building standards, SFPUC would demolish the eight existing buildings (totaling approximately 8,900 square feet) on the project site. A

concessionaire would build a community building and restaurant near the center of the site. A boathouse building and arborist office and yard are proposed at the southeastern end of the site.

Upon completion of construction, the project site would include the following five new buildings (totaling approximately 16,300 square feet):

- Community building
- Restaurant and associated outdoor patio dining area
- Boathouse
- Restrooms and storage
- SFPUC arborist office and yard

Figure 2-3 shows the layout of the proposed recreational facility. The site plan minimizes areas devoted to vehicular circulation to maximize open space while providing a variety of recreational activities on the site. Facilities are clustered around the main parking area to ensure adequate access for a variety of users. According to RPD, the entry plaza, main buildings, patio, and terrace would be situated at the optimal topographic location on the site to take advantage of scenic lake views. These buildings are flanked by lawn areas; the layout also maintains open space between the structures and the lake shoreline. The project would include five one-story buildings; the tallest building would be approximately 25 feet above grade. **Figure 2-4** illustrates a cross-section of the existing and proposed site topography and restaurant building height. Buildings would implement requirements of the city's Standards for Bird-Safe Buildings, which include glass and façade treatments designed to reduce or avoid bird impacts.

COMMUNITY BUILDING

The 3,500-square-foot community building with outdoor patio would be located near the center of the site and would provide for a variety of uses such as community group meetings, birthday parties, recreational activities, and administrative offices. A simple kitchen would support the various onsite events.

RESTAURANT AND OUTDOOR PATIO DINING AREA

The restaurant would also be located near the center of the site, southeast of the community building, and would offer indoor dining in an approximately 5,000-square-foot building as well as outdoor dining on a raised patio with views of Lake Merced. The restaurant would have a capacity of approximately 150 people inside and 70 people on the patio.

RESTROOMS AND STORAGE

A 1,000-square-foot restroom building would be constructed on the northwestern side of the project site. This building would also have storage for ropes course equipment and landscape maintenance equipment. Additional public restrooms would be available in the community building, restaurant, and boathouse.

BOATHOUSE

This 3,000-square-foot building at the southeastern end of the project site along the lake shoreline would house watersports equipment and a rental kiosk where visitors could rent items such as kayaks and paddleboards. It would contain an administrative office, a storage area for small craft and equipment, and public restrooms.

ARBORIST OFFICE AND YARD

This component would provide facilities for SFPUC's Natural Resources Land Management Division's San Francisco Arborist Team, which is responsible for proper care, tree trimming, and vegetation management in the local watershed and across the city. The facilities would be located in the southeastern portion of the site and would entail the following:

- An approximately 3,800-square-foot office building with four to six workstations and a single office, an employee break room, and an all-gender restroom and locker room.
- Four parking spaces for employee vehicles.
- An enclosed shop area for tool storage and repair of small equipment, with additional covered parking for equipment that could be connected to the building. The covered parking would be approximately 14 feet tall to accommodate trucks.
- Onsite storage of trucks and other equipment, including three trucks, a bucket truck, a woodchipper, a stump grinder, a mini skid steer loader, and one dump trailer.

2.4.2 Outdoor Features

In addition to the buildings described above, the recreational facility would include the following outdoor features, shown in Figure 2-3:

- Picnic areas
- Playground
- Boat dock
- Watercraft soft landing area
- Walking paths
- Ropes course
- Birdwatching benches
- Basketball court
- Cantilevered bird viewing deck
- Multi-use sports court(s) (for activities such as volleyball, handball, roller skating/inline skating, tai chi, Zumba or other group cardio activities, bicycle polo, and roller hockey)
- Skatepark

LAND RECREATION

Many of the proposed outdoor features would be located away from the edge of Lake Merced to avoid disturbing habitat areas while providing views and recreational opportunities for parkgoers. These include picnic areas, a playground, trails, a basketball court, multi-use sports courts, a ropes course, birdwatching benches, and a skatepark. Land recreation would be focused in either the central portion of the site, to the west of the community building and restaurant, or along the northwestern edge of the site near John Muir Drive. To construct the central recreation facilities, the project would remove three of the four skeet fields remaining at the project site and all of the wood safety fences separating the skeet fields. The fourth skeet field would be retained in form and shape and repurposed for use as a multi-group picnic area. The high and low houses also would be removed from the central portion of the site, and some could be reused as part of the ropes course located on the western portion of the site. Open areas of natural plantings would separate the core land recreation activities from the shoreline and perimeter trails.

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SOURCE: San Francisco Public Works

Lake Merced West

Figure 2-3
Conceptual Site Plan

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INSPIRATION: CONTEXT-SENSITIVE SITING, MASSING AND MATERIALITY | SEA RANCH, CA

Note: Dashed line is the existing site topography, and the solid line is the proposed topography. Where existing and proposed topography are the same, topography is shown in solid line.

SOURCE: San Francisco Public Works

Lake Merced West

Figure 2-4
Site Section

ESA

The proposed ropes course area would be located at the northwestern edge of the project site near a stand of existing tall trees and would be the tallest recreational structure on the project site. The heights of the ropes course elements would vary but would have an anticipated maximum height of 35 feet.

A pedestrian path system would connect the main areas of the site. In addition to paths between the parking areas and various site amenities, a trail paralleling the lake edge would provide walking and running opportunities and access from one end of the site to the other. The 5- to 7-foot-wide compacted aggregate material trail would have a grade of 5 percent or less. The shoreline buffer of dense wetland vegetation would be retained and the trail would not provide pedestrian access to the water's edge; the steep grade and dense vegetation existing along the lakeshore would not change and would discourage pedestrian access between the trail and the shore.

WATER RECREATION

To provide water access for visitors and their small crafts, as well as rental boats, the project would include a boat dock and a soft landing (beach) for shoreline boat access. The dock and soft landing would be designed to allow the hand-launching of small watercraft such as kayaks, canoes, and paddleboards. The floating dock would be approximately 12 feet by 144 feet and would include an 80-foot-long gangway connecting the floating dock to the shore. Mushroom anchors attached to chains would hold the floating dock in place.[15] Anchors would support dock flexibility in the case of changing lake water levels. A second driveway on John Muir Drive would allow recreationists to access the boathouse, boat dock, and soft landing area by vehicle for loading purposes.

PARKING AND CIRCULATION

The approximately 27,100-square-foot public parking area would have approximately 80 spaces, including Americans with Disabilities Act–compliant spaces, in the main parking area, as well as additional small parking areas near the ropes course and boathouse. A two-lane, 30-foot-wide vehicle entry/exit driveway to the main parking area would be provided from John Muir Drive, to the west of the existing driveway (which would be removed). A second driveway of the same size would provide access to the boat launch and arborist office and yard. The arborist yard would include four parking spaces for SFPUC arborist staff members. Three pedestrian entries to the site would be added. Bicycle racks would be provided at various locations across the site to accommodate 30 bicycles. Should bicycle parking demand increase, additional bicycle racks could be installed in other areas of the site.

LANDSCAPE FEATURES

Landscape restoration work was completed throughout the site as a part of the soil remediation project and would be retained as part of the Lake Merced West project where feasible. New trees, shrubs, and other vegetation would be planted along John Muir Drive, adjacent to the pedestrian entry and exits, and at selected locations within the project site (west of the community building, near the boathouse loading area; refer to Figure 2-3). Some vegetation and tree removal would occur in areas of new facilities or at site entrances, mainly in upland areas, and existing vegetation disturbed during construction would be replaced upon completion of construction. An open metal fence that provides views through the site would be installed along the project boundary adjacent to John Muir Drive.

[15] A *mushroom anchor* has a bowl-shaped head and a post welded to its center, making it mushroom-shaped.

2.5 Project Construction

2.5.1 Construction Activities, Phasing, Staging, and Access

SITE PREPARATION

Before construction, the selected contractor(s) would identify construction equipment staging and support areas, site access, exclusion areas, excavation areas, soil stockpile areas, truck lanes, parking areas, and site office trailers. All of these site preparation activities would take place within the project site. Staging areas on the project site would be used for temporarily storing debris boxes and segregated stockpiles of demolition debris, fencing and miscellaneous nonhazardous debris, recyclable metals, and excavated soil. In addition, construction-related equipment and materials, such as construction vehicles and small quantities of fuels and lubricants, could be stored onsite.

Construction access to and from the site would be from the property's existing driveway on John Muir Drive. Use of approximately 10 street parking spots near the site entrance(s) would be restricted during construction for public safety and to provide adequate access for construction vehicles. Construction workers would park in designated areas onsite.

After site preparation, project construction would proceed in three phases over approximately 45 months (nearly four years). These three phases are described separately below. During the first phase, existing structures would be demolished and upland vegetation removed in areas where facilities or paving would be constructed. Phase one would take approximately three months. Should any contaminated soil be encountered underlying the existing buildings (in particular, contaminated soil is anticipated to be present beneath and adjacent to the rifle range building), soil remediation would occur. Once demolition and soil remediation are complete, the first phase would be completed, and construction would pause for up to 18 months. The process of identifying and executing a contract with a concessionaire may require up to 18 months after demolition and soil remediation. During the second phase, buildings and structures in upland areas would be constructed over approximately 24 months. During the third and final phase, recreational facilities along the Lake Merced shoreline (a boat dock and boathouse) would be constructed over six months. The second and third phases would overlap. It is assumed that the entire 11-acre project site would be part of the active construction area (**Figure 2-5**).

PHASE 1: BUILDING AND STRUCTURE DEMOLITION, TREE REMOVAL, AND SOIL REMEDIATION

Building and structure demolition, tree removal, and soil remediation would occur concurrently during the first phase of construction, and together would take approximately three months.

BUILDING AND STRUCTURE DEMOLITION

During the first phase of construction, all buildings onsite and all structures associated with skeet fields 5, 6, and 7 would be demolished. Demolition would require licensed removal and appropriate disposal of lead- and asbestos-containing building materials. Demolition debris would be recycled to the extent feasible and in accordance with chapter 14 and section 708 of the San Francisco Environment Code. The amount of demolition debris is estimated at 2,200 cubic yards, which is anticipated to consist of lead- and asbestos-containing building materials, recyclable materials (mostly metal, glass, and concrete), and nonrecyclable materials. About 140 total

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SOURCE: ESA, 2020; Google Earth, 2020

Lake Merced West

Figure 2-5
Limit of Work

ESA

truckloads (280 one-way truck trips) would be needed to haul demolition debris to appropriate sites for disposal or recycling. Lead- and asbestos-containing debris would be hauled to the Recology Hay Road Landfill in Vacaville or the Altamont Landfill in Livermore, as needed; other demolition debris would be hauled to the Republic Ox Mountain Landfill in Half Moon Bay. **Table 2-1** summarizes the quantities of material generated or required during project construction and the truck trips associated with each activity.

Table 2-1 Construction Haul Volumes and Truck Trips

Phase	Volume Generated (cubic yards) Type of debris	Haul Truck One-Way Trips[a]	Maximum One-Way Truck Trips Per Day
1: Building and Structure Demolition and Soil Remediation	2,200 / *Building demolition debris*	280	30 truck trips for 10 days
	Mobilization of equipment	20	20 truck trips for 1 day
	1,500 / *Contaminated soil and associated debris*	190	30 truck trips for 7 days
	1,500 / *Import of clean soil*	190	30 truck trips for 7 days
2: Upland Building Construction	7,000 / *Excavated soil*	880	30 truck trips for 30 days
	Building materials	2,200	30 truck trips for 75 days
3: Shoreline Recreational Facilities Construction	300 / *Contaminated sediment*	20	20 truck trips for 1 day
	Building materials	60	30 truck trips for 2 days
	Demobilization of equipment	20	20 truck trips for 1 day

NOTE:
[a] Trips rounded to the nearest 10. Assumes haul truck capacity of 16 cubic yards.

SOURCE: RPD and SFPUC; CalEEMod Building Construction Worker and Vendor Trip Rates

TREE REMOVAL

Demolition or construction activities would require the removal of approximately 15 trees in the vicinity of the proposed vehicle and pedestrian entrances and arborist office and yard. **Figure 2-6** shows areas of potential tree removal. Consistent with standards contained in article 16 of the San Francisco Public Works Code, before project construction SFPUC would retain a certified arborist to prepare a tree protection plan where excavation, construction, or street work could occur within the dripline of trees to be retained. The tree protection plan, which would be submitted to San Francisco Public Works for informational purposes, would document procedures for protecting trees, including but not limited to: identifying tree protection zones; installing tree protection fencing at the dripline of the tree or as directed by a certified arborist to preclude work in this area, including any staging of heavy equipment or materials; and implementing monitoring requirements.

Utility clearance was completed for the soil remediation project in 2016. The only existing utilities onsite are water and irrigation lines, which would be removed as needed during construction activities.

SOIL REMEDIATION

Known deposits of debris and soil potentially contaminated by chemicals of concern remain present beneath and adjacent to the rifle range building, a contributing feature to the historic cultural landscape that was protected in place during the soil remediation project. SFPUC would be responsible for removing contaminated soil and debris underlying the rifle range building. Removal would be conducted in

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SOURCE: ESA, 2020; Google Earth, 2020

Lake Merced West

Figure 2-6
Tree Removal Areas

ESA

accordance with the soil management plan approved by the regional board, which requires the excavation of contaminated material and disposal of such material at a properly licensed facility. The soil management plan describes the protocols to follow if and when contaminated soil is anticipated or encountered during routine maintenance, new construction, or other subsurface excavations at the project site. The cleanup technique approved under the soil management plan would be to excavate contaminated material and dispose of the material at a properly licensed offsite disposal facility. The steps to complete cleanup consistent with the soil management plan are summarized here.[16] The estimated volume of contaminated soil and debris to be excavated and hauled offsite is approximately 1,500 cubic yards.

CONTAMINATED SOIL EXCAVATION

Contaminated soil can be identified at the site by discoloration, stains, odors, and/or the presence of debris. Debris deposits are known to occur along and beneath discrete sections of the rifle range building foundation. SFPUC and its contractor would excavate the contaminated materials and conduct confirmation sampling to demonstrate compliance with the cleanup goals of the remedial action plan. Excavated material would be temporarily stockpiled in a manner that would limit the potential for a release of contaminated material into air or water. Wastes generated during excavation, including personal protective equipment, uncontaminated general construction debris, soil, and wastewater incidental to removal activities, would be profiled, managed, and disposed of in accordance with applicable federal, state, and local regulations. Excavation of contaminated soils would be conducted in accordance with the approved soil management plan. The soil management plan details measures that would apply during construction to protect the health and safety of workers and the public, including dust and erosion controls.

DISPOSAL OF CONTAMINATED SOIL AND EXCAVATION BACKFILLING

Disposal of impacted soils and other wastes generated as part of remediation would require a maximum of approximately 95 haul loads (190 one-way truck trips). Offhauling excavated material would require up to approximately 15 haul loads (30 one-way truck trips) per day for up to for up to six days, or fewer trips for up to 10 days. Based on waste characterization results, soils could require disposal at a range of facilities. The facilities preliminarily identified for soil disposal are the Clean Harbors Buttonwillow Facility (Class I) in Buttonwillow, California, and the Recology Hay Road Landfill (Classes II and III) in Vacaville. Local truck routes are anticipated to include northbound travel on John Muir Drive to access the truck route on State Route 35 and southbound travel on John Muir Drive to Lake Merced Boulevard, Brotherhood Way, and 19th Avenue to access I-280.

Excavated areas would be backfilled with clean imported fill material and compacted to engineering specifications for further site development. While clean soil would be reused onsite to the extent possible, it is assumed for purposes of analysis that all soil would be removed from the site. SFPUC would identify and approve potential sources of import fill before delivery to the site to ensure that fill generally conforms to the guidelines set forth in the California Department of Toxic Substances Control's Fill Advisory.[17] Transporting backfill to the site would require a similar number of trucks as offhauling excavated material; therefore, backfilling would require up to approximately 95 haul loads (190 one-way truck trips) to the site with

[16] Kennedy/Jenks Consultants, Soil Management Plan Former Pacific Rod and Gun Club, prepared for San Francisco Public Utilities Commission, February 16, 2016.

[17] California Department of Toxic Substances Control, *Information Advisory—Clean Imported Fill Material*, fact sheet, October 2001.

imported fill. Approximately 15 haul loads (30 one-way truck trips) per day for up to six days, or fewer trips per day for up to 10 days, would be needed to complete backfilling.

The filled area would be stabilized to address potential erosion, as needed. After fill placement is complete, the contractor would clear the work areas of debris and temporary facilities. A brief letter report would be submitted to the regional board summarizing and presenting information and data collected to document the soil remediation and debris management activities.

PHASE 2: CONSTRUCTION OF UPLAND BUILDINGS, STRUCTURES, AND OUTDOOR FEATURES

Buildings, structures, and outdoor features would be constructed in upland areas of the site during the second general phase over approximately 24 months. The foundations of these facilities would be constructed using standard techniques involving reinforced concrete and steel. No pile driving would be required. Underground and overhead utilities would be installed.

Approximately 7,000 cubic yards of soil would be excavated during construction of the buildings, structures, and outdoor features. The site would be graded to accommodate the proposed land uses, after which trails, paving, and landscaping would be installed. While clean soil would be reused onsite to the extent possible, it is assumed for purposes of analysis that all excavated soil would be removed from the site. Offhauling excavated soil would require a maximum of approximately 440 haul loads (a total of 880 one-way truck trips). Hauling of building materials to the site would require up to approximately 1,100 haul loads (2,200 one-way truck trips) or 30 one-way truck trips per day for 75 days, or fewer trips per day for a longer period.

The final construction stage would include equipment or interior installations within buildings and connecting electrical systems.

PHASE 3: CONSTRUCTION OF SHORELINE RECREATIONAL FACILITIES

As discussed in Section 2.2, Project and Site Background, elevated concentrations of PAHs, lead, and other heavy metals are present in the lake sediments as a result of the previous use of the site as a shooting range. Sediment remediation would be required before construction of shoreline recreational facilities. Phase three would take approximately six months to complete and is assumed to occur simultaneously with the second phase, starting at approximately 18 months into the second phase.

REMOVAL OF CONTAMINATED SEDIMENT

To construct a soft landing for personal watercraft, contaminated sediment would be excavated and removed from a section of the Lake Merced shoreline, including areas below the lake water level. To complete this work, the selected concessionaire or its contractor would prepare and submit a sediment sampling and management plan to the regional board for approval before excavation. Excavation would require in-water work and removal of some wetland vegetation. In-water equipment or equipment located along the shore would be used to excavate sediment in these areas. A cofferdam and pump system could be installed to temporarily drain the excavation area before excavation activities. Water pumped from the excavation area would be collected in tanks where sediment would settle from the water. Water would be disposed of in accordance with a regional board permit, either through testing and draining back to Lake Merced or by hauling the water offsite to an appropriate facility. The dewatered sediment would be hauled to a licensed disposal facility, such as those listed for contaminated soil disposal. Sediment would be excavated

up to depths of 3 feet below ground to remove contaminated material. A total of approximately 300 cubic yards of sediment would be excavated and offhauled to the same facilities as described above for contaminated soil (approximately 10 haul loads or 20 one-way truck trips).

CONSTRUCTION OF BOAT DOCK, BOATHOUSE, AND LANDING

Once sediment remediation is complete, clean fill material of the appropriate grain size would be imported to fill the excavated area along the shoreline. A geotextile fabric could be placed below the imported fill material. The boat dock and boathouse would then be constructed along the shoreline. The boat dock would be floated into place and then anchored by sinking mushroom anchors.

2.5.2 Construction Schedule, Equipment, and Workforce

The first phase of construction, anticipated to begin in early 2023, would take approximately three months and would precede the rest of project construction by up to 18 months. The second and third phases of construction would take approximately 24 months (**Table 2-2**). Construction would occur Monday through Friday, from 7 a.m. to 6 p.m. No nighttime or weekend construction is anticipated or proposed.

Table 2-2 Project Construction Schedule

Construction Activity	2023	2024	2025	2026
Phase 1: Building and structure demolition and soil remediation (*3 months)*				
Phase 2: Upland building construction (*24 months)*				
Phase 3: Shoreline recreational facilities construction (*6 months)*				

Construction would include the use of standard earthmoving equipment for grading, large trucks for hauling, a drill rig, and a small crane for some building construction, among other equipment shown in **Table 2-3**. Some types of equipment would be needed only for certain phases of construction. The project would generally require excavation to a depth of approximately 5 feet below ground surface for most project structures. Deeper ground disturbances would include depths of up to 12 feet for the ropes course poles and up to 10 feet for buried sewer lines. Staging and storage of construction materials would occur within the boundaries of the project site.

The construction workforce is anticipated to average eight daily workers with a maximum of 15 workers on a given day.

2.6 Standard Construction Measures

RPD and SFPUC have adopted required standard construction measures to reduce potential environmental effects during project construction. Presented in **Appendix C** of this EIR, these standard construction measures include air and water quality measures, biological resources measures, visual and aesthetic considerations, and cultural resources measures. In some cases, the standard construction measures would be superseded by specific mitigation measures developed for the project.

Table 2-3 Anticipated Construction Activities, Equipment, and Schedule

Schedule	Activity	Equipment	
Phase 1	Site mobilization; delivery of construction trailer; demolition	• Haul trucks • Backhoe loader	• Pickup truck
	Vegetation trimming and removal; clearing and grubbing	• Backhoes • Dozers/backhoe	• Haul trucks
	Soil remediation	• Hydraulic excavators • Backhoe/loader	• Dump trucks • Pickup truck
	Site grading	• Graders • Scrapers • Dozers	• Compactors • Haul trucks
	Excavation and installation of building foundations	• Backhoe/ loader • Concrete trucks	• Hand compactors • Small compacting rollers
	Installation of underground utilities	• Backhoe/ Loader • Hand Compactors	• Trucks
	Completion of grading; installation of curbs and trail; installation of foundations	• Backhoe/ Loader • Compactor	• Concrete trucks
Phase 2	Installation of walkways, driveways, parking lot, and fencing	• Loaders • Hydraulic excavators • Compactor	• Concrete trucks • Asphalt paving machine • Drill rig
	Ropes course installation	• Small crane • Man lifts	• Forklift • Delivery/haul trucks
	Building and other facility construction	• Forklift • Concrete trucks • Crane	• Hydraulic excavator/pile driver • Delivery/haul trucks
	Installation of lighting fixtures and picnic facilities; site cleanup	• Delivery/haul trucks • Man lift	• Small crane
Phase 3	Lake sediment remediation	• Backhoe loader • Crane	• Dump trucks • Pickup truck
	Construction of boat dock, landing, and boathouse	• Forklift • Concrete trucks • Loaders • Hydraulic excavator	• Delivery/haul trucks • Compactor • Crane

2.7 Project Operation

2.7.1 Recreational Facility Operation

Project operation would include public recreational activities such as trail use, picnicking, paddleboarding, kayaking, fishing, fitness activities, basketball, skateboarding, use of a ropes course, birdwatching, and outdoor exercise, as well as restaurant dining, and the use of indoor space for gatherings such as community meetings and birthday parties. RPD estimates that the park would receive an average of 200 visitors each day.

During regular hours, the public could freely move around the site in areas that are not reserved or do not require fees. The public would have access to the site's path and trail system, open space, playground, basketball court, multi-use sport court, skatepark, viewing deck, parking areas, and non-group picnic and terrace patio. Some areas of the site that would require fees for participation include the ropes course, boat rentals, boat launch, programming, and group picnic areas. No entrance fee to the site is anticipated during normal operation.

During project operation, the recreational facility would be staffed by a concessionaire and an estimated 15–20 employees who would be drawn from the local and regional workforce. No changes to city agency staffing levels are anticipated during project operation and maintenance; existing city employees would conduct site oversight and maintenance.

NORMAL OPERATING HOURS AND SPECIAL EVENTS

Public access to the site would be permitted during operating hours. The recreational facility would operate during daylight hours, and the restaurant would be open 11 a.m. to 9 p.m. (last reservation). The restaurant, including its patio, could accommodate a total of about 220 people. The main site gate would be closed when the restaurant closes, restricting access to the site during non-operating hours. The restaurant would require regular freight deliveries, averaging two deliveries each week.

Special events hosting up to 500 people would be permitted up to 12 times per year. Examples of events that could occur include weddings, community events, and business group events. These events could involve exceptions to normal operating hours and temporary use of amplified sound in compliance with San Francisco Police Department regulations and RPD permit requirements (temporary use of amplified sound is generally limited to five hours). No permanent amplified sound equipment would be installed on the site; its use would be specific to an event. Each special event would be individually permitted by RPD.

2.7.2 San Francisco Arborist Office and Yard Operation

The SFPUC arborist team, with approximately six existing employees, would operate an office on the project site and store equipment and vehicles at the yard. Typically, the arborist office and yard would operate between 6:30 a.m. and 3 p.m. Monday through Friday. A separate entrance driveway from John Muir Drive would provide access to the arborist office and yard. Arborists would be dispatched from the facility to perform work at sites across the city. Minor maintenance of vehicles and equipment would occur in the covered equipment parking area.

2.7.3 Lighting and Security

Safety lighting for evening and nighttime illumination would be provided in parking areas, along main pedestrian walkways, and around buildings. No recreational lighting would be provided. Lighting onsite would be consistent with the city's Standards for Bird-Safe Buildings, which require minimal lighting and shields on lighting. Uplighting and event searchlights are prohibited.

Security cameras are under consideration and could be installed within the site.

2.7.4 Utilities, Stormwater Management, and Hazardous Materials

Electrical distribution lines would be extended to serve the project site. The project would install new sewer laterals to connect buildings to the sewer main in John Muir Drive. Stormwater drainage infrastructure would be designed in compliance with the city's Stormwater Management Ordinance. Total water demand for project operation is estimated at 1.58 million gallons per year, while total wastewater demand is estimated at 381,000 gallons per year.

Small quantities of hazardous materials stored onsite would include fuel and other materials for maintenance of tree trimming and landscaping equipment, as well as small containers of paint, paint thinner, cleaners, and lubricants. Limits for the storage and quantities of fuel and other hazardous materials would be set by the city's risk manager (see Appendix A, Topic E.18, Hazards and Hazardous Materials).

2.8 Project Approvals

The following is a list of anticipated approvals needed for project construction and operation.

2.8.1 Federal

- U.S. Army Corps of Engineers: Clean Water Act Section 404 permit, Nationwide Permit 36 Boat Ramps

2.8.2 State

- California Coastal Commission: Coastal Development Permit
- State Water Resources Control Board: National Pollutant Discharge Elimination System order 2009-0009-DWQ, General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities
- California Department of Fish and Wildlife: Section 1602 Lake and Streambed Alteration Agreement
- California Office of Historic Preservation: National Historic Preservation Act Section 106 consultation
- San Francisco Bay Regional Water Quality Control Board: Clean Water Act Section 401 Water Quality Certification and/or Porter-Cologne Water Quality Control Act Report of Waste Discharge; notification and approval of soil and sediment remediation completion activities

2.8.3 Local

- San Francisco Planning Commission: Certification of the EIR
- San Francisco Planning Department Zoning Administrator: Approval of a Notice of Coastal Permit Authorization
- San Francisco Department of Building Inspection: Issuance of demolition and building permits
- SFPUC: Approval of the lease agreement between RPD and the concessionaire; soil and sediment remediation construction contracts
- San Francisco Board of Supervisors and RPD: Approval of the lease agreement with the vendor
- San Francisco Health Department permit
- Civic Arts Commission design review

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CHAPTER 3
ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

3.1 Overview

This chapter provides an analysis of the physical environmental effects of implementing the Lake Merced West Project (project) as described in Chapter 2, Project Description. This section presents the framework used in the individual environmental topic sections in this chapter and the basic assumptions used in the impact analyses, including the scope of analysis, the baseline conditions used to analyze impacts, the categories of impact significance, and the assumptions for the cumulative impact analyses. As discussed further below, for each environmental impact report (EIR) topic identified in Section 3.1.1, Scope of Analysis, the environmental setting is described, the environmental impacts of the project are analyzed, and mitigation measures are recommended where necessary to address potentially significant impacts.

3.1.1 Scope of Analysis

INITIAL STUDY TOPICS

As described in Chapter 1, Introduction and Background, the San Francisco Planning Department determined that an EIR is required for the project in compliance with the California Environmental Quality Act (CEQA) and published a notice of preparation (NOP; Appendix B). As part of the preparation of the EIR, the planning department determined that all resource topics except historic resources could be adequately addressed in an initial study. The initial study prepared as part of this EIR (Appendix A) concluded that most of the physical environmental impacts of the project would be less than significant, or that mitigation or standard construction measures required as conditions of approval would reduce significant impacts to a less-than-significant level. CEQA does not require further assessment of the effects found not to be significant in the initial study; thus, those issues are not included in this chapter. **Table 3.1-1** lists the topics addressed in the initial study and not included in this chapter. Also shown are abbreviations for each environmental topic that are used in the naming of impact statements and mitigation measures. See the initial study in Appendix A for the impact analysis of the project with respect to these resource topics.

Table 3.1-1 Environmental Topics for Which Effects Were Found Not to Be Significant

Land Use and Planning (LU)	Air Quality (AQ)	Biological Resources (BI)* [c]
Aesthetics (AE)	Greenhouse Gas Emissions (GG)	Geology and Soils (GE)* [d]
Population and Housing (PH)	Wind (WI)	Hydrology and Water Quality (HY)
Cultural Resources (CR)* [a]	Shadow (SH)	Hazards and Hazardous Materials (HZ)
Tribal Cultural Resources (TCR)	Recreation (RE)	Mineral Resources (MN)
Transportation and Circulation (TR)	Utilities and Service Systems (UT)	Energy (EN)
Noise (NO)* [b]	Public Services (PS)	Agriculture and Forestry Resources (AG)
		Wildfire (WF)

NOTE:
[a] Required Mitigation Measures M-CR-1a through M-CR-1d reduce effects to less than significant.
[b] Required Mitigation Measure M-NO-2 reduces effects to less than significant.
[c] Required Mitigation Measures M-BI-1a through M-BI-6 reduce effects to less than significant.
[d] Required Mitigation Measure M-GE-5 reduces effects to less than significant.

EIR TOPICS

Table 3.1-2 lists the environmental topic addressed in this chapter of the EIR, with the abbreviation for the topic that is used in the naming of impact statements and mitigation measures shown in parentheses.

Table 3.1-2 EIR Environmental Topic Addressed in EIR Chapter 3

3.2 Historic Architectural Resources (CR)

3.1.2 Format of the Environmental Analysis

The environmental topic section in Chapter 3 contains the following elements, based on the requirements of CEQA:

- **Introduction.** This subsection briefly describes the types of impacts that are analyzed, identifies issues raised during the scoping period, and summarizes any impacts that were scoped out in the initial study (that is, impacts that were determined to be less than significant or less than significant with mitigation measures agreed to by the San Francisco Public Utilities Commission [SFPUC] and required as conditions of approval).
- **Environmental Setting.** This subsection describes the existing, baseline physical environmental conditions in the project area at an appropriate level of detail to allow the reader to understand the impact analysis.
- **Regulatory Framework.** This subsection describes the relevant federal, state, and local regulatory requirements that are directly applicable to the environmental topic being analyzed.
- **Impacts and Mitigation Measures.** This subsection evaluates the potential for the project to result in adverse effects on the existing physical environment. It begins with definition of the significance criteria used for evaluating environmental impacts, followed by the approach to analysis, a discussion of the impacts of the project and mitigation measures (if required), and a discussion of cumulative impacts.

For each environmental topic section, this EIR assigns impacts a unique alphanumeric identifier that consists of that section's abbreviation and a number (see Tables 3.1-1 and 3.1-2), with all impacts for that topic numbered sequentially. For example, the abbreviation "BI" indicates biological resources impacts; the first biological resources impact is Impact BI-1, the second biological resources impact is Impact BI-2, and so on. The mitigation measure(s) that correspond with the impact are identified with an "M" in front of the same alphanumeric code. For example, Mitigation Measure M-BI-1a addresses Impact BI-1.

Each environmental topic section discusses cumulative impacts immediately following the project-level impact analysis. The analysis of cumulative impacts considers the effects of the project together with those of other projects proposed by the San Francisco Recreation and Parks Department (RPD), SFPUC, or other entities. This EIR presents an evaluation of cumulative impacts for each environmental topic based on the same setting, regulatory framework, and significance criteria as for the project-level impacts. Additional mitigation measures are identified if the analysis determines that the project's contribution to a cumulative impact would be "cumulatively considerable" and therefore significant. Cumulative impacts are designated with a "C" in front of the code corresponding to the subject environmental topic; for example, the cumulative biological resources impact is designated Impact C-BI-1. See Section 3.1.5, Approach to Cumulative Impact

Analysis and Cumulative Projects, below, for further discussion of the approach to the cumulative impact analyses.

3.1.3 Baseline Conditions for Evaluation of Impacts

CEQA Guidelines section 15125 provides that, in most cases, the environmental conditions at the time of publication of the NOP of the EIR constitute the appropriate baseline physical conditions by which the lead agency should evaluate project impacts. These baseline conditions are described in the Environmental Setting section of the Chapter 3 environmental topic section. The impact analysis identifies the conditions that are anticipated to occur with implementation of the project and compares those conditions against the baseline conditions to determine whether the project would result in a significant environmental impact. This EIR uses the physical conditions in the project area at the time of NOP publication (June 2021) as the baseline conditions to evaluate all construction, operational, and cumulative impacts of the project.

3.1.4 Determination of Environmental Significance

The significance criteria used in this EIR are based on guidance from the Environmental Planning Division of the San Francisco Planning Department regarding the thresholds of significance used to assess the severity of the environmental impacts of the project; guidance is based on CEQA Guidelines Appendix G, with some modifications. Each section of Chapter 3 presents, before the discussion of impacts, the significance criteria used to analyze the environmental topic. As discussed in Chapter 2, Project Description, Section 2.6, Standard Construction Measures, RPD and SFPUC have adopted standard construction measures to reduce potential environmental effects during construction. The impact analysis assumes, where applicable, that the project would implement the required standard construction measures. The following categories are used to designate impact significance:

- **No Impact.** A conclusion of no impact is reached if there is no potential for impacts or the environmental resource does not occur within the project area or the area of potential effects.
- **Less than Significant.** This determination applies if the impact does not exceed the defined significance criterion or would be eliminated or reduced to a less-than-significant level through compliance with existing federal, state, and local laws or regulations. No mitigation is required for impacts determined to be less than significant.
- **Less than Significant with Mitigation.** This determination applies if there is a potential for the project to result in an adverse effect that would or could meet or exceed the significance criteria, but feasible mitigation is available that would reduce the impact to a less-than-significant level. An impact described as “potentially” significant indicates that there is a potential for this impact to occur, but there is not enough project information or site-specific information to determine definitively whether it qualifies under the significance criterion as significant. In this EIR, impacts identified as “potentially significant” are treated the same as significant impacts.
- **Significant and Unavoidable with Mitigation.** This determination applies if the project would result in an adverse effect that would or could meet or exceed the significance criterion and feasible mitigation is available to lessen the severity of the impact, but either the residual effect after implementation of the measure would remain significant or there is some uncertainty about the effectiveness of the mitigation measure.

- **Significant and Unavoidable.** This determination applies if the project would result in an adverse effect that would or could meet or exceed the significance criteria and for which no feasible mitigation is available.

3.1.5 Approach to Cumulative Impact Analysis and Cumulative Projects

CEQA PROVISIONS REGARDING CUMULATIVE IMPACTS

Cumulative impacts, as defined in section 15355 of the CEQA Guidelines, refer to two or more individual effects that, when taken together, are "considerable" or that compound or increase other environmental impacts. A cumulative impact from several projects is the change in the environment that would result from the incremental impact of each project when added to those of other closely related past, present, or probable future projects. Section 15130 of the CEQA Guidelines provides the following pertinent guidance for cumulative impact analysis:

- An EIR shall discuss the cumulative impacts of a project when the project's incremental effect is "cumulatively considerable" (i.e., the incremental effects of an individual project are considerable when viewed in connection with the effects of past, current, and probable future projects, including those outside the control of the agency, if necessary).
- An EIR should not discuss impacts that do not result in part from the project evaluated in the EIR.
- A project's contribution is less than cumulatively considerable, and thus not significant, if the project is required to implement or fund its fair share of a mitigation measure or measures designed to alleviate the cumulative impact.
- The discussion of impact severity and likelihood of occurrence need not be as detailed as for effects attributable to the project alone.
- The focus of the analysis should be on the cumulative impact to which the identified other projects contribute, rather than on attributes of the other projects that do not contribute to the cumulative impact.

CEQA Guidelines section 15130(b)(1) provides two approaches to a cumulative impact analysis. The analysis can be based on (a) a list of past, present, and probable future projects producing related or cumulative impacts; or (b) a summary of projections contained in a general plan or related planning document.

APPROACH TO CUMULATIVE IMPACT ANALYSIS IN THIS EIR

The cumulative impact analysis considers the effects of the project together with those of other past, present, or probable future projects proposed by RPD, SFPUC, or others. In Section 3.2 of this chapter, and Appendix A, Initial Study, the cumulative impact analysis for each resource topic follows the analysis of the project-specific impacts. Each analysis of cumulative impacts is based on the same setting, regulatory framework, and significance criteria as the project-specific analysis. Additional mitigation measures are identified if the cumulative analysis determines that a significant cumulative impact could occur and the project's contribution to a significant cumulative impact would be considerable, even with project-level mitigation.

As permitted in CEQA Guidelines section 15130(b)(1), the analyses in this EIR employ the list-based approach, a projections approach, or a hybrid of the two as appropriate in the cumulative impact analysis. In the list-based approach, the analysis is based on a list of probable future projects that could result in related

or cumulative impacts. A *probable future project* is defined as one that is "reasonably foreseeable," which is generally a project for which an application has been filed with the approving agency or that has approved funding. In the projections approach, projections contained in an adopted statewide, regional, or local plan, or related planning document, are summarized to describe or evaluate conditions contributing to the cumulative effect. Some other projects, such as certain improvements at the Oceanside Water Pollution Control Plant (Oceanside Treatment Plant), are also considered reasonably foreseeable because they have been included in SFPUC's capital plan and it is reasonable to expect that they would be implemented, even if an application has not been filed and there is no approved funding at this time.

The probable future projects are subject to independent environmental review and consideration by approving agencies. Consequently, it is possible that some of the projects will not be approved or will be modified before approval (e.g., as a result of the CEQA process).

Projects relevant to the cumulative analyses include those that could contribute incremental effects on the same environmental resources and would have environmental impacts similar to those identified for the project in this EIR. Those projects are identified in **Table 3.1-3**. The following factors were used to determine an appropriate list of relevant projects to be considered in the cumulative analyses:

- **Similar Environmental Impacts.** A relevant project contributes to effects on the same environmental resources that are affected by the project and would have similar or related environmental impacts compared to those discussed in this EIR (Section 3.2 in this chapter and Appendix A, Initial Study).
- **Geographic Scope and Location.** A relevant project is located within the defined geographic scope for the cumulative effect. The geographic scope of cumulative projects depends on the environmental resource affected and is identified in each section. The geographic scope generally coincides with the physical environment described in the setting and could include the areas adjacent to the proposed construction activities that are within and adjacent to the project area. For some environmental topics, however, the geographic scope can extend farther, such as for the discussion of transportation, in which the regional roadway network is relevant, or the evaluation of air quality effects, in which the regional air basin is the appropriate geographic scope for the analysis.
- **Timing and Duration of Implementation.** The schedule of activities for a relevant project would need to coincide in timing with the effects of the project to result in cumulative impacts. For temporal impacts such as noise and transportation, the cumulative analyses consider the short-term cumulative effects of those projects with overlapping construction schedules as well as the long-term cumulative effects of those projects that would be in operation concurrently with the project and would affect the same environmental resources and sensitive receptors.

The cumulative impact analyses presented in Section 3.2 and Appendix A, Initial Study, first consider whether there is an impact of the project that could result in adverse physical effects on the environment. If so, the cumulative analysis considers whether any of the relevant projects would result in related impacts or affect the same environmental resources as the project, resulting in a cumulative impact. If the cumulative impact is considered significant based on the identified significance criteria, the analysis considers whether the project's contribution would be cumulatively considerable (significant) or not cumulatively considerable (less than significant). If the project were to contribute considerably to a significant cumulative impact, mitigation measures would be identified, if feasible.

Table 3.1-3 lists the probable future projects that are considered in the cumulative analyses (based on the factors described above), and their locations are shown in **Figure 3.1-1**. The list includes projects with construction schedules that would overlap the project's construction schedule (or would be completed before or after project construction) and that would be constructed in the general vicinity of the project, with the potential to result in cumulative impacts during construction. The list also includes projects that would be in operation concurrently with the project and would have environmental impacts similar to those of project operations, with the potential to result in cumulative operational impacts.

As discussed in Chapter 2, Project Description, Section 2.6, Standard Construction Measures, and above in Section 3.1.4, Determination of Environmental Significance, RPD and SFPUC have adopted standard construction measures to reduce potential environmental effects during construction. Because the standard construction measures apply to all RPD and SFPUC projects, the analysis of cumulative projects assumes that like the project, all RPD- or SFPUC-sponsored projects would implement the standard construction measures.

Table 3.1-3 Projects Considered in the Cumulative Impact Analysis

Project No. on Map	Project Name (Project Sponsor or Jurisdiction)	Project Description	Construction Dates
1	Fort Funston Trail Connection (National Park Service)	The Fort Funston trail connection would connect the existing trails in Fort Funston to a location near the Great Highway's existing southbound lanes. The project is intended to provide a connection between Fort Funston and the Ocean Beach Climate Change Adaptation Project's multi-use trail along Ocean Beach.	2027
2	Parkmerced Redevelopment	Subsequent phases of the Parkmerced project would add up to 5,675 new residential units to the 152-acre site's existing 3,221 housing units. It would also provide new commercial and retail services and open space. The Parkmerced Vision Plan proposes a conceptual framework for transforming the existing Parkmerced housing development into a "21st century model of a healthy neighborhood." The transportation plan provides a framework and management plan for addressing transit and vehicular travel to and from the neighborhood and would include rerouting of the M-line light rail through the development and five major intersection improvements (including State Route 1/19th Ave), and structured underground parking beneath each block. The full project has a 15- to 30-year construction horizon. At buildout, the project would consist of approximately 8,900 dwelling units (including approximately 5,675 new units), approximately 10,175 off-street parking spaces (including approximately 6,975 new spaces), 230,000 gross square feet of new retail uses, and 80,600 gross square feet of additional office use.	2018–2040
3	Vista Grande Drainage Basin Improvement (City of Daly City)	The Vista Grande project would alleviate flooding in the Vista Grande Drainage Basin by expanding the hydraulic capacity of the existing stormwater infrastructure to accommodate peak flows generated by the 25-year design storm. The project would involve improvements to stormwater conveyance infrastructure adjacent to and within Lake Merced, and extending beneath Fort Funston and onto the Fort Funston beach. The components nearest the Lake Merced West site include demolition of portions of the existing tunnel and canal in the location of the Lake Merced Portal south of John Muir Drive, reconfiguring the portal, and replacing the Lake Merced Overflow inlet and pipeline between the lake and the canal. Operational components of the project would include management of water surface elevations in Lake Merced and a lake management plan that would include water quality best management practices, including upstream improvements in the basin and additional actions.	2022–2026
4A	Oceanside Treatment Plant Improvements–Biosolids Cake Hopper Reliability Upgrade (SFPUC)	SFPUC would refurbish the three biosolids cake hoppers, including replacement of the discharge gates and actuators (type of gate to be determined by pilot study), load cells, and ultrasonic level instrumentation.	2027–2032
4B	Oceanside Treatment Plant Improvements–Seismic Retrofits (SFPUC)	To meet seismic reliability goals (provide treatment within 72 hours of an earthquake and provide life safety protection for occupied facilities), SFPUC would undertake seismic and structural retrofits on the primary clarifiers, administration building, and pretreatment and solids building.	2028–2033

Table 3.1-3 Projects Considered in the Cumulative Impact Analysis (Continued)

Project No. on Map	Project Name (Project Sponsor or Jurisdiction)	Project Description	Construction Dates
5	San Francisco Zoo Recycled Water Pipeline (SFPUC, San Francisco Zoo)	The San Francisco Zoo Recycled Water Pipeline Project would convert the current groundwater supply and distribution system to a recycled water supply and distribution system, except for end uses that need to be converted to potable water (e.g., drinking water for animals). Recycled water would replace groundwater currently used to supply various uses including irrigation, cleaning and replenishment of surface water bodies, animal exhibit washdown and pool refilling, and general cleaning. A new recycled water pipeline would be installed connecting the zoo's groundwater reservoir to the existing Westside Enhanced Recycled Water Project distribution line. The project would also include a series of small retrofits including signage installation and tagging of fixtures. This project does not include landscaping, irrigation system retrofits, or cross-connection testing.	2023–2024
6	Ocean Beach Climate Change Adaptation Project, Long Term Improvements (SFPUC)	The City and County of San Francisco (city) is proposing a climate change adaptation and sea level rise resiliency project to improve the portion of Ocean Beach from Sloat Boulevard to Fort Funston known as "South Ocean Beach." The Ocean Beach Long-Term Improvements Project is needed to address shoreline erosion, severe coastal storm and wave hazards, and sea level rise, which threaten city infrastructure, coastal access and recreational facilities, and public safety. The project is a collaborative, multi-agency initiative involving SFPUC, RPD, San Francisco Public Works, the San Francisco Municipal Transportation Agency (SFMTA), the Federal Highway Administration, and the National Park Service. Major project components include: (1) permanent closure of the Great Highway between Sloat and Skyline boulevards, and reconfiguration of affected intersections and San Francisco Zoo entrances; (2) removal of pavement, rock and sandbag revetments, rubble, and debris, and recontouring and revegetation of the beach and bluff; (3) construction of a new service road and multi-use trail, beach access stairways, parking, and restroom(s); (4) construction of a buried wall; and (5) long-term beach nourishment.	2023–2027
7	Westside Force Main Reliability (SFPUC)	A redundant force main would be installed between the Westside Pump Station and the Oceanside Treatment Plant. The approximately 2,765-linear-foot pipeline would run west from the Westside Pump Station and then south and parallel to the existing force main, either west of the existing force main within the paved outer northbound lane in the Great Highway or east of the existing force main within the east shoulder of the Great Highway, then would turn east to connect to the headworks at the Oceanside Treatment Plant. Open-cut construction would likely be required, with a trench depth ranging from approximately 3 feet near the Westside Pump Station to up to 60 feet near the Oceanside Treatment Plant.	2030-2037
8	Signalization of State Route 35 (Skyline Boulevard) and Great Highway Intersection (Caltrans)	The California Department of Transportation (Caltrans) would install a traffic signal at the intersection of the Great Highway and State Route 35.	2022

Table 3.1-3 Projects Considered in the Cumulative Impact Analysis (Continued)

Project No. on Map	Project Name (Project Sponsor or Jurisdiction)	Project Description	Construction Dates
9	Reconfiguration of the Sloat Boulevard and State Route 35 (Skyline Boulevard) Intersection (San Francisco Municipal Transportation Agency and Caltrans)	The intersection of State Route 35 (Skyline Boulevard) and Sloat Boulevard would be reconfigured, with either a traffic signal or a roundabout to improve safety for all road users, increase visibility of pedestrians, and improve or maintain transit and vehicle circulation at the intersection.	After 2024
10	Lake Merced Trail Renovations (RPD)	RPD would improve existing trail edges and repair asphalt along the existing multi-use trail. A new prefabricated restroom would be installed at the Lake Merced and Sunset Boulevard parking lot. Up to 120 declining or hazard trees along the trail would be removed as part of trail renovations, and 240 trees would be planted to replace the removed trees.	2022
11	Lake Merced Boulevard Quick-Build Pedestrian Safety Improvements (SFMTA)	The Lake Merced Boulevard Quick-Build Pedestrian Safety Improvements Project will build on the Lake Merced Bikeway Feasibility Study and Lake Merced Pedestrian Safety Study through a quick-build project on Lake Merced Boulevard from Skyline Boulevard to John Muir Drive. Spot improvements may include improvements such striping and crosswalk upgrades, additional signage, narrowing of traffic lanes, traffic beacons, and pedestrian refuge islands. Corridor-wide improvements may include road lane reductions and new protected bike facilities.	2022

SOURCES:

By project number in table:

1 National Park Service, *Ocean Beach – Fort Funston Trail Connection*, Draft 10/10/2020, October 10, 2020.
2 San Francisco Planning Department, *Parkmerced Project*, https://sfgov.org/sfplanningarchive/parkmerced-project, accessed May 6, 2020.
3 City of Daly City, U.S. Department of the Interior, National Park Service, *Vista Grande Drainage Basin Improvement Project Environmental Impact Report/Environmental Impact Statement*, EIR certified December 11, 2017.
4a San Francisco Public Utilities Commission, Wastewater Enterprise Fiscal Years 2023-2032 Ten Year CIP Capital Projects, January 14, 2022.
4b San Francisco Public Utilities Commission, Wastewater Enterprise Fiscal Years 2023-2032 Ten Year CIP Capital Projects, January 14, 2022.
5 San Francisco Public Utilities Commission, *Aerial View of Project Site* (San Francisco Zoo Recycled Water Pipeline), March 15, 2021.
6 San Francisco Planning Department, *Ocean Beach Climate Adaptation Project Draft Environmental Impact Report*, December 8, 2021.
7 San Francisco Public Utilities Commission, Wastewater Enterprise Fiscal Years 2023-2032 Ten Year CIP Capital Projects, January 14, 2022.
8 Caltrans Categorical Exemption/Categorical Exclusion Determination Form, May 11, 2020
9 San Francisco Municipal Transportation Agency, *Sloat & Skyline Intersection Alternatives Analysis*, https://www.sfmta.com/projects/sloat-skyline-intersection-alternatives-analysis, accessed July 31, 2020.
10 San Francisco Recreation and Parks, *Lake Merced 2012 Bond Project*, https://sfrecpark.org/1156/Lake-Merced-2012-Bond-Project, accessed February 11, 2022.
11 San Francisco Municipal Transportation Agency, Lake Merced Quick-Build Project, https://www.sfmta.com/projects/lake-merced-quick-build-project, accessed February 11, 2022.

SOURCE: ESA, 2021; ESRI, 2021

Lake Merced West

Figure 3.1-1
Cumulative Projects

3.2 Historical Architectural Resources

3.2.1 Introduction

This section assesses project impacts on historical architectural resources. It outlines the regulatory framework, describes the existing environmental setting as it relates to historical architectural resources, identifies potential historical architectural resources near the project site, evaluates potential direct and indirect impacts of the project on historical architectural resources, and identifies mitigation measures to reduce potential adverse impacts. Project impacts on archeological resources, human remains, and tribal cultural resources (which may be considered historical resources under CEQA Guidelines section 15064.5) are addressed in Appendix A, Initial Study, of this EIR.

The Pacific Rod and Gun Club constructed and operated a skeet and trap shooting club on the project site between 1934 and 2015, resulting in lead shotgun pellets and other debris falling onto the site and into the lake. After the club vacated the property, the SFPUC conducted the Pacific Rod and Gun Club Upland Soil Remedial Action Project (soil remediation project) to clean up the site for future site uses. During the environmental review for the soil remediation project,[1] the *Pacific Rod and Gun Club Cultural Landscape Evaluation Report* (cultural landscape report) determined the property to be eligible for listing as a *cultural landscape* in the National Register of Historic Places (National Register) and the California Register of Historical Resources (California Register).[2] Therefore, as discussed in greater detail below, the property is considered a historical resource.[3] Section 3.2.2, Regulatory Framework, explains how properties qualify for listing in the National and California registers.

The cultural landscape report also identified contributing and noncontributing features that informed the scope of the soil remediation project. The soil remediation project included measures to reduce impacts on the historical resource: Existing buildings were not demolished and contributing features of the cultural landscape were retained or reconstructed. As part of the remediation project, the site was landscaped with native vegetation and trees were planted along the southern fence.[4]

In 2020, a cultural landscape report addendum (addendum)[5] was prepared for the Lake Merced West project to assess whether the site retained sufficient integrity after completion of the soil remediation project to continue to convey its historical significance as a cultural landscape. Based on the findings of the addendum, the San Francisco Planning Department's *Historic Resource Evaluation Response Part I* (HRER Part I)[6] determined that the cultural landscape retained integrity and continued to qualify as a historical resource. The *Historic Resource Evaluation Response Part II* (HRER Part II) evaluated project impacts on the historical resource and included mitigation to address these impacts.[7]

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[1] San Francisco Planning Department, *Pacific Rod and Gun Club Upland Soil Remedial Action Project Final Mitigated Negative Declaration*, Case No. 2013.1220E, October 23, 2014.
[2] A cultural landscape is a type of historical resource that can include buildings, structures, and natural elements that are significant as a grouping.
[3] Bradley, Denise, *Pacific Rod and Gun Club, San Francisco, CA, Cultural Landscape Evaluation Report,* prepared for San Francisco Public Utilities Commission, May 2014.
[4] More information on the removed features is presented in Section 3.2.3.
[5] Bradley, Denise, *Addendum, Cultural Landscape Evaluation Report, 520 John Muir Drive/Lake Merced West Project, San Francisco, CA*, prepared for San Francisco Planning Department, Case No. 2019-014146ENV, March 2020.
[6] San Francisco Planning Department, *Historic Resource Evaluation Response, Part I for 520 John Muir Drive*, Case No. 2019-014146ENV, June 2020.
[7] San Francisco Planning Department, *Historic Resource Evaluation Response Part II for 520 John Muir Drive*, Case No. 2019-014146ENV, July 2021.

The information and analysis in this section is based on the findings of these studies. The cultural landscape report and addendum, HRER Part I, and HRER Part II are included in **Appendix D** of this EIR.

3.2.2 Regulatory Framework

The following section summarizes the federal, state, and local plans and policies that apply to historical resources.

FEDERAL REGULATIONS

Federal guidelines related to the treatment of cultural resources are relevant for determining whether cultural resources, as defined under CEQA, are present and guiding the treatment of such resources. The sections below summarize the relevant federal regulations and guidelines.

NATIONAL HISTORIC PRESERVATION ACT

The National Historic Preservation Act (NHPA) of 1966 was enacted primarily to acknowledge the importance of protecting our nation's heritage from rampant federal development. It was the triumph of more than a century of struggle by a grassroots movement of committed preservationists. The NHPA has done and continues to do all of the following:

- Sets federal policy for preserving our nation's heritage.
- Established a federal-state and federal-tribal partnership.
- Established the National Register and the National Historic Landmarks Program.
- Mandated the selection of qualified State Historic Preservation Officers.
- Established the Advisory Council on Historic Preservation.
- Charges federal agencies with responsible stewardship.
- Establishes the role of certified local governments within the states.

Regulations implementing the NHPA can be found in Code of Federal Regulations (CFR) title 36, part 800 (36 CFR 800), "Protection of Historic Properties." The regulations provide guidelines for following the policies set forth in the NHPA.

NATIONAL REGISTER OF HISTORIC PLACES

The National Register is the nation's master inventory of cultural resources worthy of preservation. It is administered by the National Park Service, which is represented at the state level by the State Historic Preservation Officer. The register includes listings of buildings, structures, sites, objects, districts, and landscapes that possess historic, architectural, engineering, archeological, or cultural significance at the federal, state, or local level. Resources that are listed in or have been found by the State Historic Preservation Officer to be eligible for listing in the National Register are considered historical resources under CEQA. Listing of a property in the register does not prohibit demolition or alteration of that property but does denote that the property is a resource worthy of recognition and protection.

Under the NHPA, a property is considered a historic property if it meets the NHPA listing criteria in 36 CFR 60.4, as follows:

The quality of significance in American history, architecture, archeology and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling and association, and:

(a) That are associated with events that have made a significant contribution to the broad patterns of history; or

(b) That are associated with the lives of persons significant in our past; or

(c) That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(d) That have yielded or may likely yield information important in prehistory or history.

Although there are exceptions, certain kinds of resources are not usually considered for listing in the register. These include religious properties, moved properties, birthplaces and graves, cemeteries, reconstructed properties, commemorative properties, and properties that have achieved significance within the past 50 years.

In addition to qualifying for listing under at least one of the National Register criteria, a property must possess sufficient integrity to be considered eligible for the register. The National Register bulletin *How to Apply the National Register Criteria for Evaluation* (Bulletin 15) defines *integrity* as "the ability of a property to convey its significance."[8] National Register Bulletin 15 defines seven characteristics of integrity as shown in **Table 3.2-1**. According to National Register Bulletin 15, "To retain historic integrity a property will always possess several, and usually most, of the aspects."

Table 3.2-1 Characteristics of Historic Integrity

Characteristic	Definition
Location	The place where the historic property was constructed
Design	The combination of elements that create the form, plans, space, structure, and style of the property.
Setting	The physical environment of the historic property inclusive of the landscape and spatial relationships of the buildings.
Materials	The physical elements that were combined or deposited during a particular period of time and in a particular pattern of configuration to form the historic property.
Workmanship	The physical evidence of the crafts of a particular culture or people during any given period in history.
Feeling	The property's expression of the aesthetic or historic sense of a particular period of time.
Association	The direct link between an important historic event or person and a historic property.

SOURCE: National Park Service, *How to Apply the National Register Criteria for Evaluation*, National Register Bulletin 15, 1995, *https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf*, accessed June 4, 2021.

[8] National Park Service, *How to Apply the National Register Criteria for Evaluation,* National Register Bulletin 15, 1995, *https://www.nps.gov/subjects/nationalregister/upload/NRB-15_web508.pdf*, accessed June 4, 2021

THE SECRETARY OF THE INTERIOR'S STANDARDS FOR THE TREATMENT OF HISTORIC PROPERTIES

The *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings* were published and codified as 36 CFR 68 in 1995 and updated in 2017.[9] Neither technical nor prescriptive, these four treatments (preservation, rehabilitation, restoration, and reconstruction) and their associated standards are intended to promote responsible preservation practices that help protect irreplaceable cultural resources.[10] The standards for rehabilitation (Secretary's Standards) consist of 10 basic principles created to help preserve the distinctive character of a historical resource while allowing for reasonable changes to meet new needs (listed below). As stated in the regulations (36 CFR 68), the standards are "to be applied taking into consideration the economic and technical feasibility of each project." In general, a project that would comply with the Secretary's Standards is considered to have mitigated its impact to a less-than-significant level (CEQA Guidelines section 15064.5[b][3]).

1. A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.
2. The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.
3. Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.
4. Changes to a property that have acquired historic significance in their own right will be retained and preserved.
5. Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.
6. Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.
7. Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.
8. Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.
9. New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work will be differentiated

[9] *Treatments* are defined as follows: "Preservation" acknowledges a resource as a document of its history over time and emphasizes stabilization, maintenance, and repair of existing historic fabric. "Rehabilitation," while also incorporating the retention of features that convey historic character, also accommodates alterations and additions to facilitate continuing or new uses. "Restoration" involves the retention and replacement of features from a specific period of significance. "Reconstruction," the least-used treatment, provides a basis for recreating a missing resource.

[10] National Park Service, *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings*, rev. Anne E. Grimmer, NPS Technical Preservation Services, 2017, *http://www.nps.gov/tps/standards/treatment-guidelines-2017.pdf*, accessed March 21, 2018.

from the old and will be compatible with the historic materials, features, size, scale, and proportion, and massing to protect the integrity of the property and its environment.

10. New additions and adjacent or related new construction will be undertaken in such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

A *cultural landscape* is a type of historical resource that can include buildings, structures, and natural elements that are significant as a grouping. A cultural landscape is defined as a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person, or exhibiting other cultural or aesthetic values. There are four non-mutually exclusive types of cultural landscapes: historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes.[11]

- *Historic sites* are landscapes significant for their association with a historic event, activity, or person. Examples include battlefields and president's house properties.
- *Historic designed landscapes* are landscapes that are consciously designed or laid out by a landscape architect, master gardener, architect, or horticulturist according to design principles, or an amateur gardener working in a recognized style or tradition. The landscape may be associated with a significant person(s), trend, or event in landscape architecture, or illustrate an important development in the theory and practice of landscape architecture. Aesthetic values play a significant role in designed landscapes. Examples include parks, campuses, and estates.
- *Historic vernacular landscapes* are landscapes that evolved through use by the people whose activities or occupancy shaped that landscape. Through the social or cultural attitudes of an individual, family, or community, the landscape reflects the physical, biological, and cultural character of those everyday lives. Function plays a significant role in historic vernacular landscapes. They can be a single property, such as a farm, or a collection of properties, such as a district of historic farms along a river valley. Examples include rural villages, industrial complexes, and agricultural landscapes.
- *Ethnographic landscapes* are landscapes containing a variety of natural and cultural resources that associated people define as heritage resources. Examples are contemporary settlements, religious sacred sites, and massive geological structures. Small plant communities, animals, and subsistence and ceremonial grounds are often components.[12]

The *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* contains standards and guidelines for the treatment of cultural landscapes, including how to apply the treatments noted above.[13] As discussed in greater detail in "Evaluation of Historical Significance" below, the project site was evaluated in 2014 as part of the CEQA process for the soil

[11] National Park Service, *Management Policies 2006,* "Glossary," *https://parkplanning.nps.gov/showFile.cfm?projectID=13746&MIMEType=application%252Foctet%252Dstream&filename=Glossary%2Edoc&sfid=17635,* accessed September 2, 2021.
[12] The definitions of the four types of cultural landscapes are summarized from NPS Preservation Brief 36: Birnbaum, Charles A., *Protecting Cultural Landscapes,* National Park Service Preservation Brief 36, 1994, *https://www.nps.gov/tps/how-to-preserve/preservedocs/preservation-briefs/36Preserve-Brief-Landscapes.pdf*, accessed September 8, 2021.
[13] This document was first drafted in 1992 and published in 1996. It is currently in the process of being revised and updated. A digital version of the document can be accessed at *https://www.nps.gov/tps/standards/four-treatments/landscape-guidelines/index.htm*.

remediation project. Of the four general types of cultural landscapes, the project site is best described as a historic vernacular landscape.

STATE REGULATIONS

California implements the NHPA through its statewide comprehensive cultural resource preservation programs. The California Office of Historic Preservation, an office of the California Department of Parks and Recreation, implements NHPA policies on a statewide level and maintains the California Historical Resources Inventory. The State Historic Preservation Officer is an appointed official who implements historic preservation programs within the state's jurisdiction.

DEFINITION OF HISTORICAL RESOURCES UNDER THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

To be considered a historical resource, a property must generally be at least 50 years old; when acting as the CEQA lead agency, the San Francisco Planning Department uses a threshold of 45 years in conformance with current direction from the California Office of Historic Preservation.[14] A *historical resource* is defined in CEQA Guidelines section 15064.5 as a cultural resource (i.e., a built-environment resource, archeological resource, or human remains) that meets at least one of the following criteria:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in, the California Register of Historical Resources.

(2) A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in a historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(3) Any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the California Register of Historical Resources.

(4) The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to section 5020.1[k] of the Public Resources Code), or identified in a historical resources survey (meeting the criteria in section 5024.1[g] of the Public Resources Code) does not preclude a lead agency from determining that the resource may be a historical resource as defined in Public Resources Code section 5020.1(j) or 5024.1.

Therefore, under the CEQA Guidelines, even if a resource is not included in any federal, state, or local register or identified in a qualifying historical resources survey, a lead agency may still determine that the resource is

[14] Office of Historic Preservation, *Instructions for Recording Historical Resources*, March 1995, *https://ohp.parks.ca.gov/pages/1054/files/manual95.pdf*, accessed September 8, 2021.

a historical resource under CEQA if substantial evidence exists to support such a determination. A lead agency must consider a resource historically significant if it finds that the resource meets the criteria for listing in the California Register.

CEQA requires a lead agency to determine whether a proposed project would have a significant effect on important historical resources or unique archeological resources. If a resource is neither a unique archeological resource nor a historical resource, the CEQA Guidelines note that the effects of the project on that resource shall not be considered a significant effect on the environment (CEQA Guidelines section 15064.5[c][4]). As noted above, projects that comply with the Secretary's Standards benefit from a regulatory presumption under CEQA that they would have a less-than-significant impact on a historical resource. Projects that do not comply with the Secretary's Standards may or may not cause a substantial adverse change in the significance of a historical resource and are subject to further analysis to assess whether they would result in material impairment of a historical resource's significance.

CALIFORNIA REGISTER OF HISTORICAL RESOURCES

The California Register, administered by the California Office of Historic Preservation, is the authoritative guide to historical and archeological resources that are significant within the context of California's history. The criteria for eligibility for inclusion in the California Register are based on and correspond to the National Register criteria. Certain resources are determined under CEQA to be automatically included in the California Register, including California properties formally eligible for or listed in the National Register. The San Francisco Planning Department considers these resources historical resources under CEQA. The evaluative criteria used for determining eligibility for listing in the California Register closely parallel those developed by the National Park Service for the National Register but include relevance to California history. To be eligible for listing in the California Register as a historical resource, a resource must meet at least one of the following criteria (Public Resources Code section 5024.1[c]):

- **Criterion 1 (Event):** Resources that are associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- **Criterion 2 (Person):** Resources that are associated with the lives of persons important in our past.
- **Criterion 3 (Design/Construction):** Resources that embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values.
- **Criterion 4 (Information Potential):** Resources or sites that have yielded or have the potential to yield information important in prehistory or history.

Similar to the National Register requirements, to be considered eligible for listing in the California Register, a historical resource must possess integrity in addition to meeting the significance criteria.[15] Consideration of integrity for evaluation of California Register eligibility closely follows the seven aspects of integrity that apply to the National Register (listed above). As discussed in greater detail in Section 3.2.3, the cultural landscape is eligible for listing in the California Register under criterion 1.

[15] Office of Historic Preservation, *How to Nominate a Resource to the California Register of Historical Resources*, Technical Assistance Series #7, September 4, 2001, p. 11, *https://ohp.parks.ca.gov/pages/1056/files/07_TAB%207%20How%20To%20Nominate%20A%20Property%20to%20California%20Register.pdf,* accessed September 8, 2021.

LOCAL REGULATIONS

SAN FRANCISCO GENERAL PLAN

The San Francisco General Plan's Urban Design, Housing, and Recreation and Open Space elements address issues related to historic preservation by including policies that emphasize preserving notable landmarks and historic features, remodeling older buildings, and respecting the character of older buildings adjacent to new development. The following policies in the general plan are relevant to historical cultural resources.

URBAN DESIGN ELEMENT

The Urban Design Element of the San Francisco General Plan includes the following policies related to historic preservation:

***Policy 2.4*:** Preserve notable landmarks and areas of historic, architectural or aesthetic value, and promote the preservation of other buildings and features that provide continuity with past development.

***Policy 2.5*:** Use care in remodeling of older buildings, in order to enhance rather than weaken the original character of such buildings.

***Policy 2.6*:** Respect the character of older development nearby in the design of new buildings.

RECREATION AND OPEN SPACE ELEMENT

The Recreation and Open Space Element of the San Francisco General Plan includes the following policies related to historic preservation:

***Policy 1.12*:** Preserve historic and culturally significant landscapes, sites, structures, buildings and objects.

***Policy 1.13*:** Preserve and protect character-defining features of historic resources in City parks, when it is necessary to make alteration to accommodate new needs or uses.

***Policy 4.4*:** Include environmentally sustainable practices in construction, renovation, management and maintenance of open space and recreation facilities.

SAN FRANCISCO PLANNING CODE

The city's commitment to historic preservation is codified in San Francisco Planning Code section 101.1(b), which establishes eight general plan priority policies. Priority Policy 7 of section 101.1(b) of the planning code addresses the city's desire to preserve landmarks and historic buildings and states as a city priority "that landmarks and historic buildings be preserved."

SAN FRANCISCO HISTORIC PRESERVATION COMMISSION AND PLANNING CODE, ARTICLE 10

The San Francisco Historic Preservation Commission (preservation commission) is a seven-member body that makes recommendations directly to the San Francisco Board of Supervisors regarding the designation of landmark buildings, historic districts, and significant buildings. The preservation commission approves certificates of appropriateness for individual landmarks and landmark districts designated under article 10

and permits to alter for individual properties and conservation districts listed under article 11.[16] The preservation commission reviews and comments on CEQA documents for projects that affect historical resources, as well as projects that are subject to review under section 106 of the NHPA.

The San Francisco Charter gives the preservation commission the ability to identify, designate, and protect historic landmarks, including buildings, sites, objects, and districts, from inappropriate alterations. Article 10 of the planning code contains regulations that govern the preservation commission's exercising of its authority. Since the adoption of article 10 in 1967, the city has designated 286 landmark sites and 14 historic districts under article 10.[17] Any property that has been locally designated as an article 10 landmark or a contributor to an article 10 district is considered a CEQA historical resource. No article 10 properties are present on the project site.

SAN FRANCISCO PLANNING DEPARTMENT CEQA REVIEW PROCEDURES FOR HISTORIC RESOURCES

The planning department prepared the *CEQA Review Procedures for Historic Resources* to provide guidance in determining whether a resource is considered a historical resource as defined by CEQA.[18] Three categories of properties are defined:

- **Category A**. Category A has two subcategories:
  - *Category A.1*. Resources listed in or formally determined to be eligible for the California Register.
  - *Category A.2*. Resources listed in adopted local registers, or properties that appear eligible, or may become eligible, for the California Register.
- **Category B.** Properties requiring further consultation and review.
- **Category C.** Properties determined not to be historical resources, or properties for which the city has no information indicating that the property is a historical resource.

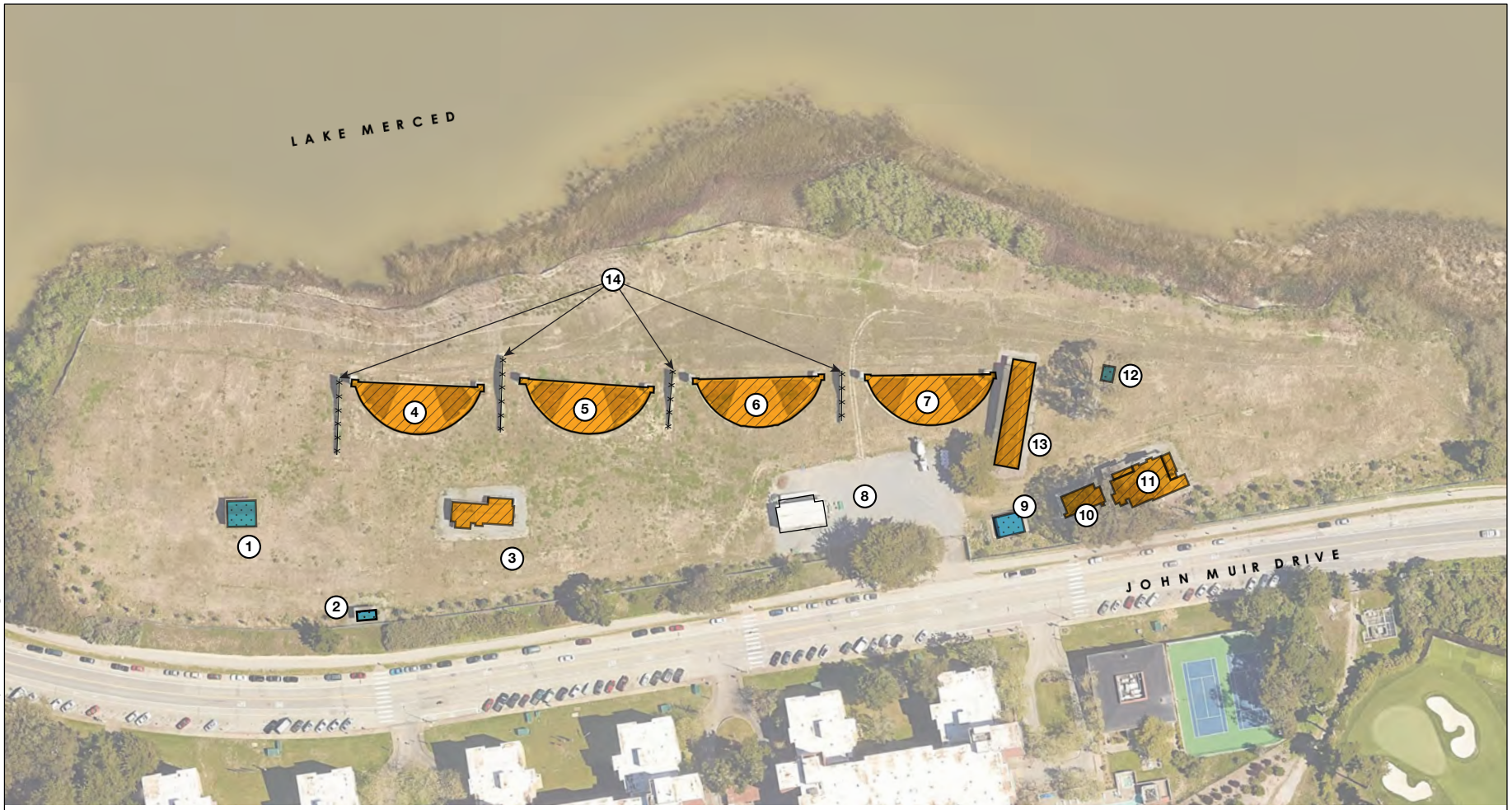
To determine whether a property is eligible as a historical resource for the purposes of CEQA, the planning department (lead agency) requires an evaluation of a property's individual significance for listing in the California Register, as well as an examination of a property's relationship to any eligible historic district.

3.2.3 Environmental Setting

PROPERTY OVERVIEW

The Pacific Rod and Gun Club (club) leased the property at 520 John Muir Drive for use as a private skeet shooting and fishing club between 1934 and 2015. The property encompasses the entirety of an approximately 1,500-foot by 375-foot (11-acre) parcel bounded by Lake Merced to the north, Lake Merced parklands to the east, John Muir Drive to the south, and the San Francisco Police Department Pistol Range to the west. As shown in **Figure 3.2-1**, most of the site is open space, with four skeet fields (skeet fields 4–7) centrally located on the parcel and oriented toward Lake Merced. Eight buildings are currently onsite. The rifle range building, barbeque shed, clubhouse, caretaker's house, and garage are located south of skeet field 7.

[16] Article 11 applies only within the C-3 (Downtown) Use Districts, which do not include the project site. As such, article 11 is not discussed further.
[17] City and County of San Francisco, Article 10: Preservation of Historical Architectural and Aesthetic Landmarks, 2019, *https://codelibrary.amlegal.com/codes/san_francisco/latest/sf_planning/0-0-0-27871*, accessed October 15, 2020.
[18] San Francisco Planning Department, *CEQA Review Procedures for Historic Resources*, Preservation Bulletin No. 16, Draft, March 31, 2008.



Contributing Features
A contributing building, site, structure, or object adds to the historic associations, historic architectural qualities, or archeological values for which a property is significant.

Non-Contributing Features
A noncontributing building, site structure, or object does not add to the historic architectural qualities, historic associations, or archeological values for which a property is significant.

1. Trap House
2. Restroom Building
3. Shell House
4. Skeet Field 4
5. Skeet Field 5
6. Skeet Field 6
7. Skeet Field 7
8. Parking Lot and Temporary Construction Trailer
9. Garage
10. Caretaker's House
11. Clubhouse
12. Barbeque Shed
13. Rifle Range Building
14. Safety Fences

0 100 Feet

SFO\17xxxx\D170626.00 - Lake Merced West Recreation\05 Graphics-GIS-Modeling\Illustrator

SOURCE: ESA, 2020

Lake Merced West

Figure 3.2-1
Existing Structures and Landscape Features

ESA

The shell house, restroom, and trap house are located south (shell house and restroom) and southwest (trap house) of skeet field 4. The buildings served various support functions for club operations, including both recreational and social activities. All are currently vacant and in various states of disrepair after having been shuttered in 2015.

The project site is relatively flat land that slopes downward by approximately 30 feet in a southeast direction. Most of this elevation drop occurs within 75–150 feet of the Lake Merced shoreline. The site is unpaved and covered with native perennial and annual grasses. The shoreline is covered with a variety of native coastal scrub, willow riparian scrub, and low-growing herbaceous plants, including freshwater marsh wetland plants. Mature trees on the site are located near the vehicle entrance on the eastern one-third of the site. They include two non-native blue gum eucalyptus trees near the barbeque shed, several large blue gum eucalyptus trees south of the caretaker's house and clubhouse, and a Monterey cypress just west of the entrance door to the rifle range building. Other trees onsite are native species along the southern boundary fence line, planted as mitigation for those removed during the remediation project. The semicircular skeet fields 4–7 are outlined and partially filled in with crushed stone. A gravel parking lot is located immediately north of the vehicle entrance on John Muir Drive. Concrete paving is also located around the base of the rifle range building, clubhouse, and shell house. Views from the public-right-of-way are partially blocked by a 6-foot-tall chain-link fence with green slats along John Muir Drive.

PROPERTY HISTORY

NEIGHBORHOOD RECREATIONAL DEVELOPMENT

Although San Francisco's population and geographic extent expanded rapidly after the discovery of gold in 1848, Lake Merced was still considered rural and remote at the time. Soon, however, Lake Merced became a popular weekend destination for people traveling to the beach along present-day Ocean Avenue. It was also used for hunting purposes. Small roadside inns, known as roadhouses, were located nearby. One of these, the Trocadero Inn, still stands in Stern Grove Park.

Aside from recreational uses, Lake Merced served as one of the few freshwater sources within the San Francisco city limits. Water rights to the lake were purchased by the Spring Valley Water Company in 1868 for $150,000. By 1900, the company owned the nearly 2,000-acre area between the San Francisco–San Mateo County line and Sloat Boulevard and from Junipero Serra Boulevard to the ocean. However, when construction of the Hetch Hetchy dam was approved in 1908, Lake Merced was seen as excess property and Spring Valley Water Company began to sell off its holdings, giving rise to a renewed interest in the lake for recreational purposes. Three golf courses opened between 1915 and 1925 on the north and south sides of the lake. The San Francisco Zoo established its current location in 1922. The Pacific Rod and Gun Club leased the current project site on the lake's western shore in 1934.

With increased public usage, improved access became a priority. The Works Progress Administration (WPA) constructed John Muir Drive around the lake in the late 1930s. In addition to supporting transportation in the area, John Muir Drive improved the area's scenic qualities. Included with the road development were equestrian paths, retaining walls, steps, purposeful grading, and landscaping at the lake's perimeter.

On the project site, the WPA was involved with improving the club facilities in preparation for the 1939 National Skeet Championships. This competition occurred simultaneously with the Golden Gate International Exposition on Treasure Island, drawing large crowds into San Francisco and surrounding areas. The work

required to host the championships necessitated significant investment by the city and the club. Eight fields and a large parking area were graded just in time for the competition to begin on August 8, 1939.

In the 1940s and 1950s, development began to fill in the tracts of land between the golf courses along the northern and eastern shores. This included the Parkmerced residential development, designed by Leonard Schultze and Associates with landscape design by Thomas Church, and the main campus of San Francisco State University, which opened in 1954.

A BRIEF HISTORY OF THE PACIFIC ROD AND GUN CLUB

The Pacific Rod and Gun Club was founded in 1928 and incorporated on June 6, 1929, with an initial membership of 50 people. At first, the club focused primarily on sport fishing and held surf casting competitions. It led campaigns to remove striped bass from the commercial market and to stock local waterways with sport fish. At the club's founding, it leased land at Cuttings Wharf on the Napa River, where it built and maintained a clubhouse, a bunkhouse, and a dining room for members. The club expanded its Napa club facilities beyond fishing when it added a single skeet field in 1930.

A shift to San Francisco began around 1930 after the club merged with the Bay Sportsmen's Club. This merger brought more skeet shooting enthusiasts to the club, but they were relying primarily on a roughly constructed skeet field at Fort Funston. Shortly after the merger, a desire for better, consolidated facilities led to an agreement with the U.S. Army to use a portion of Skyline Boulevard as a field site. Despite the less-than-ideal fields, the club continued to grow. Club membership doubled in 1931, and by 1933, the club had outgrown its scattered facilities. The club leased land (the current project site) on the western shore of Lake Merced from the city in 1934. The lease also came with permission to seed black bass in the lake for sport fishing purposes.

The Pacific Rod and Gun Club's first skeet shooting facilities at the Lake Merced site were completed in 1934. In 1937, the lake rose several feet and flooded the new shooting fields. In response, the club reconstructed its fields and facilities 50 feet to the west on higher ground overlooking the lake. At that time, the club removed a stand of large eucalyptus trees to facilitate construction of skeet fields 4–7. Along with the new fields, it constructed the clubhouse and the caretaker's house, repositioned the vehicle entrance along John Muir Drive, and began planning for an indoor rifle range building. By 1939, the club completed construction of the rifle range building and the shell house.

1939 marked a high point in the club's history, when it hosted the fifth National Skeet Championship in August. This was the first time the competition had been held on the West Coast, serving to recognize the growth of the sport across the nation in the 15 years since the invention of skeet. For at least a decade, this event held the record for the largest shooting event held on the West Coast, and it helped to reinforce the popularity of the sport in Northern California.

Activities waned during World War II. Gas and ammunition rationing, blackouts, and shortages of shells and targets necessitated limits on events. Shooting was allowed only every other Sunday and all competitive events were suspended. To aid in the war efforts, during 1942 the club provided equipment and expertise to train thousands of military recruits at the club. Members held barbeques for servicemen and entertained the Coast Guard with vaudeville shows.

After the war, a period of steady growth continued through the early 1960s. Membership was increased to 225, with a waiting list, and spanned the full range of social standings from day workers to executives.

Additional fields were constructed, and changes were made to accommodate a growing number of trap enthusiasts, largely driven by the merger in 1948 with the Fort Mason Rod and Gun Club. Following the merger, several additional facilities were constructed. Between 1950 and 1955, a trap field complex was built at the east end of the site. The complex consisted of trap fields 1–3 and their associated trap houses to protect the trap-launching machinery (none of these features are extant).[19] In 1953, skeet fields 8 and 9 (no longer extant) were added east of the rifle range building. These fields were constructed of concrete instead of the typical dirt or boardwalk materials. The existing fields were upgraded to concrete around this time as well. The trap house, used to distribute targets to club members, was constructed between 1960 and 1961.

Since then, the club completed modest changes to its buildings and grounds. Around 1965, the club added the restroom building to the northwestern edge of the parking lot. The current barbeque shed was constructed around 1970. More recent additions to the site included a three-bay garage constructed near the entrance around 2000, and new shooting stands and equipment sheds on skeet field 6.

During the 1990s, changes in standards and requirements altered the club and its membership. Traditional lead shot was replaced with nontoxic variations beginning in 1993. Although no alterations to the site were required, this change did reduce the club's membership numbers. In 1995, approximately 150 of the club's 450 members left, citing a variety of reasons. Some believed the new steel shot damaged their shotguns. Both steel and bismuth shot were more expensive than lead. Banning lead shot also meant that the club could no longer host competitions. However, membership rebounded after this initial decline, and by 2013, the club had approximately 400 members. In 2015 the club's lease ended and the Pacific Rod and Gun Club officially closed.

SOIL REMEDIATION PROJECT

The SFPUC completed the soil remediation project to remove contaminated soil from the project site in April 2016. As presented in Chapter 2, Project Description, Section 2.2.2, Soil Remediation Project, open areas of the site were excavated to depths ranging from 0.5 foot up to 10.5 feet. This required removing skeet fields 4–7, all high and low houses, and the security fencing associated with skeet fields 4–7. The site was backfilled with clean fill and skeet fields 4–7 were reconstructed in their original locations using crushed stone to replace the original, concrete surfaces. All high and low houses and safety fencing were reinstalled in the original locations. Noncontributing features to the cultural landscape, such as trap and skeet fields constructed outside the period of significance (including trap fields 1–3, modifications and alterations to skeet fields 4–7, the duck tower, skeet fields 8 and 9, and calibration posts, some of which are identified on Figure 2-2, p. 2-3), and paved parking areas were removed. The soil remediation project did not include work on the buildings or removal of contaminated soil beneath any existing structures.

EVALUATION OF HISTORICAL SIGNIFICANCE

The project site was evaluated in the cultural landscape report prepared by Denise Bradley in 2014 as part of the CEQA process for the soil remediation project, and was reevaluated in the addendum in 2020 after completion of the soil remediation project. Of the four general types of cultural landscapes (historic sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes), the project site

[19] The field-specific trap houses were square in plan and built partially below grade at the north end of each trap field. Each trap house protected the trap-launching machinery for that specific field. They were removed during the soil remediation project and should not be confused with the larger trap house that was constructed to distribute the trap targets to club members.

is best described as a historic vernacular landscape—that is, one that has evolved through use by the people whose activities or occupancy shaped it and one in which function plays a significant role.

The following discussion summarizes the evaluation of California Register eligibility presented in the cultural landscape report and addendum that was confirmed in the HRER Part I.

CRITERION 1 (EVENTS)

The site of the Pacific Rod and Gun Club is significant as an example of the type of sportsman's gun club that formed in the 1920s and 1930s within the context of the democratization of hunting, illustrating the social experience connected with the conservation movement. Additionally, the site is important as the oldest extant skeet facility in the Bay Area, and as the only sportsmen's club in the Bay Area to retain its original pre–World War II grounds configuration, skeet field structures, and club buildings. As such, the site is eligible for listing in the California Register under criterion 1 for its association with the broad pattern of history related to the increased popularity of sport hunting and with the interrelated development of skeet shooting —during the period it evolved from a type of shooting practice into a competitive sport—that occurred during the decades preceding World War II within the context of the early-20th-century wildlife conservation movement.

Other historic associations were not found to rise to the level of significance. The site is not eligible for its association with the expansion of recreation around Lake Merced that occurred during the 1910s–1930s before the establishment of the club. The site is also not eligible under criterion 1 for its association with the WPA and the expansion of San Francisco's recreational facilities during the Great Depression through the funding and work provided by this agency. Thus, the site is significant under criterion 1 only for its association with the Pacific Rod and Gun Club.

CRITERION 2 (PEOPLE)

No individuals of historical significance are associated with the site. Additionally, the site does not appear to possess individual significance under criterion 2 for associations with important persons. The site at 520 John Muir Drive is not eligible for listing under criterion 2.

CRITERION 3 (DESIGN/CONSTRUCTION)

The site of the Pacific Rod and Gun Club does not embody the distinctive characteristics of a type, period, or method of construction, nor is it the work of a master or possess high artistic value. The four skeet fields each individually meet the standard design or construction regulations for the sport and retain their essential individual features or components. However, each field is an individual common example of a skeet field that lacks significance related to design or construction. Collectively, the target shooting range at the site represents a vernacular example of the arrangement of skeet and trap fields adapted to the geographic limits of this site (a strip of land situated between Lake Merced and a public road), does not appear to have been designed or built by a master designer, and lacks significance related to design or construction. The buildings on the site (the clubhouse, the caretaker's house, the rifle range building, the shell house, and the trap house) remain in their original locations and are important for the operational and social functions of the club; however, they all are common examples of vernacular buildings and lack significance related to design or construction. Therefore, the site is not eligible for listing under criterion 3.

CRITERION 4 (INFORMATION POTENTIAL)

To be eligible for listing in the California Register under criterion 4, a property must have the potential to yield information important in prehistory or history. Criterion 4 is generally understood to apply primarily to archeological resources. Criterion 4 may apply to architectural resources under limited circumstances where study of the physical fabric of a building, structure, or landscape may yield important scientific and historic information that is not otherwise available in the documentary record. The buildings, structures, and site features at the site do not represent a local construction type that would yield information important regarding the prehistory or history of San Francisco. Therefore, it does not qualify for listing in the California Register under criterion 4. The potential for the site to contain archeological resources is addressed in Appendix A, Initial Study, of this EIR.

PERIOD OF SIGNIFICANCE

The period of significance of the Pacific Rod and Gun Club begins in 1934 when the club moved to the Lake Merced site and ends in 1941 with the United States' entry into World War II, which ended the club's initial period of development.

INTEGRITY EVALUATION

2014 CULTURAL LANDSCAPE REPORT EVALUATION

The cultural landscape report prepared in 2014 for the soil remediation project concluded that the site was a historical resource under CEQA and retained all seven aspects of integrity, maintaining its appearance and function as established during the period of significance. According to the cultural landscape report, changes to the site over time, including the construction of additional buildings, the addition of trap fields, and installation of support features (e.g., barbeque shed, restrooms, circulation improvements), did not diminish the historical significance of the site. The cultural landscape report concluded that the site continued to convey its importance as a recreational facility from the pre–World War II period. The cultural landscape report also identified contributing and noncontributing features and buildings of the site that contributed to the site's significance (existing contributing and noncontributing features are described in more detail below). For contributing features and buildings, additional character-defining features were identified. The identification of contributing and noncontributing features informed the soil remediation project.

2020 CULTURAL LANDSCAPE REPORT ADDENDUM (POST REMEDIATION)

Between May 2015 and April 2016, the SFPUC completed the soil remediation project to address soil contamination at the site. This contamination stemmed from the club's use from 1934 to 1993 of lead shot and clay targets made with asphaltic materials. Most contributing features on the site were either retained onsite during the soil remediation project or removed and reinstalled after its completion. Noncontributing features, including trap fields 1–3, skeet fields 8 and 9, the concrete added within skeet fields 4–7, and other miscellaneous small-scale features and vegetation on the site were removed. These features were identified in the cultural landscape report as noncontributing features and were not replaced after the soil remediation project. At the conclusion of the soil remediation project, the site was reassessed in the cultural landscape report addendum to determine whether it still retained integrity for listing in the California Register.

The addendum determined that the site still retained sufficient integrity and was eligible for listing in the California Register. The findings of the addendum were reviewed by planning department staff and the HRER Part I confirmed that the site retained integrity after completion of the remediation project. At the conclusion

of the soil remediation project, the spatial features of the site—the location and linear arrangement of the skeet fields, the placement of structures on the periphery of the site, and the shoreline as a physical boundary—remained intact. The four contributing buildings identified on the site (the clubhouse, the caretaker's house, the rifle range building, and the shell house) remain in their original locations and were not moved during the soil remediation project. Plywood was added to window and door openings for safety, but the buildings and their corresponding character-defining features remain unaltered after the soil remediation project. The high houses, low houses, and safety fencing for skeet fields 4–7 were temporarily removed and reinstalled in their original locations.

Therefore, the site continues to retain sufficient integrity for continued eligibility for listing in the California Register.

CONTRIBUTING AND NONCONTRIBUTING FEATURES

With regard to the significance of the site under criterion 1 (events), the HRER Part I confirmed the findings of the addendum prepared after completion of the soil remediation project and identified the contributing and noncontributing features of the cultural landscape listed in **Table 3.2-2**.

The buildings and structures identified below were retained during soil remediation or replaced and remain on the site.

CLUBHOUSE (CONTRIBUTOR)

The 3,040-square-foot clubhouse shown on **Figure 3.2-2** is located southeast of the vehicle entrance and is oriented north toward Lake Merced. It was built in 1937 as a clubhouse. It is a raised one-story building with a rectangular footprint that measures approximately 65 feet long by 40 feet wide. The building is of wood-frame construction with a foundation consisting of a raised wood-frame pony-wall on a continuous concrete footing. The clubhouse is capped by a cross gable roof clad with composition shingles. The walls are clad with horizontal wood siding. The primary (north) *façade*[20] faces Lake Merced and features a wood door with a textured glass window protected by a shed-roof covered entry porch. The east, west, and south façades have a variety of window sash types, including both original wood casement windows and replacement fixed vinyl windows. All windows are currently covered with plywood. A cinder-block chimney is centrally located on the north façade at the peak of the cross gable roof. A covered wood wheelchair ramp is located on the north façade.

CARETAKER'S HOUSE (CONTRIBUTOR)

The 880-square-foot caretaker's house shown on Figure 3.2-2 is located east of the vehicle entrance, between the entry drive and the clubhouse. It is oriented north toward Lake Merced. The caretaker's house was built in 1937 for use by the onsite manager. It is a one-story building with a rectangular footprint that measures approximately 35 feet long by 25 feet wide. The side gable roof is covered with composition shingles. Gable ends are clad with wood fish-scale shingles at the east gable and vertical wood siding at the west gable. The walls are clad with horizontal wood siding. Original double-hung, wood-frame windows remain on the south, north, and west façades. Decorative wood shutters flank several windows. The primary (west) entry is through a small, enclosed porch. A shed roof shelters the secondary entrance on the east façade. All windows and doors are currently covered with plywood.

[20] A *façade* is any exterior face of a building. The façade refers to the principal face of the building and more generally can reference any side of a building facing a street, garden, or public space.

Table 3.2-2 Contributing and Noncontributing Features of the Cultural Landscape

Feature	Character-Defining Features
Contributing Features and Buildings	
Overall Site	Linear arrangement of skeet fields 4–7 facing the lake, the shoreline as a natural boundary, and the location of buildings and structures on the periphery of the site
Skeet Fields 4–7	A level terrace and semicircular path system of each field
High houses and low houses	Wood-frame tower structure with a flat roof, combination of wood siding and stucco cladding, and openings to allow loading and firing of targets (a door on the west side and window on the east side)
Safety fencing for skeet fields 4–7	Wood boards attached on alternating sides of the fence
Clubhouse (1937)	Raised one-story wood-frame structure, horizontal wood siding, cross gable roof, and exposed eaves
Caretaker's house (1937)	One-story wood-frame building, rectangular footprint, horizontal wood siding, gable roof, exposed eaves, gable ends with fish-scale shingles (east façade) and thin vertical siding (west façade), wood double-hung windows on the south, north, and west façades, fixed wood shutters, and an entry shed on the north façade
Rifle range building (1939)	Raised one-story building, rectangular footprint, horizontal wood siding, gable roof, exposed eaves, and wood double-hung four-pane windows on the north, south, and west façades
Shell house (1939, expanded 1949)	One-story height, rectangular footprint, textured stucco cladding, low-pitched gable roof, exposed eaves, raised porch, and wood-frame picture window on the west façade
Noncontributing Features	
Restroom	Not applicable (features constructed after the site's period of significance)
Garage	
Barbeque shed	
Trap house	
Noncontributing Features (No Longer Extant) [a]	
Alterations to skeet fields 4–7, including concrete paving and equipment sheds	Not applicable (features constructed after the site's period of significance and removed during the soil remediation project)
Concrete circulation features including parking lots and a concrete sidewalk between skeet fields 4–7	
Duck tower	
Skeet fields 8 and 9 and their associated features	
Trap fields 1–3 and their associated trap houses	

NOTE:
[a] Features listed in this category were present on the site before the soil remediation project. Based on determinations in the 2014 cultural landscape report, these noncontributing features were removed during the soil remediation project.

SOURCE: Historical Cultural Resources Supporting Documentation (Appendix D)

Photo 1. Clubhouse on left and Caretaker's House on right; facing south; (contributing features)

Photo 2. Rifle Range Building; facing northeast; (contributing feature)

Photo 3. Barbeque Shed with Rifle Range Building in background; facing west; (barbeque shed non-contributing feature)

Photo 4. Caretaker's House; facing southeast; (contributing feature)

SOURCE: Denise Bradley Cultural Landscapes, 2020

Lake Merced West

Figure 3.2-2
Existing Buildings and Structures: Clubhouse, Rifle Range Building, Barbeque Shed, and Caretaker's House

ESA

RIFLE RANGE BUILDING (CONTRIBUTOR)

The 2,622-square-foot rifle range building shown on Figure 3.2-2 is located northeast of the vehicle entrance and southeast of skeet field 7. It was built in 1939 as an indoor rifle-range target practice facility. The one-story building with a rectangular footprint measures approximately 105 feet long by 25 feet wide and rests on a wood pier foundation. The gable roof is clad with composition shingles. Roof rafter ends are exposed at the north gable. The exterior is clad with horizontal wood siding, similar to that on the clubhouse and the nearby caretaker's house. Original double-hung, wood-frame windows remain on the north, south, and west façades. The primary (south) entry is under the south gable, facing the parking lot and John Muir Drive. Additional entrances are located on the east (two entries) and west façades (one entry). A shed roof addition spans the entire north façade. All windows and doors are currently covered with plywood.

SHELL HOUSE (CONTRIBUTOR)

The 1,365-square-foot shell house shown on **Figure 3.2-3** is located west of the main entrance on John Muir Drive and south of skeet fields 4 and 5. Like the other buildings on the site, it is oriented toward Lake Merced and skeet fields 4–7. It was built in 1939 and expanded in 1949 to house check-in operations and facilitate shell and target concessions. It is a one-story building with a rectangular footprint that measures approximately 65 feet long by 20 feet wide. The low-pitch, side-gable roof has shallow projecting eaves and is covered with rolled composition roofing. The walls are clad with textured stucco. The primary (north) façade has a shed-roof entry porch and deck. The primary entrance at this porch is through a pair of sliding glass doors flanked by large picture windows. A shed roof shelters a secondary entrance on the east façade, which has a metal door and a "Field House" sign. A wood-frame window is located south of the metal door and a fixed picture window is north of the door. There is an addition on the west side of the building. It has an additional entry set flush with the exterior wall and has no overhead protection. The west façade also has a large sliding glass door and a fixed picture window. All windows and doors are currently covered with plywood.

BARBEQUE SHED (NONCONTRIBUTOR)

Located immediately east of the rifle range building, and north of the clubhouse and caretaker's house, the barbeque shed shown on Figure 3.2-2 was constructed around 1970. It is a one-story building with a square footprint. The shed roof is clad with rolled composition roofing. All exterior walls are finished with plywood sheets with vertical and horizontal battens over the seams. The building's two doors in the primary (southeast) façade are currently covered with plywood.

GARAGE (NONCONTRIBUTOR)

The 660-square-foot, three-bay garage shown on Figure 3.2-3 is located immediately east of the vehicle entrance, between the entry drive and the caretaker's house. The garage is oriented north toward Lake Merced. It was built around 2000 for use as a vehicular garage and storage. It is a one-story building with a rectangular footprint that measures approximately 30 feet long by 23 feet wide. The flat roof is covered with rolled composition roofing material. The walls are clad with vertical wood siding. Three metal roll-up doors are equally spaced across the primary (north) façade.

Photo 5. Garage facing southeast; (non-contributing feature)

Photo 6. Shell House; facing southeast; (contributing feature)

Photo 7. Trap House; facing northwest; (non-contributing feature)

Photo 8. Restroom; facing southeast; (non-contributing feature)

SOURCE: Denise Bradley Cultural Landscapes, 2020

Lake Merced West

Figure 3.2-3
Existing Buildings and Structures: Garage, Shell House, Trap House, and Restroom

ESA

TRAP HOUSE (NONCONTRIBUTOR)

The 1,000-square-foot trap house shown on Figure 3.2-3 is located west of skeet field 4 and the shell house. It was constructed around 1960 and most recently used as a classroom. The trap house is a one-story building with a rectangular footprint that measures approximately 30 feet long by 25 feet wide. It sits on an asymmetrical concrete foundation to accommodate the slight slope of grade in this part of the site. The side-gable roof is clad with composition shingles. All exterior walls are finished with plywood sheets with board and batten siding in the gable ends. A full-length shed-roof porch spans the length of the primary (north) façade. A board and batten knee wall encloses the porch. The primary entrance is through metal double doors flanked by two metal-frame casement windows. A secondary entrance is located on the east façade, along with two metal-frame casement windows. Additional casement windows are located on the western and southern façades. All windows and doors are currently covered with plywood.

RESTROOM (NONCONTRIBUTOR)

A restroom building shown on Figure 3.2-3 is located at the southern boundary of the property, west of the shell house and east of the trap house. The restroom was constructed around 1965. It is a one-story building with a rectangular footprint that measures approximately 30 feet long by 11 feet wide. The hip roof is clad with composition shingles. All exterior walls are finished with plywood sheets with batten over the seams. Doors for the men's and women's restrooms are located on the east and west façades. All windows and doors are currently covered with plywood.

SKEET FIELDS 4–7 AND ASSOCIATED FEATURES (CONTRIBUTORS)

Skeet fields 4–7 are located in the center of the property. The fields are laid out for American skeet shooting and each consists of a semicircular station path with eight shooting stations spaced between high and low houses located at opposite ends of each field.[21] Shooting stations 1–7 are placed equidistant on the semicircle, with station 1 located immediately in front of the high house and station 7 located immediately in front of the low house. Station 8 is located at the center of the straight baseline path midway between the high and low houses. The original fields were removed and reconstructed in crushed stone after the soil remediation project. Each skeet field consists of a hemispherical outline in crushed stone as shown on **Figure 3.2-4**. The interior of the semicircle is filled with alternating areas of grass and crushed stone (Figure 3.2-1). **Figure 3.2-5** shows the linear arrangement of skeet fields 4–7 facing the lake.

The high and low houses shown on Figure 3.2-4 are square plan, wood-frame buildings that housed machinery to launch targets. Each is topped with a flat roof and clad with wood board siding or a combination of wood board siding and smooth stucco, painted green. A green wood door with white trim provides interior access. Targets exit the buildings through a small window. The high and low houses were removed during soil remediation and returned to the site at the completion of work. The high house stairs have been removed.

Wooden safety fences are located between skeet fields and along the west side of skeet field 4. As shown on Figure 3.2-4, the fences are constructed of staggered wood boards attached to wood posts. The alternating boards are used to provide greater sound dampening when multiple skeet shooters are active on adjacent fields. The safety fences were removed during soil remediation and partially reassembled in their original locations.

[21] The high and low houses are small, rectangular-plan support buildings that housed the target-launching machinery. "High" and "low" refer to both their relative heights and the general range of elevations reached by targets launched from each building.

Photo 9. Overview of Skeet Field 7 as typical example of skeet field; facing west/northwest

Photo 10. High House for Skeet Field 7; facing northwest

Photo 11. Low House for Skeet Field 7; facing northeast

Photo 12. Safety fence between Skeet Fields 6 and 7; facing northwest

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SOURCE: Denise Bradley Cultural Landscapes, 2020

Lake Merced West

Figure 3.2-4
Existing Buildings and Structures:
Typical Skeet Field and Associated Features
(Contributing Features)

ESA

Photo 13. Overview of Skeet Fields 4 to 7 showing linear arrangement contributing spatial organization characteristic and level terrace; facing west/northwest

Photo 14. Overview of skeet fields 4 to 7 showing linear arrangement; facing east

SOURCE: Denise Bradley Cultural Landscapes, 2020

Lake Merced West

Figure 3.2-5
Views of Linear Arrangement of Skeet Fields (Contributing Feature)

ESA

HISTORICAL ARCHITECTURAL RESOURCES LOCATED ADJACENT TO THE PROJECT SITE

The project site is bounded along its northern edge by Lake Merced and is included within the Lake Merced Park boundary. The City and County of San Francisco owns and maintains several facilities in the immediate vicinity. A police department pistol range is immediately west of the project site. Along the eastern site boundary is a strip of unimproved shoreline, owned and maintained by the SFPUC. To the south, across John Muir Drive, most of the property faces the privately owned Lakewood Apartments complex. To the southeast, a small portion of the Olympic Club Golf course complex fronts John Muir Drive across from the project site. None of these properties is currently identified as a historical resource.

Further searches were conducted of the City of San Francisco Property Information Map[22]; the National Park Service's National Register database[23]; the Built Environment Resource Directory[24]; San Francisco Planning Code article 10, appendices A–O; planning code article 11, appendices E–K; and prior environmental assessments. These searches identified two historical resources within 0.25 mile of the project site: the Vista Grande Canal and Tunnel and the Battery Davis complex consisting of Battery Davis, the Battery Davis Plotting and Switchboard Room, and two fire control stations.[25]

VISTA GRANDE CANAL AND TUNNEL

The Vista Grande Canal and Tunnel resource consists of two major components: a 3,600-foot-long, man-made, brick-lined trapezoidal channel (canal) that runs approximately parallel to John Muir Drive in San Francisco and connects to the Vista Grande Tunnel; and the 3,000-foot-long, brick-lined Vista Grande Tunnel, which runs under the Olympic Club Golf Course and Fort Funston and connects the open canal to an outfall at the Pacific Ocean.[26]

Both components were originally constructed around 1896 by the Spring Valley Water Company and have been determined eligible for listing in the National Register[27] under both criterion A, for the "provision and protection of San Francisco's Water supply during private ownership by the Spring Valley Water Company," and criterion C, "because the canal and tunnel embody the characteristics of a distinctive type (brick-lined), period (1890s), and method (manual/non-mechanized) of construction."[28]

As such, the property meets the definition of a historical resource a defined under CEQA Guidelines section 15064.5. It has a period of significance of 1877–1934, corresponding to the date when the Spring Valley Water Company began acquiring land around Lake Merced for the development of the city's water system, to 1934

[22] City and County of San Francisco Department of Planning, San Francisco Property Information Map, *sfplanninggis.org/PIM/*, accessed June 4, 2021.
[23] National Park Service, *National Register Database and Research*, *www.nps.gov/subjects/nationalregister/database-research.htm#table*, accessed June 4, 2021.
[24] Office of Historic Preservation, Built Environment Resource Directory (BERD), *https://ohp.parks.ca.gov/pages/1068/files/San%20Francisco.csv*, accessed June 4, 2021.
[25] This grouping has not yet been formally designated. However, it is identified in the Vista Grande Drainage Basin Improvement Project EIR/EIS as a historical resource. As such, it is included here. Environmental Science Associates (ESA), *Vista Grande Drainage Basin Improvement Project Environmental Impact Report/Environmental Impact Statement*, prepared for the City of Daly City and the National Park Service, August 2017 (State Clearinghouse No. 2013032001), p. 3.5-14.
[26] The Vista Grande Canal is an open water channel located approximately parallel to John Muir Drive, from the east side of the Lakewood Apartments property boundary to Lake Merced Boulevard. The Vista Grande Tunnel is located below grade and runs under the Olympic Club and Fort Funston due west from the east side of the Lakewood Apartments property boundary to Ocean Beach.
[27] Polanco, Julianne, California State Historic Preservation Officer, Letter (NPS_2014_0911_001), "Vista Grande Drainage Basin Improvement Project," to Aaron Roth, Golden Gate National Recreation Area, November 4, 2016.
[28] Frank, National Park Service, letter to Carol Roland-Nawi, Ph.D., California State Historic Preservation Officer, December 4, 2014.

when the Hetch Hetchy system became operational and the Vista Grande system became obsolete as water supply and fire protection infrastructure.[29]

The canal portion of this resource is located near the south side of John Muir Drive. The tunnel passes under portions of the Olympic Club and Lakewood Apartments properties and is located approximately 150 feet from the project site at its closest point.

The Vista Grande Canal and Tunnel were constructed around 1896 and are unrelated to recreation around Lake Merced or the early conservation movement. These facilities do not share a historical context or period of significance with the project site. The two resources are geographically related along opposite sides of John Muir Drive but are otherwise unrelated as historical resources.

BATTERY DAVIS COMPLEX

Battery Davis is a component of Fort Funston, a seacoast defense installation constructed between 1917 and 1957. Battery Davis was constructed around 1937 and consisted of two 16-inch large-caliber mounted guns, a plotting/switchboard room, a radio room, a battery commander station, a water supply system, and firefighting equipment. The U.S. Army also constructed three fire control stations, two of which—FC Funston Group and B5S5 Const. 244—are now considered part of the Battery Davis Complex historical resource.

Fort Funston was originally determined eligible as a historic district (the Fort Funston National Register Historic District) on July 31, 1980, for its "local significance in military history for its associations with the evolution of the Bay Area's coastal defense system between World War I and World War II."[30] The period of significance was established as 1900–1948. The Fort Funston National Historic District, though determined eligible, was never formally listed in the National Register.

In 2006, the National Park Service found that the Fort Funston National Historic District no longer retained historic integrity due to coastal erosion and it was reassigned a National Register status code of 6Y, indicating that it was no longer eligible for listing in the National Register. However, the National Park Service also stated in its addendum that of "the structures that retain integrity, Battery Davis is by far the most significant resource located at Fort Funston. Battery Davis is significant within the broader context of San Francisco Bay Area defense fortifications, as part of a pair of large gun batteries that flank the mouth of San Francisco Bay. Battery Davis and the Battery Davis Plotting and Switchboard Room will be assessed in the future as part of a National Historic Landmark nomination for the Seacoast Fortifications of San Francisco Bay."[31]

As such, the property meets the definition of a historical resource a defined under CEQA Guidelines section 15064.5. The closest component of this resource (the Battery Davis Plotting and Switchboard Room) is located approximately one-quarter mile from the western boundary of the project site.

As mentioned previously, the Battery Davis Complex was constructed between 1917 and 1957 and is unrelated to the development of recreation around Lake Merced in the first half of the 20th century or to the early conservation movement. It does not share a historical context or period of significance with the project

[29] Environmental Science Associates (ESA), *Vista Grande Drainage Basin Improvements Project Cultural Resources Survey Report,* prepared for the City of Daly City, December 2014, p. 61.
[30] Environmental Science Associates (ESA), *Vista Grande Drainage Basin Improvement Project Environmental Impact Report/Environmental Impact Statement*, prepared for the City of Daly City and the National Park Service, August 2017 (State Clearinghouse No. 2013032001), pp. 3.5-13 – 3.5-14.
[31] Ibid.

site. The two resources are geographically related along opposite sides of John Muir Drive and Skyline Boulevard but are otherwise unrelated as historical resources.

3.2.4 Impacts and Mitigation

SIGNIFICANCE CRITERIA

The criteria for determining the significance of impacts in this analysis are consistent with the environmental checklist in Appendix G of the CEQA Guidelines, as modified by the San Francisco Planning Department. For the purposes of this analysis, the following applicable criteria were used to determine whether the project would result in a significant impact on historical architectural resources. Implementation of the project would have a significant effect on historical architectural resources if the project would:

- Cause a substantial adverse change in the significance of a historical resource as defined in section 15064.5, including those resources listed in article 10 or article 11 of the San Francisco Planning Code.

Article 11 of the planning code applies only to Downtown (C-3) Use Districts and thus is not applicable to the project site. Additionally, no article 10 buildings are located on the project site. Therefore, the provisions of articles 10 and 11 do not apply to the project.

A "substantial adverse change" is defined by CEQA Guidelines section 15064.5 as "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired." The significance of a historical resource is "materially impaired," according to CEQA Guidelines section 15064.5(b)(2), when a project "demolishes or materially alters in an adverse manner those physical characteristics" of the resource that:

(A) Convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or

(B) Account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in a historical resources survey meeting the requirements of Public Resources Code section 5024.1(g), unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or

(C) Convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

As noted above, a project that would comply with the Secretary's Standards is considered to have reduced its impact to a less-than-significant level (CEQA Guidelines section 15064.5[b][3]). Documentation of the historical resource before implementation of the project provides a record of the existing conditions and remaining historical form of the resource and is often applied to partially mitigate impacts. However, CEQA Guidelines section 15126.4(b)(2) states that "[i]n some circumstances, documentation of a historical resource, by way of historic narrative, photographs or architectural drawings, as mitigation for the effects of demolition of the resource will not mitigate the effects to a point where clearly no significant effect on the environment would occur." Although documentation may lessen impacts resulting from demolition of the resource, the demolition or substantial alteration of a historical resource would remain a significant and unavoidable impact on the environment even after the historical documentation has been completed.

APPROACH TO ANALYSIS

Potential impacts on historical resources are assessed by identifying any activities (during either construction or operation) that could affect resources that have been identified as historical resources for the purposes of CEQA. Once a resource has been identified, it then must be determined whether the proposed project would "cause a substantial adverse change in the significance" of the resource, as described above. Therefore, in accordance with CEQA Guidelines section 15064.5(b)(2), the following analysis considers the potential for the proposed project to materially impair the significance of a historical resource by causing direct or indirect changes to the physical characteristics of the resource that convey its historical significance. Mitigation of impacts on historical resources may involve avoiding the resource; revising the project to minimize the effect; or, where avoidance or minimization is not feasible, documenting the resource. However, as noted above, documentation may not reduce impacts on a historical resource to a less-than-significant level.

As described in more detail above in Section 3.2.3, the Pacific Rod and Gun Club has been identified as a cultural landscape whose character-defining features include contributing landscape features and buildings and the interrelated spatial connections between these elements. More than the simple sum of each contributing element, a cultural landscape's significance and integrity is often tied directly to how those elements relate to each other and to the site. In analyzing potential impacts on a cultural landscape, it is important to determine not only which contributing features would be removed or altered as part of a proposed project, but also how new interventions on the site (new buildings, structures, or new uses) may affect the overall interrelated nature of contributing features that make up the cultural landscape. A cultural landscape can be altered just as easily by what is removed from the landscape as by what is added to it.

IMPACT EVALUATION

Impact CR-1: The project would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines section 15064.5. (Significant and Unavoidable with Mitigation)

The project site contains one historical resource, a vernacular cultural landscape that contains both contributing buildings and landscape features. It is eligible for listing in the California Register under criterion 1 for its association with the early conservation movement and the development of sport shooting. All contributing features except skeet field 4 would be removed during project construction. Therefore, impacts on the cultural landscape would occur during construction. The following discussion focuses on the demolition of contributing features and the construction of new buildings, recreational facilities, and landscape features.

As noted above, the project would demolish most contributing features of the cultural landscape (**Figure 3.2-6**). This includes demolition of the four contributing buildings, three of the four contributing skeet fields and the semi-circular pathways around them, three of the four high houses, three of the four low houses, and all of the safety fences. The form and shape of skeet field 4 would remain and its associated high and low houses may be incorporated within the ropes course. New walkways and internal roads would be constructed to connect the new buildings and recreational facilities. The semicircular pathway around skeet field 4 would be reconstructed.

In addition to five new buildings, new outdoor recreation facilities would be included in the project. These include a playground, boat dock, ropes course, basketball court, multiuse sport court, and skate park as well as landscaped open space.

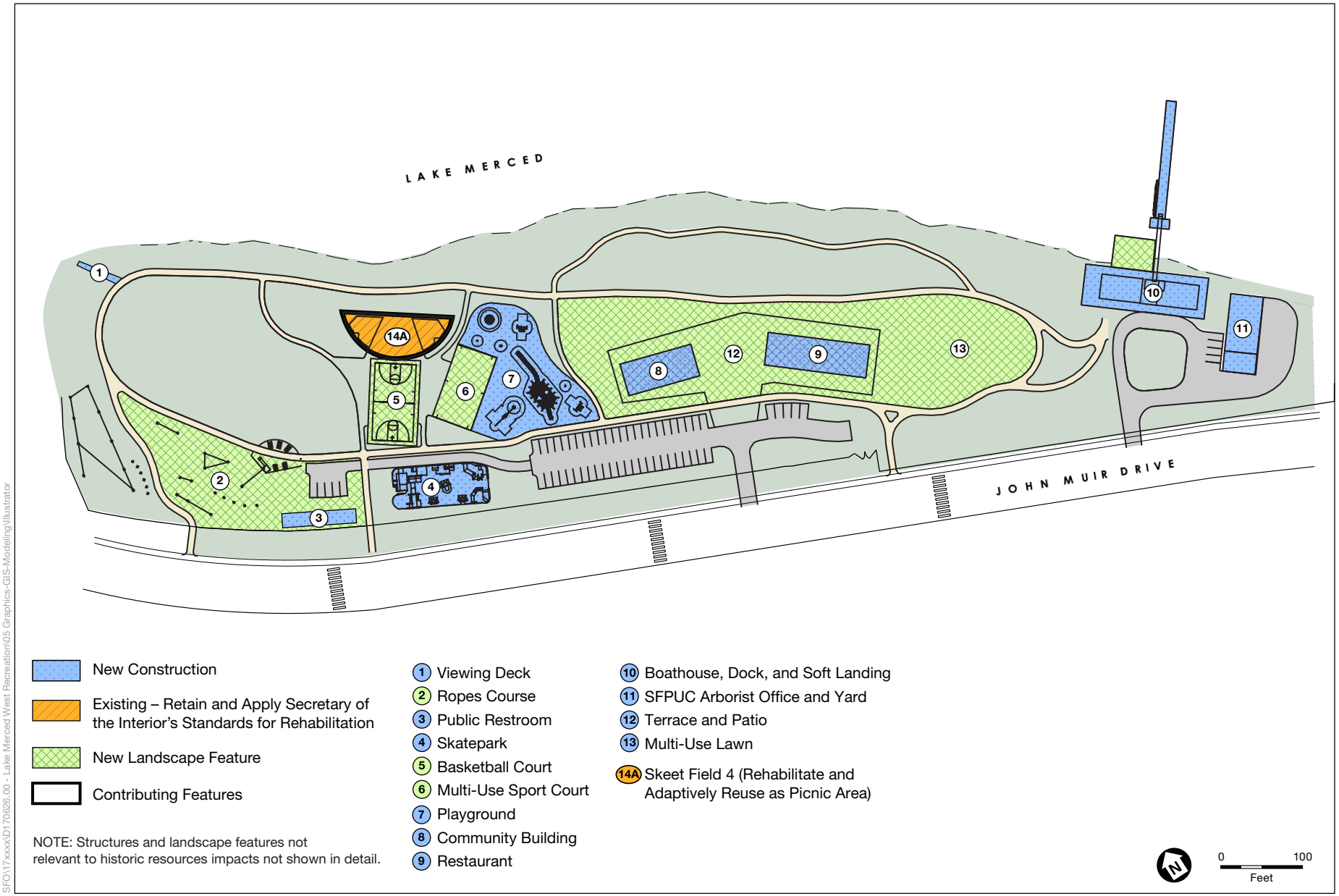
At the eastern end of the site, a new boathouse building with dock and soft water landing area would provide both water access and watercraft rentals. A new SFPUC arborist office and support building would also be constructed at the eastern end of the site. At the center of the site, a community building and restaurant would be constructed and sited to take advantage of views across Lake Merced. A second restroom building with storage is proposed for the western end of the site to serve the skate park and ropes course areas. Upon project completion, the project site would include new buildings with a total floor area of 16,300 square feet.

The form and shape of skeet field 4 would remain and the shoreline would continue to act as a natural boundary for the site. All other features would be demolished. New buildings and features such as the entry plaza and terrace, community building, and restaurant would be concentrated in the center of the site. This would alter the site's historic building placement and historical spatial relationship, which placed buildings at the periphery and skeet fields in the center. Where open areas remain, new recreational uses would be introduced, including recreational fields, a playground, picnic areas, and lawn. Although it is likely that the site would remain level—a character-defining feature of skeet fields 4–7—the size and shape of the level area would be greatly reduced. Not only would the project alter the proportions and placement of buildings and features on the site, but it would also result in loss of the spatial relationships between the remaining elements. Only the form and shape of skeet field 4 would be retained (as part of a picnic area) and would assist with public interpretation of the property's historical skeet shooting associations.

Most contributing features (the rifle range building, shell house, caretaker's house, and clubhouse; skeet fields 5–7; and 75 percent of the high houses, low house, and safety fences) would be demolished. In addition to the demolition of the contributing features, five new buildings, a playground, two sport courts, a skate park, a ropes course, and a boat dock would be constructed on the site. This new construction, combined with the demolition of the contributing buildings and removal of most contributing site features associated with the former Pacific Rod and Gun Club, would detract from the spatial relationships of contributing buildings and features within the cultural landscape that make it significant.

With the combined removal of most contributing features and structures, except skeet field 4, and construction of new buildings and amenities on the site, the property would no longer communicate its significance as a vernacular cultural landscape under criterion 1 as a sportsman's gun club that formed in the 1920s and 1930s. The extensive demolition would remove historic materials, features, and spaces that characterize the property and would result in physical destruction, damage, or alteration such that the significance of the individual historical resource would be materially impaired. As such, the impact on the former Pacific Rod and Gun Club historic landscape would be *significant and unavoidable*.

The impact of demolition of a historical resource generally cannot be mitigated to a less-than-significant level. Implementation of **Mitigation Measures M-CR-1a through M-CR-1d** presented below would reduce the impact resulting from demolition and alteration of the historical resources, though not to a less-than-significant level. The impact on historical resources would remain *significant and unavoidable* even after the implementation of the following mitigation measures.



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SOURCE: ESA, 2021

Lake Merced West

Figure 3.2-6
Project Buildings and Landscape Features

ESA

Mitigation Measure M-CR-1a: Documentation of Historical Resources

Before any demolition activities within the project site, the RPD and the SFPUC shall retain a professional who meets the Secretary of the Interior's Professional Qualification Standards for Architectural History to prepare written and photographic documentation of the Pacific Rod and Gun Club, with particular attention to the site as a cultural landscape and the contributing features including skeet fields 4–7 (including their associated high and low houses and safety fences), the rifle range building, the caretaker's house, the clubhouse, and the shell house. The documentation shall be based on the National Park Service's Historic American Building Survey (HABS) or the Historic American Landscapes Survey (HALS). This type of documentation is based on the Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation and the National Park Service's policy for photographic documentation, as outlined in the National Register and National Historic Landmarks Survey Photo Policy Expansion.

The documentation shall include the following elements:

- Accurate scaled mapping and architectural descriptions. If available, scaled architectural plans shall also be included;
- Photographs in large-format (4-inch by 5-inch) black-and-white negatives and 8-inch by 10-inch enlargements. Digital photography may be substituted for large-format negative photography if archived locally;
- A report containing site-specific history and appropriate contextual information. This information shall be gathered through site-specific and comparative archival research and oral history collection as appropriate; and
- A print-on-demand book. The electronic Print-on-Demand book shall be made available to the public for distribution. The RPD and the SFPUC shall make the content of the historical report, historical photographs, HABS photography, measured drawings, and field notes available to the public through a preexisting print-on-demand book service. This service shall print and mail softcover books containing the aforementioned materials to members of the public who have paid a nominal fee. The RPD and the SFPUC shall not be required to pay ongoing printing fees once the book has been made available through the service.

The RPD and the SFPUC shall transmit such documentation to the San Francisco Planning Department and to repositories including the History Room of the San Francisco Public Library, San Francisco Heritage, the California Historical Society, the Northwest Information Center of the California Historical Information Resource System, and local or neighborhood historical societies. The qualified consultant shall determine the requested documentation type for each facility, and the RPD and the SFPUC shall conduct outreach to identify other interested repositories. All documentation shall be scoped and then shall be reviewed and approved by the planning department's preservation staff before issuance of the demolition permit.

Mitigation Measure M-CR-1b: Video Documentation

Before any demolition activities within the project site, the RPD and the SFPUC shall retain a qualified professional to undertake video documentation of the affected historical resource and its setting. This mitigation measure would supplement the traditional HABS/HALS documentation and would enhance the collection of reference materials that would be available to the public and

inform future research. The documentation shall be conducted by a professional videographer with experience recording architectural resources. The professional videographer shall provide a storyboard of the proposed video recordation for review and approval by planning department preservation staff.

The final video shall be reviewed and approved by the planning department preservation staff prior to issuance of a demolition permit for the project. Archival copies of the video documentation shall be submitted to the planning department, and the consultant shall contact the following repositories to determine whether they will request copies: the History Room at the San Francisco Public Library, San Francisco Heritage, the Prelinger Archives, and the California Historical Society.

Mitigation Measure M-CR-1c: Interpretive Program

The RPD and the SFPUC shall facilitate the development of an interpretive program focused on the history of the project site as a recreational shooting range. The interpretive program should be developed and implemented by a qualified preservation professional with demonstrated experience in displaying information and graphics to the public in a visually interesting manner. Coordination with local artists should occur, as feasible. The primary goal of the program is to educate visitors about the property's historical themes, associations, and lost contributing features within broader historical, social, and physical landscape contexts. One possible location for interpretation would be the skeet field that is to be retained and reused as a picnic area.

This program shall be initially outlined in a proposal for a Historic Resources Public Interpretive Plan subject to review and approval by planning department preservation staff. The plan shall include the general parameters—substance, media, and other elements—of the interpretive program, which shall include in publicly accessible areas of the project site a permanent display(s) of interpretive materials concerning the history and architectural features of the historical resource (both the site as a whole and the individual contributing buildings and features). The interpretive plan should also explore contributing to publicly accessible digital platforms.

The detailed content, display materials, and other characteristics of such an interpretive program shall be reviewed and approved by planning department staff before the issuance of a Temporary Certificate of Occupancy.

Mitigation Measure M-CR-1d: Oral Histories

The RPD and the SFPUC shall retain the services of a qualified historian to undertake an oral history of the Pacific Rod and Gun Club and shall make a good-faith effort to publicize the oral history project, conduct public outreach, and identify a wide range of potential interviewees. The RPD and the SFPUC shall employ a range of measures that may include installing booths that allow participants to record their recollections, and/or hosting a website that allows interviewees to contribute remotely. This oral history project shall consist of interviews of and recollections by members of the Pacific Rod and Gun Club if possible, and could include a video tour explaining the activities that took place on the site. The success of this effort will depend primarily on the ability of the RPD and the SFPUC to locate such persons, and on their willingness and ability to participate. Before undertaking this effort, the scope and methodology of the oral history project shall be reviewed and approved by planning department preservation staff.

In addition to potentially being used for the onsite interpretive program, the recordings made for the oral history project shall be transcribed, indexed, and made available to the public at no charge through the planning department and other archives and repositories to allow for remote historical interpretation of the site.

SUMMARY

Mitigation Measures M-CR-1a through M-CR-1d would require documentation of the historical architectural resources within the project site, the creation of an interpretive program, and the undertaking of oral histories pertaining to the site's history. These mitigation measures are required to document and interpret the significance of the Pacific Rod and Gun Club site. Implementing these mitigation measures would create a collection of preservation materials available to the public and inform future research. The mitigation would partially compensate for the project's impacts through comprehensive documentation and memorialization of the resource. However, these mitigation measures would not be enough to avoid, rectify, reduce, or compensate for the loss of the historical architectural resources at 520 John Muir Drive to reduce impacts to a less-than-significant level. Only avoiding substantial adverse changes would reduce impacts to less-than-significant levels. Therefore, the impact of the project on the Pacific Rod and Gun Club historical resource would remain ***significant and unavoidable with mitigation***.

Significance after Mitigation: Significant and Unavoidable with Mitigation.

CUMULATIVE IMPACTS

Impact C-CR-1: The proposed project, in combination with cumulative projects, could result in demolition and/or alteration of a historical resource, as defined in CEQA Guidelines section 15064.5. (Less than Significant)

Section 3.1.3, Cumulative Impact Analysis, describes the overall approach to the cumulative analysis used throughout this EIR. Table 3.1-3, p. 3.1-7, and Figure 3.1-1, p. 3.1-10, identify cumulative projects located within a 0.25-mile radius of the project site. Project-related impacts on historical architectural resources would be site-specific and generally limited to the project's construction area. Any cumulative projects shown in Figure 3.1-1 and listed in Table 3.1-3 that fall within the boundaries of the project site or are otherwise related to the site through a shared historical association are considered in the cumulative impact analysis with regard to impacts on the cultural landscape. None of the projects listed in Table 3.1-3 and Figure 3.1-1 meet these criteria.

Therefore, the impacts of the proposed project would not combine with the impacts of other projects in the vicinity of the project site to result in a cumulative impact, and no further analysis is required. Therefore, this impact would be ***less than significant***.

CHAPTER 4
OTHER CEQA ISSUES

4.1 Growth-Inducing Impacts

Section 15126.2(d) of the California Environmental Quality Act (CEQA) Guidelines requires that an environmental impact report (EIR) discuss the growth-inducing impacts of a proposed action. A growth-inducing impact is defined in CEQA Guidelines section 15126.2(e) as:

> [T]he ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth … It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

As discussed in the Initial Study (Appendix A, Topic E.3, Population and Housing), the Lake Merced West Project (project) does not involve any housing construction and thus would not induce growth directly by constructing housing that would attract people to the area. Project construction would not extend roads or other infrastructure that could indirectly induce growth. Given the size and availability of the regional workforce, project construction would not be expected to induce demand for housing by attracting a substantial number of workers from outside the region. The project also would not provide new permanent employment opportunities that could attract a substantial number of workers to the area; long-term operation of the project would employ an estimated 15–20 employees who would be employed by a concessionaire and would draw from the local and regional workforce. The project would not increase the number of workers employed by the City and County of San Francisco. The project would not have a substantial growth-inducing impact, and no mitigation is required.

4.2 Significant Unavoidable Impacts

In accordance with CEQA section 21100(b)(2)(A) and with sections 15126(b) and 15126.2(c) of the CEQA Guidelines, the purpose of this section is to identify project-related environmental impacts that could not be avoided or reduced to a less-than-significant level with implementation of all feasible mitigation measures. The project site is considered a cultural landscape and has been recommended eligible for listing in the California Register of Historical Resources under Criterion 1 for its association with the early conservation movements and the development of sport shooting. As discussed in Impact CR-1 in Section 3.2, Historical Architectural Resources, demolition of a historic resource generally cannot be mitigated to a less-than-significant level. The project would demolish most of the contributing features associated with the historic resource, and mitigation would not reduce the impact to less-than-significant levels. As a result, the impact on historic resources would be *significant and unavoidable with mitigation*. Although an alternative design could reduce the impact on historic resources, RPD proposes the Lake Merced West project to create a recreational facility that enhances the unique waterfront setting and can be used flexibly to serve the current need of the local community by providing a wide variety of recreational activities.

The environmental impacts of the project, including impacts on historic resources, are discussed in greater detail in Chapter 3, *Environmental Setting, Impacts, and Mitigation Measures,* and Appendix A, Initial Study. The findings in this chapter are subject to final determination by the San Francisco Planning Commission as part of its certification of the EIR.

4.3 Significant Irreversible Changes

In accordance with CEQA Guidelines sections 15126(c), 15126.2(d), and 15127, the purpose of this section is to identify significant irreversible environmental changes that the project would cause, including those that could result from environmental accidents. Such significant irreversible environmental changes might include current or future uses of nonrenewable resources, secondary or growth-inducing impacts that commit future uses of nonrenewable resources, and secondary or growth-inducing impacts that commit future generations to similar uses. According to the CEQA Guidelines, irretrievable commitments of resources should be evaluated to ensure that such current consumption is justified. In general, such irretrievable commitments include the uses of resources such as energy and natural resources that would be required to sustain a project over its usable life.

No significant environmental damage, such as that resulting from accidental spills or the explosion of a hazardous material, is anticipated with implementation of the project. Construction activities associated with the project would result in an irretrievable and irreversible commitment of power supply and construction materials. The project would require the commitment of energy resources used to fuel and maintain equipment used for construction and operation (such as gasoline, diesel, and oil). Project construction would also commit resources, such as rock, asphaltic concrete, concrete, and steel and other metals, to be used for the community building, restaurant, boathouse, restrooms, arborist office, and other project features.

The project would involve the construction of several buildings that would require electricity to operate. New buildings in California are required to conform to energy conservation standards specified in California Code of Regulations Title 24, which are among the most stringent in the United States. The standards establish energy budgets for different types of residential and nonresidential buildings with which all new buildings must comply. In addition, the San Francisco Green Building Code requirements are designed to reduce energy and water use and divert waste from landfills. New construction in San Francisco, including the restaurant and restroom building, must meet all applicable California and local building codes, provide onsite facilities for recycling and composting, and meet the city's green building requirements, which would ensure that natural resources are conserved or recycled to the maximum extent feasible and that the project's greenhouse gas emissions would be minimized.

The consumption of natural resources, including electricity and nonrenewable fuel sources, would generally increase with implementation of the project. However, as discussed in Appendix A, Topic E.20, Energy, the project would not involve the wasteful, inefficient, or unnecessary consumption of energy resources. As described in Appendix A, Topic E.13, Utilities and Service Systems, the project's water demand would be accommodated within available water supplies and current water supply planning. The project would be designed to incorporate water-conserving measures, such as low-flush toilets and urinals, as required by the San Francisco Green Building Ordinance and the city's Non-potable Water Ordinance. During construction activities, water may be used for soil compaction and dust control activities. However, as discussed in Appendix A, Topic E.8, Air Quality, San Francisco Ordinance 175-91 restricts the use of potable water for soil compaction and dust control activities. New landscaping would require irrigation at least for an initial period

during plant establishment. Therefore, although water use would increase as the result of project construction, and possibly under operation as well, the project would not involve the wasteful, inefficient, or unnecessary use of water resources.

4.4 Areas of Known Controversy and Issues to Be Resolved

Section 15123 of the CEQA Guidelines requires that an EIR summary identify each significant effect with proposed mitigation measures and alternatives that would reduce or avoid the effect; areas of controversy known to the lead agency, including issues raised by other agencies and the public; and issues to be resolved, including the choice among alternatives and whether or how to mitigate the significant effects.

On June 9, 2021, the San Francisco Planning Department issued a Notice of Preparation (NOP) of an EIR. In accordance with section 15082 of the CEQA Guidelines, the planning department sent over 400 notices of the NOP to public agencies and interested parties to begin the formal CEQA scoping process for the project. Notices were sent to potentially interested parties, including various federal, state, regional, and local agencies, and to owners and occupants of properties within 300 feet of the project site. The planning department held a scoping meeting on June 23, 2021, to solicit comments on the scope of the EIR. The NOP is included in Appendix B of this document.

Known controversy regarding project design is primarily focused on types of facilities proposed for the site. Many commenters from the rowing community recommended increasing the size of the project's boating facilities; other commenters suggested less development and more site area preserved for open space, or that the project exclude the restaurant, or add an interpretive center.

Other public comments received on the NOP, while not controversial, address the following topics:

- Effects on aesthetic resources, including views and nighttime lighting
- Effects on wetlands, wildlife, and lake water quality
- Use of native and climate-appropriate plantings
- Project area maintenance, including management of invasive species and litter
- Effects of the new facility on traffic congestion, travel patterns, and safety
- Noise, emissions, and pollution associated with the new land use
- Cumulative impacts of the project along with other development around Lake Merced

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CHAPTER 5
ALTERNATIVES

5.1 Introduction

As required by CEQA, this chapter presents the alternatives analysis for RPD's Lake Merced West Project (project). The purpose of the CEQA alternatives analysis is to identify potentially feasible alternatives that could avoid or substantially lessen the significant impacts identified for the project while still meeting most of the project objectives. This chapter describes both the methodology used to screen and select alternatives to the project and the results of the detailed alternatives analysis. For the alternatives selected for detailed analysis, the chapter evaluates the alternatives' impacts relative to existing environmental conditions and compares the potential impacts of the alternatives with those of the project. Based on this analysis, this chapter then identifies the environmentally superior alternative. Finally, other alternatives that were considered but eliminated from detailed analysis are presented together with the reasons for their elimination.

5.1.1 CEQA Requirements for Alternatives Analysis

Section 15126.6(a) of the CEQA Guidelines states that an EIR must describe and evaluate a reasonable range of alternatives to the project that would feasibly attain most of the project's basic objectives but would avoid or substantially lessen any identified significant adverse environmental effects of the project. The EIR must evaluate the comparative merits of the alternatives and include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the project. Specifically, the CEQA Guidelines (section 15126.6) set forth the following criteria for selecting and evaluating alternatives:

- **Range of alternatives.** An EIR need not consider every conceivable alternative but must consider and discuss a reasonable range of feasible alternatives in a manner that will foster informed decision-making and public participation. The "rule of reason" governs the selection and consideration of EIR alternatives, requiring that an EIR set forth only those alternatives necessary to permit a reasoned choice. The lead agency is responsible for selecting a range of project alternatives to be examined and for disclosing its reasons for the selection of the alternatives. An EIR is not required to consider alternatives that are infeasible (section 15126.6[a]). Factors that might be considered when addressing the feasibility of an alternative include site suitability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, economic viability, and whether the project proponent can reasonably acquire, control, or otherwise have access to an alternative site (section 15126.6[f]). An EIR need not consider an alternative for which impacts cannot be reasonably ascertained and for which implementation is remote and speculative. The specific alternative of "no project" must also be evaluated (section 15126.6[e][1]).
- **Ability to avoid or substantially reduce significant effects.** The discussion of alternatives shall focus on alternatives to the project or its location that are capable of avoiding or substantially lessening any significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives, or would be more costly (section 15126.6[b]).

- **Ability to meet project objectives.** The range of potential alternatives shall include those that could feasibly accomplish most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects (section 15126.6[c]).

5.2 Alternatives Selection

Consistent with CEQA, the San Francisco Planning Department focused the approach to alternatives selection on identifying alternatives that:

- Meet most of the project's basic objectives while reducing one or more of its significant impacts
- Foster informed decision-making and public participation
- Are potentially feasible

This section presents the project's objectives, its potential significant environmental effects, and additional details of the alternatives selection process. In developing potential CEQA alternatives, the planning department considered the alternatives concepts identified in the Lake Merced West Project Preservation Alternatives Memorandum,[1] comments received from the Historic Preservation Commission and the public during the scoping period,[2] and combinations thereof. As explained further in the following sections, during the alternatives selection process, the planning department eliminated other potentially feasible alternatives or concepts from consideration because they would have had the same or more severe environmental impacts compared to the project. The department retained two action alternatives for detailed analysis. The ability of alternatives to meet the project objectives is evaluated in Section 5.4.

5.2.1 Project Objectives

As discussed in Chapter 2, Project Description (Section 2.3, Project Objectives), the objectives of the project are as follows:

1. Create a recreational facility that enhances the unique waterfront setting to encourage public use and enjoyment of open space for visitors of all ages, fitness levels, and experience.
2. Develop the site to maximize scenic lake views and facilitate access while retaining open spaces.
3. Provide flexible use of a large site in the southwest quadrant of San Francisco with a range of recreational activities to serve diverse users throughout the region and accommodate groups of various sizes.
4. Construct and operate an economically feasible recreation facility that sustains its long-term operations and maintenance.
5. Provide an office and storage yard for the SFPUC arborist team.
6. Provide an accessible and welcoming environment for all parkgoers regardless of what amenity they plan to experience.

[1] Environmental Science Associates (ESA), 2021, *Lake Merced West Project Preservation Alternatives Memorandum*, prepared for San Francisco Historic Preservation Commission, June 22, 2021.
[2] See Chapter 1, Section 1.4.1, Notice of Preparation and Public Scoping Period, and Table 1-1, Lake Merced West Project EIR Summary of Public Scoping Comments (p. 1-3).

7. Construct code-compliant buildings and infrastructure designed for the spatial and programmatic needs of contemporary recreational uses.
8. Complete remediation of upland site areas.
9. Enhance public awareness of water quality, water supply, ecological, and watershed protection issues by providing compatible public recreational opportunities in the Lake Merced watershed.

5.2.2 Summary of Significant Environmental Impacts

SIGNIFICANT AND UNAVOIDABLE IMPACTS

Project implementation would result in the following significant and unavoidable impact:

Historical Architectural Resources

- The project site is considered a historical cultural landscape that is eligible for listing in the California Register of Historical Resources (California Register). The cultural landscape's contributing features consist of four buildings, the skeet fields and associated structures, and the arrangement of the skeet fields and structures on the site. The project would demolish most of these features that contribute to the cultural landscape, which would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines section 15064.5 (Impact CR-1).

SIGNIFICANT IMPACTS THAT CAN BE MITIGATED TO LESS THAN SIGNIFICANT

Project implementation would result in significant impacts on noise, air quality, biological resources, and geology and soils, all of which would be reduced to a less-than-significant level with mitigation, as described in Appendix A.

5.2.3 Alternatives Screening and Selection

INITIAL ALTERNATIVES DEVELOPMENT

The San Francisco Planning Department based the alternatives selection process on identifying concepts for alternatives that would avoid or lessen the significant and unavoidable impact on the historical architectural resource identified above. In developing preservation alternatives, the planning department, RPD, and SFPUC explored several different approaches based on the location of the buildings on the project site, the character-defining features of the individual resources, and the project's objectives.

Given the historical architectural resource's unique combination of buildings and landscape features, the siting and location of new buildings required additional consideration. Certain areas of the project site that would have been ideal for new buildings were determined to be too intrusive on the spatial relationship between the existing buildings and landscape features, such as the center of the site where the contributing buildings and landscape features have a spatial connection. The prominent siting and location of the skeet fields presented an additional challenge in determining how to reuse the space to accommodate the goals of the project. Additionally, the site's building types lend themselves to some specific uses more effectively than others; it was a challenge to find the right balance between adapting the existing buildings to meet the project's objectives and still allowing for construction of new buildings on the site.

In preparing the alternatives, the planning department, RPD, and SFPUC considered two full preservation alternatives, two partial preservation alternatives, and two other alternative concepts. As discussed further in Section 5.3, one full preservation alternative and one partial preservation alternative were carried forward for detailed analysis. As explained in Section 5.6, the remaining alternative concepts were eliminated from further consideration.

HISTORIC PRESERVATION COMMISSION

Once the planning department, RPD, and SFPUC identified feasible preservation alternatives, and consistent with Historic Preservation Commission (HPC) resolution 0746 regarding evaluation of preservation alternatives during the EIR process, the HPC had the opportunity to provide early feedback on the draft preservation alternatives. The HPC found that the two preservation alternatives represent a reasonable range of alternatives for the EIR analysis, and would avoid or reduce the significant adverse effect of the project on the historical architectural resource. The HPC also provided some recommendations to modify the Partial Preservation Alternative.

In response to the preservation commission's recommendations, the planning department modified the Partial Preservation Alternative to rehabilitate skeet field 7 instead of skeet field 4, to better preserve the relationship between the preserved buildings and the skeet field. The planning department, RPD, and SFPUC also explored the possibility of relocating some of the contributing buildings on the site to retain a core of contributing features, but the poor condition of the buildings made relocation infeasible. The Partial Preservation Alternative, described below and analyzed in detail in this EIR, reflects this input from the preservation commission.

This process resulted in the selection of two alternatives to be carried forward for detailed evaluation. The planning department determined that the two alternatives, along with the No Project Alternative, represent a reasonable range of alternatives described and analyzed in this EIR. Section 5.6 briefly describes the alternatives considered but ultimately rejected, and the rationale for rejection of each.

5.3 CEQA Alternatives and Potential Environmental Effects

This chapter analyzes the following alternatives:

- No Project Alternative
- Full Preservation Alternative
- Partial Preservation Alternative

This section presents the following for each alternative:

- A description of the alternative, including facility and component revisions and assumptions regarding the construction methods likely to be used
- Analysis of the potential environmental impacts of the alternative compared to those of the project
- A brief assessment of the ability of the alternative to meet project objectives

Table 5-1 summarizes and compares the characteristics of the project (shown on Figure 3.2-6, p. 3.2-29, with those of each alternative.

Table 5-1 Comparison of the Project and Alternatives

Project Component/Structure	Project	No Project Alternative	Full Preservation Alternative	Partial Preservation Alternative
Existing Clubhouse	Demolish	Retain and secure to prevent unwanted entry, same as current conditions	Rehabilitate to Secretary's Standards[b]	Rehabilitate to Secretary's Standards
Rifle Range Building	Demolish		Rehabilitate to Secretary's Standards	Demolish
Caretaker's House	Demolish		Rehabilitate to Secretary's Standards	Rehabilitate to Secretary's Standards
Shell House	Demolish		Demolish	Demolish
Skeet Fields 4–7 and Associated Elements (high and low houses, safety fences)	Repair skeet field 4; demolish all high/low houses and other skeet fields		Retain all four skeet fields and use as open space; retain all safety fences and high/low houses	Retain two of the four skeet fields and use as picnic or open space areas; retain high/low houses and the safety fences associated with skeet fields 4 and 7
Contributing Features Retained[a]	Less than 1	8 of 8	7 of 8	4 of 8
Approximate Building Square Footage Retained	None	8,910 square feet	6,550 square feet	3,920 square feet
New Buildings—Total Number/Gross Square Feet	5/Approximately 16,300 square feet	0/0 square feet	3/Approximately 7,800 square feet	4/Approximately 12,800 square feet
Range of Site Uses	• Community building • Restaurant with patio and terrace • Open space • Boathouse, dock, soft landing • City arborist office and yard • Skate park, ropes course, and restrooms • Sport courts (2–3) • Playground • Picnic areas	Equipment storage Site would be closed to the public	• Community building (smaller) • Restaurant (smaller), no patio or terrace • Open space • Boathouse, dock, soft landing • City arborist office and yard • Skate park, ropes course, and restrooms • Sport courts (2)	• Community building (smaller) • Restaurant, no patio or terrace • Open space • Boathouse, dock, soft landing • City arborist office and yard • Skate park, ropes course, and restrooms • Sport courts (2) • Playground • Picnic areas

NOTES:

[a] *Contributing features* are site features that add to the historic associations, historic architectural qualities, or archeological values for which a property is significant. Refer to Figure 5-1 (p. 5-7) and Table 3.2-2 in Section 3.2, Historical Architectural Resources (p. 3.2-17), for additional information about contributing features.

[b] The *Secretary's Standards* are the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings*.

SOURCE: Data compiled by Environmental Science Associates in 2021

5.3.1 No Project Alternative

DESCRIPTION

As required by CEQA Guidelines section 15126.6(e), this EIR evaluates a no project alternative to allow decision-makers to compare the environmental effects of approving the project with the effects of not approving the project. The No Project Alternative represents what would reasonably be expected to occur in the foreseeable future if the project were not approved.

Under the No Project Alternative, no changes would be made to the project site at 520 John Muir Drive. All existing buildings, structures, and landscape features shown on **Figure 5-1** would remain in their current conditions. The buildings would remain boarded up and, because they do not comply with current building codes and are in disrepair, they would be unfit for public use. Construction and operation of a recreational facility would not occur. Without building removal and additional soil remediation, residual hazardous materials would remain onsite. The onsite parking area would be used occasionally for equipment storage and staging. Because of hazards to public safety presented by both the buildings and the residual soil contamination, the site would remain closed to the public and no recreational water access would be permitted.

ENVIRONMENTAL IMPACTS

The No Project Alternative would avoid the project's significant and unavoidable impact on the historical architectural resource. As discussed below, the No Project Alternative would have no impacts, which would be fewer impacts than would result from the project.

HISTORICAL ARCHITECTURAL RESOURCES

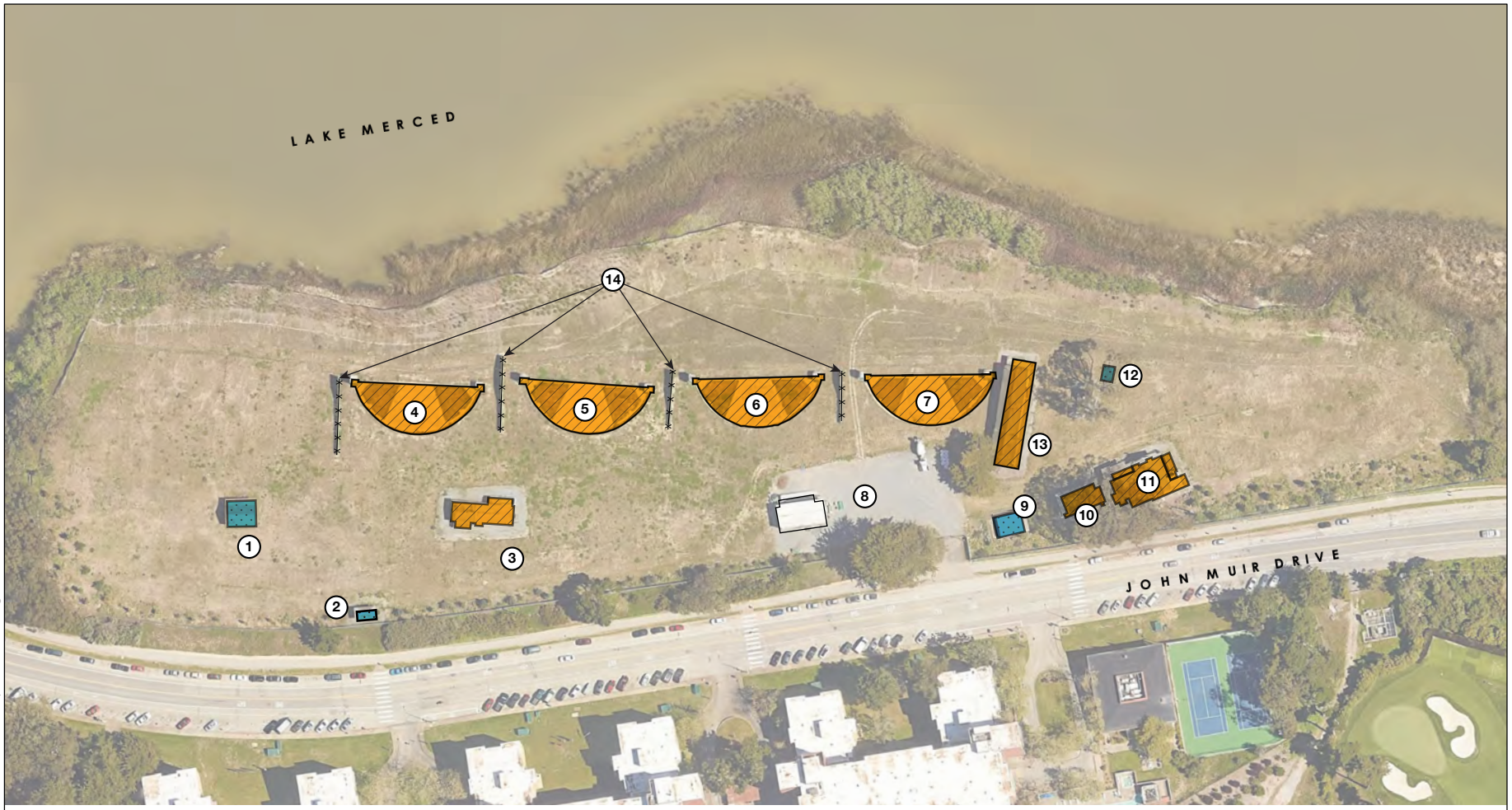
The No Project Alternative would avoid the significant and unavoidable impact of the project on the historical cultural landscape at the site because no changes to the contributing features of the landscape would occur.

The buildings are currently boarded up and secured against unwanted entry. They would remain in this state. SFPUC would use the parking lot for storage of vehicles and equipment, a continuation of the existing use, and no impact would occur. The No Project Alternative would not result in any impacts on the historical resource.

OTHER ENVIRONMENTAL TOPICS

Overall, the No Project Alternative would have reduced environmental effects relative to the proposed project, as explained further below.

Because no construction would occur under the No Project Alternative, it would not have any project-level or cumulative impacts relative to any of the topics analyzed in the initial study (Appendix A). Therefore, impacts of the No Project Alternative related to land use and planning, aesthetics, population and housing, archeological resources and human remains, tribal cultural resources, transportation and circulation, noise, air quality, greenhouse gas emissions, wind, shadow, recreation, utilities and service systems, public services, biological resources, geology and soils, hydrology and water quality, hazards and hazardous materials, and energy would be less than those anticipated with implementation of the project because no construction, ground-disturbing activities, or changes to operations would occur. Because these impacts would be avoided, none of the mitigation measures identified for the project would be required under the No Project Alternative.



Contributing Features
A contributing building, site, structure, or object adds to the historic associations, historic architectural qualities, or archeological values for which a property is significant.

Non-Contributing Features
A noncontributing building, site structure, or object does not add to the historic architectural qualities, historic associations, or archeological values for which a property is significant.

1. Trap House
2. Restroom Building
3. Shell House
4. Skeet Field 4
5. Skeet Field 5
6. Skeet Field 6
7. Skeet Field 7
8. Parking Lot and Temporary Construction Trailer
9. Garage
10. Caretaker's House
11. Clubhouse
12. Barbeque Shed
13. Rifle Range Building
14. Safety Fences

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SOURCE: ESA, 2020

Lake Merced West

Figure 5-1
Existing Structures and Landscape Features

ESA

As with the project, the No Project Alternative would not be located in areas designated by the state or the city as containing mineral deposits of significance, zoned for agricultural or timber uses, or classified as very high fire hazard severity zones, and therefore would not result in any impacts related to these topics.

ABILITY TO MEET PROJECT OBJECTIVES

The No Project Alternative would not meet any of the project objectives, as discussed in greater detail in Section 5.4, Ability to Meet Project Objectives.

5.3.2 Full Preservation Alternative

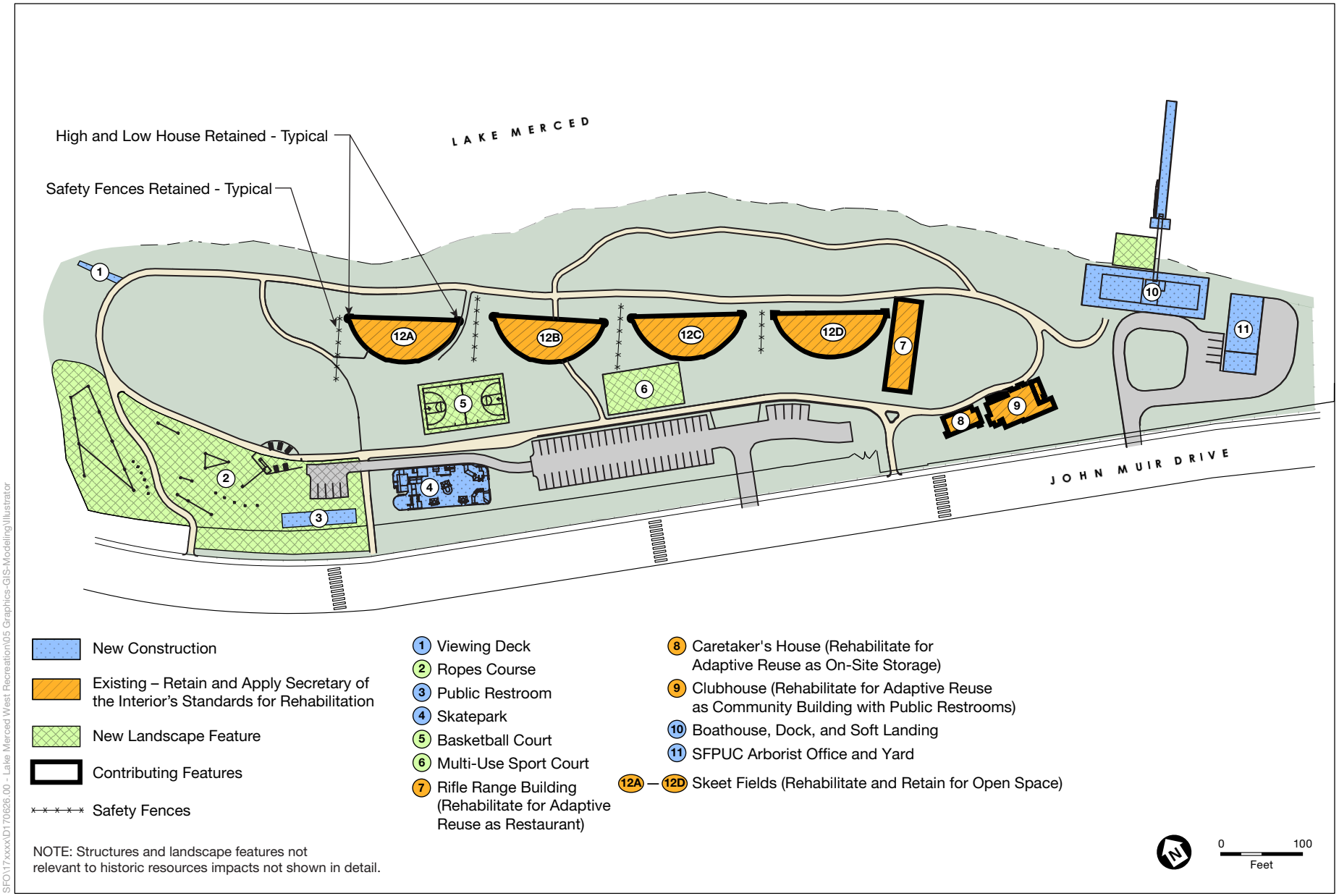
DESCRIPTION

This EIR considers the Full Preservation Alternative because it would avoid the project's significant impact on a historical architectural resource. Under the Full Preservation Alternative (**Figure 5-2**), the site would be redeveloped with a reduced range of recreational facilities while retaining the majority of the buildings and landscape features that contribute to the California Register–eligible cultural landscape.

The Full Preservation Alternative would retain the linear arrangement of skeet fields, including their orientation to Lake Merced, and most of the contributing features. The clubhouse, rifle range building, and caretaker's house (three of the four buildings contributing to the historic cultural landscape) would be rehabilitated according to the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings* (Secretary's Standards). This alternative would also retain all four contributing skeet fields, including their related safety fences and high and low houses. As discussed in greater detail below, preservation of most of the contributing features onsite would avoid materially impairing the project site's ability to communicate its historical significance.

Fewer new recreational facilities or buildings would be constructed under the Full Preservation Alternative than under the project. To retain the skeet fields, the Full Preservation Alternative would not include a playground, picnic areas, or a terrace and patio. A new restaurant would not be constructed; instead, the rifle range building would be rehabilitated for reuse as a restaurant. The clubhouse and the caretaker's house would be rehabilitated for use as a community building and a storage area, respectively. This alternative includes the following new buildings and landscape features:

- New buildings and structures of similar scale located primarily at the eastern and western ends of the project site:
  - Boathouse/outdoor concessions (east)
  - Dock, soft landing area (east)
  - SFPUC arborist office and yard (east)
  - Restrooms (west)
- Limited modifications to existing site layout and circulation:
  - Reconfigured parking and roadway for circulation and two new curb cuts
  - Basketball and multiuse sport courts (up to two)
  - Ropes course
  - Viewing deck
  - Skate park



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SOURCE: ESA, 2021

Lake Merced West

Figure 5-2
Full Preservation Alternative

ESA

CONSTRUCTION

As noted in Chapter 2, Project Description, RPD and SFPUC jointly manage recreation at Lake Merced. As with the project, RPD and SFPUC would each be responsible for constructing components of the Full Preservation Alternative. Construction activity for this alternative would include less demolition of buildings and structures than described for project phase 1 in Section 2.5, Project Construction. Tree removal would proceed as proposed for the project, and similar to the project, soil beneath the rifle range building would be remediated to allow unrestricted use of the site. However, under the Full Preservation Alternative, instead of demolishing the rifle range building as described for the proposed project, SFPUC would remove the building and replace it in its current location once remediation is complete. During remediation, SFPUC would implement soil management protocols identified in the soil management plan. The caretaker's house and clubhouse would be rehabilitated without requiring relocation for soil remediation.

Under the Full Preservation Alternative, buildings and structures for a range of outdoor activities would generally be constructed as described for project phases 2 and 3 in Section 2.5, but fewer new structures would be built than under the project (existing structures would be rehabilitated instead). To retain the site's open areas, new buildings and recreational facilities would be located at the periphery of the existing site features. Without the playground, restaurant, community building, and terrace and patio proposed for the project, less grading would occur during construction of the Full Preservation Alternative than for construction of the project. The existing clubhouse, rifle range building, and caretaker's house would be rehabilitated to the Secretary's Standards to allow reuse of these buildings. The four skeet fields and the associated safety fences and high and low houses would remain. Rehabilitation or retention would involve different activities for each of these features, as described below.

- **Clubhouse**. The clubhouse would be rehabilitated in its current location, and at its current size of 3,040 square feet, as a community building with public restrooms. Reuse may require selected repair and/or replacement of exterior materials in kind; the replacement of existing windows with compatible modern units to improve energy efficiency; structural upgrades to improve seismic stability, which may include a new foundation and limited structural changes to the roof (including the addition of plywood sheeting and rafter anchors); and the introduction of strategically placed sheer panel walls throughout the interior. In addition, all ventilation and plumbing systems would be replaced, Americans with Disabilities Act (ADA) accommodations would be made on the interior and exterior, and interior modifications to the layout could be required to support reuse of the building as a community center. The building would be brought up to current code as allowed by the California Historical Building Code (CHBC), and all work performed would be compliant with the Secretary's Standards.
- **Rifle Range Building**. The 2,622-square-foot rifle range building would be rehabilitated for use as a restaurant. Reuse may require alterations to raise the roof to achieve code-compliant heights, the introduction of new window and door openings to both daylight the interior and provide ADA-compliant access and circulation, and seismic upgrades or construction of a new foundation. Additional work would include selected repair and/or replacement of exterior materials in kind, the replacement of existing windows with compatible modern units to improve energy efficiency, and the introduction of new interior walls to facilitate restaurant operations and dining. All-new interior finishes would be added. In addition, all ventilation and plumbing systems would be replaced. The building would be brought up to current code as allowed by the CHBC, and all work performed would be compliant with the Secretary's Standards.

- **Caretaker's House**. The caretaker's house would be rehabilitated for use as an onsite storage area. Reuse may require selected repair and/or replacement of exterior materials in kind; the replacement of existing windows with compatible modern units to improve energy efficiency; structural upgrades to improve seismic stability, which may include a new foundation and limited structural changes to the roof (including the addition of plywood sheeting and rafter anchors); and the introduction of strategically placed sheer panel walls throughout the interior. In addition, all ventilation and plumbing systems would be replaced, ADA accommodations would be made on the interior and exterior, and interior modifications to the layout may be required to support reuse of the building as a storage facility. The building would be brought up to current code as allowed by the CHBC, and all work performed would be compliant with the Secretary's Standards.
- **Skeet Fields 4–7**. All four skeet fields, associated safety fences, and high and low houses would be retained as open space under the Full Preservation Alternative. No new modifications to the skeet field footprints would occur under this alternative.

Given the extent of repairs and interior alterations that would be needed to prepare the buildings for new uses under the Full Preservation Alternative, the amount of time needed to rehabilitate the buildings would be similar to the amount of time needed to construct new buildings. The overall duration of construction under the Full Preservation Alternative would be slightly shorter than that of the project, however, because fewer activities would be required to complete construction (no structure demolition, development of fewer recreational facilities, and less grading).

OPERATION

The Full Preservation Alternative would operate like the project, but with fewer recreational facilities (no playground, no picnic areas, a smaller restaurant, and no terrace or patio). RPD estimates that the park would receive fewer visitors under this alternative than the average of 200 visitors per day anticipated under the project, given the reduced number and variety of available recreational facilities. Special events would occur as described for the project. Hours of operation, staffing, and other operational details would be the same as those described for the project in Section 2.7, Project Operation.

ENVIRONMENTAL IMPACTS

As discussed below, the Full Preservation Alternative would avoid the significant and unavoidable impact of the project on the historical architectural resource. All other impacts of the Full Preservation Alternative would be less than significant or less than significant with mitigation, similar to the project.

HISTORICAL ARCHITECTURAL RESOURCES

The Full Preservation Alternative would avoid the significant and unavoidable impact of the project on the historic cultural landscape at the site because only one building that is a contributing feature of the cultural landscape (the shell house) would be demolished. The other three contributing buildings and all four contributing skeet fields (and their associated safety fences and high and low houses) would remain. Because this alternative would involve rehabilitation of the existing buildings for new uses on the site and would not include construction of a new restaurant and community building in the center of the site, it would retain other character-defining features, including the linear arrangement of skeet fields and their orientation to Lake Merced. Under this alternative, the site would retain sufficient contributing features for the historical resource to continue communicating its historical significance as a recreational gun club

associated with the increased popularity of skeet shooting prior to World War II. Therefore, impacts of the Full Preservation Alternative on historical architectural resources would be less than significant.

NOISE

The Full Preservation Alternative would result in reduced construction noise impacts compared to the project because this alternative would require less demolition and less grading. The ambient noise impact of this alternative during construction would likely be less than significant, similar to the project's impact level. The Full Preservation Alternative would have the same groundborne vibration impacts as the project because construction activity would occur at the same distance from residences, a less-than-significant impact.

Operational noise impacts from the Full Preservation Alternative would be similar to those of the project because large special events would still occur under this alternative, resulting in potentially significant noise impacts caused by sound amplification. The restaurant would not include a terrace patio for outdoor dining and fewer recreational land uses would be available under the Full Preservation Alternative; therefore, other operational noise impacts would be reduced compared with the project. During operation, noise impacts of the Full Preservation Alternative during special events would be reduced to less-than-significant levels with implementation of the same mitigation as identified for the project.

AIR QUALITY

Average daily construction emissions of criteria air pollutants, including fugitive dust, from the Full Preservation Alternative would be less than project emissions. Although construction activity would be required for rehabilitation of the existing buildings, less demolition and grading would occur compared with the project, and fewer new facilities would be constructed. Construction under this alternative would not interfere with implementation of the 2017 clean air plan or result in odor emissions affecting a substantial number of people, and associated impacts would be less than significant.

Operations under the Full Preservation Alternative would not result in a considerable net increase in criteria air pollutants, expose sensitive receptors to substantial pollutant concentrations, or result in odor emissions; therefore, as with the project, air quality impacts would be less than significant.

BIOLOGICAL RESOURCES

Like the project, the Full Preservation Alternative would include construction of a new boathouse, dock, and soft landing; thus, this alternative would have the same impacts as the project on western pond turtle and jurisdictional wetlands and waters, and the same conflicts with the Significant Natural Resource Areas Management Plan. Fewer buildings would be demolished under the Full Preservation Alternative, but potential impacts of building rehabilitation and vegetation removal on bat maternity colonies would be similar to the project's impacts. The impacts of the Full Preservation Alternative on biological resources would be reduced to less-than-significant levels with implementation of the same mitigation as identified for the project.

GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

The Full Preservation Alternative would require less ground disturbance than the project, which would reduce the potential for this alternative to cause a substantial adverse change in the significance of a

paleontological resource. However, the components requiring relatively deep excavation at the site (such as sewer pipelines and other utilities) would likely still be needed under the Full Preservation Alternative. Consequently, like the project, the Full Preservation Alternative would have the potential to directly or indirectly destroy a unique paleontological resource, if present. This impact would be reduced to a less-than-significant level with implementation of the same mitigation as identified for the project. Other impacts related to geology and soils would be similar to those identified for the project, and would be less than significant because the rehabilitated and new facilities would be built on the same site and to the same or equivalent building standards.

LAND USE AND PLANNING

The Full Preservation Alternative would preserve the contributing features of the site's cultural landscape; therefore, unlike the project, this alternative would not conflict with policies of the urban design element of the San Francisco General Plan that call for preservation of areas of historic, architectural, or aesthetic value. Similar to the project, the Full Preservation Alternative would not physically divide an established community.

ARCHEOLOGICAL AND TRIBAL CULTURAL RESOURCES

The Full Preservation Alternative would require less ground disturbance than the project, thus reducing the potential for this alternative to cause a substantial adverse change in the significance of an archeological resource, tribal cultural archeological resource, or disturb human remains. SPFUC and RPD would implement the same standard construction measures during ground disturbance as would be implemented for the project. The Full Preservation Alternative would have the same less-than-significant impacts as the project.

TRANSPORTATION AND CIRCULATION

The duration of construction and volume of soil removed under the Full Preservation Alternative would both be less than under the project. Therefore, this alternative would also require a smaller peak number of construction trucks and construction workers than estimated for the project. Construction access and staging at the project site would be the same as under the project. Therefore, the Full Preservation Alternative would meet the San Francisco Planning Department's screening criteria for the types of construction activities that typically would not result in significant transportation effects. As with the project, impacts of this alternative related to hazardous conditions for people walking, bicycling, or driving, public transit operations, emergency access, accessibility for people walking or bicycling, or public transit delay would be less than significant.

Operation of the Full Preservation Alternative would generate fewer vehicle trips than operation of the project because the restaurant would be smaller and there would be fewer recreational uses and facilities. Similar to the project, the Full Preservation Alternative would not change the existing sidewalks, bicycle lane, or other aspects of John Muir Drive in a manner that would affect public or emergency access. The Full Preservation Alternative would not affect existing bus facilities on John Muir Drive and would reduce the project's less-than-significant impact related to public transit delay because the smaller number of recreational uses/facilities would generate fewer vehicle trips. The project site would remain located in an area where it would not result in significant impacts related to vehicle miles traveled or induced. The Full Preservation Alternative would reduce the project's less-than-significant loading impacts because fewer facilities at the project site would generate loading demand, the size and frequency of special events would be the same, and the designated loading area would also be unchanged. In summary, operation of the Full

Preservation Alternative would result in transportation impacts similar to or less than identified for the project.

HYDROLOGY AND WATER QUALITY

The Full Preservation Alternative would be subject to the same construction stormwater control regulations, soil management plan, and sediment management plan as the project, which would reduce the potential for construction runoff to adversely affect water quality. Therefore, construction of the Full Preservation Alternative would have less-than-significant impacts on hydrology and water quality similar to those of the project.

The new impervious area under the Full Preservation Alternative would be approximately the same as that of the project, the same land uses would occur as under the project, and the same stormwater control requirements would apply to operation under the Full Preservation Alternative as to project operation. Therefore, operation under the Full Preservation Alternative would have less-than-significant impacts related to water quality, groundwater supplies and recharge, drainage patterns, release of pollutants, and conflicts with water quality control or groundwater management plans that would be similar to operational impacts of the project.

HAZARDS AND HAZARDOUS MATERIALS

Similar to the project, hazardous materials handling, storage, containment, and management requirements would apply during both construction and operation of the Full Preservation Alternative. During soil remediation and sediment removal, measures in the soil management plan and sediment removal plan would be implemented to prevent the release of contaminated materials into the environment. The required implementation of stormwater control measures during construction of this alternative would reduce the risk of a release of hazardous construction materials (such as fuels and oils) to a less-than-significant level. Once operational, any hazardous materials used or stored onsite would be contained and managed consistent with federal and state requirements, resulting in the same less-than-significant impacts as under the project. Like the project, the Full Preservation Alternative would have less-than-significant impacts related to emergency response or evacuations.

OTHER ENVIRONMENTAL TOPICS

For all other topics, the Full Preservation Alternative would have environmental effects similar to or less than those of the project, as explained further below.

Impacts on aesthetic resources would be similar to or less than those of the project; the height and massing of new structures would be the same as under the project, the same vegetation removal and replacement would occur, and facilities would have lighting requirements similar to those of the facilities proposed by the project. Given the scale of the structures compared to surrounding vegetation and the lake, views of the Full Preservation Alternative facilities would be similar to views of the project facilities.

The Full Preservation Alternative would not result in population growth and would have the same less-than-significant population and housing impacts as the project. This alternative would have lower greenhouse gas emissions than the project because fewer activities would be required to complete construction. The same greenhouse gas emissions regulations would apply during construction and operations as would apply to the project.

The Full Preservation Alternative would include fewer new structures than the project and, similar to the project, would not create wind hazards or shadow that could affect the use and enjoyment of publicly accessible open spaces. Like the project, the Full Preservation Alternative would have less-than-significant impacts with respect to wind and shadow. This alternative would have fewer recreational amenities than the project, but the site would be available for public recreational use; therefore, the Full Preservation Alternative would not be expected to result in the displacement of substantial numbers of visitors such that other nearby park facilities would experience substantial physical deterioration.

Under the Full Preservation Alternative, the anticipated number of visitors, proposed land uses, and total impervious area would all be reduced compared with those of the project. Although fewer visitors are anticipated, the utilities and service systems needed to support visitors would not substantially change; therefore, impacts on utilities and service systems would be less than significant, like the project's impacts. Like the project, the Full Preservation Alternative would have less-than-significant impacts on public services, as it would not cause population growth or alter land uses such that new or altered utilities or governmental facilities would be needed. The Full Preservation Alternative's energy use during construction and operation would be less than energy use under the project because less demolition and grading would occur and the restaurant would be smaller. This alternative's energy usage would not be unusually large or inefficient, wasteful, or unnecessary, and it would result in a less-than-significant impact (the same as the project).

The site is not in areas designated by the state or the city as containing mineral deposits of significance, is not zoned for agricultural or timber uses, or classified as very high fire hazard severity zones. Therefore, like the project, the Full Preservation Alternative would not result in any impacts related to these topics.

ABILITY TO MEET PROJECT OBJECTIVES

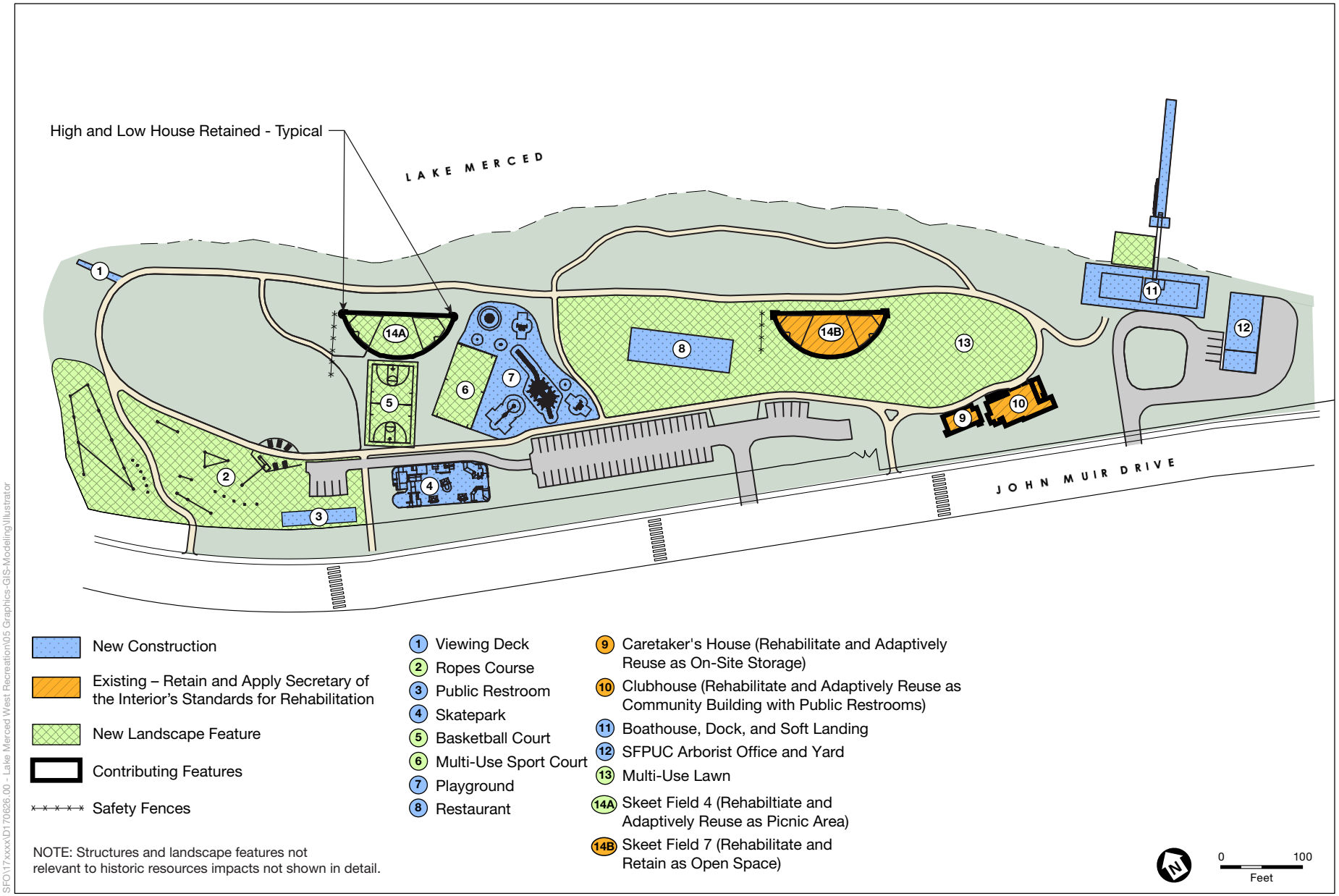
The Full Preservation Alternative would fully meet four of the project objectives and partially meet five of the project objectives, as discussed in greater detail in Section 5.4, Ability to Meet Project Objectives.

5.3.3 Partial Preservation Alternative

DESCRIPTION

Under the Partial Preservation Alternative (**Figure 5-3**), the project site would be redeveloped with a range of recreational facilities similar to that of the project while retaining two buildings (the caretaker's house and clubhouse) and two skeet fields (skeet fields 4 and 7) that contribute to the California Register–eligible cultural landscape. The caretaker's house would be rehabilitated to accommodate site storage, operational support, or administrative offices, and the clubhouse would be rehabilitated to accommodate community uses. Work would be compliant with the Secretary's Standards. Skeet fields 4 and 7, including their associated high and low houses and safety fences, would be retained and used as a picnic area and open space, respectively. All other safety fences and high and low houses would be removed.

To retain the skeet fields, a community building would not be constructed at the center of the site under the Partial Preservation Alternative; instead, the existing clubhouse would be rehabilitated and reused. As under the project, a new restaurant would be constructed, but it would be located farther west than proposed for the project. All other landscape features included in the project would be constructed as part of this alternative.



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SOURCE: ESA, 2021

Lake Merced West

Figure 5-3
Partial Preservation Alternative

ESA

CONSTRUCTION

Construction activity for the Partial Preservation Alternative would include the demolition of buildings and structures and soil remediation as described for project phase 1 in Section 2.5, Project Construction, with the exception of the caretaker's house, the clubhouse, and skeet fields 4 and 7. Tree removal would proceed as proposed for the project. Buildings and structures associated with a range of outdoor activities would generally be constructed as described for Phases 2 and 3 in Section 2.5; the restaurant would be constructed farther to the west than proposed for the project. The caretaker's house and clubhouse would be rehabilitated in conformance with the Secretary's Standards during the construction period to allow for their reuse. Skeet fields 4 and 7 would be retained. Rehabilitation or retention would involve different activities for each of these features, as described below.

- **Clubhouse**. The clubhouse would be rehabilitated in its current location, and at its current size of 3,040 square feet, as a community building with public restrooms. Reuse may require selected repair and/or replacement of exterior materials in kind; the replacement of existing windows with compatible modern units to improve energy efficiency; structural upgrades to improve seismic stability, which may include a new foundation and limited structural changes to the roof (including the addition of plywood sheeting and rafter anchors); and the introduction of strategically placed sheer panel walls throughout the interior. In addition, all ventilation and plumbing systems would be replaced, ADA accommodations would be made on the interior and exterior, and interior modifications to the layout may be required to support reuse of the building as a community center. The building would be brought up to current code as allowed by the CHBC, and all work performed would be compliant with the Secretary's Standards.
- **Caretaker's House.** Under the Partial Preservation Alternative, the caretaker's house would be rehabilitated for use as an onsite storage area. Reuse may require selected repair and/or replacement of exterior materials in kind; the replacement of existing windows with compatible modern units to improve energy efficiency; structural upgrades to improve seismic stability, which may include a new foundation and limited structural changes to the roof (including the addition of plywood sheeting and rafter anchors); and the introduction of strategically placed sheer panel walls throughout the interior. In addition, all ventilation and plumbing systems would be replaced, ADA accommodations would be made on the interior and exterior, and interior modifications to the layout may be required to support reuse of the building as a public restroom and storage building. The building would be brought up to current code as allowed by the CHBC, and all work performed would be compliant with the Secretary's Standards.
- **Skeet Fields 4 and 7.** Skeet field 4 would retain its outline and orientation and picnic tables and other site features would be added. Skeet field 7 would receive no modifications to its footprint and would be incorporated into the surrounding open space. The high and low houses and safety fences associated with skeet fields 4 and 7 would be retained.

The duration of construction under the Partial Preservation Alternative would be similar to that of the project, as rehabilitation of existing buildings may take a similar amount of time as construction of new buildings. Construction under this alternative would require slightly less demolition and grading than construction of the project.

OPERATION

Operation under the Partial Preservation Alternative would generally be the same as project operation. RPD estimates that the park would receive an average of 200 visitors each day under this alternative, the same

number estimated for the project. Hours of operation, special events, staffing, and other operational details would be the same as those described for the project in Section 2.7, Project Operation.

ENVIRONMENTAL IMPACTS

As discussed below, the Partial Preservation Alternative would reduce the significant and unavoidable impact of the project on the historical architectural resource but not to a less-than-significant level. All other impacts of the Partial Preservation Alternative would be less than significant or less than significant with mitigation, similar to the project.

HISTORICAL ARCHITECTURAL RESOURCES

Under the Partial Preservation Alternative, two of the four contributing buildings and two of the four contributing skeet fields and associated features would be demolished. The clubhouse and caretaker's house would be rehabilitated in conformance with the Secretary's Standards and reused to support the new programming functions as described above. Skeet fields 4 and 7 and their associated features would be rehabilitated for use as a picnic area (skeet field 4) and open space (skeet field 7). The linear arrangement of the skeet fields, including their orientation to Lake Merced, would be unaltered and the associated high and low houses and safety fences would be retained, although other new structures would be placed between skeet fields 4 and 7.

Most new construction would occur at the site's periphery, retaining the general open nature of the cultural landscape. The restaurant, the one new addition in the central area, would be oriented toward Lake Merced, but would be sited between skeet fields 4 and 7 to avoid impacts on these contributing features and to take advantage of views. Under this alternative, approximately 50 percent of the buildings and site features that contribute to the historic cultural landscape would be removed. By preserving skeet field 7 along with the clubhouse and caretaker's house, this alternative would retain a core of the cultural landscape's spatial relationships, resulting in reduced impacts on the historical resource compared with those of the project. However, the new restaurant would divide the linear arrangement of the skeet fields, and the picnic tables added to skeet field 4 would interrupt the skeet field's level terrace. These changes would affect character-defining features of contributors to the historical resource.

The Partial Preservation Alternative would retain more contributing buildings and features of the historic landscape than the project, but would still result in the demolition of approximately 50 percent of the contributing features. Therefore, this alternative would still cause material impairment to the historical resource, resulting in an impact that would be significant and unavoidable with mitigation, although to a lesser degree than under the project. The same mitigation measures as proposed for the project would further reduce the impact, but not to a less-than-significant level.

NOISE

The Partial Preservation Alternative would result in construction noise impacts similar to or less than those of the project because although slightly less demolition would be required and fewer new structures would be built at the site, additional activities would be required to rehabilitate the existing structures.

Operational noise impacts from the Partial Preservation Alternative would be similar to those of the project because a similar range of recreational opportunities would be available, and large events would occur. The noise impacts during operation under this alternative would be reduced to less-than-significant levels with

implementation of the same mitigation as identified for the project. The Partial Preservation Alternative would have the same groundborne vibration impact as the project, a less-than-significant impact, because construction activity would occur at the same distance from residences.

AIR QUALITY

Average daily construction emissions of criteria air pollutants, including fugitive dust, from the Partial Preservation Alternative would be similar to or less than project emissions. Although additional activity would be required to rehabilitate the existing buildings, less demolition would occur and fewer new facilities would be constructed. Construction would not interfere with implementation of the 2017 clean air plan or result in odor emissions affecting a substantial number of people, and associated impacts would be less than significant.

Operation of the Partial Preservation Alternative would not result in a considerable net increase in criteria air pollutants, expose sensitive receptors to substantial pollutant concentrations, or result in odor emissions; therefore, as with the project, impacts would be less than significant.

BIOLOGICAL RESOURCES

Like the project, the Partial Preservation Alternative would include construction of a new boathouse, dock, and soft landing; thus, this alternative would have potential impacts similar to those of the project on western pond turtle and jurisdictional wetlands and waters, and similar conflicts with the Significant Natural Resource Areas Management Plan. Fewer buildings would be demolished under the Partial Preservation Alternative, but the same vegetation would be removed and replaced, and impacts of rehabilitation of the retained structures on bat maternity colonies, if present, would be similar to those of demolition under the project. Therefore, the Partial Preservation Alternative would have impacts similar to those of the project. The impacts of the Partial Preservation Alternative on biological resources would be reduced to less-than-significant levels with implementation of the same mitigation as identified for the project.

GEOLOGY, SOILS, AND PALEONTOLOGICAL RESOURCES

The Partial Preservation Alternative would require less ground disturbance than the project, which would reduce the potential for this alternative to cause a substantial adverse change in the significance of a paleontological resource. However, the components requiring relatively deep excavation at the site (such as sewer pipelines and other utilities) would likely still be needed under the Partial Preservation Alternative. Consequently, like the project, the Partial Preservation Alternative would have the potential to directly or indirectly destroy a unique paleontological resource, if present. This impact would be reduced to a less-than-significant level with implementation of the same mitigation as proposed for the project. Other impacts related to geology and soils would be similar to those identified for the project, and would be less than significant because the rehabilitated and new facilities would be built on the same site and to the same or equivalent building standards.

LAND USE AND PLANNING

Because the Partial Preservation Alternative would still result in a significant historical resources impact, this alternative would conflict with policies of the urban design element of the San Francisco General Plan that call for preservation of areas of historic, architectural, or aesthetic value, similar to the project. Similar to the project, the Partial Preservation Alternative would not physically divide an established community.

ARCHEOLOGICAL AND TRIBAL CULTURAL RESOURCES

The Partial Preservation Alternative would require less ground disturbance than the project, thus reducing the potential for this alternative to cause a substantial adverse change in the significance of an archeological resource, tribal cultural archeological resource, or disturb human remains. SPFUC and RPD would implement the same standard construction measures during ground disturbance as would be implemented for the project. The Partial Preservation Alternative would have the same less-than-significant impacts as the project.

TRANSPORTATION AND CIRCULATION

The Partial Preservation Alternative's duration of construction and volume of soil excavated would be similar to those of the project. Therefore, this alternative would also require a similar number of construction trucks and construction workers to those estimated for the project. Construction access and staging at the project site would also be the same as under the project. Therefore, the Partial Preservation Alternative would meet the San Francisco Planning Department's screening criteria for the types of construction activities that typically would not result in significant construction-related transportation effects. As with the project, impacts of this alternative related to hazardous conditions for people walking, bicycling, or driving, public transit operations, emergency access, accessibility for people walking or bicycling, or public transit delay would be less than significant.

Operation of the Partial Preservation Alternative would generate a comparable number of vehicle trips relative to the project because the proposed land uses and facilities (particularly the restaurant) would be similar in size. Similar to the project, the Partial Preservation Alternative would not change the existing sidewalks, bicycle lane, or other aspects of John Muir Drive in a manner that would affect public or emergency access. The Partial Preservation Alternative would not affect existing bus facilities on John Muir Drive and would result in a similar impact related to public transit delay as compared to the project because the proposed land uses/facilities would generate a comparable number of vehicle trips. This alternative would not result in any change to the project location relative to the project, and the project site is in an area where it would not result in significant impacts related to vehicle miles traveled or induced. The loading impacts of the Partial Preservation Alternative would be similar to those for the project, because proposed land uses and facilities at the project site generating loading demand would be similar in size, the size and frequency of special events would be the same, and the designated loading area would be unchanged. In summary, operation of the Partial Preservation Alternative would result in transportation impacts similar to those identified for the project.

HYDROLOGY AND WATER QUALITY

The Partial Preservation Alternative would be subject to the same construction soil management plan and sediment management plan as the project and would have similar less-than-significant impacts on hydrology and water quality.

The new impervious area under the Partial Preservation Alternative would be slightly less than under the project, and the same stormwater control requirements would apply to operation under this alternative as would apply to the project. Therefore, relative to the project, operation under the Partial Preservation Alternative would have similar or reduced less-than-significant impacts on water quality, groundwater supplies and recharge, drainage patterns, releasing pollutants, and conflicts with water quality control or groundwater management plans.

HAZARDS AND HAZARDOUS MATERIALS

Similar to the project, hazardous materials handling, storage, containment, and management requirements would apply during both construction and operation of the Partial Preservation Alternative. During soil remediation and sediment removal, measures in the soil management plan and sediment removal plan would be implemented to prevent the release of contaminated materials into the environment. The required implementation of stormwater control measures during construction of this alternative would reduce the risk of a release of hazardous construction materials (such as fuels and oils) to a less-than-significant level. Once operational, any hazardous materials used or stored onsite would be contained and managed consistent with federal and state requirements, resulting in less-than-significant impacts. Similar to the project, the Partial Preservation Alternative would not change John Muir Drive in a manner that would affect emergency access, and therefore would have less-than-significant impacts related to emergency response or evacuations.

OTHER ENVIRONMENTAL TOPICS

For all other topics, the Partial Preservation Alternative would have environmental effects similar to or less than those of the project, for the same reasons as discussed above for the Full Preservation Alternative.

ABILITY TO MEET PROJECT OBJECTIVES

The Partial Preservation Alternative would meet four of the project objectives and partially meet five of the project objectives, as discussed in greater detail in Section 5.4, Ability to Meet Project Objectives. The Partial Preservation Alternative would meet the project objectives more fully than the Full Preservation Alternative because under the Partial Preservation Alternative, the same range of uses would be accommodated at the project site and fewer uses would need to fit into structures designed for previous site activities.

5.4 Comparison of Ability to Meet Project Objectives

Table 5-2 summarizes the ability of the three alternatives to meet the project objectives, listed in Section 5.2.1. The No Project Alternative is included, as required by CEQA Guidelines section 15126.6(e), even though it would not meet the basic project objectives. Each remaining alternative would meet or partially meet all the project objectives.

5.5 Comparison and Summary of Impacts of the Alternatives

The ability of each alternative to reduce the environmental impacts of the project, new impacts resulting from each alternative, and the ability of each alternative to meet project objectives are summarized below. **Table 5-3** details the environmental effects of the alternatives relative to those identified for the project.

Table 5-2 Summary of Ability of the Alternatives to Meet the Project Objectives

Project Objective	No Project Alternative	Full Preservation Alternative	Partial Preservation Alternative
	WOULD THE ALTERNATIVE MEET THIS OBJECTIVE?		
1. Create a recreational facility that enhances the unique waterfront setting to encourage public use and enjoyment of open space for visitors of all ages, fitness levels, and experience.	No. No changes would be made to the property and the site would remain closed to the public. The buildings are currently boarded up and secured against unwanted entry. They would remain in this state for the foreseeable future.	Partially. Rehabilitation of the existing buildings and features would limit the number and variety of new recreational facilities on the site, and the safety fences and the high and low houses in their current locations would continue to dominate views of the natural waterfront from the site and preclude recreational uses in the lakefront area.	Partially. While a range of new recreational uses similar to the range for the project would occur at the site, the community building would be smaller and the safety fences and the high and low houses in their current locations would continue to dominate views of the natural waterfront from the site.
2. Develop the site to maximize scenic lake views and facilitate access while retaining open spaces.	No. All existing buildings, structures, and landscape features would remain, in their current conditions, and the site would not be developed or opened to public access.	Partially. Because of the orientation and locations of the rifle range building and clubhouse, scenic lake views from the restaurant and community building would be more limited than project views. The community building would be farther from site access points and not situated centrally.	Partially. The community building (in the existing clubhouse) would not be positioned to maximize scenic lake views and open space, and the restaurant would be shifted west to a less optimal location.
3. Provide flexible use of a large site in the southwest quadrant of San Francisco with a range of recreational activities to serve diverse users throughout the region and accommodate groups of various sizes.	No. No changes would be made to the property and the site would remain closed to the public.	Partially. Because the existing buildings are designed for a different and singular type of recreational activity, the buildings are less flexible in the types of activities that could be accommodated. Retaining the skeet fields, safety fences, and high and low houses would also reduce both the variety of recreational uses and the flexibility of the site.	Partially. The clubhouse reused as a community building would be less flexible than the proposed community building. The presence of the safety fences and the high and low houses would reduce the flexibility of recreational uses around skeet fields 4 and 7.

Table 5-2 Summary of Ability of the Alternatives to Meet the Project Objectives

Project Objective	No Project Alternative	Full Preservation Alternative	Partial Preservation Alternative
	WOULD THE ALTERNATIVE MEET THIS OBJECTIVE?		
4. Construct and operate an economically feasible recreation facility that sustains its long-term operations and maintenance.	No. No recreational facility would operate at the site.	Partially. The reduced variety of recreational features and anticipated rehabilitation and maintenance costs would reduce the operator's ability to financially sustain long-term operations.	Partially. The reduced variety of recreational features and anticipated rehabilitation and maintenance costs would reduce the operator's ability to financially sustain long-term operations.
5. Provide an office and storage yard for the SFPUC arborist team.	No. No changes would be made to the property.	Yes.	Yes.
6. Provide an accessible and welcoming environment for all parkgoers regardless of what amenity they plan to experience.	No. No changes would be made to the property.	Yes.	Yes.
7. Construct code-compliant buildings and infrastructure designed for the spatial and programmatic needs of contemporary recreational uses.	No. All existing buildings, structures, and landscape features would remain, in their current conditions. If left unused in this condition for an extended period of time, the buildings would continue to deteriorate.	Partially. The clubhouse, rifle range building, and caretaker's house are not designed for contemporary recreational uses. Reuse of these buildings would require extensive rehabilitation and upgrades for code compliance. The existing buildings have smaller footprints and would provide less interior space for recreational needs. The shape and size of the existing buildings are not well-suited to the proposed site uses.	Partially. The clubhouse and caretaker's house are not designed for contemporary recreational uses. Reuse of these buildings would require extensive rehabilitation and upgrades for code compliance and would provide less interior space for recreational needs.
8. Complete remediation of upland site areas.	No. No changes would be made to the property. No further soil remediation would occur, resulting in residual hazardous materials left onsite.	Yes.	Yes.
9. Enhance public awareness of water quality, water supply, ecological, and watershed protection issues by providing compatible public recreational opportunities in the Lake Merced watershed.	No. The site would remain closed to the public and no water access would be permitted.	Yes.	Yes.

Table 5-3 Environmental Effects of the Project Alternatives Relative to Effects of the Project

Impact of Project[a]	No Project Alternative	Full Preservation Alternative	Partial Preservation Alternative
HISTORICAL ARCHITECTURAL RESOURCES			
Impact CR-1: The project would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines section 15064.5. (SUM)	Less than project (NI)	Reduced compared to project because sufficient features of the landscape would remain and retain their ability to communicate the site's historical significance (LTS)	Reduced compared to project, though not to a less-than-significant level because, while some of the contributing features would remain, removal of the remaining features would cause material impairment to the site's historical significance (SUM)
All other impacts LTS	Less than project (NI)	Less than project (LTS)	Less than project (LTS)
NOISE			
Impact NO-1: Project construction would result in generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (LTS)	Less than project (NI)	Reduced compared to project because less demolition and grading would occur and fewer new facilities would be constructed (LTS)	Similar to project because similar equipment would be used and similar construction activities would occur (LTS)
Impact NO-2: Project operation could result in a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (LSM)	Less than project (NI)	Similar compared to project because of similar large events, despite fewer recreational land uses and no terrace patio (LSM)	Similar to project because of similarly sized restaurant, large events, and recreational land uses (LSM)
Impact NO-3: The project would not result in generation of excessive groundborne vibration or groundborne noise levels. (LTS)	Less than project (NI)	Same as project (LTS)	Same as project (LTS)

Table 5-3 Environmental Effects of the Project Alternatives Relative to Effects of the Project

Impact of Project[a]	No Project Alternative	Full Preservation Alternative	Partial Preservation Alternative
Impact C-NO-1: The project, in combination with the cumulative projects, would not result in significant cumulative impacts related to noise and vibration. (LTS)	Less than project (NI)	Similar or reduced compared to project because less demolition would occur, and fewer new facilities would be constructed, at the site (LTS)	Similar to project because similar equipment would be used and similar construction activities would occur at the site (LTS)
AIR QUALITY			
Impact AQ-2: The project's construction activities would generate fugitive dust and criteria air pollutants but would not result in a cumulatively considerable net increase of non-attainment criteria air pollutants within the air basin. (LTS)	Less than project (NI)	Reduced compared to project because less demolition and grading would occur and fewer new facilities would be constructed (LTS)	Similar to project because similar equipment would be used and similar construction activities would occur at the site (LTS)
All other impacts LTS	Less than project (NI)	Similar or reduced compared to project (LTS)	Similar to project (LTS)
BIOLOGICAL RESOURCES			
Impact BI-1: Construction and operation of the project would have a substantial adverse effect on the special-status species western pond turtle. (LSM)	Less than project (NI)	Similar to project because similar facilities would be constructed along lake shoreline (LSM)	Similar to project because similar facilities would be constructed along lake shoreline (LSM)
Impact BI-3: The project would have a substantial adverse effect on California Department of Fish and Wildlife–designated sensitive natural communities, riparian habitat, or jurisdictional wetlands or waters. (LSM)	Less than project (NI)	Similar to project because similar facilities would be constructed along lake shoreline (LSM)	Similar to project because similar facilities would be constructed along lake shoreline (LSM)
Impact BI-6: Construction and operation of the project would substantially impede the use of bat maternity colonies as wildlife nursery sites. (LSM)	Less than project (NI)	Similar to project because while fewer existing structures would be demolished, soil remediation and structure rehabilitation would require activity in the structures (LSM)	Similar to project because while fewer existing structures would be demolished, soil remediation and structure rehabilitation would require activity in the structures (LSM)

Table 5-3 Environmental Effects of the Project Alternatives Relative to Effects of the Project

Impact of Project[a]	No Project Alternative	Full Preservation Alternative	Partial Preservation Alternative
Impact BI-7: Construction and operation of the project would conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (LSM)	Less than project (NI)	Similar to project because similar facilities would be constructed along lake shoreline, resulting in conflicts with the Significant Natural Resource Areas Management Plan (LSM)	Similar to project because similar facilities would be constructed along lake shoreline, resulting in conflicts with the Significant Natural Resource Areas Management Plan (LSM)
All other impacts LTS	Less than project (NI)	Similar to project (LTS)	Similar to project (LTS)
GEOLOGY AND SOILS			
Impact GE-5: The project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (LSM)	Less than project (NI)	Reduced compared to project because of the smaller disturbance area, although still potentially significant because there would be similar depths of ground disturbance (LSM)	Reduced compared to project because of the smaller disturbance area, although still potentially significant because there would be similar depths of ground disturbance (LSM)
All other impacts LTS	Less than project (NI)	Similar to project (LTS)	Similar to project (LTS)
LAND USE AND PLANNING			
All impacts LTS	Less than project (NI)	Less than project (LTS)	Similar to project (LTS)
CULTURAL RESOURCES (OTHER THAN HISTORIC ARCHITECTURAL RESOURCES)			
All impacts LTS	Less than project (NI)	Reduced compared to project (LTS)	Reduced compared to project (LTS)
TRIBAL CULTURAL RESOURCES			
All impacts LTS	Less than project (NI)	Reduced compared to project (LTS)	Reduced compared to project (LTS)
TRANSPORTATION AND CIRCULATION			
All impacts LTS	Less than project (NI)	Reduced compared to project (LTS)	Similar to project (LTS)
HYDROLOGY AND WATER QUALITY			
All impacts LTS	Less than project (NI)	Similar or reduced compared to project (LTS)	Similar or reduced compared to project (LTS)
HAZARDOUS AND HAZARDOUS MATERIALS			
All impacts LTS	Similar or reduced compared to project (LTS)	Similar to project (LTS)	Similar to project (LTS)
AESTHETICS			
All impacts LTS	Less than project (NI)	Similar to project (LTS)	Similar to project (LTS)
POPULATION AND HOUSING			
All impacts LTS	Less than project (NI)	Same as project (LTS)	Same as project (LTS)

Table 5-3 Environmental Effects of the Project Alternatives Relative to Effects of the Project

Impact of Project[a]	No Project Alternative	Full Preservation Alternative	Partial Preservation Alternative
GREENHOUSE GAS EMISSIONS			
All impacts LTS	Less than project (NI)	Similar or reduced compared to project (LTS)	Similar to project (LTS)
WIND			
All impacts LTS	Less than project (NI)	Similar to project (LTS)	Similar to project (LTS)
SHADOW			
All impacts LTS	Less than project (NI)	Similar to project (LTS)	Similar to project (LTS)
RECREATION			
Impact RE-1: The project would not result in an increase in the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated. (NI)	Same as project (NI)	Same as project (NI)	Same as project (NI)
UTILITIES AND SERVICE SYSTEMS			
All impacts LTS	Less than project (NI)	Similar or reduced compared to project (LTS)	Similar or reduced compared to project (LTS)
PUBLIC SERVICES			
All impacts LTS	Less than project (NI)	Similar to project (LTS)	Similar to project (LTS)
MINERAL RESOURCES			
All impacts not applicable (NA)	Same as project (NA)	Same as project (NA)	Same as project (NA)
ENERGY			
All impacts LTS	Less than project (NI)	Similar or reduced compared to project (LTS)	Similar to project (LTS)
AGRICULTURE AND FORESTRY RESOURCES			
All impacts not applicable (NA)	Same as project (NA)	Same as project (NA)	Same as project (NA)
WILDFIRE			
All impacts not applicable (NA)	Same as project (NA)	Same as project (NA)	Same as project (NA)

NOTES:

[a] See Chapter 3 and Appendix A (Initial Study) for complete impact statements. CEQA significance determinations: NI = No Impact; LTS = Less than significant; LSM = Less than significant with mitigation; SUM = Significant and unavoidable with mitigation; NA = not applicable.

5.5.1 Environmentally Superior Alternative

The No Project Alternative would avoid all construction-related and operational impacts that were identified for the project, including the significant and unavoidable impact on the historical resource. In their current state, the buildings on the project site are unused, are not code compliant, and are unfit for public use. The buildings are boarded up and secured against unwanted entry and would remain in this state under the No Project Alternative. In addition, no further soil remediation would occur, meaning that residual hazardous materials would be left onsite; however, the site would not be open to the public for use, so the materials would not present a hazard to the public. Although it would not have any significant environmental impacts, the No Project Alternative also would not meet any of the project objectives and would leave the site unavailable for public use.

The Full Preservation Alternative would similarly avoid the significant and unavoidable impacts of the project on the historical resource. This alternative would also open the site for public use and meet or partially meet the project objectives. All other impacts of the Full Preservation Alternative would be less than significant or less than significant with mitigation, similar to the project.

The Full Preservation Alternative would have reduced temporary, construction-related air quality and noise impacts because although similar amounts of construction activity would be needed to rehabilitate the buildings, less demolition and grading would be required to prepare the site. Rehabilitation and reuse of the contributing features of the historic landscape would still require construction activities, given the condition of the buildings; all would require new foundations and other extensive improvements to make them code-compliant. The biological resources impacts of construction under the Full Preservation Alternative would be the same as those for the project. This alternative would have reduced but still potentially significant paleontological resources impacts; with implementation of the same mitigation as proposed for the project, the impact would be less than significant. During operation, the Full Preservation Alternative would have noise impacts similar to those of the project, because although the restaurant would be smaller and the terrace and patio would not be constructed, special events would still occur. The Full Preservation Alternative would not result in any new significant environmental impacts.

Although the Full Preservation Alternative would meet or partially meet the project objectives (shown in detail in Table 5-2, p. 5-22), by preserving the skeet fields, it would limit the number and variety of new recreational uses onsite. This alternative would retain the high and low houses and safety fences in their current locations, where they would continue to dominate views of the natural waterfront from the site and preclude other recreational uses. The Full Preservation Alternative also would not maximize scenic lake views, given the orientation and locations of the restaurant (in the rifle range building) and community building (in the clubhouse). Rehabilitation would reduce the flexibility of building use because the buildings are not designed for contemporary recreation uses. As discussed in Section 5.3.3, reuse of these buildings would also require substantial rehabilitation and upgrades for code compliance. The reduced variety of recreational features and anticipated costs to rehabilitate and maintain the existing structures that do not support modern recreational spatial needs would reduce the ability of the Full Preservation Alternative to meet the project objective to financially sustain long-term operations.

The Partial Preservation Alternative would reduce the impact of the project on the historical resource, but not to a less-than-significant level. This alternative would have construction-related and operational impacts on air quality, noise, biological resources, and paleontological resources that would be similar to those of the project. As under the Full Preservation Alternative, rehabilitation and reuse of the retained contributing

features would require construction activities that, while different from new construction, would still result in noise and air pollutant emissions.

Although the Partial Preservation Alternative would not result in any new significant environmental impacts, it would not reduce impacts to the same extent as the Full Preservation Alternative. The Partial Preservation Alternative would meet or partially meet all of the project objectives, but it would also have limitations; the safety fences and the high and low houses in their current locations would continue to dominate views of the natural waterfront from the site, and the clubhouse and caretaker's house are not designed for contemporary recreational uses. As under the Full Preservation Alternative, reuse of these buildings would require substantial rehabilitation and upgrades for code compliance. The anticipated costs to rehabilitate and maintain the existing structures that do not support modern recreational spatial needs would reduce the ability of the Partial Preservation Alternative to meet the project objective to financially sustain long-term operations.

Based on the preceding evaluation, the Full Preservation Alternative is the environmentally superior alternative among the project alternatives (other than the No Project Alternative). The Partial Preservation Alternative would result in impacts similar to those of the project and would not avoid the significant impact on historical resources. The Full Preservation Alternative would avoid the significant impact, would have reduced impacts related to noise, air quality, and paleontological resources, and would not cause any other significant impacts.

5.6 Alternatives Considered but Eliminated from Further Analysis

CEQA Guidelines section 15126(c) requires an EIR to identify alternatives that were considered by the lead agency throughout the planning process but rejected for infeasibility. The process for selecting project alternatives, as described in Section 5.2, Alternatives Selection, was focused on identifying strategies that would address the significant and unavoidable impact of the project while still accomplishing most of the project objectives. The San Francisco Planning Department also considered whether alternatives suggested by Notice of Preparation (NOP) commenters would reduce the significant and unavoidable impacts of the project while still accomplishing most of the project objectives. During preparation of the alternatives, the planning department considered but rejected one additional full preservation alternative, one additional partial preservation alternative, and two other alternative concepts, as described below.

5.6.1 Full Preservation with Restaurant and Terrace

Given the available space northwest of the skeet fields, the planning department considered a full preservation alternative that would have included the restaurant and terrace in the area northwest of the skeet fields and retained all contributing features of the historical resource. Locating the restaurant and community building in the northwestern portion of the site would have allowed preservation of the skeet fields and buildings. However, at this location, the restaurant and community building would have been closer to the police pistol range, potentially affecting the visitor experience at these uses. The restaurant and terrace also would have been farther from the main entrance to the site, reducing their accessibility. This alternative would have preserved the same contributing features as the Full Preservation Alternative but would not have met the project objectives as fully as the Full Preservation Alternative, and thus was not considered further.

5.6.2 Modified Partial Preservation

The planning department considered a partial preservation alternative that would have retained skeet field 4, partially retained skeet field 5, and kept two of the four contributing buildings. Based on feedback from the Historic Preservation Commission, this alternative was rejected in favor of the Partial Preservation Alternative explored in the EIR because the Partial Preservation Alternative would retain more of the spatial relationship between the contributing buildings and the skeet fields. The modified partial preservation alternative also would not have fulfilled as many of the project objectives as the Partial Preservation Alternative and would not have further reduced impacts in comparison to that alternative, and thus was not considered further.

5.6.3 Larger Boathouse

In response to the NOP, commenters recommended that the city include a larger boathouse as part of the project. The planning department, RPD, and SFPUC considered an alternative site layout that would have included a larger boathouse at the southeastern end of the site. However, because a larger boathouse would not have avoided or substantially lessened the significant effects of the project compared with other partial or full preservation alternatives, it was not selected for detailed evaluation as a CEQA alternative.

5.6.4 Reduced Development

In response to the NOP, commenters recommended that the city remove the existing buildings and paved area of the site and create formal and informal picnic areas, but otherwise not develop the site. This alternative was not selected because it would not have avoided or reduced the significant impacts of the project on the historic resource and would have achieved fewer of the project objectives than would the full or partial preservation alternatives.

CHAPTER 6
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APPENDIX A
INITIAL STUDY

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INITIAL STUDY
LAKE MERCED WEST PROJECT
PLANNING DEPARTMENT CASE NO. 2019-014146ENV

Contents

Figures

Tables

A. Project Description

The project description for the Lake Merced West project (project) is provided in Chapter 2, Project Description, of the environmental impact report (EIR), to which this initial study is an integral part.

B. Project Setting

The project setting and existing site land use characteristics are provided in Chapter 2, Project Description, of the EIR, to which this initial study is an integral part.

C. Compatibility with Existing Zoning and Plans

	Applicable	Not Applicable
Discuss any variances, special authorizations, or changes proposed to the planning code or zoning map, if applicable.	☐	☒
Discuss any conflicts with any adopted plans and goals of the City or region, if applicable.	☒	☐
Discuss any approvals and/or permits from city departments other than the planning department or the Department of Building Inspection, or from regional, state, or federal agencies.	☒	☐

This section provides a general description of land use plans and policies that apply to the project and discusses any potential inconsistencies. The determination of a project's consistency with an applicable local general plan, policy, or regional plan is ultimately made independent of the environmental review process by the project decision-makers when they decide whether to approve or disapprove a project. The analysis in this section is intended to provide decision-makers with a synopsis of relevant planning and policy considerations, and is not intended to provide a comprehensive analysis of plan consistency; in particular, this section is not intended to, and does not, identify policies that the proposed project would support. Staff report(s) for agency action(s) on the proposed project will contain a complete analysis of plan consistency. The analysis presented is intended to supplement the decision-makers' own understanding of the various and often competing policy considerations.

C.1 City and County of San Francisco Plans and Policies

C.1.1 SAN FRANCISCO GENERAL PLAN

The San Francisco General Plan, adopted by the planning commission and the board of supervisors, is both a strategic and long-term document, broad in scope and specific in nature. The general plan is the embodiment of the city's collective vision for the future of San Francisco, and comprises a series of elements, each addressing a particular topic, that applies citywide. The general plan contains 10 elements—Housing, Commerce and Industry, Recreation and Open Space, Community Facilities, Urban Design, Environmental Protection, Transportation, Air Quality, Community Safety, and Arts—that provide goals, policies, and objectives for the physical development of the city. In addition, a land use index cross-references the policies related to land use located throughout the general plan.

The general plan elements that are particularly relevant to planning considerations associated with this project are the Recreation and Open Space, Environmental Protection, Urban Design, and Air Quality elements. The general plan also includes area plans that outline goals and objectives for specific geographic planning areas. Among these is the Western Shoreline Area Plan, which is applicable to the project area. In an area plan, "the more general policies in the *General Plan* elements are made more precise as they relate to specific parts of the city".[1] The area plans contain specific policies and objectives that address land use and planning issues in the local context.

GENERAL PLAN ELEMENTS

RECREATION AND OPEN SPACE ELEMENT

The general plan's Recreation and Open Space Element addresses the character of the city's open spaces and calls for the preservation and enhancement of open spaces through community engagement. Objectives relevant to the project include:

- **Objective 1**: Ensure a well-maintained, highly utilized, and integrated open space system.
- **Objective 2:** Increase recreation and open space to meet the long-term needs of the city and bay region.
- **Objective 3:** Improve access and connectivity to open space.

The element explains that maintaining public access to the waterfront is integral to San Francisco's identity and creating continuous open spaces along the ocean and bay is one of the city's long-term goals. Because the project would expand the area of publicly accessible open space at Lake Merced, improve public access to the waterfront, and provide connections to the regional hiking and biking trail system, the project would not obviously conflict with the Recreation and Open Space Element.

ENVIRONMENTAL PROTECTION ELEMENT

The general plan's Environmental Protection Element addresses the impact of urbanization on the natural environment, and emphasizes a balancing of environmental, economic, and social considerations in land use planning and development decisions. Objectives relevant to the project include:

- **Objective 3:** Maintain and improve the quality of the bay, ocean, and shoreline areas.
- **Objective 7**: Assure that the land resources in San Francisco are used in ways that both respect and preserve the natural values of the land and serve the best interests of all the city's citizens.
- **Objective 8**: Ensure the protection of plant and animal life in the city.

The project would improve the shoreline area of Lake Merced and provide new public access for recreation on the lake. As such, it does not appear to conflict with Objectives 3 and 7. The project has the potential to affect riparian habitat and special-status species. Topic E.15, Biological Resources, discusses the physical effects of this potential conflict.

[1] San Francisco Planning Department, San Francisco General Plan Introduction, available online at https://generalplan.sfplanning.org/introduction.htm, accessed August 18, 2021. This reference information (and all other documents and references cited in this report, unless otherwise noted) is available for review at https://tinyurl.com/Lake-Merced-West-EIR as part of Case File No. 2019-014146ENV.

AIR QUALITY ELEMENT

The Air Quality Element focuses on adherence to regulatory air quality standards and the reduction of air pollution. Objectives applicable to the project include:

- **Objective 1:** Adhere to state and federal air quality standards and regional programs.
- **Objective 5:** Minimize particulate matter emissions from road and construction sites.

The project would generate emissions of dust and criteria air pollutants during construction and operation, as discussed in topic E.8, Air Quality; however, as discussed in Section E.8, Air Quality, the project would not result in a cumulatively considerable net increase in emissions and would not obviously conflict with these air quality objectives.

URBAN DESIGN ELEMENT

Objectives of the general plan's Urban Design Element that are applicable to the project include conservation of resources that provide a sense of nature, continuity with the past, and freedom from overcrowding; and moderating major new development to complement the city pattern, the resources to be conserved, and the neighborhood environment. The policy applicable to the project is:

- **Policy 2.4**: Preserve notable landmarks and areas of historic, architectural, or aesthetic value and promote the preservation of buildings and features that provide continuity with past development.

Because the project would demolish the existing structures at the site and materially impair a historic resource, the project may conflict with policy 2.4 of the urban design element. The physical environmental impacts that could result from this conflict are discussed in EIR Section 3.2, Historical Architectural Resources.

WESTERN SHORELINE AREA PLAN (LOCAL COASTAL PROGRAM)

The Western Shoreline Area Plan is an area plan within the general plan. The plan includes objectives and policies pertaining to land use and development along the city's western shoreline extending approximately 6 miles, from Point Lobos to Fort Funston, including the western portion of Golden Gate Park and Lake Merced. The Western Shoreline Area Plan also serves as the land use plan portion of the city's certified local coastal program.

The Western Shoreline Area Plan includes specific objectives pertaining to each of the plan's 10 subareas. Policies and objectives related to the Lake Merced area include:

- **Objective 5:** Preserve the recreational and natural habitat of Lake Merced.
- **Policy 5.1:** Preserve in a safe, attractive and usable condition the recreational facilities, passive activities, playgrounds and vistas of Lake Merced area for the enjoyment of citizens and visitors to the city.
- **Policy 5.2:** Maintain a recreational pathway around the lake designed for multiple use.
- **Policy 5.3:** Allow only those activities in Lake Merced area which will not threaten the quality of the water as a standby reservoir for emergency use.
- **Policy 5.4:** As it becomes obsolete, replace the police pistol range on the southerly side of South Lake with recreational facilities.

Consistent with policy 5.1, the project would provide safe, attractive, recreational facilities with active and passive activities, a playground, and vistas of Lake Merced for the enjoyment of a wide variety of users. The project would remove some trees and vegetation and permanently alter wetlands, as discussed in topic E.15, Biological Resources; however, trees would be replaced and the project would implement measures to avoid impacts on special-status species and mitigate the loss of wetland functions and values. Thus, the project would not substantially alter the natural habitat around Lake Merced. The project would not interfere with use of the recreational pathway around Lake Merced, and would add trails along the lakefront. As discussed in topic E.17, Hydrology and Water Quality, removal of contaminated soil and sediment from the site would reduce the risk of release of pollutants into the lake, and implementation of stormwater best management practices in accordance with the city's stormwater management requirements would protect lake water quality during project operations. The project would not obviously conflict with this plan.

C.1.2 BETTER STREETS PLAN

The San Francisco Better Streets Plan was adopted in 2010 to support the city's efforts to enhance the streetscape and the pedestrian environment. Consisting of two major components, the Streetscape Master Plan and the Pedestrian Transportation Master Plan, the Better Streets Plan classifies the city's public streets and rights-of-way and creates a unified set of standards, guidelines, and implementation strategies, which govern how the city designs, builds, and maintains its public streets and rights-of-way. No streetscape improvements are proposed as part of the project.

C.1.3 SAN FRANCISCO PLANNING CODE

The San Francisco Planning Code governs land uses and densities and the configuration of buildings in San Francisco. Permits to construct new buildings or to alter or demolish existing ones may not be issued unless a project conforms to the planning code or an exception is available under the code. The planning code requirements are specified for areas of San Francisco called *zoning use districts* (also known as *use districts*). In addition to use districts, the city has established *height and bulk districts* to further the purposes of the Urban Design Element of the general plan by placing upper limits on the allowed height and bulk of development in the city.

USE DISTRICTS

The entire project site is within a P (Public) use district. The Public district designation allows public structures and uses of the City and County of San Francisco, and accessory nonpublic uses that comply with the standards provided in section 211.1(c) of the San Francisco Planning Code. Consistent with these classifications, the project is intended to provide new recreational facilities for use by the public and new public utility facilities. While some of the proposed site uses would be accessory nonpublic uses given the fees needed to use them, they would be uses allowed within a Public district.

HEIGHT AND BULK DISTRICTS

The project site is within an Open Space district. In Open Space districts, the height and bulk of buildings and structures are determined in accordance with the objectives, principles, and policies of the San Francisco General Plan, and no building or structure or addition thereto can be permitted unless in conformity with the general plan. The principal or exclusive purpose of land in the Open Space district is as open space, with future development of any character strictly limited. The project would replace existing facilities with buildings

of similar height and bulk, and overall would retain the project area as open space, consistent with the Western Shoreline Area Plan, and would not obviously conflict with the applicable height and bulk district.

C.1.4 TRANSIT FIRST POLICY

The city's Transit First policy, adopted by the San Francisco Board of Supervisors in 1973, was developed in response to the damaging impacts of freeways on the city's urban character. The policy aims to restore balance to a transportation system long dominated by the automobile and improve overall mobility for residents and visitors while decreasing principal reliance on the automobile. It encourages multi-modalism and the use of transit and other alternatives to the single-occupant vehicle, and gives priority to maintaining and expanding the local transit system and improving regional transit coordination.

As described in EIR Chapter 2, Project Description, the project would develop recreational facilities at the project site. Additionally, the project would include bicycle parking. The project would not change the site's transportation infrastructure, except to replace the former parking lot with a smaller lot that would accommodate up to 80 spaces (under current conditions, no public parking is available at the site). The additional amenities at the site could draw more recreationists to the area, but the project would not reduce or otherwise adversely affect existing transit, walking, or biking access to the project site or in the project vicinity, and would include bicycle parking. Therefore, the project would not obviously conflict with the Transit First Policy.

C.1.5 ACCOUNTABLE PLANNING INITIATIVE

In November 1986, the voters of San Francisco approved Proposition M, the Accountable Planning Initiative, which added section 101.1 to the San Francisco Planning Code to establish eight Priority Policies:

1. Preservation and enhancement of neighborhood-serving retail uses
2. Protection of neighborhood character
3. Preservation and enhancement of affordable housing
4. Discouragement of commuter automobiles
5. Protection of industrial and service land uses from commercial office development and enhancement of resident employment and business ownership
6. Maximization of earthquake preparedness
7. Landmark and historic building preservation
8. Protection of open space

The Priority Policies, which provide general policies and objectives to guide certain land use decisions, contain some policies that relate to physical environmental issues.

Before issuing a permit for any project that requires an initial study under the California Environmental Quality Act (CEQA), and before issuing a permit for any demolition, conversion, or change of use, and before taking any action that requires a finding of consistency with the general plan, the city must find that the proposed project or legislation is consistent with the Priority Policies. In evaluating the proposed project's consistency with the general plan, the planning commission and/or planning department would make the necessary findings of consistency with the Priority Policies. The staff report for the planning commission will analyze the proposed project's consistency with general plan policies.

As described further in EIR Chapter 2, Project Description, and Chapter 3, Environmental Setting, Impacts, and Mitigation Measures, the project does not propose and would not affect retail uses or employment opportunities, housing, or commercial office development; would not detract from earthquake preparedness; and would not result in the loss of parks or open space. The project would not be obviously or substantially inconsistent with the Priority Policies, with the exception of policy 7 regarding landmark and historic building preservation. The physical environmental impacts that could result from this conflict are discussed in Section 3.2, Historical Architectural Resources.

C.1.6 SAN FRANCISCO RECREATION AND PARKS DEPARTMENT PLANS

SAN FRANCISCO RECREATION AND PARKS DEPARTMENT STRATEGIC PLAN

The San Francisco Recreation and Parks Department (RPD) Strategic Plan[2] was updated in 2020 with the goal of restoring and rebuilding San Francisco's parks and recreation facilities, which have become worn down by heavy use, deferred maintenance, and lack of capital investment. The plan proposes strategic objectives with strategies and tactics for enhancing San Francisco's parks, facilities, and recreation programs. The plan also proposes a framework for organizational change to support the suggested improvements. The strategies of the plan are as follows:

- **Inspire Place.** Keep today's parks safe, clean, and fun; promote our parks' historic and cultural heritage; and build the great parks of tomorrow.
- **Inspire Play.** Promote active living, well-being, and community for San Francisco's diverse and growing population.
- **Inspire Investment.** Through community engagement, advocacy, and partnerships, cultivate more financial resources to keep San Francisco's parks and programs accessible for all.
- **Inspire Stewardship.** Protect and enhance San Francisco's precious natural resources through conservation, education, and sustainable land/facility management practices.
- **Inspire Our Team.** Encourage innovation and cultivate a connected, engaged, and aligned workforce that delivers outstanding service.

While the strategic plan does not explicitly guide proposed physical improvements at Lake Merced facilities, the project generally would be consistent with the overarching objective of the plan because it would increase public access to and improve the safety and functionality of a currently closed area. Individual project objectives also support the strategic plan, such as providing various recreation opportunities that are compatible with watershed protection and serve diverse user groups and operating a facility that economically sustains its long-term operations and maintenance. The project would not obviously conflict with the strategic plan.

NATURAL RESOURCE MANAGEMENT PLAN

The natural resource management plan (formerly called the Significant Natural Resource Areas Management Plan) established a maintenance and preservation program to protect and enhance natural resource values.[3]

[2] San Francisco Recreation and Parks Department, *San Francisco Recreation and Parks Department Strategic Plan*, https://sfrecpark.org/DocumentCenter/View/14771/Strategic-Plan-Update-2020, accessed August 18, 2021.

[3] San Francisco Recreation and Parks Department, *Significant Natural Resource Areas Management Plan*, February, 2006.

The 2006 management plan contains detailed information on the biology, geology, and trails within 32 Natural Areas, 31 in San Francisco and one (Sharp Park) in Pacifica.[4] The natural resource management plan is intended to guide natural resource protection, habitat restoration, trail and access improvements, other capital projects, and maintenance activities over the next 20 years, and includes both general management recommendations for all natural areas along with specific recommendations applicable to Lake Merced.[5] It also specifies management actions for areas within the project site, shown in **Figure 1** and listed in **Table 1**.

Table 1 Natural Resource Management Plan Management Actions for Areas of the Project Site

Management Area	Action
MA-1a	• Maintain tule marsh wetland.
MA-2e	• Remove approximately 100 invasive trees on slopes and in wetlands. • Maintain and enhance mixed forest and oak woodland. • Maintain views. • Augment sensitive plant populations. • Reintroduce sensitive plants. • Consider development of new trails.
MA-3a	• Install signs requesting that boaters keep 30 feet away from wetlands.
MA-3b	• Maintain and enhance urban forest. • Allow for recruitment of invasive trees.
Natural Area Wide Management Actions	• Reduce and contain herbaceous and woody weeds. • No invasive tree removal unless specified above. • Prevent recruitment of invasive trees unless specified above. • Total trails to remain (including possible new trails): 8,152 linear feet. • Provide access on designated trails only. • Close social trails. • Total invasive trees to remove: 134; total invasive trees to remain: 11,866. • Implement erosion control as required (GR-12).[a] • Implement wildlife enhancements as appropriate. • Discourage animal feeding (GR-14c).

NOTES:
[a] "GR-12" and "GR-14c" refer to two general recommendations for natural areas from the Significant Natural Resource Areas Management Plan.

SOURCE: City and County of San Francisco, *Environmental Impact Report Significant Natural Resource Areas Management Plan*, Appendix B, Case No. 2005.1912E, State Clearinghouse No. 2009042102. Certified December 2016.

The project would remediate known contamination in the Lake Merced watershed and therefore reduce risks to Lake Merced water quality. However, elements of the project could conflict with the management actions designated for portions of the project site. In particular, the proposed boat dock and soft landing would remove wetlands in Management Area 1a, where the management plan specifies that tule marsh wetland should be maintained. Boaters using the boat dock and soft landing also may not be able to comply with the intent of Management Action 3a, that boaters keep 30 feet away from wetlands.

[4] Ibid.

[5] City and County of San Francisco, *Environmental Impact Report Significant Natural Resource Areas Management Plan*, Case No. 2005.1912E, State Clearinghouse No. 2009042102. Certified December 2016.

Physical environmental effects related to these potential conflicts are evaluated in Topic E.15, Biological Resources. Other project features, such as new trails along the northern edge of the site and the low height of new buildings, would not obviously conflict with actions specified for Management Area 2e.

C.1.7 SAN FRANCISCO PUBLIC UTILITIES COMMISSION 2020 STRATEGIC PLAN

The San Francisco Public Utilities Commission's (SFPUC's) 2020 Strategic Plan provides a framework for planning, managing, and evaluating SFPUC-wide performance, taking into account the long-term economic, environmental, and social impacts of SFPUC's business activities. This plan consists of a "Durable Section" that contains goals, objectives, and performance indicators to implement SFPUC's vision and values. The goals and objectives are then used to drive the plan's "Dynamic Section," which contains specific action items, targets, measures, and budgeting. SFPUC uses the plan to evaluate its performance semiannually to help measure progress on an annual basis.

The project would provide public access and recreational opportunities in a manner that is generally compatible with protection of water quality, public health and safety, biological resources, and other key elements of SFPUC's vision and values as expressed in the 2020 Strategic Plan. The project would also construct an arborist facility for SFPUC arborist staff, which would be consistent with the strategic plan's goal to provide reliable service and value to customers by optimizing the operations, maintenance, replacement, and improvement of all assets in the most cost-effective manner. However, as discussed in topic E.15, Biological Resources, implementation of the project would require removal of wetland vegetation. As a result, elements of the project could conflict with plan objectives regarding environmental stewardship. Overall, however, the project would not obviously conflict with the plan's primary objectives.

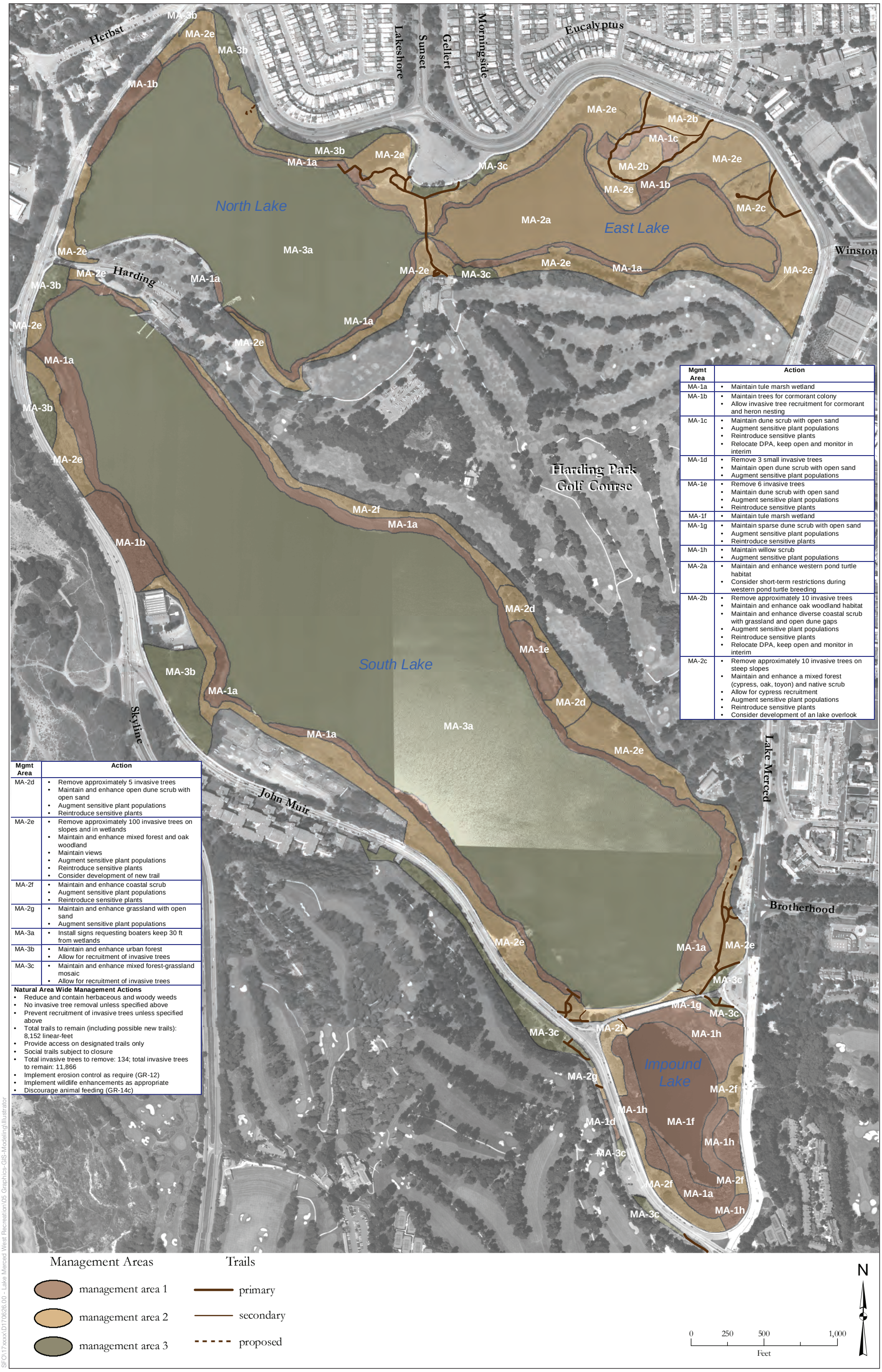
C.2 State Plans and Policies

C.2.1 CALIFORNIA COASTAL ACT

The California Coastal Act (Public Resources Code section 30000 et seq.) was enacted by the state legislature in 1976 to provide long-term protection of the Pacific Ocean coastline for the benefit of current and future generations. The Coastal Act provides for the long-term management and protection of lands within California's Coastal Zone. The entire project area is located within the Coastal Zone. As explained in Section C.1.1, San Francisco General Plan, the Western Shoreline Area Plan is the land use plan portion of the city's certified local coastal program and guides land use planning and development decision-making within the city's Coastal Zone consistent with the Coastal Act.

The Coastal Act contains numerous and broad policies intended to do the following, among other objectives:

- Protect, maintain, enhance, and restore the quality of the Coastal Zone environment and its resources.
- Assure orderly utilization of Coastal Zone resources in a manner that balances conservation, social, and economic interests.
- Maximize public access to and along the coast and public recreational opportunities in the Coastal Zone.
- Assure priority for coastal-dependent and coastal-related development over other types of development on the coast.



Mgmt Area	Action
MA-1a	• Maintain tule marsh wetland
MA-1b	• Maintain trees for cormorant colony • Allow invasive tree recruitment for cormorant and heron nesting
MA-1c	• Maintain dune scrub with open sand • Augment sensitive plant populations • Reintroduce sensitive plants • Relocate DPA, keep open and monitor in interim
MA-1d	• Remove 3 small invasive trees • Maintain open dune scrub with open sand • Augment sensitive plant populations
MA-1e	• Remove 6 invasive trees • Maintain dune scrub with open sand • Augment sensitive plant populations • Reintroduce sensitive plants
MA-1f	• Maintain tule marsh wetland
MA-1g	• Maintain sparse dune scrub with open sand • Augment sensitive plant populations • Reintroduce sensitive plants
MA-1h	• Maintain willow scrub • Augment sensitive plant populations
MA-2a	• Maintain and enhance western pond turtle habitat • Consider short-term restrictions during western pond turtle breeding
MA-2b	• Remove approximately 10 invasive trees • Maintain and enhance oak woodland habitat • Maintain and enhance diverse coastal scrub with grassland and open dune gaps • Augment sensitive plant populations • Reintroduce sensitive plants • Relocate DPA, keep open and monitor in interim
MA-2c	• Remove approximately 10 invasive trees on steep slopes • Maintain and enhance a mixed forest (cypress, oak, toyon) and native scrub • Allow for cypress recruitment • Augment sensitive plant populations • Reintroduce sensitive plants • Consider development of an lake overlook

Mgmt Area	Action
MA-2d	• Remove approximately 5 invasive trees • Maintain and enhance open dune scrub with open sand • Augment sensitive plant populations • Reintroduce sensitive plants
MA-2e	• Remove approximately 100 invasive trees on slopes and in wetlands • Maintain and enhance mixed forest and oak woodland • Maintain views • Augment sensitive plant populations • Reintroduce sensitive plants • Consider development of new trail
MA-2f	• Maintain and enhance coastal scrub • Augment sensitive plant populations • Reintroduce sensitive plants
MA-2g	• Maintain and enhance grassland with open sand • Augment sensitive plant populations
MA-3a	• Install signs requesting boaters keep 30 ft from wetlands
MA-3b	• Maintain and enhance urban forest • Allow for recruitment of invasive trees
MA-3c	• Maintain and enhance mixed forest-grassland mosaic • Allow for recruitment of invasive trees

Natural Area Wide Management Actions

- Reduce and contain herbaceous and woody weeds
- No invasive tree removal unless specified above
- Prevent recruitment of invasive trees unless specified above
- Total trails to remain (including possible new trails): 8,152 linear-feet
- Provide access on designated trails only
- Social trails subject to closure
- Total invasive trees to remove: 134; total invasive trees to remain: 11,866
- Implement erosion control as require (GR-12)
- Implement wildlife enhancements as appropriate
- Discourage animal feeding (GR-14c)

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SOURCE: City and County of San Francisco, Environmental Impact Report Significant Natural Resource Areas Management Plan, Case No. 2005.1912E, tate Clearinghouse No. 2009042102. Certified December 2016.

Lake Merced West

Figure 1
Natural Resource Areas Management Plan
Management Areas and Trail Plan, Lake Merced

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A coastal development permit is required for the proposed project, and the project's consistency with the applicable policies of the city's certified local coastal program and the Coastal Act will be determined through the review and approval of the city's coastal development permit application. Coastal Act policies particularly relevant to the project are discussed below.

Coastal Act sections 30210 and 30211 (Public Access) call for the provision of maximum public access and recreational opportunities, and prohibit development that would interfere with the public's right under the California Constitution to access the sea and coastal beaches to the first line of terrestrial vegetation. Section 30214 further specifies how public access should be provided in new coastal development. The project would add trails and other recreational amenities and open the site to public access.

Sections 30220 and 30221 (Recreation) require that waterfront land suitable for water-oriented or other recreational activities be protected for such uses, if the water-oriented recreational activities cannot be provided at inland locations and existing or foreseeable future recreational demand is not adequately provided for in the area. The project would add suitable water-oriented recreational facilities (boathouse, boat dock, trails) and other recreational activities (sports court, playground, picnic areas, dining) at Lake Merced. Access for water-oriented recreational activities, such as fishing and boating, would also be enhanced.

Coastal Act sections 30230 and 30231 (Marine Resources) require that marine resources be maintained, enhanced, and restored, and that the productivity of coastal waters necessary for the continuance of health populations of marine species be maintained and restored. The project would complete soil remediation of upland areas and would implement stormwater controls during construction and operation consistent with the city's stormwater management requirements. Recreational access along the shoreline would be limited to boating and fishing from a floating dock near the boathouse, and dense shoreline vegetation would be retained to deter visitors from approaching the shoreline in other areas of the site. Topic E.15, Biological Resources, evaluates the project's impacts on biological resources, including marine resources.

Section 30233 (Wetland Protection) of the Coastal Act limits diking, filling, or dredging in wetlands except for certain purposes, and further limits such activities to instances where there is no feasible less environmentally damaging alternative. Dredging or filling for new or expanded boating facilities that provide public access and recreation opportunities is allowed in coastal lakes (section 30233(a)(3)). As described in EIR Chapter 2, the project would dredge contaminated sediment from the shoreline and then fill the dredged area to create a soft landing for small watercraft. The project would also place a narrow gangway and floating dock next to the soft landing. These boating facilities would be available to the public and are proposed on the shoreline where a soft landing is topographically feasible and the band of vegetation is relatively narrow. Topic E.15, Biological Resources, evaluates environmental impacts on wetlands related to the project's shoreline development. Given that the dredging and filling would be to provide public boating facilities, the project would not obviously conflict with section 30233.

Section 30240 (Environmentally sensitive habitat areas; adjacent developments) requires that *environmentally sensitive habitat areas*[6] be protected against significant disruption of habitat value, and limits allowable uses within and adjoining such areas to those dependent upon and compatible with the continuance of the habitat. As explained in topic E.15, Biological Resources, wetlands that the California Coastal Commission has identified

[6] The Coastal Act (Section 30107.5) defines *environmentally sensitive area* "as any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments."

as environmentally sensitive habitat areas in previous coastal development permitting for the site are present along the project's lake shoreline[7]. As discussed above, the project would dredge and fill in wetlands along the shoreline to create a soft landing for small watercraft. All other recreational uses would be developed in upland areas, and a natural area buffer would separate the recreational uses from the shoreline vegetation. Topic E.15, Biological Resources, evaluates environmental impacts on wetlands related to the project's shoreline development. The boat dock and soft landing would support activities that are dependent upon access to the lake, but by removing a portion of the wetlands for the soft landing the project could be incompatible with continuance of the wetland habitat; consequently the project may be inconsistent with section 30240.

Section 30251 (Scenic and visual qualities) states that the scenic and visual qualities of coastal areas shall be considered and protected as a resource of public importance. The project would provide scenic lake vistas for the public enjoyment. As explained in topic E.2, Aesthetics, the project would remove and replace some of the trees onsite, but by developing public pathways and facilities on the site would establish new public vantage points from which the area's scenic and visual qualities would be visible.

Section 30253 (Minimization of adverse impacts) of the Coastal Act states in part that new development shall, where appropriate, protect special communities and neighborhoods that, because of their unique characteristics, are popular visitor destination points for recreational uses. As discussed in EIR Chapter 3, Environmental Setting, Impacts, and Mitigation Measures, Section 3.2, Historical Architectural Resources, the project would remove most of the structures at the site, which are part of a cultural landscape that is eligible for listing in the National Register of Historic Places and the California Register of Historical Resources. Removing the structures would adversely affect site features that contribute to the cultural landscape's significance as a historical resource. The EIR concludes that the effect would be significant, and feasible mitigation would not reduce the effect to less-than-significant levels. As a result, the project's effect on historical resources may be inconsistent with Section 30253.

D. Summary of Environmental Effects

The project could potentially result in adverse physical effects on the environmental resources checked below. The initial study and the EIR present a more detailed checklist and discussion of each environmental resource.

☐ Land Use and Planning	☐ Greenhouse Gas Emissions	☐ Hydrology and Water Quality
☐ Aesthetics	☐ Wind	☐ Hazards and Hazardous Materials
☐ Population and Housing	☐ Shadow	☐ Mineral Resources
☒ Cultural Resources	☐ Recreation	☐ Energy
☐ Tribal Cultural Resources	☐ Utilities and Service Systems	☐ Agriculture and Forestry Resources
☐ Transportation and Circulation	☐ Public Services	☐ Wildfire
☒ Noise	☒ Biological Resources	☒ Mandatory Findings of Significance
☐ Air Quality	☒ Geology and Soils	

[7] California Coastal Commission, Staff Report, Application Number 2-14-1612, December 19, 2014.

This initial study evaluates the potential for the project to result in significant environmental impacts for each environmental topic listed above. The impact evaluation considers project impacts both individually and cumulatively. EIR Chapter 3, Environmental Setting, Impacts, and Mitigation Measures, Section 3.1.4, Determination of Environmental Significance, discusses the criteria used by the San Francisco Planning Department to assess the severity of environmental impacts of the project.

D.1 Effects Found To Be Significant

On the basis of this initial study, the resource topic for which the potential exists for project-specific effects to be significant and unavoidable, and that therefore requires additional detailed analysis in the EIR, is as follows:

- Cultural Resources (historic architectural resources only)

D.2 Effects Found Not To Be Significant

This initial study has determined that the potential project-specific and cumulative environmental effects on all other resource topics either would be less than significant or would be reduced to a less-than-significant level with implementation of the mitigation measures identified in the initial study.

Impacts associated with these topics are discussed with standard construction measures and mitigation measures, where appropriate, in Section E, Evaluation of Environmental Effects, of this initial study, and require no further environmental analysis in the EIR.

D.3 Approach to Cumulative Impact Analysis

The CEQA Guidelines require that the environmental document disclose the cumulative impacts of a project. Furthermore, CEQA Guidelines section 15355 defines *cumulative impacts* as two or more individual effects that, when considered together, are considerable or compound or increase other environmental impacts. EIR Chapter 3, Environmental Setting, Impacts, and Mitigation Measures, Section 3.1.5, Approach to Cumulative Impacts Analysis and Cumulative Projects, describes the overall approach used in this document to conduct the cumulative impact analysis.

The cumulative impact analyses for topics addressed in this initial study are presented in Section E, Evaluation of Environmental Effects. Those analyses use the list-based approach, a projections approach, or a hybrid of the two, as appropriate. Reasonably foreseeable development and infrastructure projects that could produce related or cumulative impacts are listed in EIR Section 3.1, Overview, Table 3.1-3, Projects Considered in the Cumulative Impact Analysis, EIR p. 3.1-7, and are mapped in Figure 3.1-1, Cumulative Projects, EIR p. 3.1-10.

E. Evaluation of Environmental Effects

E.1 Land Use and Planning

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
1. LAND USE AND PLANNING. Would the project:					
a) Physically divide an established community?	☐	☐	☐	☒	☐
b) Cause a significant physical environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐	☐

Impact LU-1: The project would not physically divide an established community. (*No Impact*)

The project site is situated between three land uses: residences to the south across John Muir Drive, Lake Merced to the north and east, and the San Francisco Police Department Pistol Range to the west. The site does not currently provide access to any of these areas, and is separated from the residences by John Muir Drive, an important transportation corridor. The project would provide access and connect to John Muir Drive and the adjacent pedestrian path to Lake Merced, but otherwise would not alter physical connections between land uses. Therefore, the project would not physically divide an established community. ***No impact*** would occur.

Impact LU-2: The project would not conflict with any applicable land use plans, policies, or regulations of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. (*Less than Significant*)

Land use impacts would be significant if the project would conflict with any plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Environmental plans are those that directly address environmental issues and/or contain targets or standards that must be met to preserve or improve characteristics of San Francisco's physical environment. A conflict with a plan, policy, or regulation does not necessarily indicate a significant environmental land use impact under CEQA, unless the project substantially conflicts with a land use plan or policy that was adopted for the purpose of avoiding or mitigating an environmental effect, such that a substantial adverse physical change in the environment related to land use would result. To the extent that such substantial physical environmental impacts may result from such conflicts, this initial study and this EIR disclose and analyze these physical impacts in the relevant environmental topic sections.

Applicable land use plans include the San Francisco General Plan, including the Western Shoreline Area Plan, and the California Coastal Act. Section C, Compatibility with Existing Zoning and Plans, generally describes the project's potential inconsistencies with these plans.[8]

[8] Other regional plans, such as the 2017 Clean Air Plan and the Basin Plan concerning San Francisco Bay, address specific environmental resources and are discussed in the relevant sections of this initial study.

As described in Section C, Compatibility with Existing Zoning and Plans, the project would demolish all existing buildings and three of the four remaining skeet fields, which are contributing features to the cultural landscape that is considered a historical architectural resource. Therefore, the project could conflict with policies of the urban design element of the general plan that call for preservation of areas of historic, architectural, or aesthetic value. Demolition of the historical architectural resource may also be inconsistent with the California Coastal Act (Section 30253, minimization of adverse impacts). The physical environmental impacts that could result from this conflict are discussed in the EIR. The project could also conflict with the California Coastal Act because of the project's impacts on tule wetland vegetation along Lake Merced that could be considered environmentally sensitive habitat areas. Topic E.15, Biological Resources, evaluates environmental impacts on wetlands related to the project's shoreline development.

The consistency of the project with applicable plans, policies, and regulations of agencies with jurisdiction would continue to be analyzed and considered as part of the respective agencies' permit application review and approval process required for the project, independent of environmental review under CEQA. Any such potential conflicts would also be considered by the decision makers during their deliberations on the merits of the project and as part of their actions to approve, modify, or disapprove the project. Therefore, the project's impacts with regard to conflicts with existing plans, policies, and regulations would be ***less than significant***.

CUMULATIVE IMPACTS

Impact C-LU-1: The project, in combination with cumulative projects, would not result in significant impacts related to land use. (*Less than Significant*)

The geographic scope for the analysis of potential cumulative land use impacts encompasses the areas along the shores of Lake Merced, which generally include open space and recreational areas, the roadways and adjacent properties that encircle the lake, and the residential development across John Muir Drive south of the project site. The Vista Grande Drainage Basin Improvement Project is the only other project within this geographic scope. A cumulative land use impact would occur if the project, in combination with the cumulative projects, would result in the physical division of an established community or result in a substantial physical environmental impact due to conflicts with applicable land use plans, policies, or regulations adopted for the purpose of avoiding or mitigating an environmental effect.

The project would not physically divide an established community, and therefore would have no potential to combine with cumulative projects to result in a significant physical environmental impact related to dividing an established community. The cumulative project (the Vista Grande Drainage Basin Improvement Project) would maintain existing land uses in the project vicinity. Combined, these two projects would not result in any substantial physical environmental impacts resulting from conflicts with plans, policies, or regulations beyond those identified for the project. Cumulative physical environmental impacts are evaluated in the relevant topic sections. The project, in combination with cumulative projects, would have ***less-than-significant*** land use impacts.

———————————————

E.2 Aesthetics

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
2. AESTHETICS. Except as provided in Public Resources Code section 21099, would the project:					
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐	☐
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage points.) If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐	☐
d) Create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area?	☐	☐	☒	☐	☐

SCENIC VISTAS, SCENIC RESOURCES, AND VISUAL CHARACTER OF THE PROJECT SITE AND SURROUNDINGS

Visual or aesthetic resources are generally defined as both the natural and built features of the landscape that contribute to the public's experience and appreciation of the environment. The physical aesthetic setting therefore encompasses any area in the project vicinity from which there are scenic public views that could be affected by the project. Lake Merced and adjacent areas are closely bounded by the major thoroughfares of Lake Merced Boulevard, John Muir Drive, and Skyline Boulevard. The project site, located along John Muir Drive, is in a particularly developed portion of the Lake Merced area. Overall, however, the Lake Merced area is largely undeveloped, with trees, water, and vegetation providing visual variety and a respite from San Francisco's urban setting. Because many of the surrounding roadways and neighborhoods are elevated relative to Lake Merced, the lake and the bordering open space are also important visual resources, offering aesthetically pleasing views for motorists, bicyclists, and pedestrians. However, the project site is closed to the public and is located behind a 6-foot-high opaque fence on its southern edge, and as a result, views of and through the project site are restricted or blocked as viewers move past the site on John Muir Drive.

A *scenic vista* is generally an expansive, publicly accessible view that is recognized and valued for its scenic quality. Scenic vistas are typically available from public areas, including vista points, designated scenic highways, or parks. The Urban Design Element of the San Francisco General Plan includes objectives and policies to protect major views in the city, with particular attention paid to views of open space and water.[9] Two unobstructed views across Lake Merced that include the project site as part of the landscape may be considered scenic vistas. The first scenic vista is generally visible looking northwest across the lake from the Lake Merced Boulevard pedestrian path along the southeast side of the lake, approximately 2,400 feet from

[9] San Francisco Planning Department, *San Francisco General Plan Urban Design Element,* as amended through 2010.

the project site (see **Figure 2**, viewpoints 7 and 8). The second is the scenic vista from the boathouse area along Harding Road, looking south-southeast across Lake Merced at a distance of approximately 3,000 feet from the project site (see Figure 2, viewpoints 9 and 10).

Scenic resources include trees, rock outcroppings, and other unique landscape features that contribute to the scenic character of a public area. The Urban Design Element of the San Francisco General Plan contains objectives and policies to protect natural resources such as sand dunes; hills; cliffs; open spaces, including recreational resources; San Francisco Bay; and the Pacific Ocean, all of which contribute to the visual framework of the city. Scenic resources in the project area include Lake Merced and the vegetated open spaces surrounding it.

The photos in this section depict the existing visual conditions of the project site and adjacent areas. Figure 2 provides an overview of photo locations; **Figures 3 through 7** show views of the project site and surrounding locations. Photos 1 through 6 in Figures 3 through 5 provide views of the project site and Lake Merced from the pedestrian path along John Muir Drive. This area includes the opaque fencing and vegetation that mostly screen the site's existing structures from public views.

Photos 7 and 8 (Figure 6), showing the scenic vista including the project site, were taken along the Lake Merced Boulevard pedestrian path, near the Penguin Statue parking area and the Lake Merced Pump Station and intersection with Brotherhood Way, respectively. Photos 9 and 10 (Figure 7), also showing the scenic vista including the project site, were taken from the Lake Merced boathouse and parking area. Photos 7 through 10 show views of the project site as a developed and less vegetated area, compared to adjacent areas of the Lake Merced shoreline. These photos also show the Lakewood apartment complex in the immediate background and the tree cover beyond to the south.

The project site is characterized by open space occupied by small one-story buildings, former skeet shooting fields, and parking areas associated with the former Pacific Rod and Gun Club facilities. As described above, most of the boundary along John Muir Drive includes trees, shrubs, and opaque fencing. Vegetation along the site's lakefront is low in profile or at a lower elevation than the site. This provides open long-range views of the project site from the lake and from areas to the northeast and east. Former Pacific Rod and Gun Club structures, as well as the opaque fencing, where visible from public areas, are perceptibly uncharacteristic of the surrounding area.

Public views of the project site from John Muir Drive, the adjacent pedestrian paths, and the bicycle lanes on John Muir Drive are intermittent and limited by the opaque fencing and trees and shrubs that line the site. As noted above, long-range views of the site from the lake and public areas to the northeast and east are available to boaters, runners, bicyclists, and pedestrians. The 49-Mile Scenic Drive encircles the lake, and it can be reasonably assumed that users of the pedestrian path expect a high-quality visual setting, given that the streets that comprise the 49-Mile Scenic Drive are recognized for their aesthetic value.[10] In addition, the Urban Design Element of the San Francisco General Plan rates John Muir Drive as having excellent-quality street views, and as a street that extends the effect of public open space. Thus, these pedestrian path users, motorists, and bicyclists are considered sensitive viewers when considering the potential for aesthetic impacts. Nevertheless, the project site currently has low viewer exposure and is currently seen only briefly at close range as viewers pass by relatively open areas of the fence or gate (see Photos 1 through 6 in Figures 3 through 5).

[10] In 1938, San Francisco's Downtown Association created the 49-Mile Scenic Drive to highlight the city's beauty and to promote San Francisco as a tourist destination. This scenic drive encircles Lake Merced. Streets that comprise the 49-Mile Scenic Drive are recognized for their aesthetic value.

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SOURCE: Square One Productions, 2020; ESA, 2020; Google Earth, 2020

Lake Merced West

Figure 2
Existing Visual Conditions - Photograph Locations

ESA

Photo 1 – View of Site Across John Muir Drive

Photo 2 – Existing Fencing and Trail Facing Northwest

SOURCE: Square One Productions, 2020

Lake Merced West

Figure 3
Existing Visual Conditions - Exterior Area of Project Site

ESA

Photo 3 – Existing Fencing Looking Northwest

Photo 4 – Existing Fencing Looking Southeast

SOURCE: Square One Productions, 2020

Lake Merced West

Figure 4
Existing Visual Conditions - Exterior Fencing
Looking Northwest and Southeast

ESA

Photo 5 - View of Project Site Gate from Trail

Photo 6 - Southeastern View of Project Site

SOURCE: Square One Productions, 2020

Lake Merced West

Figure 5
Existing Visual Conditions – Southeastern Edge and Gate

ESA

Photo 7 – Views of Project Site Facing Northwest from Penguin Statue Parking Area

Photo 8 – Views of Project Site Facing Northwest from Lake Merced Perimeter Trail Near Intersection of Lake Merced Boulevard and Brotherhood Way

SOURCE: Square One Productions, 2020

Lake Merced West

Figure 6
Existing Visual Conditions - Views Looking Northwest Across Lake Merced Toward Project Site

Photo 9 - View of Project Site from Lake Merced Boathouse

Photo 10 - View of Project Site from Lake Merced Boathouse Parking Area

SOURCE: San Francisco Public Works, 2020

Lake Merced West

Figure 7
Existing Visual Conditions - Views Looking Southeast Toward Project Site

ESA

VISUAL SIMULATIONS

The project site was photographed from a range of publicly accessible vantage points. From these, two representative views—photo points 10 and 1 in Figure 2—were selected to show the change that would occur if the project were implemented. These views are presented in **Figure 8** and **Figure 9**, **respectively**. Figure 8 depicts the view from the Lake Merced Boathouse, which is located across the lake from the project site, in which the project site and adjacent areas along John Muir Drive comprise a scenic vista defined by the lake expanse and more distant vegetation and hills in the mid-field view and a wide view of the sky beyond. Figure 9 shows the existing baseline visual condition of the project site when viewed from John Muir Drive. Below each image of existing conditions, a simulation of the project is superimposed on the same view (denoted as "project") for comparison. These photographs document the range of visual conditions seen by the public, including locations from pedestrian trails, the boathouse, and other nearby publicly accessible areas. The simulation in Figure 9 shows conditions soon after project completion and prior to full growth of landscape plantings; once grown, vegetation would provide additional screening of the project site from viewers along John Muir Drive. These simulations provide a clear depiction of the location, scale, and appearance of the project and document the visual change that would be anticipated as a result of project implementation.

Impact AE-1: The project would not have a substantial adverse effect on a scenic vista. ***(Less than Significant)***

The project would have a significant effect on a scenic vista if it would substantially degrade an important public view corridor or obstruct a scenic view from a public area that is seen by a substantial number of people. Scenic vistas that include the project site are visible from Lake Merced Boulevard (Figure 6, Photo 7) and the Lake Merced Boathouse on Harding Road (Figure 7, Photo 9).

Construction

Project construction would last approximately 24 months and would involve demolition of buildings and structures, tree removal, excavation and disposal of contaminated soils, excavation backfilling, and construction of buildings, structures, and outdoor features. Construction activities would occur within the project site and would not require the use of areas outside the project site. The existing fence between John Muir Drive and the project site would block public view corridors through the site during construction. From scenic vista locations, construction activities would not be discernable (see Photos 7 through 10 in Figures 6 and 7), given the intervening distance and the frequency of foggy or hazy conditions. In addition, construction activities would be temporary. Therefore, impacts of project construction on scenic vistas would be ***less than significant***.

Operation

Project buildings would be located more centrally onsite than current structures, as shown in Figure 2-3 in EIR Chapter 2, Project Description (EIR p. 2-9), but would not be substantially taller than existing buildings with the exception of the ropes course components, which would be tall and slender. Trees would be removed from the project site at the new entrances to the site, and near the boathouse and arborist facility, and would be replaced with new trees elsewhere onsite. EIR Figure 2-6 (EIR p. 2-16) shows where these trees would be removed.

Existing

Project

SOURCE: San Francisco Public Works, 2021

Lake Merced West

Figure 8
Views of Project Site from Lake Merced Boathouse

ESA

Existing

Project

SOURCE: San Francisco Public Works, 2021

Lake Merced West

Figure 9
Views of Project Site from John Muir Drive Sidewalk

ESA

The visual simulations shown in Figures 8 and 9 represent existing views and project views of the site. Views of the site from the southeast side of the lake and from the existing Lake Merced boathouse would not be substantially affected because the proposed structures, including the taller structures (ropes course), would not block views of the overall vista and would be similar to the design and scale of existing buildings. Additionally, the project would replace dilapidated structures, which could improve the visual quality of public views, although these changes would not be highly noticeable from the east side of the lake and the boathouse given the relative scale of the structures compared to surrounding vegetation and the lake (see Figure 8). By opening the site to the public, the project would also increase the public views available, adding vista viewing opportunities to the Lake Merced area. Because the project would not obstruct scenic vistas, project operation would have a ***less-than-significant*** impact on scenic vistas.

Impact AE-2: The project would not have a substantial adverse effect on scenic resources, including those within view of a state scenic highway. ***(Less than Significant)***

The primary scenic resources in the project vicinity are Lake Merced and the vegetated open spaces surrounding the lake. There are no state-designated scenic highways in San Francisco. Portions of State Routes 1 and 35[11] are identified as eligible for designation as scenic highways; the distances from the project site to the eligible portions are 1.3 miles and 0.25 miles, respectively. However, the site would not be visible from these highways, given the presence of intervening structures and vegetation. The project site is visible from John Muir Drive, a roadway included in the 49-Mile Scenic Drive, which is recognized for its aesthetic value.[12] Thus, this analysis considers whether the project would have a substantial adverse effect on the scenic Lake Merced watershed, including the view of it from John Muir Drive. Characteristics of the Lake Merced scenic resource visible from John Muir Drive include a flat lake expanse fringed by wetland vegetation, open upland areas, and elevated upland terraces.

Construction

Project construction activities would not substantially alter scenic resources. Floating the boat dock into place would temporarily affect Lake Merced and the shoreline, but this activity would be subordinate in scale to the overall size of Lake Merced and would be temporary. Construction staging would occur within the project site and would not require use of adjacent open space areas. During construction, the existing fence between the site and John Muir Drive would remain in place; as a result, views through the project site would remain similar to existing views, with construction activities screened from public view. Project construction activities would have ***less-than-significant*** impacts on scenic resources.

Operations

The project includes five small buildings, recreation facilities, replacement fencing, a new boat dock in Lake Merced, and changes to vegetation at the site. The open black metal fence proposed along the border with John Muir Drive would provide additional views through the site to Lake Merced, improving views of this resource from John Muir Drive. The 144-foot-long, 12-foot-wide boat dock would be similar in scale to other floating docks on the lake and would float on the lake surface. The flat dock would not substantially disrupt the characteristics of the Lake Merced scenic resource, which include a flat lake expanse fringed by wetland

[11] All of State Route 1 through San Francisco is part of an eligible route that starts at State Route 17 in Santa Clara County. All of State Route 35 through San Francisco is part of an eligible route that ends on U.S. Highway 101 near the Golden Gate Bridge.

[12] In 1938, San Francisco's Downtown Association created the 49-Mile Scenic Drive to highlight the city's beauty and to promote San Francisco as a tourist destination. This scenic drive encircles Lake Merced. Streets that comprise the 49-Mile Scenic Drive are recognized for their aesthetic value.

vegetation, open upland areas, and elevated upland terraces. The soft landing for small craft would remove a stretch of wetland vegetation but would not substantially alter the underlying topography. The removed vegetation would not substantially disrupt the overall shoreline boundary created by shoreline vegetation. Trees would be removed in the vicinity of the proposed vehicle and pedestrian entrances and arborist office and yard near John Muir Drive, as shown in EIR Figure 2-6 (EIR p. 2-16), but would be replaced within the site. As a result, project operation would have ***less-than-significant*** impacts on scenic resources in the project area.

Impact AE-3: The project would not substantially degrade the existing visual character or quality of public views of the site and its surroundings, or conflict with applicable zoning and other regulations governing scenic quality. ***(Less than Significant)***

Initial study topic 2c for aesthetics establishes different criteria for urbanized and non-urbanized areas. For the reasons discussed below, this impact analysis evaluates project impacts under both criteria.

San Francisco is considered an urbanized area, as defined in CEQA Guidelines section 15387, and as mapped by the U.S. Census[13]; thus, impacts associated with degradation of existing visual character or quality may be considered in the context of the potential to conflict with applicable zoning and other regulations governing scenic quality. As discussed in Section C.1, the San Francisco General Plan and its Western Shoreline Area Plan contain objectives and policies regarding visual resources; for the project site, the main relevant policy is to preserve vistas of Lake Merced in a safe, attractive, and usable condition (Objective 5, Policy 5.1). The Urban Design Element of the general plan also identifies Lake Merced as an open space and landscaped area that lends itself to aesthetic and visual resources and where it is important to preserve the existing landscape. The analysis below considers the potential for the project to conflict with these plans and policies governing scenic quality.

Because the overall Lake Merced area is largely non-urbanized, with trees, water, and vegetation contributing to the visual character of the area, this analysis also considers the potential for the project to substantially degrade the existing visual character or quality of public views of the site and its surroundings. Impacts on visual quality in non-urbanized areas are generally assessed by analyzing the amount of visual change introduced by project components, the degree to which visual changes may be visible to from public viewpoints, and the general sensitivity of viewers to landscape alterations. Visual changes are usually measured by three factors: (1) the amount of visual contrast that project components create (changes to form, line, color, texture, and scale in the landscape), (2) the amount of view obstruction that occurs (loss of view, duration, and timing), and (3) the degradation of specific scenic resources.

Potential Conflicts with Applicable Zoning and Other Regulations Governing Scenic Quality

The city of San Francisco has incorporated scenic quality considerations relevant to the project site into its general plan and zoning.

San Francisco General Plan and Western Shoreline Area Plan

The Urban Design Element of the San Francisco General Plan rates city streets as excellent, good, or average for the quality of their views. In the project area, John Muir Drive is rated as having excellent-quality street views. Lake Merced Boulevard is rated as having average-quality street views, with the exception of a small

[13] 2010 Census – Urbanized Area Reference Map for San Francisco–Oakland, California: https://www2.census.gov/geo/maps/dc10map/UAUC_RefMap/ua/ua78904_san_francisco--oakland_ca/DC10UA78904.pdf. Accessed August 17, 2021.

segment north of Brotherhood Way, where open views of Lake Merced are available; this segment is designated as having excellent-quality street views. Civic groups have recognized roadways encircling Lake Merced for their aesthetic value by including the roadways in the 49-Mile Scenic Drive.[14]

The urban design element also identifies streets that are important to the "perception" of the city. John Muir Drive and Lake Merced Boulevard are identified as "Streets that Extend[s] the Effect of Public Open Space." These streets are identified as such primarily because of the unobstructed views of Lake Merced, which, in San Francisco's urban context, provide a unique and exemplary visual setting. The urban design element also identifies Lake Merced as an area where it is important to preserve the existing landscape.

The Western Shoreline Area Plan, an area plan within the San Francisco General Plan, is the city's certified Local Coastal Program under the California Coastal Act of 1976. Policies related to the Lake Merced area include preserving recreational facilities, passive activities, playgrounds, and vistas of the Lake Merced area, and are described in more detail in Section C, Compatibility with Existing Zoning and Plans.

As discussed in Impact AE-1 and discussed further below, the project would preserve public views and scenic vistas of Lake Merced and thus would not conflict with applicable general plan regulations governing scenic quality. As described in Section C.1, City and County of San Francisco Plans and Policies, the preservation of these scenic vistas is Policy 5.1 of Objective 5 of the Western Shoreline Area Plan. Scenic vistas of the site are located southeast of the project site on Lake Merced Boulevard and at the boathouse along Harding Road, and the project would neither obstruct scenic vistas nor detract from the quality of street and pedestrian views from these viewpoints. Additionally, although John Muir Drive is identified as having excellent-quality street views, the opaque fencing, trees, and vegetation screen most views of the project site. Upon the completion of construction, a fence that would allow views through the project site would replace the existing fence, removing obstructions that currently block views. Because the project would not obstruct existing scenic vistas and would not detract from the quality of street views, the project would not conflict with applicable San Francisco General Plan regulations governing scenic quality, and the impact would be ***less than significant***.

San Francisco Zoning

The project site is located along the shore of Lake Merced on land zoned "P" (Public Use) and in an Open Space District. An Open Space District applies to land that is owned by a governmental agency and in some form of public use. A variety of land uses is permitted or can be conditionally permitted on lands zoned for Public Use and Open Space, including neighborhood agriculture, community facilities, open recreation areas, and accessory nonpublic uses that do not detract from the lot's principal or exclusive purpose as open space.

As primarily a recreational and open space project, the project would not conflict with the site's "P" zoning. The principal or exclusive purpose of land in the Open Space district is as open space, with future development of any character strictly limited. The project would replace existing facilities with buildings of similar height and bulk, and overall would retain the project area as open space, consistent with the Western Shoreline Area Plan. See Section C, Compatibility with Existing Zoning and Plans, for more discussion of project compliance with height and bulk designations. The project's accessory nonpublic uses (such as the restaurant and arborist facility) would occupy less than one-third of the total lot area dedicated to the

[14] In 1938, San Francisco's Downtown Association created the 49-Mile Scenic Drive to highlight the city's beauty and to promote San Francisco as a tourist destination. This scenic drive encircles Lake Merced. Streets that comprise the 49-Mile Scenic Drive are recognized for their aesthetic value.

principal use, recreational open space, and thus would not conflict with zoning regulations governing scenic quality. Therefore, the impact would be ***less than significant***.

Potential Impacts on Visual Quality

Construction

The opaque fencing, existing trees, and vegetation between the sidewalk and the fencing would remain in place during construction and would screen views of construction from viewers on John Muir Drive and the Lake Merced trail. Construction vehicles, materials, and equipment entering and exiting the site daily would temporarily increase the presence of unappealing visual features at the site. However, these activities would be temporary. Construction activities would be visible from public locations elsewhere around the lake; however, the scale of activities would not overwhelm the area's large-scale defining aesthetic features (i.e., vegetation and the Lake Merced expanse). Because of the scale and duration of construction, the impact on the visual quality and public views caused by project construction would be ***less than significant***.

Operation

The number and height of proposed buildings would be generally similar to existing conditions except for the ropes course (35 feet high). These structures would be visible from John Muir Drive, as well as from Harding Road and Lake Merced Boulevard (Figures 8 and 9). Additionally, as shown in EIR Figure 2-6 (EIR p. 2-16), small trees generally north of the opaque fence in the vicinity of the proposed vehicle and pedestrian entrances and arborist office and yard would be removed, with trees replaced onsite. As shown in Photo 6 (Figure 5), these trees are currently mostly obscured by the opaque fence.

As discussed in Impact AE-1, the dominant characteristics defining visual quality in the project area include the expanse of Lake Merced, lower vegetation along the shoreline, taller vegetation defining the skyline, and wide views of the sky. From John Muir Drive, the existing opaque fence also influences the visual quality of the site.

The new structures would be located more centrally on the project site than the existing structures, but the height of the new structures would not exceed the height of trees that define the skyline in the project area. Further, the project would not remove enough trees to substantially alter the relative dominance of vegetation in public views of the project area, even without replacing trees. Also, although a new boat dock would extend into Lake Merced and the soft landing would remove some shoreline vegetation, these new features would not affect the dominance of the lake expanse in public views of the site and surroundings, or the overall effect of vegetation that serves as a boundary between the lake and the land.

None of the proposed structures would obstruct public views. The project would remove opaque fencing along John Muir Drive, allowing for public views of Lake Merced through the project site from the roadway. As demonstrated by the visual simulations of views across Lake Merced from the boathouse (Figure 8), the project would not substantially contrast with the visual quality of the site and would not obstruct scenic vistas. Because the forested areas in the background would continue to dominate views, tree removal at the project site would not substantially change the visual quality or substantially affect Lake Merced as a scenic resource. For these reasons, the impact on the visual quality and public views caused by the new facilities and structures would be ***less than significant***.

Impact AE-4: The project would not create a new source of substantial light or glare which would adversely affect daytime or nighttime views in the area. ***(Less than Significant)***

Construction

As described in EIR Section 2.5.2, Construction Schedule, Equipment, and Workforce, construction activities would occur Monday through Friday from 7 a.m. to 6 p.m. No nighttime or weekend construction is anticipated or proposed. Construction equipment would not create substantial light or glare that would adversely affect daytime views. Project impacts related to light and glare during construction would be ***less than significant***.

Operation

The only permanent exterior light source used during operation of the project would be safety lighting for evening and nighttime illumination in parking areas, main pedestrian walkways, and around buildings, as described in EIR Section 2.7.3, Lighting and Security. Current exterior lighting at the project site is limited; however, street lights line John Muir Drive across from the project site. Lighting would be designed to meet the city's Design Standards for Bird-Safe Buildings. The increase in permanent lighting would not substantially affect nighttime views, including those from across Lake Merced, because lighting would be shielded and directed downward consistent with the bird-safe standards. With regard to daytime glare, the new buildings could have larger windows, which would represent a minor increase in the amount of reflective surfaces. However, the city's Design Standards for Bird Safe Buildings require bird-safe glazing treatment on 90 percent of a building's façade up to 60 feet above grade. Bird-safe glazing includes fritting, netting, permanent stencils, frosted glass, exterior screens, physical grids placed on the exterior of glazing or UV patterns visible to birds, which would also reduce reflectivity of the glass and reduce glare. In addition, the project would comply with San Francisco Planning Commission Resolution 9212, which generally prohibits the use of mirrored or reflective glass in new buildings.

Therefore, aesthetic impacts associated with light and glare during operation of the project would be ***less than significant***.

CUMULATIVE IMPACTS

Impact C-AE-1: The project, in combination with the cumulative projects, would not result in significant cumulative impacts related to aesthetics. ***(Less than Significant)***

EIR Table 3.1-3 (EIR p. 3.1-7) summarizes the cumulative projects in the vicinity of the project. The geographic scope for cumulative aesthetics impacts includes all projects that would be located within the publicly accessible viewshed of the proposed project (see Figure 3.1-1, EIR p. 3.1-10, for the locations of cumulative projects). The cumulative project sites do not necessarily need to be visible simultaneously with the proposed project site from one fixed vantage point; however, for an impact to occur, the sites must be visible in the same general vicinity by a viewer. As discussed above, the visual setting includes the scenic vistas available from across the lake to the east and north of the project site (2,000 feet and 3,000 feet away from the project site, respectively). Therefore, the geographic scope of cumulative aesthetics impacts extends up to about 3,000 feet from the project site. The only projects that could have a cumulative aesthetics impact in combination with the project, given their proximity, are the Vista Grande Drainage Basin Improvement Project and the Lake Merced Trail Renovations Project.

Construction

As discussed above, the project would not cause significant construction-related impacts on scenic vistas, scenic resources, and existing visual character of the project area. These include the temporary presence of construction equipment and activity along the shoreline of Lake Merced and at the project site.

Construction of the Vista Grande Drainage Basin Improvement Project would overlap project construction. The Lake Merced Trail Renovations project would proceed prior to project construction, and therefore would not cause construction impacts that could combine with the project or the Vista Grande project. The tunnel portal and Lake Merced Overflow components of the Vista Grande project would occur adjacent to the project site, and would require excavation and use of construction equipment. However, the construction activities of these two projects would not be large enough to alter the dominance of vegetation and Lake Merced in public views of the area. As a result, the impacts of construction of the project with respect to scenic vistas, scenic resources, aesthetic character, and lighting and glare, in combination with the impacts of the projects in the cumulative scenario, would be ***less than significant***.

Operation

As explained above, the project would not adversely affect scenic vistas, scenic resources, the existing visual character, or public views. The project would add publicly accessible viewpoints to the area. The project would introduce new permanent sources of light to the project area, but they would be of low intensity and not substantially change the lighting environment.

The projects in the cumulative scenario also would not substantially change the visual character or quality of the project area viewshed. The Vista Grande project and the Lake Merced Trail project share a viewshed with the project. The Vista Grande project's components near the project site would be at-grade or underground improvements that would not be visible or, if visible, would not substantially contrast with the surrounding landscape. However, the Vista Grande project would remove trees south of John Muir Drive across from the eastern end of the project site. The Lake Merced Trail project also could remove trees in the project site vicinity and other areas near the trail. Although the locations of trees removed by the proposed project and the cumulative projects are part of scenic vistas in the area, none of the projects would affect the large stands of trees that define the skyline and dominate the views of the project area. Further, the projects would replace removed trees onsite or nearby and, accordingly, would not combine to result in a significant cumulative impact on the viewshed's visual character.

The project in combination with other cumulative projects in the vicinity would have a ***less-than-significant*** cumulative impact related to the existing visual character or quality of public views of the site or its surroundings, damage to scenic resources, or introduction of substantial new sources of light or glare that would adversely affect day or nighttime views in the area.

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E.3 Population and Housing

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
3. POPULATION AND HOUSING. Would the project:					
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐	☐
b) Displace substantial numbers of existing people or housing units, necessitating the construction of replacement housing?	☐	☐	☐	☐	☒

The project would not displace any existing people or housing units because no people or occupied housing units currently exist on the site. Therefore, topic E.3(b) related to displacement of people or housing units ***does not apply*** and is not addressed further in the EIR, including this initial study.

Impact PH-1: The project would not induce substantial unplanned population growth in an area, either directly or indirectly. (*Less than Significant*)

In general, the project would be considered growth-inducing if its implementation were to result in a substantial unplanned population increase.

Construction

Project construction would take approximately 24 months. An average of about eight construction workers and a maximum of 15 workers would be required onsite during a given construction phase. According to the California Employment Development Department, the average number of construction jobs in San Francisco and San Mateo counties (combined) from March 2019 to March 2020 was about 43,515 jobs.[15] The Association of Bay Area Governments estimates that a total of about 4,860 new project construction jobs will be added in San Francisco and San Mateo counties by 2040.[16] Given the site's proximity to regional population centers, and considering the size of the regional construction workforce, the project-related increase in workforce demand would be small relative to the regional labor supply. Project construction workers who do not live in the project vicinity would likely commute from elsewhere in the city or Bay Area rather than relocating from more distant cities or towns. If some workers were to relocate from other areas, the population increase would be negligible and temporary, limited to the construction period. Consequently, construction of the project would not induce unplanned population growth, and this impact would be ***less than significant***.

[15] California Employment Development Department, Current Industry Employment Statistics (Industry Employment) Data, https://www.labormarketinfo.edd.ca.gov/geography/md/san-francisco-redwood-city-south-san-francisco.html, accessed April 20, 2020.

[16] *Plan Bay* Area *Projections 2040* estimates that there would be 23,320 construction jobs in San Francisco and 27,340 construction jobs in San Mateo County by 2040 (Association of Bay Area Governments and Metropolitan Transportation Commission, *Plan Bay Area Projections 2040*, *A Companion to Plan Bay Area 2040*, November 2018).

Operation

None of the project objectives listed in EIR Section 2.3, Project Objectives, are related to increasing population, housing, or employment in the project area. The project does not propose any new homes or businesses that would attract substantial numbers of people to relocate. Although the project would enhance public access and recreation, members of the public who use the project's recreational features would likely commute from elsewhere in the city or Bay Area to use the new facilities, rather than relocating from more distant cities or towns. As stated in EIR Section 2.7, Project Operation, the project would be staffed by a concessionaire that would draw from the local and regional workforce. Approximately 15–20 employees are estimated to be required for facility operation. No changes to city agency staffing levels are anticipated during project operations and maintenance; site oversight and maintenance would be performed by existing city employees. This increase would not be substantial, nor would it represent unplanned growth given that, between 2020 and 2040, the Association of Bay Area Governments (ABAG) and Metropolitan Transportation Commission project that the number of health, educational and recreational jobs will increase by 21,570.[17] For these reasons, the project would have a ***less-than-significant impact*** on population growth.

CUMULATIVE IMPACTS

Impact C-PH-1: The project, in combination with cumulative projects, would not induce substantial unplanned population growth, either directly or indirectly. (*Less than Significant*)

Construction

As discussed above, project construction is expected to require a maximum of 15 daily workers during the 24-month construction period. Project construction would occur concurrent with other construction activity in San Francisco. Regardless, the construction labor force in San Francisco and San Mateo counties is expected to accommodate demand for construction labor. Therefore, the cumulative population and housing impact of project construction would be ***less than significant***.

Operation

As described above, the project would require approximately 15–20 employees. This would be a negligible contribution to overall cumulative employment growth in San Francisco and San Mateo counties and would not induce substantial population growth.

Cumulative projects in the vicinity that might result in increased population growth include the Parkmerced Redevelopment. Although the Parkmerced Redevelopment would construct new residential units, this growth has been planned, and therefore would not induce unplanned population growth.

For these reasons, the cumulative population and housing impact of project operation would be ***less than significant***.

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[17] Association of Bay Area Governments and Metropolitan Transportation Commission, Projections 2040: Forecasts for Population, Household, and Employment for the Nine County San Francisco Bay Area Region, https://mtc.data.socrata.com/api/views/grqz-amra/files/bf2d7a33-b68e-473d-800f956d08207b77?download=true&filename=formated_tables_juris.xlsx, accessed

E.4 Cultural Resources

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
4. CULTURAL RESOURCES. Would the project:					
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5, including those resources listed in article 10 or article 11 of the San Francisco Planning Code?	☒	☐	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐	☐

Impact CR-1: The project would cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines section 15064.5. (*Potentially Significant*)

The project would demolish most of the remaining contributing features of the cultural landscape on the project site and has the potential to result in a significant impact related to historical resources. Therefore, this topic is addressed in the EIR.

Impact CR-2: The project would not cause a substantial adverse change in the significance of an archeological resource pursuant to CEQA Guidelines section 15064.5. (*Less than Significant*)

This section discusses archeological resources, which may be either potential historical resources according to CEQA Guidelines section 15064.5 or unique archeological resources as defined in CEQA section 21083.2(g). The following discussion is based on the San Francisco Planning Department's preliminary archeological review.[18]

As discussed below, the project has the potential to cause a substantial adverse change to legally significant prehistoric and historical archeological resources. Implementation of San Francisco Public Utilities Commission (SFPUC)/San Francisco Recreation and Parks Department (RPD) Standard Archeological Measure I (Archeological Discovery) and Measure II (Archeological Monitoring) would be required. The potential for encountering archeological resources is determined based on several factors: archeological sensitivity criteria and models, documented archeological resources in the vicinity, local environmental history, site history, the extent and depth of prior soils disturbance, and topographic modifications relative to the proposed depth and extent of anticipated soil disturbance for the project. Previous environmental documents that include the project site were also used to inform the current analysis.

The project site was included in an archeological field reconnaissance survey conducted as part of a larger survey of the western Lake Merced area in 1980. At that time, the project site was partially covered by

[18] Morgan, Sally, *San Francisco Recreation and Parks Department Preliminary Archeological Checklist, Lake Merced West* (Environmental Planning Case No. 2019-014146ENV), April 2020.

pavement, gravel, and structures, so soil observation was incomplete. No resources were identified on the project site during that survey.[19] The project site was also surveyed for the Pacific Rod and Gun Club Upland Soil Remedial Action Project (the soil remediation project) and no archeological resources were identified.[20]

There are several known prehistoric shell midden sites in the sand dunes on the coastal bluffs west and south of the project site, and two known prehistoric shell middens near the east side of Lake Merced. The closest previously recorded historical archeological site is the remains of a well west of the site, which may have been associated with late 19th/early 20th century military or Coast Guard installations in the vicinity. Prehistoric and historic archeological sensitivity are discussed below.

Prehistoric Archeological Sensitivity

Although there are no known prehistoric archeological resources at the project site, the entire site has been determined to have high to very high sensitivity for near-surface prehistoric resources, based on the frequency of nearby sites in similar settings and the site's proximity to the coast, proximity to fresh water and other natural resources, relatively level topography, and geomorphological setting.[21] Prehistorically, the shores of Lake Merced, a perennial water source, would have been an attractive location for settlement both because of the natural resources it could provide and its proximity to the natural resources present along the ocean coastline. Older prehistoric sites may lie buried under sand dune deposits, which are as much as 40 feet deep in this vicinity, and which are known to have migrated across the city from west to east over the past several thousand years. Numerous prehistoric archeological sites in San Francisco have been found buried in similar sand dune settings.

Historical Archeological Sensitivity

The project site was part of the Rancho Laguna de la Merced, a 2,200-acre land grant given by the Mexican governor to José Antonio Galindo in 1835.[22] Lake Merced saw recreational development during the last several decades of the 1800s. Historical maps of the area show that a road and large structure were present on the project site by 1869, and that these were still present in 1884.[23] By 1875, three hotel-resorts or "lake houses" had been built around the lake.

In 1868, the Spring Valley Water Works Company (Spring Valley), the predecessor of SFPUC, spent $150,000 to purchase the water rights to Lake Merced. This began a several-decades-long ownership of the area. In 1877, Spring Valley began to purchase land encircling Lake Merced and, by the turn of the 20th century, owned 2,000 acres stretching from the San Francisco/San Mateo County line to Sloat Boulevard, and from Junípero Serra Boulevard to the Pacific Ocean.

The use of Lake Merced and surrounding watershed lands for San Francisco's water supply continued from the 1870s until the 1920s, when Spring Valley began selling its holdings to the city for recreational

[19] Shoup, Laurence H., and Suzanne Baker, *Cultural Resource Overview: Lake Merced Transport, San Francisco Clean Water Management Program*. January 1981. On file (S-3247), Northwest Information Center, Sonoma State University.

[20] San Francisco Planning Department, *Pacific Rod and Gun Club Upland Soil Remedial Action Project Preliminary Mitigated Negative Declaration* (Environmental Planning Case No. 2013.1220E), 2014.

[21] Meyer, Jack, and Jeffrey Rosenthal, *Geoarchaeological Overview of the Nine Bay Area Counties in Caltrans District 4.* Prepared for California Department of Transportation, District 4, Oakland, 2007.

[22] Shoup, Laurence H., and Suzanne Baker, *Cultural Resource Overview: Lake Merced Transport, San Francisco Clean Water Management Program, San Francisco, California,* January 1981. On file (S-3247), Northwest Information Center, Sonoma State University.

[23] Morgan, Sally, *San Francisco Recreation and Parks Department Preliminary Archeological Checklist, Lake Merced West* (Environmental Planning Case No. 2019-014146ENV), April 2020.

development around the lake. Both Skyline Boulevard and Sloat Boulevard were developed through the area in the 1920s to provide access to the growing residential areas north of Lake Merced. In 1934, the Pacific Rod and Gun Club (PRGC) leased the project site from the city, which had purchased the lake from Spring Valley in 1930.[24] A 1938 aerial photo shows that a shooting range had been established near the lakeshore edge of the project site by that year, but also clearly shows an expanse of sand dunes over the remainder of the project site.[25] Except for a brief hiatus during World War II, the PRGC was in continuous use from that time until it closed in 2015. As stated previously, project-specific and cumulative impacts related to historic architectural resources associated with the PRGC are addressed in detail in EIR Section 3.2.

As discussed above, historical maps indicate the presence of a large structure on the project site from at least 1869 through 1884. The nature of this structure—that is, whether it was a barn, a hotel, or a residence—has not been determined. However, based on the then-rural location, it can be presumed that if the structure was occupied, it likely was served by privies and refuse pits in the absence of city facilities, and potentially by a well. No physical evidence of such features, or of the structure's foundation, was identified during soil remediation excavations.

Nonetheless, given the continually shifting nature of sand dunes, the highly variable depth of remediation excavations, and the potential presence of relatively undisturbed soils under the buildings that would be removed as part of the project, buried remains of the 1869 foundation and/or associated depositional features may survive and could be encountered during project excavations.

Impacts and Conclusion

Prior hazardous-materials remediation work at the project site included removal of most of the trees and some structures, and excavation and removal of contaminated soils around the remaining buildings to depths ranging from 0.5 foot to as much as 10.5 feet below surface in a few areas (4 feet deep on average).[26] Although no archeological materials were identified during remediation excavations, the potential remains for archeological deposits to be present in native soils in areas not excavated, or that lie below the depth of remediation excavation and subsequently imported fill.

Further, the project would demolish the existing buildings and construct several facilities, including a community building, restaurant, boathouse, dock, soft landing, and ropes course. Should hazardous materials be identified as work proceeds, additional excavation and removal of contaminated soils to undetermined depths could occur after building demolition. Ground disturbance for project implementation is expected to include trenching to depths of up to 10 feet for sewer lines and up to 5 feet for building foundations. In addition, soil disturbance to depths of up to 12 feet would occur at small discrete locations for installation of the ropes course poles. Re-excavating imported post-remediation fill soils, which vary substantially in depth around the project site, has no potential to cause significant impacts on archeological resources because the fill soils were imported and would not have the potential to include intact or significant archeological deposits. However, the project excavations would likely exceed the depth or extent of prior remediation excavations, and thus could encounter archeological resources that may be present in previously undisturbed native soils. If prehistoric or historic archeological resources were to be encountered

[24] Bradley, Denise, *Pacific Rod and Gun Club, San Francisco, CA, Cultural Landscape Report*. Prepared by Cultural Landscapes, 2014.

[25] Rykker aerial photographs, 1938.

[26] Morgan, Sally, *San Francisco Recreation and Parks Department Preliminary Archeological Checklist, Lake Merced West* (Environmental Planning Case No. 2019-014146ENV), April 2020.

during project excavations, the archeological impact of soil excavation and disturbance would be potentially significant.[27]

As discussed in EIR Chapter 2, Project Description, SFPUC and RPD have adopted standard construction measures to reduce potential environmental effects during construction, and these standard measures would be required for all construction. The planning department determined that RPD and SFPUC would be required to implement SFPUC Standard Archeological Measure I (Archeological Discovery) and Measure II (Archeological Monitoring) for the project:

- Standard Archeological Measure I requires construction crew training before the start of excavation; identification of archeological materials; and implementation of stop-work provisions in case cultural materials are identified.
- In accordance with Standard Archeological Measure II, a qualified archeological consultant would develop and implement an archeological monitoring plan that would include archeological monitoring during ground disturbance in soils not previously disturbed by prior soil remediation efforts. The monitoring plan would overlay previous remediation activities and depths with proposed new ground disturbance to clearly delineate any areas of native, undisturbed soils that could be affected by the project.

Implementation of Standard Archeological Measures I and II would minimize the potential for significant impacts on archeological resources during construction. With implementation of these required measures, project impacts on archeological resources would be ***less than significant***.

Impact CR-3: The project would not have a substantial adverse effect on human remains, including those interred outside of formal cemeteries (*Less than Significant*)

No human remains have been identified within the project site and none were encountered during the soil remediation project; however, as discussed above, the project has the potential to encounter significant prehistoric archeological deposits, which commonly include human remains. Historic and prehistoric human remains in San Francisco have also been found in isolation. Should human remains be encountered during earthmoving activities associated with project construction, disturbance could result in direct impacts on previously undiscovered human remains, which would be a significant impact.

As discussed above under Impact CR-2, Standard Archeological Measure I (Archeological Discovery) and Measure II (Archeological Monitoring) would be required for the project. Standard Archeological Measure I requires construction crew training before the start of excavation, identification of archeological materials and human remains, and implementation of stop-work provisions if cultural materials or human remains are encountered.

Implementation of Standard Archeological Measures I and II would minimize the potential for significant impacts on human remains during construction. With implementation of these required measures, project impacts on human remains would be ***less than significant***.

[27] Morgan, Sally, *San Francisco Recreation and Parks Department Preliminary Archeological Checklist, Lake Merced West* (Environmental Planning Case No. 2019-014146ENV), April 2020.

CUMULATIVE IMPACTS

Impact C-CR-1: The project, in combination with cumulative projects, would not result in significant impacts on archeological resources. (*Less than Significant*)

The geographic scope for the analysis of cumulative impacts on archeological resources is the project site, where ground disturbance would occur, and adjacent sites where construction of cumulative projects could have impacts on the same resources as would be affected by the project. As discussed above, with implementation of Standard Archeological Measure I (Archeological Discovery) and Measure II (Archeological Monitoring), project impacts on archeological resources and human remains would be less than significant. None of the cumulative projects would overlap activities at the project site, nor are there any known archeological resources on the project site that extend outside of the site and could be affected by nearby development.

The potential impact is site-specific and would be generally limited to the immediate construction area, and there are no known resources that extend outside the project site and could be affected by adjacent development. Therefore, the project would not combine with cumulative projects to result in a significant cumulative impact on archeological resources or human remains, and the cumulative impact on cultural resources would be ***less than significant***.

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E.5 Tribal Cultural Resources

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
5. TRIBAL CULTURAL RESOURCES. Would the project:					
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, or cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:					
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☒	☐	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐	☐

Impact TC-1: The project would not result in a substantial adverse change in the significance of a tribal cultural resource as defined in Public Resources Code section 21074. (*Less than Significant*)

CEQA section 21074.2 requires the lead agency to consider the effects of a project on tribal cultural resources. As defined in section 21074, *tribal cultural resources* are sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are listed, or determined to be eligible for listing, on the national, state, or local register of historical resources. In San Francisco, all prehistoric archeological resources are presumed to be potential tribal cultural resources. A tribal cultural resource is adversely affected when a project causes a substantial adverse change in the resource's significance.

CEQA section 21080.3.1(d) specifies that, within 14 days after an application for a project is determined to be complete or a public agency decides to undertake a project, the lead agency is required to contact the Native American tribes that are culturally or traditionally affiliated with the geographic area in which the project is located. The notified tribes have 30 days to request consultation with the lead agency to discuss potential impacts on tribal cultural resources and measures for addressing those impacts.

As required by CEQA section 21080.3.1(d), on April 3, 2020, the planning department contacted Native American individuals and organizations for the San Francisco area, providing a description of the project and

requesting comments on the identification, presence, and significance of tribal cultural resources in the project vicinity. During the 30-day comment period, no Native American tribal representatives contacted the planning department to request consultation.

Based on background research and as discussed in Impact CR-2, the potential exists for the proposed soil disturbance to affect previously unrecorded buried prehistoric archeological resources. Should a prehistoric archeological resource be found to be present within the project site, the resource would be considered to be a potential tribal cultural resource, and construction damage to the resource would be considered a significant impact.

As discussed above, SFPUC/RPD Standard Archeological Measure I (Archeological Discovery) and Measure II (Archeological Monitoring) set forth procedures for identification, protection, and treatment of archeological resources (which may also be tribal cultural resources). Implementing these measures would ensure that any potential tribal cultural resources encountered during construction excavation would be promptly recognized, appropriately treated, and if applicable, subject to an interpretive program developed in consultation with the associated Native American tribal representatives. Because the project would include these standard construction measures, impacts on tribal cultural resources would be ***less than significant***.

CUMULATIVE IMPACTS

Impact C-TC-1: The project, in combination with cumulative projects, would not result in significant impacts on tribal cultural resources. (*Less than Significant*)

The geographic scope for the analysis of cumulative impacts on tribal cultural resources is the project site, where ground disturbance would occur, and adjacent sites where construction of the cumulative projects could have impacts on the same resources as would be affected by the project. Project-related impacts on tribal cultural resources are site-specific and generally limited to a project's construction area and adjacent areas that may overlie the same resource. As described under Impact TC-1, the project would be required to adhere to Standard Archeological Measure I (Archeological Discovery) and Measure II (Archeological Monitoring), which set forth procedures for identification, protection, and treatment of archeological resources (which may also be tribal cultural resources).

None of the cumulative projects would overlap activities at the project site, nor are there any known archeological resources on the project site that extend outside of the site and could be affected by nearby development. Therefore, the project would not combine with cumulative projects to result in a significant cumulative impact on tribal cultural resources, and the cumulative impact on tribal cultural resources would be ***less than significant***.

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E.6 Transportation and Circulation

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
6. TRANSPORTATION AND CIRCULATION. Would the project:					
a) Involve construction that would require a substantially extended duration or intensive activity, the effects of which would create potentially hazardous conditions for people walking, bicycling, or driving, or public transit operations; or interfere with emergency access or accessibility for people walking or bicycling; or substantially delay public transit?	☐	☐	☒	☐	☐
b) Create potentially hazardous conditions for people walking, bicycling, or driving or public transit operations?	☐	☐	☒	☐	☐
c) Interfere with accessibility of people walking or bicycling to and from the project site, and adjoining areas, or result in inadequate emergency access?	☐	☐	☒	☐	☐
d) Substantially delay public transit?	☐	☐	☒	☐	☐
e) Cause substantial additional vehicle miles travelled or substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow travel lanes) or by adding new roadways to the network?	☐	☐	☒	☐	☐
f) Result in a loading deficit, the secondary effects of which would create potentially hazardous conditions for people walking, bicycling, or driving; or substantially delay public transit?	☐	☐	☒	☐	☐
g) Result in a substantial vehicular parking deficit, the secondary effects of which would create potentially hazardous conditions for people walking, bicycling, or driving; or interfere with accessibility for people walking or bicycling or inadequate access for emergency vehicles; or substantially delay public transit?	☐	☐	☐	☐	☒

The evaluation of potential transportation and circulation impacts is based on the Transportation Analysis Memorandum prepared for the project, which is provided in **Appendix E** of this EIR. The memo was prepared in accordance with the San Francisco Planning Department's San Francisco Transportation Impact Analysis Guidelines for Environmental Review (SF Guidelines).[28]

[28] San Francisco Planning Department. Transportation Impact Analysis Guidelines for Environmental Review. February 2019 (updated October 2019). Available at: https://sfplanning.org/project/transportation-impact-analysis-guidelines-environmental-review-update#impact-analysis-guidelines.

The department evaluated the project's eligibility under CEQA section 21099(d)(1) and determined that an aesthetics analysis and analysis of secondary impacts due to a vehicular parking deficit may be required.[29]

The SF Guidelines establish screening criteria to determine whether a project could result in secondary impacts due to a substantial vehicular parking deficit. If a project is located within the department's map-based screening area,[30] then a substantial vehicular parking deficit would not occur and a vehicular parking analysis is not required. The project site is located in transportation analysis zone (TAZ) 401. Retail is presented as a proxy for the project's recreational uses for map-based screening.[31] For TAZ 401, existing daily vehicle miles traveled (VMT) per capita is 26 percent below the regional average daily VMT per capita and projected 2040 daily VMT per capita is 15 percent below the 2040 regional average daily VMT per capita. For these reasons, topic E.6(g) is not applicable to the project because secondary impacts due to a parking deficit are not anticipated, and is not discussed further in this initial study.

PROJECT TRAVEL DEMAND

The project would provide new recreational opportunities along Lake Merced. This travel demand analysis estimates the number of new trips that would result from new users of the site. Estimated weekday project person trip generation was prepared pursuant to methodologies outlined in the SF Guidelines. To estimate the total number of new weekend trips, the planning department conservatively assumed that the majority of new users would drive to the site based on the proposed uses of the site, availability of parking, and limited transit access in the project vicinity. For special events, which would occur up to 12 times per year with a maximum of 500 visitors, the trip generation was based on the anticipated number of visitors. Given the recreational uses proposed for the project site, the department expects that people would travel to the project site the same way on weekdays and weekends and thus the same modal split was applied to both weekday and weekend trips. The same modal split for weekdays and weekends was applied to special events to provide a conservative estimate of vehicle trips associated with special events.

The project is expected to generate approximately 1,268 daily weekday person trips, 963 daily weekend person trips, and up to 1,000 daily person trips during special events.[32] **Table 2**, **Table 3**, and **Table 4** show the mode splits for the project's estimated weekday, weekend, and special event trip generation, respectively. The number of new users who would bike to the project site is estimated to be negligible. New users are more likely to travel to the site using automobiles, transportation network companies (TNCs)/taxis, public transit, or by walking and people who currently bike to Lake Merced would likely continue to bike.

The estimated passenger loading demand during the peak hour of loading for all three evaluated time periods (weekday, weekend, and special events), is shown below in **Table 5**. The proposed restaurant is anticipated to require an average of two freight deliveries per week. Other facilities would require intermittent truck deliveries on an as-needed basis.

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[29] San Francisco Planning Department, *Eligibility Checklist: CEQA Section 21099 Modernization of Transportation Analysis – Lake Merced West Project*, October 18, 2021.

[30] Map-based screening is used to determine if a project site is located within a transportation analysis zone that exhibits low levels of vehicle miles traveled (VMT).

[31] Trips associated with recreational uses typically function similarly to retail. Therefore, these types of land uses are treated as retail for screening and analysis.

[32] A person trip is a one-way trip to or from the site; e.g., 500 visitors per day equates to 1,000 daily person trips.

Table 2 Weekday Travel Demand

Mode Choice	Total Net New Trips (Open Space)		Total Net New Trips (Restaurant)		Percentage of Trips
	Daily Trips	Estimated PM Peak Trips[a]	Daily Trips	Estimated PM Peak Trips[b]	
Automobile	222	58	830	112	83%
TNC/Taxi	22	6	80	11	8%
Muni Bus/Rail	19	5	70	9	7%
Walking	5	1	20	3	2%
Bicycle	0	0	0	0	0%
Other	0	0	0	0	0%
Total	**268**	**70**	**1,000**	**135**	**100%**

NOTES:
[a] PM peak trips for open space uses are estimated to comprise of 25.9% of total daily trips.
[b] PM peak hour trips for restaurant uses is assumed to be 13.5% of total daily trips.

SOURCE: SF Planning Department, *Transportation Analysis Memo*, 2021 (Appendix E).

Table 3 Weekend Travel Demand

Mode Choice	Total Net New Trips	Percentage of Trips
Automobile [a]	800	83%
TNC/Taxi	77	8%
Muni Bus/Rail	67	7%
Walking	19	2%
Bicycle	0	0%
Other	0	0%
Total	**963**	**100%**

NOTE:
[a] To estimate the number of net new weekend vehicle trips, the department conservatively assumed that the project would generate two trips per on-site parking space (one inbound trip and one outbound trip) with an average parking space turnover rate of two hours.

SOURCE: SF Planning Department, *Transportation Analysis Memo*, 2021 (Appendix E).

Table 4 Special Events Travel Demand

Mode Choice	Total Net New Trips	Percentage of Trips
Automobile	830	83%
TNC/Taxi	80	8%
Muni Bus/Rail	70	7%
Walking	20	2%
Bicycle	0	0%
Other	0	0%
Total	**1,000**	**100%**

SOURCE: SF Planning Department, *Transportation Analysis Memo*, 2021 (Appendix E).

Table 5 Passenger and Freight Loading Demand

Period of Analysis	Passenger Loading Demand[a]	Peak 15 Minute Spaces of Loading Demand[b]	Rounded 15 minutes of PM Peak Hour Spaces of Loading Demand
Weekday (PM Peak Hour)	26	0.87	1
Weekend (Daily)	67	2.2	3
Special Events	80	2.66	3

NOTES:
[a] The passenger loading analysis assumes all TNC/Taxi trips would require use of passenger loading spaces.
[b] The methodology of calculating peak 15-minute loading demand is provided on page F-12 of the San Francisco Transportation Impact Analysis Guidelines.

SOURCE: SF Planning Department, *Transportation Analysis Memo*, 2021 (Appendix E).

TRANSPORTATION IMPACTS

San Francisco Administrative Code chapter 31 directs the department to identify environmental effects of a project based on the environmental checklist form set forth in CEQA Guidelines Appendix G. As it relates to transportation and circulation, Appendix G asks whether the project would:

- Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities;
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b);
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses; and
- Result in inadequate emergency access.

The department uses significance criteria to facilitate the transportation analysis and address the Appendix G checklist questions. The department separates the significance criteria into construction and operation. The significance criteria are listed in the checklist at the beginning of this section and used to organize the following impact analysis.

Construction

Project construction would have a significant effect on the environment if it would require a substantially extended duration or intense activity; and the effects would create potentially hazardous conditions for people walking, bicycling, or driving, or public transit operations; or interfere with accessibility for people walking or bicycling or substantially delay public transit.

Operation

The operational impact analysis addresses the following five significance criteria. A project would have a significant effect if it would:

- Create potentially hazardous conditions for people walking, bicycling, or driving or public transit operations;
- Interfere with accessibility of people walking or bicycling to and from the project site, and adjoining areas, or result in inadequate emergency access;

- Substantially delay public transit;
- Cause substantial additional VMT or substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow travel lanes) or by adding new roadways to the network; or
- Result in a loading deficit and the secondary effects would create potentially hazardous conditions for people walking, bicycling, or driving or substantially delay public transit.

PROJECT-LEVEL TRANSPORTATION IMPACTS

Impact TR-1: Project construction would not require a substantially extended duration or an intense activity, the effects of which would create potentially hazardous conditions for people walking, bicycling, or driving, or for public transit operations; would not interfere with emergency access or accessibility for people walking or bicycling; and would not substantially delay public transit. ***(Less than Significant)***

Project construction is anticipated to occur in three phases beginning in early 2023. Project construction would be completed in approximately 27 months (an up to 18-month long break would separate phase 1 activities, lasting approximately three months, from the remaining 24 months of construction activities), which is less than the 30-month construction duration screening criterion for project construction impacts. In addition, the project would require the removal of approximately 11,000 cubic yards of soil and debris from the site, and approximately 1,500 cubic yards of soil to be imported to the site. In total, the project would remove less than 20,000 cubic yards of materials, which is less than the construction screening criterion for project construction impacts.

Project construction and staging would occur wholly within the project site and would not encroach into the public right-of-way on John Muir Drive; the project site does not include any transportation facilities that would require relocation or closure during construction activities. The project would be subject to the San Francisco Regulations for Working in San Francisco Streets (the Blue Book),[33,34] which contains regulations that are prepared and regularly updated by the SFMTA under the authority derived from the San Francisco Transportation Code. The Blue Book serves as a guide for all city agencies (RPD, public works, SFMTA, SFPUC, the port, etc.), utility crews, private contractors, and others who work in San Francisco's public rights-of-way. It establishes rules and guidance so that work can be done safely and with the least possible interference with people walking, bicycling, taking transit, or driving and/or transit operations.

Prior to project construction, RPD, SFPUC, and/or construction contractor(s) would be required to meet with public works and SFMTA staff to develop and review construction plans in preparation for obtaining relevant construction permits. This may include reviewing truck routing plans for the disposal of excavated materials, material delivery and storage, as well as staging for construction vehicles. If SFMTA determines that a construction project impacts transit routing or alters the flow of vehicle, bicycle, or pedestrian traffic, a logistics plan would be required so that SFMTA permit staff can confirm what permits from SFTMA or public works are required for the project.

[33] San Francisco Municipal Transportation Agency, Regulations for Working in San Francisco Streets, 8th Edition, January 2012, https://www.sfmta.com/sites/default/files/reports-and-documents/2020/06/blue_book_8th_edition_6-23-20.pdf, accessed February 2021.

[34] The authority for the Blue Book comes from the San Francisco Transportation Code, https://codelibrary.amlegal.com/codes/san_francisco/latest/sf_transportation/0-0-0-2, accessed February 2021.

Given the project's context, construction duration, and magnitude, it would meet the department's screening criteria set forth in the SF Guidelines for the types of construction activities that would typically not result in significant construction-related transportation effects. Additionally, construction activities would be required to comply with all applicable city codes and regulations. For these reasons, impacts related to hazardous conditions for people walking, bicycling, or driving, public transit operations, emergency access, accessibility for people walking or bicycling, or public transit delay would be ***less than significant***.

Impact TR-2: The project would not create potentially hazardous conditions for people walking, bicycling, or driving, or for public transit operations or interfere with accessibility for people walking or bicycling to and from the project site and adjoining areas or result in inadequate emergency access. ***(Less than Significant)***

The project would not make changes to the existing sidewalks or bicycle lane on John Muir Drive, nor would it include design features that would impede access to the project site or adjoining areas for people walking or bicycling. The second driveway added along John Muir Drive would not create hazardous conditions for bicyclists or pedestrians using the sidewalk or bicycle lane because the new driveway would be designed to meet city standards and is not located near a sharp curve that would suggest any line-of-sight deficiencies for vehicles turning into and out of the driveway. The project would continue to provide adequate emergency access to the project site and does not include any changes to John Muir Drive that could impede emergency vehicle access to the surrounding area. Although the project would generate additional vehicle trips in the area, such an increase in vehicle trips would not substantially impede or hinder the movement of emergency vehicles in the project area. Therefore, accessibility impacts for people bicycling and walking, public transit, and emergency vehicles would be ***less than significant***.

Impact TR-3: The project would not substantially delay public transit. ***(Less than Significant)***

Although the project would increase the number of vehicles traveling to and from the project site, it would not increase vehicle trips during the PM peak period to the extent that nearby public transit could be affected. This is because the project would generate fewer than 300 vehicle trips during the p.m. peak hour, which pursuant to the SF Guidelines indicates it would not result in substantial public transit delay. The project would not include any changes to John Muir Drive and would not affect existing bus facilities on John Muir Drive. Therefore, public transit impacts would be ***less than significant***.

Impact TR-4: The project would not cause substantial additional vehicle miles traveled or substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow travel lanes) or adding new roadways to the network. ***(Less than Significant)***

A project would have a significant transportation impact on the environment if it would cause substantial additional VMT or substantially induce automobile travel. VMT per person (or per capita) is a measurement of the amount and distance that a resident, employee, or visitor drives, accounting for the number of passengers within a vehicle. The city displays different amounts of VMT per capita geographically through TAZs. The San Francisco County Transportation Authority uses the San Francisco Chained Activity Model Process (SF-CHAMP) to estimate VMT by private automobiles and taxis for different TAZs.

To help determine whether a project would result in substantial VMT, the planning department uses a map-based screening tool that depicts existing VMT levels in San Francisco for residential, office, and retail land uses. Other land uses may use the residential, office, and retail as a proxy for determining VMT per capita or

per employee, per the SF Guidelines. The planning department uses these maps and associated data to determine whether a project is located in an area of the city that is below the VMT threshold. If a project is located within a transportation analysis zone that exhibits low levels of VMT, then it is presumed that VMT impacts would be less than significant and a detailed VMT analysis is not required.

The project site is in TAZ 401. Retail was used as a proxy for the proposed recreational land uses and for the restaurant use, consistent with the SF Guidelines.[35] The existing average daily VMT for the proposed land uses in TAZ 401 is 9.35 miles, which is more than 15 percent below the existing Bay Area regional average (12.6 miles). Thus, the project site is determined to be in an area where the project would not result in significant VMT impacts. Therefore, the project would result in a ***less-than-significant*** impact related to VMT and induced automobile travel.

Impact TR-5: The project would result in a loading deficit; however, the secondary effects of the deficit would not create potentially hazardous conditions for people walking, bicycling, or driving or substantially delay public transit. ***(Less than Significant)***

As shown above in Table 2, the project would generate 102 daily weekday TNC/taxi trips, 17 of which would occur during the PM peak hour, and 77 weekend TNC/taxi trips.

The project would include two off-street passenger loading areas in the parking lot, one at the western end by the ropes course, and one at the eastern end by the boathouse. The analysis assumes that all TNC and taxi trips to and from the project site would be passenger loading trips. As shown in Table 5, during any given minute of the peak hour throughout the average peak period of passenger loading activity, the project would generate a passenger loading demand for one passenger loading space during the weekday and three spaces during the weekend. Based on the anticipated passenger loading demand during the peak of passenger loading activity, and the capacity of the off-street loading zones, the project would accommodate its passenger loading demand during the weekday but would result in a deficit of one passenger loading space on the weekend. Any passenger loading demand that is not accommodated by the two designated loading areas would not result in secondary impacts, as there is adequate space for vehicles to use the primary parking lot to pick up and drop off passengers without causing queuing at the driveway or obstructing the sidewalk or bicycle facilities. For the same reasons, passenger loading activity is not anticipated to occur in travel lanes. Therefore, passenger loading activity would not result in hazardous conditions for people walking, bicycling, or driving, or substantial transit delay, and passenger loading impacts would be less than significant.

Freight loading for the restaurant would occur at the eastern end of the main parking area. The proposed restaurant is anticipated to require an average of two deliveries per week. Other facilities would require intermittent truck deliveries on an as-needed basis. Open space and recreational uses typically do not generate substantial freight loading demand. Due to the project's low commercial loading demand, the designated loading area would be able to accommodate project freight deliveries. For these reasons, the project would result in a ***less-than-significant*** loading impact.

[35] The State Office of Planning and Research has not established significance criteria for determining the VMT impacts of recreational land uses. However, consistent with state-level guidance, as documented in the SF Guidelines, the department establishes retail uses as a proxy for recreational land uses.

Impact TR-6: Special events would not result in significant site accessibility, hazardous conditions, or public transit delay impacts, nor create potentially hazardous conditions from unmet passenger and freight loading demand on the site. ***(Less than Significant)***

As previously described, the project may host up to 12 events with a maximum of 500 visitors per event. As shown in Table 4, based on the anticipated number of visitors and the modal split for the project these special events would generate approximately 1,000 trips consisting of: 830 vehicle trips, 80 TNC and taxi trips, 70 transit trips, and 20 walking trips. As shown in Table 5, during special events the 80 TNC and taxi trips would generate a peak 15-minute period loading demand of approximately three spaces.

Since special events would be limited to 500 attendees and all loading activities would occur in the parking lot, special events would not result in a significant impact on vehicle traffic flow on John Muir Drive. Events that may require partial or full street closure of John Muir Drive would be subject to the SFMTA Interdepartmental Staff Committee on Traffic and Transportation (ISCOTT) process. ISCOTT review would ensure that the proposed event would not significantly impact public transit operations in the area, that adequate access is provided to the project site, and that adequate roadway safety measures are implemented, if needed. If an event cannot meet the aforementioned requirements, the street closure permit would be denied. Site access would therefore not be substantially affected. Thus, special events would not impede emergency vehicle access in the project area, nor significantly delay transit, nor cause substantial vehicle queues to the extent that the project could cause hazardous conditions for people walking or bicycling.

With regards to commercial loading during special events, freight loading would occur outside of event operating hours and would not conflict with the peak passenger loading hours. Portions of the proposed parking lot may also be used for event-related freight loading during special events. Due to the infrequent nature of these events (up to 12 per year), these special events would result in ***less-than-significant*** site accessibility, hazardous conditions, and public transit delay impacts from unmet passenger and freight loading demand on the site.

CUMULATIVE TRANSPORTATION IMPACTS

Cumulative impacts occur when impacts of the proposed project combine with similar impacts from other projects. The geographic scope of cumulative transportation impacts is the transportation network in the project vicinity. The discussion of cumulative transportation impacts assesses whether the project, in conjunction with overall city-wide growth and other cumulative projects, would significantly affect the transportation network and, if so, whether the project's contribution to the cumulative impact would be considerable. Within the Lake Merced project area, the following future development projects, which are described in Chapter 3.1, Overview, of the Draft EIR, could combine with the project to result in cumulative transportation impacts:

- *Vista Grande Drainage Basin Improvement*
- *Ocean Beach Climate Change Adaptation Project*
- *Parkmerced Redevelopment*
- *San Francisco Zoo Recycled Water Pipeline*
- *Signalization of the State Route 35 (Skyline Boulevard) and Great Highway Intersection*
- *Reconfiguration of the Sloat Boulevard and State Route 35 (Skyline Boulevard) Intersection*

- *Lake Merced Boulevard Quick-Build Pedestrian Safety Improvements*

Impact C-TR-1: The project, in combination with cumulative projects in the vicinity of the project site, would not result in a considerable contribution to construction-related cumulative transportation and circulation impacts. ***(Less than Significant)***

Project construction may overlap with the construction of other projects in the nearby area. Based on current construction schedules shown in EIR Table 3.1-3, it is anticipated that construction would overlap with the SFPUC's Ocean Beach Climate Change Adaptation Project, Daly City's Vista Grande Drainage Basin Improvement project, the San Francisco Zoo Recycled Water Pipeline, and the Parkmerced Redevelopment, and Reconfiguration of the Sloat Boulevard and State Route 35 Intersection. During the overlap period, nearby cumulative projects may increase the number of construction worker vehicles and construction trucks in the vicinity, which may use the same construction access routes to regional facilities and may result in temporary travel lane closures. Affected roadways may include the Great Highway between Sloat and Skyline boulevards, and portions of Skyline Boulevard. As with the project, construction managers for cumulative projects would be required to comply with Blue Book regulations. Construction activities would be coordinated with city departments such as SFMTA and Public Works, as needed, for any temporary sidewalk, bicycle route, and travel lane closures and to develop traffic control plans that would address construction-related vehicle routing, traffic control, and pedestrian and bicyclist movements adjacent to the project's construction area for the duration of any construction overlap with cumulative projects. Compliance with Blue Book regulations would help maintain the accessibility and safety of public streets for vehicles, bicyclists, and people walking and limit the effects of construction on transit vehicle operations or transit delay.

Given the limited number of projects in the immediate vicinity of the project area that would overlap with Lake Merced West project construction, and with the implementation of SFMTA's Blue Book traffic control plan requirements that would be applicable to all cumulative projects, cumulative construction-related transportation impacts would be ***less than significant.***

Impact C-TR-2: The project, in combination with cumulative projects in the vicinity of the project site, would not result in a considerable contribution to operation-related cumulative transportation and circulation impacts. ***(Less than Significant)***

Potentially Hazardous Conditions, Accessibility, Substantial Public Transit Delay, and Freight and Passenger Loading. The permanent closure of the Great Highway between Sloat and Skyline boulevards would increase the number of vehicles travelling on both Sloat Boulevard and Skyline Boulevard due to diverted traffic in the north- and southbound directions. Implementation of the Parkmerced Redevelopment would also increase the number of vehicle trips in the surrounding area. Under cumulative conditions, both the Ocean Beach Climate Change Adaptation Project and Parkmerced Redevelopment would generate vehicle trips that would combine with vehicle trips from the project on Skyline Boulevard, Sloat Boulevard, John Muir Drive, and Lake Merced Boulevard.

However, Caltrans' proposed signalization of the State Route 35 (Skyline Boulevard) and Great Highway Intersection, the Reconfiguration of the Sloat/Skyline Boulevard Intersection, and the Parkmerced Redevelopment include improvements to transportation and transit facilities in the surrounding area. The proposed Caltrans project would install a traffic signal at the nearby intersection of Skyline Boulevard and the Great Highway to improve vehicular traffic flow and pedestrian safety. The proposed reconfiguration of the

Sloat Boulevard and Skyline Boulevard intersection would improve or maintain transit and vehicle circulation at the intersection. The Parkmerced Transportation Plan, which is part of the Parkmerced Redevelopment, also includes elements intended to reduce the need for private vehicle trips, enhance the attractiveness of alternative modes of transportation, internalize discretionary trips, and minimize increases in peak hour vehicle trips outside of the project area. The Lake Merced Boulevard Quick-Build project would improve pedestrian and bicyclist safety along the eastern side of Lake Merced. None of the cumulative projects would make changes to the public right-of-way in the immediate vicinity of the Lake Merced West project site. While most of these projects would increase vehicle trips in the surrounding area, vehicle trips in the immediate vicinity would not increase to the extent that they would impede emergency access or result in significant transit delay impacts. Project freight and passenger loading would occur in the parking lot in an off-street area; cumulative conditions would not affect on-site freight and passenger loading operations. For these reasons, accessibility to the site would not be substantially affected under cumulative conditions. Therefore, the project in combination with cumulative projects would result in ***less than significant*** cumulative impacts on accessibility, public transit delay, freight and passenger loading, and hazardous conditions.

Potentially Hazardous Conditions, Accessibility, Substantial Public Transit Delay, and Freight and Passenger Loading During Special Events. Up to 12 special events per year, with a maximum of 500 attendees per event, could be held at the project site. As previously discussed, the project's loading demand during special events would be accommodated within the project site and loading activities would not generate secondary impacts on John Muir Drive to create potentially hazardous conditions and accessibility impacts. Implementation of cumulative projects in the project area would not alter roadway conditions on John Muir Drive such that there could be potential cumulative impacts related to hazardous conditions, accessibility, public transit delay, or loading. Furthermore, special events on the project site would only occur up to 12 times per year. Therefore, the project in combination with cumulative projects would result in a ***less-than-significant*** cumulative freight and passenger loading impact, accessibility impact, emergency access impact, transit delay impact, and would not result in hazardous bicycle and pedestrian conditions during special events.

Vehicle Miles Traveled. VMT by its nature is largely a cumulative impact. As described above, the project would not exceed the project-level quantitative thresholds of significance for VMT. Furthermore, the planning department's map-based screening tool indicates that the project site is an area where projected year 2040 average daily VMT per capita is 10.5 miles, which is more than 15 percent below the future regional average for recreational uses (12.4 miles, using retail as a proxy).[36] Therefore, the project, in combination with cumulative projects, would result in a ***less-than-significant*** cumulative VMT impact.

———————————————

[36] The State Office of Planning and Research has not established significance criteria for determining VMT impacts of recreational land uses. However, consistent with state-level guidance, the department through the Transportation Impact Analysis Guidelines establishes retail uses as a proxy for recreational land uses.

E.7 Noise

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
7. NOISE. Would the project result in:					
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☒	☐	☐	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan area or, where such a plan has not been adopted, in an area within two miles of a public airport or public use airport, would the project expose people residing or working in the area to excessive noise levels?	☐	☐	☐	☐	☒

The project site is not located within an airport land use plan area, within two miles of a public airport, or within the vicinity of a private airstrip. Therefore, topic E.7(c) is not applicable to the project and is not discussed further.

NOISE

Noise is generally defined as unwanted sound that annoys or disturbs people and potentially causes an adverse psychological or physiological effect on human health. Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, hotels, and residences are considered to be more sensitive to noise intrusion than are commercial or industrial activities.

Sound is characterized by various parameters that include the frequency, the speed of propagation, and the pressure level (amplitude). The *sound pressure level* is the most common descriptor used to characterize the loudness of an ambient sound level. The decibel (dB) scale, a logarithmic scale, is used to quantify sound intensity. Noise measurements are weighted more heavily for frequencies to which humans are sensitive in a process called *A-weighting*, written as dBA and referred to as A-weighted decibels, which has become the standard metric of environmental noise assessment.

NOISE-SENSITIVE RECEPTORS

Noise-sensitive receptors include residences, hotels, schools, senior care facilities, daycare facilities, and hospitals. The nearest noise-sensitive receptors to the project site are the Lakewood Apartments which, as indicated in **Table 6** below, are across John Muir Drive and approximately 120 feet south of the proposed parking lot. There are no other residences or any existing hotels, schools, hospitals, or skilled nursing facilities within close proximity (900 feet) of the project site.

Table 6 Existing Noise Environment in the Project Site Vicinity

Location	Date and Time Period	Daytime[a] Leq dB	Nighttime[b] Leq dB	L90	Ldn	Noise Sources
LT-1 Lakewood Apartments setback John Muir Drive Residential	2/14/20 Friday 24-hour measurement	59	51	43	60	Vehicle traffic on John Muir Drive and driveway.
	2/15/20 Saturday 24-hour measurement	56	51	43	59	Vehicle traffic on John Muir Drive and driveway.
	2/16/20 Sunday 24-hour measurement	57	50	43	58	Vehicle traffic on John Muir Drive and driveway.
	2/17/20 Monday 24-hour measurement	58	51	43	59	Vehicle traffic on John Muir Drive and driveway.

NOTES:

[a] Daytime hours are 7 a.m. to 10 p.m.

[b] Nighttime hours are 10 p.m. to 7 a.m.

L_{eq}: The equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The L_{eq} is the constant sound level, which would contain the same acoustic energy as the varying sound level, during the same time period.

L_{90}: The noise level that is equaled or exceeded 90 percent of the specified time. The L_{90} is often considered the ambient background noise level averaged over the specified time.

L_{dn}: The Day/Night Average Sound Level is the 24-hour day and night A-weighted noise exposure level, which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night. Noise between 10 p.m. and 7 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance from nighttime noise.

VIBRATION

Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Several different methods are used to quantify vibration. The *peak particle velocity* is defined as the maximum instantaneous peak of the vibration signal. The peak particle velocity is most frequently used to describe physical vibration impacts on buildings. Typical groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors to vibration include people (especially residents, the elderly, and sick people), structures (especially older masonry structures), and vibration-sensitive equipment.[37]

EXISTING NOISE LEVELS

To characterize the ambient noise levels in the vicinity of sensitive uses, one long-term (LT) 96-hour noise measurement was conducted as detailed in the Noise Measurement Technical Memorandum (**Appendix F**). The measured and calculated metrics are shown above in Table 6.

The primary noise sources observed in the area were vehicle traffic on John Muir Drive and vehicle ingress and egress into the Lakewood Apartments. Occasionally, the noise of firearm discharges was noticeable from

[37] Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018, https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and- vibration-impact-assessment-manual-fta-report-no-0123_0.pdf, accessed October 24, 2019.

the San Francisco Police Department pistol range at 700 John Muir Drive, approximately 250 feet to the northwest of the project site. While firearm noise was noticeable to the noise survey technician, it was not observed to meaningfully contribute to the short-term noise level values.

Monitoring captured conditions during both weekday and weekend days. All recorded levels were at or below the 60 dBA L_{dn} sound level, which designates a "satisfactory" noise environment for residential uses established by the Land Use Compatibility Guidelines for Community Noise in the Environmental Protection Element of the San Francisco General Plan.[38]

Impact NO-1: Project construction would not generate a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (*Less than Significant*)

As discussed in Chapter 2, Project Description, the first phase of construction would consist of building demolition and soil remediation, which would occur over approximately three months and precede the rest of project construction by up to 18 months. The second and third phases of construction would begin in June 2024 and last approximately 24 months, overlapping for six months. Thus, active construction would occur for 27 months over a 42-month period. Construction would occur Monday through Friday, from 7 a.m. to 6 p.m. No nighttime or weekend construction is anticipated or proposed. Work phases generating the highest noise levels would generally be limited to periods during demolition of the existing structures, excavation, and new foundation installation. Demolition would occur over three months, and would not overlap with other construction activity at the site. For purposes of the analysis it is assumed that during phase 2, excavation and new foundation installation would occur over the first 11 months. Interior construction noise, which would occur over the subsequent 13 months, would coincide for 6 months with phase 3 shoreline recreational facilities construction. Construction would include the use of standard earthmoving equipment for grading and excavation, large trucks for hauling, a drill rig, and a small crane for some building construction. Construction material staging and storage would occur within the boundaries of the project site.

Article 29 of the San Francisco Police Code regulates construction noise. Section 2907 of article 29 provides the following limitations for construction equipment:

> "*(a) Except as provided for in Subsections (b), (c), and (d) hereof, it shall be unlawful for any person to operate any powered construction equipment if the operation of such equipment emits noise at a level in excess of 80 dBA when measured at a distance of 100 feet from such equipment, or an equivalent sound level at some other convenient distance.*"

However, the police code does not specify quantitative noise limits for impact equipment (which are exempt from article 29(a)) or from the combined noise impacts from the simultaneous operation of multiple pieces of construction equipment. Therefore, the quantitative evaluation of daytime construction noise effects is based on criteria in the Federal Transit Administration (FTA) guidelines for residential land uses, which is an hourly L_{eq} of 90 dBA. The planning department also evaluates whether construction noise would result in an increase of 10 dBA over existing noise levels ("ambient + 10 dBA") at sensitive receptors, which generally represents a perceived doubling of loudness. Based on the lower monitored weekday daytime ambient noise level of

[38] City and County of San Francisco, San Francisco General Plan, *http://www.sf-planning.org/ftp/General_Plan/index.htm*, accessed October 2, 2017.

58 dBA, the applicable daytime noise standard would therefore be 68 dBA at the nearest sensitive receptor. All construction is proposed to occur during daytime hours; therefore, nighttime noise was not evaluated.

The Federal Highway Administration Roadway Construction Noise Model was used to determine noise generated from construction activities for this project. The Roadway Construction Noise Model assumes simultaneous operation of the two noisiest pieces of construction equipment. The model inputs include acoustical use factors and maximum (L_{max}) values[39], and calculates the equivalent (or average) (L_{eq}) values at various distances depending on the receptor location analyzed.

To determine whether construction would result in a substantial temporary increase in noise levels, the estimated construction noise levels at the nearby sensitive receptors resulting from the project were compared with three criteria: the noise ordinance (article 29 of the San Francisco Police Code); general assessment criteria of the FTA; and an increase of 10 dBA over existing noise levels, which would represent a perceived doubling of loudness. If any of these quantitative standards are met or exceeded, the impact analysis evaluates the temporal frequency, duration, and intensity of that noise above the quantitative standards to determine whether a significant noise impact would occur.

Table 7 shows the maximum noise levels (L_{max}) produced by the various types of standard construction equipment identified in EIR Table 2-3 (EIR p. 2-20) at distances of 50 and 100 feet between the equipment and noise receptor.

Table 7 Maximum Noise Levels from Construction Equipment

Construction Equipment	Noise Level at 50 Feet (dB, L_{max})	Noise Level at 100 Feet (dB, L_{max})
Backhoes	78	72
Crane	81	75
Compactor	80	74
Drill Rig	84	78
Excavator	81	75
Grader	85	79
Haul Truck	77	71
Forklift (gradall)	83	77
Dozer	82	76
Scraper	84	78
Front-End Loaders	79	73
Man Lift	75	69
Concrete Truck	79	73

SOURCE: Federal Highway Administration, *Roadway Construction Noise Model User's Guide*, 2006.

[39] L_{max} is the instantaneous maximum noise level for a specified period of time.

According to section 2907 of the city's noise ordinance, it is prohibited to operate any powered construction equipment (non-impact), if the operation of such equipment emits noise at a level in excess of 80 dBA when measured at a distance of 100 feet from such equipment. As shown in Table 7, the construction equipment would operate within these limits. The project would therefore have a less-than-significant impact with respect to generation of a substantial temporary increase in ambient noise levels in the vicinity of the project in excess of standards established in section 2907(a) of the noise ordinance.

The FTA methodology for general assessment of construction noise was applied for proposed construction activities to determine the resultant noise levels at the nearest sensitive receptor. As discussed previously, the only noise-sensitive (in this case residential) use within 900 feet of the project site is the Lakewood Apartments, located across John Muir Drive. Using FTA methodology for general assessment, the two noisiest pieces of equipment were assumed to operate simultaneously for each phase of construction. During the first phase, the two noisiest equipment that could operate simultaneously across the project site are a dozer and loader. During the second phase, a grader and scraper were assumed to be operating simultaneously.

Table 8 shows the predicted noise levels at the nearest sensitive land use during the stages of project construction. As shown in Table 8, construction noise from the worst-case construction scenarios would be below the 90 dBA daytime criterion for residential receptors. Construction noise impacts were also assessed with respect to the overall increase in noise at a given sensitive receptor compared to existing conditions and considered whether construction noise would result in a 10 dBA increase over ambient levels; the ambient level at the nearest receptors was measured to be 58 dBA. Such an increase represents a perceived doubling of loudness. Table 8 presents both the existing ambient noise level and the worst-case existing-plus-construction resultant noise level at the sensitive receptor and identifies whether the resultant noise level would meet or exceed the ambient level by 10 dBA. As shown in Table 8, the resultant noise level increase would be up to 11 dBA at the exterior of the Lakewood Apartments when grading activities occur. Depending on the intensity of construction noise levels, the temporal frequency for which construction noise exceeds 10 dBA above ambient noise levels, and the duration, noise from grading activities associated with the projects could be significant. As indicated in Table 8, the duration of the grading activity in Phase 2 would be one month in duration. This exceedance would be one decibel in excess of the standard and the duration of this increase when the proximity of the grading activity is closest to the receptor to result in the exceedance would be approximately half of the one-month phase duration. Consequently, while noise from grading activities could be noticeable at times, given the limited duration and magnitude of the increase over ambient noise levels this noise increase would not be considered a significant noise impact.

Noise level increases at the nearest sensitive receptors to demolition; installation of walkways, driveways, parking lot, and fencing; building construction; and boat dock and landing construction would be 8 dBA above ambient levels, and the noise level increase at the nearest receptors to soil remediation would be 7 dBA. Therefore, the project's construction-related noise impacts would be ***less than significant***.

Table 8 Daytime Noise Levels from Construction at Lakewood Apartments

Construction Phase	Existing Daytime Noise Level (dBA, L_{eq})[a]	Loudest Two Noise Sources	Usage Factor[b] (percent)	Distance to Receptor (feet)[c]	Adjusted L_{eq} Level Contribution from Construction (dBA)[d]	Exceed Exterior 90 dBA daytime standard?	Existing plus Construction Noise Resultant Noise Level (dBA)[d]	Equal or Exceed Ambient + 10 dBA Standard of 68 dBA?
Phase 1 Demolition (3 months duration)	58	Dozer / Loader	40 40	275	65	No	66	No
Phase 1 Soil Remediation (2 months duration)	58	Excavator / Loader	40 40	275	64	No	65	No
Phase 2 Grading (1 month)	58	Grader / Scraper	40 40	275	69	No	**69**	**Yes**
Phase 2 Building Construction, walkways, driveways, and parking lot (23 months duration)	58	Forklift / Crane	40 40	275	65	No	66	No
Phase 3 Boat Dock and Landing (6 months duration)	58	Forklift / Crane	40 40	525	65	No	66	No

NOTES:

[a] L_{eq} represents the constant sound level. The reported existing level is the lower end estimate of the weekday monitored values during daytime hours at the Lakewood Apartments.

[b] Usage factor is the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

[c] Per the general assessment guidance of the Federal Transit Administration, construction analysis should assume all pieces of equipment operate at the center of the project.

[d] The L_{eq} level is adjusted for distance and percentage ofusage.

Noise exceeding threshold levels are in **bold**.

SOURCE: ESA, 2020; Appendix F.

Impact NO-2: Project operation could result in a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies. (*Less than Significant with Mitigation*)

Articles 29 and 15.1 of the San Francisco Police Code regulate operational noise. Section 2909 of the San Francisco Police Code provides the following limitations on operational noise:

> "*(c) Public Property Noise Limits. No person shall produce or allow to be produced by any machine or device, or combination of same, on public property, a noise level of more than 10 dBA above the local*

> *ambient at a distance of 25 feet or more, unless the machine or device is being operated to serve or maintain the property or as otherwise provided in this Article.*"
>
> "*(d*) *Fixed Residential Interior Noise Limits. In order to prevent sleep disturbance, protect public health and prevent the acoustical environment from progressive deterioration due to the increasing use and influence of mechanical equipment, no fixed noise source may cause the noise level measured inside any sleeping or living room in any dwelling unit located on residential property to exceed 45 dBA between the hours of 10:00 p.m. to 7:00 a.m. or 55 dBA between the hours of 7:00 a.m. to 10:00p.m. with windows open except where building ventilation is achieved through mechanical systems that allow windows to remain closed."*
>
> *"(e) Noise Caused by Activities Subject To Permits From the City and County Of San Francisco. None of these noise limits set forth in this section apply to activity for which the City and County of San Francisco has issued a permit that contains noise limit provisions that are different from those set forth in this Article."*

Article 15.1, Section 1060.16(b) of the San Francisco Police Code provides the following limitations specific to amplified sound:

> "*Unless otherwise permitted by the Entertainment Commission following a public hearing, and except as to Sound Truck Permits which are governed by Section 1060.27 of this Article 15.1, any permit issued pursuant to this Article that authorizes the use of Amplified Sound Equipment to project sound outside of any building or at any location out of doors in the City shall include the following conditions with regard to outdoor amplified sound:*
>
> > *(1) Hours of operation of outdoor Amplified Sound Equipment shall be no earlier than 9:00 a.m. and no later than 10:00 p.m.;*
> >
> > *(2) Amplified speech and music shall not be unreasonably loud, raucous, or jarring to persons of normal sensitivities within the area of audibility, nor louder than permitted in subsection (c); and*
> >
> > *(3) The volume of outdoor sound shall be controlled so that it will not be audible for a distance in excess of 250 feet from the property line of the Business or premises or from the periphery of the attendant audience.*"

Police Code article 15.1, section 1060.16(b)(3) only applies to permits issued pursuant to Article 15 of the Police Code, whereas RPD event permits are issued under Article 7 of the Park Code. Administrative Code section 90.4(k) affirms this, as it states that the Entertainment Commission may not exercise its powers and duties with respect to events on park property unless it has approval of the Recreation and Park Commission, which it does not.

Recreational Noise

New potential noise sources from the playground, basketball court, multi-use sport court, and skatepark would primarily include the voices of the users. Non-amplified voices would not result in a substantial permanent increase in ambient noise levels. The noise impact associated with use of the proposed courts and skatepark would be ***less than significant***.

Outdoor Dining

Outdoor dining can occasionally result in nuisance noise impacts if located near residential uses, particularly at restaurants with large outdoor patios open in late evening hours; however, the outdoor patio capacity for the project would be limited to approximately 70 people and the restaurant would close at 9 p.m. In addition, the outdoor dining patio would be approximately 340 feet from the nearest unit at the Lakewood Apartments and would be shielded from the apartments by the restaurant building itself. Given the substantial distance from the nearest receptor and its shielded location, the noise impact generated by diners at the proposed outdoor dining patio would be ***less than significant***.

Event Noise

Special events hosting up to 500 people would occur at the project site and may involve exceptions to normal operating hours and temporary use of amplified sound in compliance with RPD permit requirements. No permanent amplified sound equipment would be installed on the site; its use would be confined to intermittent special events occurring up to 12 times per year. RPD would permit each special event individually.

Types of events that may occur include weddings, community events, and business group events that could occur at any appropriate location within the project site. The restaurant could accommodate a total of about 220 people, including its patio. Large special events (up to 500 people) would not occur more than 12 times per year. These large events would occur at both meadows (around the restaurant/terrace and the one at the north end of the site) and the restaurant/patio area.

For these special events, portions of the proposed park grounds may be equipped with amplified voice or music, which would result in increased sound-level generation. Operators of any proposed outdoor events on the site that would use amplified sound or music would be required to obtain an amplified sound permit from RPD prior to the event and comply with the amplified sound requirements of the event permit. For similar sites (such as the Sunset Parking Lot at the northern side of Lake Merced)[40], RPD typically requires that amplified sound use may occur only for 4 to 5 consecutive hours between 9 a.m. and 6 p.m., and that the sound level not exceed 80 dBA when measured at a distance of 100 feet from the equipment. The Park Patrol has the right to monitor and adjust sound levels during the special events.

As described above, events permitted by RPD on park property are not subject to the noise provisions of the police code, which establishes noise level standards in order to protect public health, prevent sleep disturbance, and prevent the acoustical environment from progressive deterioration from fixed noise sources. Because the equipment to be used during future outdoor events at the project site is unknown and events would not be subject to the police code noise limits, the use of amplified sound equipment would have the potential to result in significant noise impacts in excess of standards established in the San Francisco Noise Ordinance or to result in a substantial temporary increase in ambient noise levels.

Implementation of **Mitigation Measure M-NO-2 (Noise Limits for Outdoor Amplified Sound)** would reduce this potential impact by requiring that RPD amplified noise event permits include restrictions on the hours, duration, and sound levels of voice or music generated by amplified equipment, require advance notice of events to residents within 300 feet of the site; and that RPD monitor and adjust noise levels as needed during events. Establishment of a noise limit of 80 dBA at a distance of 100 feet from the equipment, consistent with Police Code Article 9, section 2907(a), would ensure an interior noise level of 57 dBA at the nearest

[40] San Francisco Recreation and Parks, Special Event Venues (with capacity under 1,000 individuals), https://sfrecpark.org/737/Special-Event-Venues. These venues are also located in residential neighborhoods.

residence with windows open, and 47 dBA with windows closed. This interior noise level would be marginally (2 dBA) greater than the daytime interior noise level standard of 55 dBA promulgated by section 2909(d) of the Police Code, although this code is not applicable to temporary amplified sound noise impacts. Further, because (1) the frequency of such events would be no more than 12 times per year and (2) the duration of amplified noise at these events would not exceed to four to five hours per event, and (3) events would cease by 10 p.m., thus avoiding sleep disturbance impacts , implementation of Mitigation Measure M-NO-2, would reduce the substantial temporary increase in ambient noise levels that could occur during events, and this impact would be ***less than significant with mitigation***.

Mitigation Measure M-NO-2: Noise Limits for Outdoor Amplified Sound.

The San Francisco Recreation and Parks Department shall require special event amplified noise permits to contain the following requirements:

- The special-event sponsor shall comply with noise controls and restrictions in the amplified sound event permit.
- Speaker systems shall be directed away from the nearest residences to the degree feasible.
- Amplified sound equipment use shall be restricted to 5 hours between 9:00 a.m. and 10:00 p.m.
- Outdoor speaker systems shall be operated such that amplified event noise levels do not exceed 80 dBA at a distance of 100 feet from the equipment.
- The special-event sponsor shall notify residents within 300 feet of the project site in advance of each special event. The notice shall include the phone number of an RPD contact for noise complaints.

The San Recreation and Park Department shall have a contact person available to respond to noise complaints, monitor noise levels to confirm compliance with permit requirements, and adjust noise levels (if needed).

Significance after Mitigation: Less than Significant

Traffic

Project operation would result in permanent increases in ambient noise along roadways in the project vicinity, primarily through project-related increases in traffic. For traffic noise impacts, an increase of more than 5 dBA is considered a significant increase when existing ambient noise levels are 65 dBA or less. In an existing ambient noise environment of 65 dBA or more, an incremental increase is considered significant if the noise increase is equal to or greater than 3 dBA. Given the existing modeled roadside noise levels, the applicable threshold for noise increases along John Muir Drive would be 5 dBA, while the applicable threshold for noise increases along Sloat Boulevard would be 3 dBA.

Noise modeling was completed to estimate existing (baseline) and future (with the project) traffic noise levels along two street segments that have sensitive receptors in the project area based on existing traffic volumes for John Muir Drive and Sloat Boulevard and increased vehicle trips predicted in the Transportation Memorandum[41] prepared for the project (Appendix E). Separate analyses were conducted for the weekday

[41] San Francisco Planning Department, *Transportation Analysis Memorandum*, October 18, 2021 (Appendix E).

project scenario and the weekday with special event project scenario. Noise modeling results are presented in **Table 9**.

As shown in Table 9, project implementation would result in traffic noise increases ranging from 0.2 to 3.4 dBA on local roadways near the project site. All noise level increases under both the existing plus project and existing plus project with special event scenarios would be less than the relevant threshold increase and the traffic noise impact would be ***less than significant***.

Table 9 Modeled[a] Traffic Noise Levels for the Project

Roadway Segment	Existing dBA, L_{eq}	Applicable Significant Increase[b]	Existing plus Project dBA, L_{eq}	dBA Difference	Significant Increase?
PROJECT WEEKDAY PEAK-HOUR NOISE LEVELS (4 P.M.–6 P.M.)					
John Muir Drive between Skyline Boulevard and Lake Merced Boulevard	63.5	5.0	64.1	0.6	No
Sloat Boulevard between Skyline Boulevard and Sunset Boulevard	72.3	3.0	72.5	0.2	No
PROJECT WEEKDAY PEAK-HOUR NOISE LEVELS (4 P.M.–6 P.M.) WITH SPECIAL EVENT					
John Muir Drive between Skyline Boulevard and Lake Merced Boulevard	63.5	5.0	66.9	3.4	No
Sloat Boulevard between Skyline Boulevard and Sunset Boulevard	72.3	3.0	73.4	0.9	No

NOTES:

[a] Road center to receptor distance is assumed to be 50 feet for values shown in this table. Noise levels were determined using the algorithms of the Federal Highway Administration traffic noise model. The average speed on John Muir Drive and Sloat Boulevard is assumed to be 30 and 35 miles per hour, respectively.

[b] In an existing ambient noise environment below 65 dBA, an incremental increase is considered significant if the noise increase is equal to or greater than 5.0 dBA. In an existing ambient noise environment of 65 dBA or more, an incremental increase is considered significant if the noise increase is equal to or greater than 3.0 dBA.

SOURCE: ESA, 2020 (see Appendix F); San Francisco Planning Department, *Transportation Analysis Memorandum*, October 18, 2021.

Impact NO-3: The project would not result in generation of excessive groundborne vibration or groundborne noise levels. (*Less than Significant*)

Groundborne vibration from construction activities that involve impact activities, drilling, and/or compaction could produce detectable vibration at nearby sensitive buildings and sensitive receptors unless proper precaution is followed.

The existing residential uses located in the vicinity of the project site could be exposed to some degree of groundborne vibration or groundborne noise levels from construction activities. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to structural damage at the highest levels. Site ground vibrations from construction activities rarely reach the levels that can damage structures, but they may be perceived in buildings very close to a construction site. The nearest structures to the project site are the Lakewood Apartments across John Muir Drive, which are about 120 feet from where grading and compaction activities would occur for the proposed parking lot. The Lakewood Apartments were constructed in 1973, which is considered modern construction for the purposes of vibration assessment.

The peak particle velocity levels for the types of construction equipment that would generate vibrations and operate during construction of the project are identified in **Table 10**. This table presents the reference vibration level at a distance of 25 feet as well as the calculated vibration level at 120 feet, which is the closest construction area to the Lakewood Apartments. As shown in Table 10, vibration velocities would be less than 0.5 in/sec peak particle velocity, the threshold for potential vibration damage to modern structures, from all vibration-inducing construction activities. Therefore, the project would have a ***less-than-significant*** impact with respect to generation of excessive groundborne vibration levels from construction.

Table 10 Vibration Levels from Construction Equipment

Equipment	Approximate Peak Particle Velocity (in/sec)	
	25 Feet (Reference Vibration Level)	120 Feet (Lakewood Apartments)
Compactor (Vibratory Roller)	0.21	0.037
Loaded Trucks	0.076	0.014

SOURCES: Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, September 2018.

CUMULATIVE IMPACTS

Impact C-NO-1: The project, in combination with the cumulative projects, would not result in significant cumulative impacts related to noise and vibration. (*Less than Significant*)

The geographic scope of analysis for cumulative construction noise and vibration impacts encompasses sensitive receptors within approximately 1,000 feet of the project site.[42] Beyond 1,000 feet, both distance and intervening topography and/or structures would greatly attenuate the contributions of noise from other projects, and their contribution is expected to be minimal.

Of the cumulative projects, only the Vista Grande project is within the 1,000-foot geographic scope of the cumulative construction noise impact.

The Vista Grande project would alleviate flooding in the Vista Grande Drainage Basin by expanding the capacity of the stormwater infrastructure to accommodate peak flows. The project would involve improvements to stormwater conveyance infrastructure adjacent to and within Lake Merced, and extending beneath Fort Funston and onto the Fort Funston beach. Work within 1,000 feet of the project site would occur in areas between Lake Merced and the golf course west of John Muir Drive over a four-month period. Activities at this location would include demolition of 150 feet of canal, installation of piles using drilling techniques, excavation, and portal construction. The noisiest activities at this location would be soldier pile drilling that would occur for two days at the Lake Merced Portal, where the nearest sensitive receptors

[42] This screening threshold distance was developed based on stationary-source noise attenuation equations and the combined noise level generated by typical construction phases for a given project (assuming multiple pieces of equipment) at a distance of 50 feet. Using the attenuation equations, the maximum noise level of 89 A-weighted decibels (dBA) for both excavation and finishing would diminish to below 65 dBA at 1,000 feet. A receptor experiencing noise levels of 89 dBA from two adjacent construction sites would experience a cumulative noise level of 92 dBA (the logarithmic sum of 89 dBA plus 89 dBA), which would still be below 65 dBA at 1,000 feet which, hence, is used as the geographic scope. California Department of Transportation, Technical Noise Supplement to the Traffic Noise Analysis Protocol, September 2013. Available at: https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/tens-sep2013-a11y.pdf. Accessed on September 20, 2021.

(Lakewood Apartments) are approximately 100 feet away. The noise level at the Lakewood Apartments were estimated to be approximately 66 dBA L_{eq}.[43] Because these drilling activities at the Lake Merced Portal would not last longer than two days, the project-level impact from the Vista Grade project at this location was determined to be less than significant.

Construction noise from the project (shown in Table 8) could combine with noise from drilling activities at the Lake Merced Portal at the Lakewood Apartments would range from 65 to 69 dBA. Addition of the contribution from drilling activities from the Vista Grande project would result in a temporary cumulative noise level of 69 to 71 dBA, which is an increase of up to 6 dBA and would be a noticeable noise increase to receptors during these two days of drilling work for the Vista Grande project. While the increase in noise could be noticeable, the cumulative condition would only potentially last for two days. Given the limited duration and magnitude of the increase over ambient noise levels this noise increase would not be considered significant and the cumulative impact would be ***less than significant***.

Once constructed, the Vista Grande project would not result in new operational noise sources in the vicinity of the Lakewood Apartments and the cumulative operational impact would be ***less than significant***.

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[43] City of Daly City/National Park Service, *Vista Grande Drainage Basin Improvement Project Draft Environmental Impact Report Environmental Impact Statement,* State Clearinghouse No. 2013032001, December 2015.

E.8 Air Quality

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
8. AIR QUALITY. Would the project:					
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal, state, or regional ambient air quality standard?	☐	☐	☒	☐	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐	☐

OVERVIEW

The Bay Area Air Quality Management District (or air district) is the regional agency with jurisdiction over the nine-county San Francisco Bay Area Air Basin (air basin), which includes San Francisco, Alameda, Contra Costa, Marin, San Mateo, Santa Clara, and Napa Counties and portions of Sonoma and Solano Counties. The air district is responsible for attaining and maintaining air quality in the air basin within federal and state air quality standards, as established by the federal Clean Air Act and the California Clean Air Act, respectively. Specifically, the air district has the responsibility to monitor ambient air pollutant levels throughout the air basin and to develop and implement strategies to attain the applicable federal and state standards.

The federal and state clean air acts require plans to be developed for areas that do not meet air quality standards, generally. The most recent air quality plan, the 2017 clean air plan, was adopted by the air district on April 19, 2017. The clean air plan updates the 2010 clean air plan, in accordance with the requirements of the state Clean Air Act to implement all feasible measures to: reduce ozone; provide a control strategy to reduce ozone, particulate matter, air toxics, and greenhouse gases in a single, integrated plan; and establish emission control measures to be adopted or implemented. The clean air plan contains the following primary goals:

- Protect air quality and health at the regional and local scale: attain all state and national air quality standards, and eliminate disparities among Bay Area communities in cancer health risk from toxic air contaminants; and
- Protect the climate: reduce Bay Area greenhouse gas emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.

The clean air plan represents the most current applicable air quality plan for the air basin. Consistency with this plan is the basis for determining whether the project would conflict with or obstruct implementation of air quality plans (checklist question E.8.a).

CRITERIA AIR POLLUTANTS

In accordance with the state and federal Clean Air Acts, air pollutant standards are identified for the following six criteria air pollutants: ozone, carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO2), sulfur dioxide (SO2), and lead. These air pollutants are termed criteria air pollutants because they are regulated by developing specific public health- and welfare-based criteria as the basis for setting permissible levels. The air basin is designated as either in attainment or unclassified for criteria pollutants with the exception of ozone, $PM_{2.5}$, and PM_{10},[44] for which the air basin is designated as non-attainment for either the state or federal standards.[45] Ozone is a secondary air pollutant produced in the atmosphere through a complex series of photochemical reactions involving reactive organic gases (ROG) and oxides of nitrogen (NOx).

By its very nature, regional air pollution is largely a cumulative impact in that no single project is sufficient in size to, by itself, result in non-attainment of air quality standards. Instead, a project's individual emissions contribute to existing cumulative air quality impacts. If a project's contribution to cumulative air quality impacts is considerable, then the project's impact on air quality would be considered significant.

Land use projects typically result in ozone precursor and particulate matter emissions because of increases in vehicle trips, space heating and natural gas combustion, landscape maintenance, and construction activities. For this reason, the air district has established significance thresholds for non-attainment criteria air pollutants, as shown in **Table 11**, below.

Table 11 Criteria Air Pollutant Significance Thresholds

Pollutant	Construction Thresholds	Operational Thresholds	
	Average Daily Emissions (pounds/day)	Average Daily Emissions (pounds/day)	Maximum Annual Emissions (tons/year)
ROG	54	54	10
NO_x	54	54	10
PM_{10}	82 (exhaust)	82	15
$PM_{2.5}$	54 (exhaust)	54	10
Fugitive Dust	Construction Dust Ordinance or other Best Management Practices	Not Applicable	

SOURCE: California Environmental Quality Act Air Quality Guidelines, page 2-2. (Bay Area Air Quality Management District, May 2017).

The significance thresholds for ROG and NOx are based on the stationary source limits in air district regulation 2, rule 2, which requires that any new source that emits criteria air pollutants above the ROG and NOx emissions limit in Table 11 must offset those emissions. The significance thresholds for particulate matter are based on the emissions limit in the federal New Source Review for stationary sources in nonattainment

[44] PM_{10} is often termed "coarse" particulate matter and is made of particulates that are 10 microns in diameter or smaller. $PM_{2.5}$, termed "fine" particulate matter, is composed of particles that are 2.5 microns or less in diameter.

[45] "Attainment" status refers to those regions that are meeting federal and/or state standards for a specified criteria pollutant. "Non-attainment" refers to regions that do not meet federal and/or state standards for a specified criteria pollutant. "Unclassified" refers to regions where there is not enough data to determine the region's attainment status for a specified criteria air pollutant.

areas. The air district's California Environmental Quality Act Air Quality Guidelines[46] and supporting materials[47] provide additional evidence to support these thresholds. Projects that would result in criteria air pollutant emissions below these significance thresholds would not result in a cumulatively considerable net increase in non-attainment criteria air pollutants within the air basin.[48] Due to the temporary nature of construction activities, only the average daily thresholds are applicable to construction phase emissions.

FUGITIVE DUST

Fugitive dust emissions are also typically generated during construction phases. Studies have shown that the application of best management practices at construction sites substantially control fugitive dust, and individual measures have been shown to reduce fugitive dust by anywhere from 30 to 90 percent.[49] The air district has identified multiple best management practices to control fugitive dust emissions from construction activities.[50] The city's Construction Dust Control Ordinance (Ordinance No.176-08, effective July 30, 2008) requires best management practices to control fugitive dust. The best management practices employed in compliance with the city's construction dust control ordinance are an effective strategy for controlling construction-related fugitive dust.

LOCAL HEALTH RISKS AND HAZARDS

In addition to criteria air pollutants, individual projects may emit *toxic air contaminants* (TACs). TACs collectively refer to a diverse group of air pollutants that can cause chronic (i.e., of long duration) and acute (i.e., severe but short-term) adverse effects to human health, including carcinogenic effects. Human health effects of TACs include birth defects, neurological damage, cancer, and mortality. There are hundreds of different types of TACs with varying degrees of toxicity; at a given level of exposure, one TAC may pose a hazard that is many times greater than another.

Unlike criteria air pollutants, TACs do not have ambient air quality standards but are regulated by the air district using a risk-based approach to determine which sources and pollutants to control as well as the degree of control. A health risk assessment is an analysis in which human health exposure to toxic substances from exposure to a project is estimated and considered together with information regarding the toxic potency of the substances, to provide quantitative estimates of health risks.[51] Exposures to fine particulate matter (PM2.5) are strongly associated with mortality, respiratory diseases, and decreased lung development in children, and other endpoints such as hospitalization for cardiopulmonary disease.[52] In

[46] Bay Area Air Quality Management District (air district), California Environmental Quality Act Air Quality Guidelines, May 2017. Available at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en. Accessed February 5, 2021.

[47] Bay Area Air Quality Management District, Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance, October 2009. Available at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/revised-draft-ceqa-thresholds-justification-report-oct-2009.pdf?la=en. Accessed February 5, 2021.

[48] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2017.

[49] Western Regional Air Partnership. 2006. WRAP Fugitive Dust Handbook. September 7, 2006. This document is available online at http://www.wrapair.org/forums/dejf/fdh/content/FDHandbook_Rev_06.pdf, accessed February 5, 2020.

[50] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines*, May 2017.

[51] In general, a health risk assessment is required if the air district concludes that projected emissions of a specific air toxic compound from a proposed new or modified source suggest a potential public health risk. The applicant is then subject to a health risk assessment for the source in question. Such an assessment generally evaluates chronic, long-term effects, estimating the increased risk of cancer as a result of exposure to one or more TACs.

[52] San Francisco Department of Public Health, *Assessment and Mitigation of Air Pollutant Health Effects from Intra-Urban Roadways: Guidance for Land Use Planning and Environmental Review*, May 2008.

addition to PM2.5, diesel particulate matter is also of concern. The California Air Resources Board (California air board) identified diesel particulate matter as a toxic air contaminant in 1998, primarily based on evidence demonstrating cancer effects in humans.[53] The estimated cancer risk from exposure to diesel exhaust is much higher than the risk associated with any other TAC routinely measured in the region.

Air pollution does not affect every individual in the population in the same way, and some groups are more sensitive to adverse health effects than others. Land uses such as residences, schools, children's day care centers, hospitals, and nursing and convalescent homes are considered to be the most sensitive to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress or, as in the case of residential receptors, their exposure time is greater than that for other land uses. Therefore, these groups are referred to as sensitive receptors. Exposure assessment guidance typically assumes that residences would be exposed to air pollution 24 hours per day, 7 days a week, for 30 years.[54] Therefore, assessments of air pollutant exposure to residents typically result in the greatest adverse health outcomes of all population groups.

In an effort to identify areas of San Francisco most adversely affected by sources of TACs, San Francisco partnered with the air district to conduct a citywide health risk assessment based on an inventory and assessment of air pollution and exposures from mobile, stationary, and area sources within San Francisco. Areas with poor air quality, termed the *air pollutant exposure zone* were identified based on health-protective criteria that consider estimated cancer risk, exposures to fine particulate matter, proximity to freeways, and locations with particularly vulnerable populations, as further described below.

EXCESS CANCER RISK

The air pollutant exposure zone includes areas where modeled cancer risk exceeds 100 incidents per million persons exposed. This criterion is based on United States Environmental Protection Agency (U.S. EPA) guidance for conducting air toxic analyses and making risk management decisions at the facility and community-scale level.[55] The 100 per one million excess cancer cases is also consistent with the ambient cancer risk in the most pristine portions of the Bay Area based on air district regional modeling.[56]

FINE PARTICULATE MATTER

In April 2011, the U.S. EPA published Policy Assessment for the Particulate Matter Review of the National Ambient Air Quality Standards, "Particulate Matter Policy Assessment." In this document, U.S. EPA staff strongly support a $PM_{2.5}$ standard within the range of 12 to 11 µg/m^3.[57] The air pollutant exposure zone for San Francisco is based on the health-protective $PM_{2.5}$ standard of 11 µg/m^3, as supported by the U.S. EPA's

[53] California Air Resources Board (ARB), Fact Sheet, "The Toxic Air Contaminant Identification Process: Toxic Air Contaminant Emissions from Diesel-fueled Engines," October 1998.

[54] California Office of Environmental Health Hazard Assessment, *Air Toxics Hot Spot Program Risk Assessment Guidelines*, February, 2015. Pp. 4-44, 8-6.

[55] Bay Area Air Quality Management District, *Revised Draft Options and Justification Report, California Environmental Quality Act Thresholds of Significance*, October 2009, page 67.

[56] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines,* May 2017, page D-43.

[57] United States Environmental Protection Agency, Policy Assessment for the Review of the Particulate Matter National Ambient Air Quality Standards. April 2011. Available at: https://www3.epa.gov/ttn/naaqs/standards/pm/data/20110419pmpafinal.pdf. Accessed February 5, 2021. The U.S. EPA published a new policy assessment in January 2020. The policy assessment did not include recommendations to change the standards for particulate matter. This document is available at: https://www.epa.gov/sites/production/files/2020-01/documents/final_policy_assessment_for_the_review_of_the_pm_naaqs_01-2020.pdf. Accessed February 5, 2021.

Policy Assessment for the Particulate Matter Review of the National Ambient Air Quality Standards, although lowered to 10 µg/m^3 to account for uncertainty in accurately predicting air pollutant concentrations using emissions modeling programs.

PROXIMITY TO FREEWAYS

According to the California Air Resources Board (air board), studies have shown an association between the proximity of sensitive land uses to freeways and a variety of respiratory symptoms, asthma exacerbations, and decreases in lung function in children. Siting sensitive uses near freeways increases both exposure to air pollution and the potential for adverse health effects. As evidence shows that sensitive uses in an area within a 500-foot buffer of any freeway are at an increased health risk from air pollution,[58] parcels that are within 500 feet of freeways are included in the air pollutant exposure zone.

HEALTH VULNERABLE LOCATIONS

Based on the air district's evaluation of health vulnerability in the Bay Area, those ZIP codes (94102, 94103, 94110, 94124, and 94130) in the worst quintile of Bay Area health vulnerability scores as a result of air pollution-related causes were afforded additional protection by lowering the standards for identifying parcels in the air pollutant exposure zone to: (1) an excess cancer risk greater than 90 per one million persons exposed, and/or (2) PM2.5 concentrations in excess of 9 µg/m3.[59]

The above citywide health risk modeling is referenced in the Enhanced Ventilation Required for Urban Infill Sensitive Use Developments or Health Code, article 38 (Ordinance No. 224-14, effective December 8, 2014) (article 38). The purpose of article 38 is to protect the public health and welfare by establishing an air pollutant exposure zone and imposing an enhanced ventilation requirement for all urban infill sensitive use development within the zone. The air pollutant exposure zone is also referenced in the San Francisco Environment Code section 25, known as the Clean Construction Ordinance (ordinance 28-15, effective April 19, 2015). The purpose of the clean construction ordinance is to protect the public health, safety, and welfare by requiring contractors on city public works projects to reduce diesel and other fine particulate emissions generated by construction activities. The project site is not located within the air pollutant exposure zone and health code article 38 does not apply to the project.

The Clean Construction Ordinance requires all work located in an air pollutant exposure zone greater than 20 days in length, and performed as a public funded construction project to: (1) use engines equipped with Tier 2 + Level 3 Verified Diesel Emissions Control Strategies (VDECS), (2) restrict idling of diesel engines to two minutes, (3) prohibit use of portable diesel engines where alternative sources of power are available, and (4) implement proper maintenance/tune-ups of equipment. In areas located outside an air pollutant exposure zone, which is where the proposed project is located, the Clean Construction Ordinance requires that all work that is greater than 20 days, within city limits, and performed as a public funded construction project use only offroad equipment and offroad engines fueled by biodiesel fuel grade B20 or higher, and utilize only offroad equipment that either: (a) meets or exceeds Tier 2 standards for offroad engines or (b) is operated with the most effective VDECS.

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[58] California Air Resources Board, *Air Quality and Land Use Handbook: A Community Health Perspective.* April 2005. Available online at: http://www.arb.ca.gov/ch/landuse.htm. Accessed February 5, 2021

[59] San Francisco Planning Department and San Francisco Department of Public Health, *San Francisco Citywide Health Risk Assessment: Technical Support Documentation.* September 2020.

Impact AQ-1: The project would not conflict with or obstruct implementation of the 2017 Clean Air Plan. (*Less than Significant*)

The most recently adopted air quality plan for the air basin is the air district's 2017 clean air plan.[60] The clean air plan is a road map that demonstrates how the San Francisco Bay Area will achieve compliance with the state ozone standards and how the region will reduce the transport of ozone and ozone precursors to neighboring air basins. In determining consistency with the clean air plan, this analysis considers whether the project would: (1) support the primary goals of the plan; (2) include applicable control measures from the plan; and (3) avoid disrupting or hindering implementation of control measures identified in the plan.

The primary goals of the clean air plan are to: (1) protect air quality and health at the regional and local scale; (2) eliminate disparities among Bay Area communities in cancer health risk from toxic air contaminants; and (3) protect the climate by reducing greenhouse gas emissions. To meet the primary goals, the plan recommends 85 specific control measures and actions. These control measures are grouped into various categories and include stationary and area source measures, mobile source measures, transportation control measures, land use measures, and energy and climate measures. To the extent that the air district has regulatory authority over an emissions source generated by the project, the control measures may be requirements of the project. Other measures in the plan not within the air district's regulatory authority may be advisory or are otherwise not specifically applicable to land use development projects.

The clean air plan recognizes that to a great extent, community design dictates individual travel mode, and that a key long-term control strategy to reduce emissions of criteria pollutants, air toxics, and greenhouse gases from motor vehicles is to channel future Bay Area growth into vibrant urban communities where goods and services are close at hand, and people have a range of viable transportation options.

The control measures most applicable to the project are transportation control measures and energy and climate control measures. The project's impact with respect to greenhouse gases are discussed in topic E.9, Greenhouse Gas Emissions, which demonstrates that the project would comply with the applicable provisions of the city's Greenhouse Gas Reduction Strategy.

As discussed in Topic E.6, Transportation and Circulation, the project is located within an area that exhibits low levels of vehicle miles traveled. As described in Impact TR-4, the project would not result in substantial increases in vehicle miles traveled or induce automobile travel. The project's anticipated 1,154 net new vehicle trips[61] would result in a negligible increase in air pollutant emissions in a regional context. The clean air plan's transportation control measures are implemented by the San Francisco General Plan and the planning code, for example, through the city's Transit First Policy, transportation demand management program requirements, and transit impact development fees. Compliance with these requirements would ensure the project includes relevant transportation control measures specified in the clean air plan. Therefore, the project would include applicable control measures identified in the clean air plan that meet the plan's primary goals.

[60] Bay Area Air Quality Management District, *Spare the Air Cool the Climate, Final 2017 Clean Air Plan,* April 2017. Available at: https://www.baaqmd.gov/~/media/files/planning-and-research/plans/2017-clean-air-plan/attachment-a_-proposed-final-cap-vol-1-pdf.pdf?la=en. Accessed February 5, 2021.

[61] As shown in Table 2 (refer to topic E.6, Transportation and Circulation), there would be 222 daily open space auto trips, 830 restaurant auto trips, 22 TNC/taxi open space trips and 11 TNC/taxi restaurant trips. Transit, walking, bike and other modes would not represent new vehicle trips under CEQA.

Examples of a project that could cause the disruption or delay of the clean air plan control measures are projects that would preclude the extension of a transit line or bike path, or projects that propose excessive parking beyond parking requirements. The project would construct a new open space and recreational land use adjacent to a pedestrian path and bike route. It would not preclude the extension of a transit line or a bike path or any other transit improvement, and thus would not disrupt or hinder implementation of the clean air plan's control measures.

For the reasons described above, the project would not conflict with or obstruct implementation of the clean air plan and this impact would be ***less than significant***.

Impact AQ-2: The project's construction activities would generate fugitive dust and criteria air pollutants but would not result in a cumulatively considerable net increase of non-attainment criteria air pollutants within the air basin. **(*Less than Significant*)**

Construction activities (short-term) typically result in emissions of ozone precursors and particulate matter in the form of dust (fugitive dust) and exhaust (e.g., vehicle tailpipe emissions). Emissions of ozone precursors and particulate matter are primarily a result of the combustion of fuel from onroad and offroad vehicles. However, ROGs are also emitted from activities that involve painting, other types of architectural coatings, or asphalt paving. The project's construction activities involve the following phases: demolition, tree removal, and soil remediation; upland building construction; and shoreline recreational facilities construction. During the project's construction period, construction activities would have the potential to result in emissions of ozone precursors and particulate matter, as discussed below.

Fugitive Dust

Project-related demolition, excavation, grading, and other construction activities may cause windblown dust that could contribute particulate matter into the local atmosphere. Depending on exposure, adverse health effects can occur due to this particulate matter in general and due to specific contaminants, such as lead or asbestos that may be constituents of soil. The current health burden of particulate matter demands that, where possible, public agencies take feasible available actions to reduce sources of particulate matter exposure.

In response, the San Francisco Board of Supervisors approved the Construction Dust Control Ordinance (Ordinance 176-08, effective July 30, 2008) with the intent of reducing the quantity of dust generated during site preparation, demolition and construction work in order to protect the health of the general public and of onsite workers, minimize public nuisance complaints, and to avoid orders to stop work by the department of building inspection.

The construction dust control ordinance requires that all site preparation work, demolition, or other construction activities within San Francisco that have the potential to create dust or to expose or disturb more than 10 cubic yards or 500 square feet of soil comply with specified dust control measures whether or not the activity requires a permit from the department of building inspection.[62]

[62] The director of the department of building inspection may waive this requirement for activities on sites less than one half-acre that are unlikely to result in any visible wind-blown dust.

For projects over one half-acre, such as the proposed project, the dust control ordinance requires that the project sponsor submit a dust control plan for approval by the San Francisco Department of Public Health.[63] Dust control during soil remediation (phase 1) would also be required in accordance with the soil management plan. The site-specific dust control plan would require the implementation of additional dust control measures such as installation of dust curtains and windbreaks, independent third-party inspections and monitoring, provision of a public complaint hotline, and suspension of construction during high wind conditions.

Compliance with the regulations and procedures set forth by the dust control ordinance would ensure that potential dust-related air quality impacts would be reduced to ***less than significant***.

Criteria Air Pollutants

As discussed above, construction activities would result in emissions of criteria air pollutants from the use of off- and onroad vehicles and equipment and other construction activities. A quantitative analysis of the project's construction criteria air pollutant emissions was conducted to determine whether the project could exceed the criteria air pollutant significance thresholds in Table 11. Construction-related criteria air pollutants generated by the project were quantified using the California Emissions Estimator Model (CalEEMod). The model was developed, including default data (e.g., emission factors, meteorology, etc.), in collaboration with California regional air districts' staff. Default assumptions were used where project-specific information was unknown. The model run assumes compliance with the Clean Construction Ordinance which assumes an aggregate of off-road equipment with respect to EPA certified engine tiers.[64] For projects located outside the air pollutant exposure zone, like the proposed project, the Clean Construction Ordinance requires equipment to use offroad engines fueled by biodiesel fuel grade B20 or higher, and either meet or exceed Tier 2 emissions standards for offroad engines or operate with the most effective air resources board VDECS. Demolition and soil remediation would occur over a 3-month period, then construction of the project would occur over an approximately 24-month period. Emissions were converted from tons/year to pounds/day using the estimated construction duration of 583 working days. Additional assumptions for calculating criteria air pollutants, and detailed results by construction phase are provided in **Appendix G**. Construction-related emissions are presented in **Table 12**.

Table 12 Average Daily Project Construction Emissions

Emissions/Threshold	Pollutant Emissions (Average Pounds per Day)			
	ROG	NO_x	Exhaust PM_{10}	Exhaust $PM_{2.5}$
Average Daily Unmitigated Construction Emissions	5.1	46.5	1.8	1.7
Significance Threshold	54.0	54.0	82.0	54.0
Significant Impact?	No	No	No	No

SOURCE: Bay Area Air Quality Management District (2017); Appendix G

[63] The department of building inspection will not issue a building permit without written notification from the director of public health that the applicant has a site-specific dust control plan unless the director waives the requirement. Interior-only tenant improvement projects that are over one-half acre in size that will not produce exterior visible dust are exempt from the site-specific dust control plan requirement.

[64] Analysis assuming use of region wide aggregated off-road equipment complies with the City of San Francisco's Clean Construction Ordinance.

As shown in Table 12, unmitigated project construction emissions would be below the threshold of significance for ROG, NOx, PM10 and PM2.5; therefore, construction criteria air pollutant impacts would be ***less than significant***.

Impact AQ-3: During project operation, the project would not result in a cumulatively considerable net increase in non-attainment criteria air pollutants. (*Less than Significant*)

The project would generate criteria pollutant emissions associated with vehicle traffic (mobile sources), on-site area sources (i.e., combustion of other fuels by building and grounds maintenance equipment).[65] Operational-related criteria air pollutants generated by the project were also quantified using CalEEMod and provided within Appendix G. Default assumptions were used where project-specific information was unknown. Refer to Appendix G for detailed assumptions and results.

The average daily and maximum annual emissions associated with operation of the project are shown in **Table 13**. Table 13 also includes the thresholds of significance for criteria air pollutants.

Table 13 Summary of Unmitigated Operational Criteria Air Pollutant Emissions

Emissions Source	Average Daily Emissions (pounds/day)				Maximum Annual Emissions (tons/year)			
	ROG	NOx	PM10	PM2.5	ROG	NOx	PM10	PM2.5
Area Source Emissions	0.11	0.0	0.0	0.0	0.02	<0.01	<0.01	<0.01
Mobile Source Emissions	1.28	5.30	6.48	1.79	0.23	0.97	1.18	0.33
Total Emissions	1.40	5.30	6.48	1.79	0.26	0.96	1.19	0.33
Significance Threshold	54	54	82	54	10	10	15	10
Significant Impact?	No	No	No	No	No	No	No	No

SOURCE: Bay Area Air Quality Management District (2017); Appendix G

As shown in Table 13, project operation would not exceed any of the significance thresholds for criteria air pollutants and would result in ***less-than-significant*** impacts with respect to criteria air pollutants.

Impact AQ-4: Construction and operation of the project would generate toxic air contaminants, including diesel particulate matter, but would not expose sensitive receptors to substantial pollutant concentrations. (*Less than Significant*)

As discussed above, the project site is not within an air pollutant exposure zone, therefore existing background health risks at the project site and vicinity are not substantial. The project would generate toxic air contaminants during construction from the use of diesel-powered construction equipment and during operation from increased vehicle trips. The construction and operational health risks from the project's emissions are further analyzed below.

[65] The Green Building Requirements for City Buildings requires all-electric new construction (San Francisco Environment Code, chapter 7, section 706); however, limited exceptions are allowed (section 713). If an exception for the project is sought and approved, emissions would be slightly higher but still well below the significance threshold.

Construction Emissions

According to the California air board, offroad equipment, which includes construction equipment, was the third largest source of mobile particulate matter emissions in California in 2012, the latest year for which inventory data is available.[66]

However, federal and state regulations are requiring cleaner offroad equipment. Specifically, both the U.S. EPA and the California air board have set emissions standards for new offroad equipment engines, ranging from *Tier 1* to *Tier 4*. Tier 1 emission standards were phased in between 1996 and 2000 and Tier 4 Interim and Final emission standards for all new engines were phased in between 2008 and 2015. Although the full benefits of these regulations will not be realized for several years, the U.S. EPA estimates that by implementing the federal Tier 4 standards, NOx and PM emissions will be reduced by more than 90 percent.[67]

In addition, construction activities do not lend themselves to analysis of long-term health risks because of their temporary and variable nature. As explained in the air district's *CEQA Air Quality Guidelines*:

> "Due to the variable nature of construction activity, the generation of TAC [toxic air contaminant] emissions in most cases would be temporary, especially considering the short amount of time such equipment is typically within an influential distance that would result in the exposure of sensitive receptors to substantial concentrations. Concentrations of mobile-source diesel PM emissions are typically reduced by 70 percent at a distance of approximately 500 feet (ARB 2005). In addition, current models and methodologies for conducting health risk assessments are associated with longer-term exposure periods of 9, 40, and 70 years, which do not correlate well with the temporary and highly variable nature of construction activities. This results in difficulties with producing accurate estimates of health risk."[68]

Therefore, project-level analyses of construction activities have a tendency to produce overestimated assessments of long-term health risks.

Sensitive land uses near the project site include multi-family residential uses across John Muir Drive. Although onroad heavy-duty diesel vehicles and offroad equipment would be used during the construction period, emissions would be temporary and variable in nature and would not be expected to expose sensitive receptors to substantial air pollutants. Additionally, the project is subject to the clean construction ordinance. For projects located outside the air pollutant exposure zone, like the project, the clean construction ordinance requires equipment to either meet or exceed Tier 2 standards for offroad engines or operate with the most effective California air board VDECS. Furthermore, the project would be required to comply with California regulations limiting idling to no more than five minutes,[69] which would further reduce nearby sensitive receptor exposure to temporary and variable diesel particulate matter emissions. Therefore, because the project site is not within the air pollutant exposure zone and construction activities would be temporary and variable over the construction period, toxic air contaminant emissions would result in a ***less-than-significant*** impact on sensitive receptors.

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[66] California Air Resources Board, 2017, 2012 Base Year Emissions, Off-Road Sources, Available: https://ww3.arb.ca.gov/ei/emissiondata.htm. Accessed February 3, 2021.

[67] United State Environmental Protection Agency, "Clean Air Nonroad Diesel Rule: Fact Sheet," May 2004.

[68] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines,* May 2017, page 8-7.

[69] California Code of Regulations, Title 13, Division 3, § 2485 (on-road) and § 2449(d)(2) (off-road).

Operational Emissions

The project would generate new vehicle trips which emit toxic air contaminants. The air district considers roads with less than 10,000 vehicles per day "minor low-impact sources," stating that these sources "do not pose a significant health impact even in combination with other nearby sources. These determinations were made through extensive modeling, sources tests, and evaluation of their [toxic air contaminant] emissions."[70] The project's 1,154 daily automobile and TNC/Taxi vehicle trips would be well below this level and would be distributed among the local roadway network, therefore an assessment of project-generated TACs resulting from vehicle trips is not required, and the project would not generate a substantial amount of TAC emissions that could affect nearby sensitive receptors.

Considering the above, the project would not emit toxic air contaminants at levels that would expose sensitive receptors to substantial air pollutant concentrations and this impact would be ***less than significant***.

Impact AQ-5: The project would not create objectionable odors that would affect a substantial number of people. (*Less than Significant*)

Typical odor sources of concern include wastewater treatment plants, sanitary landfills, transfer stations, composting facilities, petroleum refineries, asphalt batch plants, chemical manufacturing facilities, fiberglass manufacturing facilities, auto body shops, rendering plants, and coffee roasting facilities. During construction, diesel exhaust from construction equipment would generate some odors. However, construction-related odors would be temporary and would not persist after project completion. The proposed uses are not typical odor sources of concern and would not create a significant source of new odors. Therefore, the project would not result in other emissions, such as odors, that could adversely affect a substantial number of people and this impact would be ***less than significant***.

Impact C-AQ-1: The proposed project, in combination with cumulative projects, would result in less than significant cumulative air quality impacts. (*Less than Significant*)

As discussed above, regional air pollution is by its very nature largely a cumulative impact. Emissions from past, present, and future projects contribute to the region's adverse air quality on a cumulative basis. No single project by itself would be sufficient in size to result in regional non-attainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulative adverse air quality impacts.[71] The project-level thresholds for criteria air pollutants are based on levels below which new sources are not anticipated to result in a considerable net increase in non-attainment criteria air pollutants. Therefore, cumulative criteria air pollutant analysis is presented in Impacts AQ-2 and AQ-3. The remainder of this cumulative air quality analysis address cumulative health risks and odors to sensitive receptors.

The project site is not located within an air pollutant exposure zone, therefore existing background health risks at the project site and in the vicinity are not substantial.

[70] Bay Area Air Quality Management District, *Recommended Methods for Screening and Modeling Local Risks and Hazards*, p. 12. May 2011. Available online at: https://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20Modeling%20Approach.ashx. Accessed February 2, 2021.

[71] Bay Area Air Quality Management District, *CEQA Air Quality Guidelines,* May 2017, page 2-1.

Of the cumulative projects, only the Vista Grande project is within the 1,000-foot geographical scope of the cumulative air quality impact for health risks and odors.[72] The Vista Grande project would involve improvements to stormwater conveyance infrastructure adjacent to and within Lake Merced, and extending beneath Fort Funston and onto the Fort Funston beach. Work would occur within 1,000 feet of the project site in areas between Lake Merced and the golf course west of John Muir Drive over a 4-month period. Activities at this location would include demolition of 150 feet of canal, installation of piles using drilling techniques, excavation, and canal reconstruction. Although the project would add new sources of TACs (e.g., new vehicle trips), the project's incremental increase in localized toxic air contaminant emissions resulting from construction and new vehicle trips would be minor and would not contribute substantially to cumulative toxic air contaminant emissions when combined with that from cumulative projects.

Similarly, the proposed project and the Vista Grande project would generate some odors during construction, but odors would be temporary. Upon completion of construction activities, cumulative projects combined with the proposed project would not generate substantial odors. Therefore, cumulative air quality impacts would be considered ***less than significant***.

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[72] BAAQMD considers a distance of 1,000 feet as a zone of influence, beyond which TAC impacts from most sources may be considered less than significant.

E.9 Greenhouse Gas Emissions

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
9. GREENHOUSE GAS EMISSIONS. Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐	☐
b) Conflict with any applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐	☐

SETTING

Greenhouse gas (GHG) emissions and global climate change represent cumulative impacts. GHG emissions cumulatively contribute to the significant adverse environmental impacts of global climate change. No single project could generate enough GHG emissions to noticeably change the global average temperature; instead, the combination of GHG emissions from past, present, and future projects have contributed and will continue to contribute to global climate change and its associated environmental impacts.

The Bay Area air district has prepared guidelines and methodologies for analyzing GHGs. These guidelines are consistent with CEQA Guidelines sections 15064.4 and 15183.5, which address the analysis and determination of significant impacts from a project's GHG emissions. CEQA Guidelines section 15064.4 allows lead agencies to rely on a qualitative analysis to describe GHG emissions resulting from a project. CEQA Guidelines section 15183.5 allows for public agencies to analyze and mitigate GHG emissions as part of a larger plan for the reduction of GHGs and describes the required contents of such a plan or strategy. Accordingly, San Francisco has prepared Strategies to Address Greenhouse Gas Emissions[73,74] which presents a comprehensive assessment of policies, programs, and ordinances that collectively represent San Francisco's qualified GHG reduction strategy in compliance with the CEQA guidelines. These GHG reduction actions have resulted in a 41 percent reduction in GHG emissions in 2019 compared with 1990 levels[75] and exceeded the 2020 goals in the air district's 2017 Clean Air Plan, Executive Orders S-3-05 and B-30-15, Assembly Bill 32, and the city's 2017 GHG emissions reduction goal. The city has also exceeded the 2030 targets of 40 percent reduction below 1990 levels more than 10 years before the target date.

In 2008, the San Francisco Board of Supervisors established citywide GHG reduction limits through Ordinance 81-08 and required each city department to annually report GHG emissions and climate protection initiatives. In July 2021, the City adopted an updated GHG ordinance to demonstrate the city's commitment to the Paris Agreement by establishing GHG reduction targets for 2030, 2040, and 2050 and setting other critical sustainability goals. The updated ordinance sets goals for both sector-based emissions

[73] San Francisco Planning Department, Strategies to Address Greenhouse Gas Emissions in San Francisco, November 2010.

[74] San Francisco Planning Department, 2017 Greenhouse Gas Reduction Strategy Update, July 2017.

[75] San Francisco Department of the Environment, *San Francisco's Carbon Footprint,* 2017, https://sfenvironment.org/carbonfootprint, accessed September 30, 2021.

and consumption-based emissions. The GHG targets established under ordinance 81-08 applied solely to sector-based emissions, which are those emissions that are generated within the geographic boundaries of the city. The updated ordinance reflects a more comprehensive effort to reduce GHG emissions by setting consumption-based targets as well. Consumption-based emissions are those that are associated with producing, transporting, using, and disposing of products and services consumed by people within the city, even those emissions that are generated outside of the city boundaries. These sector-based GHG reduction targets are more ambitious than those set forth in Governor Brown's Executive Order B-30-15 (e.g., a 61 percent reduction in sector-based GHG emissions by 2030 rather than a 40 percent reduction by 2030) and in B-55-18 (e.g., achieving carbon neutrality by 2040 rather than by 2045). The consumption-based targets are consistent with the 2030 goal of Executive Order B-30-15 and the 2050 goal of Executive Order S-3-05 (80 percent below 1990 levels, by 2050). The updated GHG ordinance also serves to codify the city's "0-80-100-Roots" climate action framework, which comprises climate and sustainability goals in these key areas: waste, transportation, energy, and carbon sequestration.

In addition to the city's GHG reduction strategy, the project sponsor, RPD, published a department-specific climate action plan (CAP) in 2014, which reflects the period of fiscal year (FY) 2012-2013.[76] RPD's CAP describes the steps they have taken since FY 2008-2009 to reduce their total energy consumption and carbon footprint and the steps they will take in coming years to help the city reduce their GHG emissions. These steps include the replacement of old, energy-intensive pumps and boilers in city-wide facilities and public water features; the phasing out of natural gas as an energy source; energy-efficient retrofits and renovations of recreation centers; replacement of old fleet vehicles with alternative-fuel vehicles; and incorporation of renewable energy into RPD facilities, parks, and recreation centers.

SFPUC's most recent departmental climate action report was published in March 2014 for the 2012-2013 fiscal year. The SFPUC Climate Action Report summarizes the GHG emissions associated with electricity, natural gas, and fleet fuels consumed by SFPUC operations, and highlights SFPUC's activities to reduce GHG emissions. According to the 2014 report, total GHG emissions from facility energy use (natural gas and electricity) decreased 76 metric tons (2.9 percent) in FY 12-13 compared to the previous year.

Given that the city has met the state's 2020 GHG reduction targets and met the state and region's 2030 GHG reduction target under executive order B-30-15,[77,78] Senate Bill 32[79,80] and the 2017 Clean Air Plan,[81] more than 10 years before the target date, and San Francisco's GHG reduction goals are consistent with, or more

[76] San Francisco Recreation and Parks Department, *Climate Action Plan: Fiscal Year 2012-13,* 2014. Available online at: https://sfenvironment.org/download/2014-san-francisco-recreation-and-parks-department-climate-action-plan, accessed April 2020.

[77] Office of the Governor, *Executive Order B-30-15,* April 29, 2015*, https://www.gov.ca.gov/news.php?id=18938*, accessed March 3, 2016. Executive Order B-30-15, issued on April 29, 2015, sets forth a target of reducing GHG emissions to 40 percent below 1990 levels by 2030 (estimated at 2.9 million $MTCO_2E$).

[78] San Francisco's GHG reduction goals are codified in Section 902 of the Environment Code and include: (i) by 2008, determine City GHG emissions for year 1990; (ii) by 2017, reduce GHG emissions by 25 percent below 1990 levels; (iii) by 2025, reduce GHG emissions by 40 percent below 1990 levels; and by 2050, reduce GHG emissions by 80 percent below 1990 levels.

[79] Senate Bill 32 amends California Health and Safety Code Division 25.5 (also known as the California Global Warming Solutions Act of 2006) by adding Section 38566, which directs that statewide greenhouse gas emissions to be reduced by 40 percent below 1990 levels by 2030.

[80] Senate Bill 32 was paired with Assembly Bill 197, which would modify the structure of the State Air Resources Board; institute requirements for the disclosure of greenhouse gas emissions criteria pollutants, and toxic air contaminants; and establish requirements for the review and adoption of rules, regulations, and measures for the reduction of greenhouse gas emissions.

[81] The 2017 Clean Air Plan establishes the following GHG reduction targets: reduce Bay Area greenhouse gas emissions to 40 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050.

aggressive than, the longer-term goals established under order S-3-05[82] the city's GHG reduction goals are consistent with order S-3-05, order B-30-15, Assembly Bill 32, Senate Bill 32, and the 2017 Clean Air Plan. Therefore, proposed projects that are consistent with the city's GHG reduction strategy would be consistent with the aforementioned GHG reduction goals and would not conflict with these plans or result in significant GHG emissions, and would therefore not exceed San Francisco's applicable GHG threshold of significance.

The following analysis of the project's impact on climate change focuses on the project's contribution to cumulatively significant GHG emissions. Because no individual project could emit GHGs at a level that could result in a significant impact on the global climate, this analysis is in a cumulative context, and this section does not include an individual project-specific impact statement.

Impact C-GG-1: The project would generate greenhouse gas emissions, but not at levels that would result in a significant impact on the environment or conflict with any policy, plan, or regulation adopted for the purpose of reducing greenhouse gas emissions. (*Less than Significant*)

The project would increase the intensity of use of the site by replacing existing unused structures and opening the site to the public with a restaurant, boathouse, clubhouse, arborist facility and other ancillary facilities. Therefore, the project would contribute to annual long-term increases in GHGs as a result of increased vehicle trips (mobile sources), energy use, water use, wastewater treatment, and solid waste disposal. Construction activities would also result in temporary increases in GHG emissions.

The project would be subject to regulations adopted to reduce GHG emissions as identified in the San Francisco GHG reduction strategy. As discussed below, compliance with the applicable regulations would reduce the project's GHG emissions related to transportation, energy use, waste disposal, and use of refrigerants.

Measures incorporated into the project design include sidewalks and pathways that prioritize safety for pedestrians and bicyclists, and bicycle parking. These design features of the project would contribute to reducing project-related GHG emissions and would further efforts to meet the city's targeted GHG reduction goals for 2025 and 2050.

The project would be required to comply with the energy efficiency requirements of the city's Green Building Code, All-Electric New Construction, Stormwater Management Ordinance, and Water Efficient Irrigation Ordinance, which would promote energy and water efficiency, thereby reducing the project's energy-related GHG emissions.[83] Additionally, the project would be required to meet the renewable energy criteria of the Green Building Code, further reducing the project's energy-related GHG emissions.

The project's waste-related emissions would be reduced through compliance with the city's Recycling and Composting Ordinance, Construction and Demolition Debris Recovery Ordinance, Construction and

[82] Office of the Governor, Executive Order S-3-05, June 1, 2005, http://static1.squarespace.com/static/549885d4e4b0ba0bff5dc695/t/54d7f1e0e4b0f0798cee3010/1423438304744/California+Executive+Order+S-3-05+(June+2005).pdf. Executive Order S-3-05 sets forth a series of target dates by which statewide emissions of GHGs need to be progressively reduced, as follows: by 2010, reduce GHG emissions to 2000 levels (approximately 457 million metric tons of carbon dioxide equivalents ($MTCO_2E$)); by 2020, reduce emissions to 1990 levels (approximately 427 million $MTCO_2E$); and by 2050 reduce emissions to 80 percent below 1990 levels (approximately 85 million $MTCO_2E$). Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in "carbon dioxide-equivalents," which present a weighted average based on each gas's heat absorption (or "global warming") potential.

[83] Compliance with water conservation measures reduce the energy (and GHG emissions) required to convey, pump and treat water required for the project.

Demolition Debris Recycling Requirements, Resource Conservation Ordinance, and Green Building Code requirements. These regulations reduce the amount of materials sent to a landfill, reducing GHGs emitted by landfill operations. These regulations also promote reuse of materials, conserving their embodied energy[84] and reducing the energy required to produce new materials. Regulations requiring low-emitting finishes would reduce volatile organic compounds.[85] Thus, the project was determined to be consistent with San Francisco's GHG reduction strategy.[86]

RPD and SFPUC are required to comply with local GHG reduction regulations. The city's regulations have proven effective as San Francisco's GHG emissions have measurably decreased when compared to 1990 emissions levels, demonstrating that the city has met and exceeded Executive Order S-3-05, Assembly Bill 32, and the 2017 Clean Air Plan GHG reduction goals for the year 2020. Furthermore, the city has met its 2017 GHG reduction goal of reducing GHG emissions to 25 percent below 1990 levels by 2017and exceeded the 2030 targets of Senate Bill 32 and the 2017 Clean Air Plan (40 percent reduction below 1990 levels) more than 10 years before the target date. Other existing regulations, such as those implemented through Assembly Bill 32 and Senate Bill 32, will continue to reduce a proposed project's contribution to climate change. In addition, San Francisco's local GHG reduction targets are consistent with the long-term GHG reduction goals of Executive Order S-3-05and the 2017 Clean Air Plan. Because the proposed project is consistent with the City's GHG reduction strategy, it is also consistent with the GHG reduction goals of Executive Order S-3-05, Executive Order B-30-15, Assembly Bill 32, Senate Bill 32 and the 2017 Clean Air Plan, and would not conflict with these plans, and would therefore not exceed San Francisco's applicable GHG threshold of significance. Therefore, the project would result in a ***less-than-significant*** impact with respect to GHG emissions. No mitigation measures are necessary.

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[84] Embodied energy is the total energy required for the extraction, processing, manufacture and delivery of building materials to the building site.

[85] While not a GHG, volatile organic compounds are precursor pollutants that form ground level ozone. Increased ground level ozone is an anticipated effect of future global warming that would result in added health effects locally. Reducing volatile organic compound emissions would reduce the anticipated local effects of global warming.

[86] San Francisco Planning Department, *Greenhouse Gas Analysis: Compliance Checklist for Lake Merced West Project, January 24, 2022*.

E.10 Wind

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
10. WIND. Would the project:					
a) Create wind hazards in publicly accessible areas of substantial pedestrian use?	☐	☐	☒	☐	☐

Impact WI-1: The project would not create wind hazards in publicly accessible areas of substantial pedestrian use. (*Less than Significant*)

This analysis considers whether the project would create new wind hazards in publicly accessible areas of substantial pedestrian use through the development of built structures on the project site. The proposed recreational facility could generate substantial pedestrian use in the project area, particularly during special events. Lake Merced is in a coastal area that is subject to strong winds originating from the Pacific Ocean. Wind is an existing, natural element in the project area. Pedestrians using the outdoor park facilities would be subject to naturally occurring coastal winds.

Based on the experience of the San Francisco Planning Department in reviewing wind analyses and expert opinion on other projects, it is generally the case that built structures less than 80 feet tall do not have the potential to generate significant wind hazard impacts on pedestrians. Further, wind hazard impacts are generally caused by large building masses that extend substantially above their surroundings, and by buildings oriented such that a large wall catches a prevailing wind, particularly if such a wall includes little or no articulation.

As described in Chapter 2, Project Description, the project would demolish several existing one-story buildings and construct several new ones of similar heights. The tallest structure would be the ropes course, which would include narrow elements at varying heights, with a maximum height of 35 feet. These features would not be of sufficient height or mass to create a pedestrian wind hazard. Other built features, which would include picnic areas, a playground, basketball course, and boat dock, would be at grade and would not affect local wind patterns. Thus, the project would not include new built structures of sufficient height or mass to create new wind hazards for pedestrians. Therefore, the project would have a ***less-than-significant*** impact related to wind hazards in pedestrian areas.

CUMULATIVE IMPACTS

Impact C-WI-1: The project, in combination with cumulative projects, would not create wind hazards in publicly accessible areas of substantial pedestrian use. (*Less than Significant*)

Because wind effects are highly localized, the geographic context for cumulative wind effects encompasses the immediate project site vicinity—generally a few blocks (less than one-quarter mile) in each direction. It is in this vicinity that cumulative development, when combined with the project, would have any effect on wind on the same locations. Components of the Lake Merced Trail and Vista Grande Drainage Basin Improvement projects would be within this distance; however, these projects would not construct new

buildings, with the exception of a one-story, single-user restroom not located within one-quarter mile of the project site. Other projects listed in EIR Table 3.1-3, (EIR p. 3.1-7), would not combine with the project to affect wind patterns. For these reasons, the project and cumulative projects would not combine to substantially increase hazardous wind conditions, and the cumulative wind impact would be ***less than significant***.

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E.11 Shadow

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
11. SHADOW. Would the project:					
a) Create new shadow that substantially and adversely affects the use and enjoyment of publicly accessible open spaces?	☐	☐	☒	☐	☐

Impact SH-1: The project would not create shadow that would substantially and adversely affect the use and enjoyment of publicly accessible open spaces. (*Less than Significant*)

San Francisco Planning Code section 295 was adopted in 1984 pursuant to voter approval of Proposition K (also known as the Sunlight Ordinance). Planning code section 295 prohibits the issuance of building permits for structures more than 40 feet tall that would cast shade or shadow on property under the jurisdiction of (or designated for acquisition by) the San Francisco Recreation and Park Commission from one hour after sunrise to one hour before sunset at any time of year, unless the San Francisco Planning Commission determines that the shade or shadow would have an insignificant adverse impact on the use of such property. However, section 295 applies neither to buildings less than 40 feet tall, nor to buildings constructed on park property for recreational or park-related proposes.

As described in Chapter 2, Project Description, the project would construct five one-story buildings, the tallest of which would be approximately 25 feet high, similar to the buildings currently on the site. The facility would be constructed in an area under RPD jurisdiction and would be used for recreational purposes. Because the newly constructed buildings would be less than 40 feet tall and constructed on park property for recreational purposes, the facilities would not be subject to review under planning code section 295.

Publicly accessible open spaces in the project area that are used for recreation include the Lake Merced Trail along John Muir Drive, for pedestrian uses such as walking, jogging, and bicycling, and Lake Merced, used for boating; the project site is not currently a publicly accessible open space. The project does not propose any built features that would substantially affect shadow patterns for these two adjacent, publicly accessible open spaces. The proposed structures that would be closest to the Lake Merced Trail include the restroom and storage building (9 feet tall, approximately 37 feet from the sidewalk) and the arborist facility and yard (single story, approximately 60 feet and downhill from the sidewalk). Given the sizes and locations of the buildings, these structures would not substantially alter existing shadows on adjacent public areas. The proposed structures that would be closest to Lake Merced include the cantilevered viewing deck, the boathouse, and the dock and boat launch. These structures would not be tall enough to cast substantial new shadows on Lake Merced. For these reasons, the project would have a ***less-than-significant*** impact related to the creation of new shadows that could substantially affect the use and enjoyment of publicly accessible open spaces.

CUMULATIVE IMPACTS

Impact C-SH-1: The project, in combination with cumulative projects, would not create shadow that would substantially and adversely affects the use and enjoyment of publicly accessible open spaces. (*Less than Significant*)

The geographic scope of impacts related to changes in shadow includes projects that would cast shadows affecting different portions of the same public areas affected by shadows from the project. The project would cast new shadows that could affect publicly accessible open spaces along a small section of Lake Merced adjacent to the project site. These shadows would not extend beyond Lake Merced. None of the cumulative projects listed in EIR Table 3.1-3, (EIR p. 3.1-7), would cast shadows along Lake Merced. For this reason, the cumulative impact related to shadow on publicly accessible open spaces would be ***less than significant***.

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E.12 Recreation

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
12. RECREATION. Would the project:					
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated?	☐	☐	☐	☒	☐
b) Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	☒	☐	☐	☐	☐

The project would include recreational facilities, the construction and operation of which could have an adverse physical effect on the environment. This EIR and initial study address topic E.12(b). See other sections in this initial study and EIR for analyses of potential environmental impacts and mitigation measures associated with construction and operation of the project.

Impact RE-1: The project would not result in an increase in the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facilities would occur or be accelerated. (*No Impact*)

A project could increase the use of existing neighborhood and regional parks or other recreational facilities either through population growth, which would increase the number of recreational facility users, or through closure of an existing recreational facility, which would displace recreational users to other similar parks or recreational facilities. As described in topic E.3, Population and Housing, the project does not propose new residential development and would not necessitate the construction of new housing, permanently displace housing, or otherwise create additional housing demand. Therefore, the project would not be expected to contribute to population growth, which could increase the overall number of people using parks or recreational facilities.

Currently, the project site is closed to the public. The project would add a new park to the region, which could draw park users who currently use other parks, potentially reducing the use of existing neighborhood and regional parks or other recreational facilities. Therefore, the project would not increase the use of existing recreational facilities, and could possibly reduce such use, and ***no impact*** on existing recreational facilities would occur.

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E.13 Utilities and Service Systems

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
13. UTILITIES AND SERVICE SYSTEMS. Would the project:					
a) Require or result in the relocation or construction of new or expanded, water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?	☐	☐	☒	☐	☐
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐	☐
d) Generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐	☐

Impact UT-1: The project would not cause significant environmental effects due to relocation or construction of new or expanded water, wastewater treatment, storm water drainage, electric power, natural gas, or telecommunication facilities and would not result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments. (*Less than Significant*)

Construction

The project would demolish the existing buildings on the site and construct five small buildings. The city would reconfigure existing onsite utilities, such as water, wastewater, power, telecommunication facilities, and irrigation lines, or new utilities would be installed. Utility relocation would not require or result in the relocation or construction of new or expanded utilities in areas outside of the project area.

Project construction would require the use of a limited amount of potable water for construction workers' drinking and onsite sanitary needs, washing, and cement mixing, as well as non-potable water for dust suppression. Construction activities would not use Lake Merced water or affect the city's ability to use lake water for emergency purposes. New sources of wastewater discharges to the city's combined wastewater system would be mainly limited to wastewater generated from the sanitary needs of construction workers

and potentially water pumped from trenches or excavations, if the water cannot be released onsite. The number of workers in the project area during a peak construction workday would be about 15. Sanitary facilities would be serviced by a vendor and sanitary drainage would be hauled offsite for disposal. Groundwater pumped from trenches or excavations would be discharged to the combined sewer system, adding to the total amount of wastewater requiring treatment at the Oceanside Treatment Plant. The Oceanside Treatment Plant can treat 43 million gallons per day during average dry weather; during rain events, and the wet-weather treatment capacity is 65 million gallons per day. In 2020, the average dry weather flow to the treatment plant was 12 million gallons per day.[87] Because the plant has sufficient available capacity, the resulting effect on the wastewater system capacity would be negligible.

The temporary use of water during construction would be negligible relative to the amount available and would not result in the need for additional water supply, nor would it require construction of new or expanded water facilities Therefore, project construction would not cause SFPUC to determine that it has inadequate capacity to meet project demands in addition to its existing commitments. For these reasons, the impact would be less than significant.

Operation

Water use at full buildout is estimated at 1.58 million gallons per year, and would be limited to irrigation and commercial uses, such as toilets and lavatory faucets, restaurant low flow sprayers and kitchen faucets. Project operations would not use Lake Merced water or affect the city's ability to use lake water for emergency purposes. Water supply availability for the project is discussed under Impact UT-2. Total wastewater demand is estimated at 381,000 gallons per year or 1,044 gallons per day (0.001 million gallons per day).[88] Wastewater generated from the project site would include toilet flushes and drainage from sinks and would be discharged to the SFPUC Oceanside Treatment Plant, which operates under a National Pollutant Discharge Elimination System (NPDES) permit from the regional board (Order No. R2-2019-0028, December 10, 2019).

As discussed in topic E.17, Hydrology and Water Quality, stormwater would be treated using low-impact design measures, would drain to Lake Merced, and would comply with the Stormwater Management Ordinance (discussed in greater detail in topic E.17, Hydrology and Water Quality). Compliance with the ordinance would require that stormwater drainage features be incorporated into project design to reduce stormwater runoff.

As noted above, the Oceanside Treatment Plant can treat 43 million gallons per day during average dry weather; during rain events, and the wet-weather treatment capacity is 65 million gallons per day. In 2020, the average dry weather flow to the treatment plant was 12 million gallons per day.[89] Because the plant has sufficient available capacity for anticipated wastewater flows from the project, the project would not require construction of new or expansion of existing wastewater treatment facilities. Other than those facilities

[87] SFPUC, Annual Self-Monitoring Report for the Oceanside Water Pollution Control Plant (NPDES No. CA0037681, Regional Water Quality Control Board Order Nos. R2-2009-0062 and R2-2019-0028), January 29, 2021

[88] San Francisco Public Utilities Commission Non-Potable Water Calculator, completed for Lake Merced West Project by ESA and SFPUC, February 8, 2022.

[89] SFPUC, Annual Self-Monitoring Report for the Oceanside Water Pollution Control Plant (NPDES No. CA0037681, Regional Water Quality Control Board Order Nos. R2-2009-0062 and R2-2019-0028), January 29, 2021

included as part of the project, no new or expanded stormwater drainage facilities would be needed to serve the project.

Electric power, telecommunications, and natural gas connections may also be constructed onsite as part of the project. Other than localized connections to existing systems for these utilities, the project would not result in the construction of electric, natural gas, or telecommunications facilities, and would not require the relocation of such facilities during construction. Furthermore, considering the project's operational utility demands relative to the capacity of utility service providers (i.e., SFPUC and Pacific Gas and Electric Company), the project would not require the construction of new facilities or expansion of existing facilities to serve the project.

For these reasons, project operations would have a ***less-than-significant*** impact related to the adequacy of existing wastewater system capacity and related to new or expanded water, wastewater, drainage, electric power, telecommunications, and natural gas facilities.

Impact UT-2: Sufficient water supplies are available to serve the proposed project and reasonably foreseeable future development under normal, dry, and multiple dry years; therefore, the proposed project would not require or result in the relocation or construction of new or expanded water facilities, the construction or relocation of which could cause significant environmental effects. (*Less than Significant*)

The San Francisco Public Utilities Commission (SFPUC) adopted the 2020 Urban Water Management Plan (2020 plan) in June 2021. The 2020 plan estimates that current and projected water supplies will be sufficient to meet future demand for retail water customers through 2045 under wet- and normal-year conditions; however, in dry years, the SFPUC would implement water use and supply reductions through its Water Shortage Contingency Plan and a corresponding Retail Water Shortage Allocation Plan.

In December 2018, the State Water Resources Control Board adopted amendments to the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary, which establishes water quality objectives to maintain the health of our rivers and the Bay-Delta ecosystem (the Bay-Delta Plan Amendment). The state water board has indicated that it intends to implement the Bay-Delta Plan Amendment by the year 2022, assuming all required approvals are obtained by that time. Implementation of the Bay-Delta Plan Amendment would result in a substantial reduction in the SFPUC's water supplies from the Tuolumne River watershed during dry years, requiring rationing to a greater degree in San Francisco than previously anticipated to address supply shortages.

Implementation of the Bay-Delta Plan Amendment is uncertain for several reasons and whether, when, and the form in which the Bay-Delta Plan Amendment would be implemented, and how those amendments could affect SFPUC's water supply, is currently unknown. In acknowledgment of these uncertainties, the 2020 plan presents future supply scenarios both with and without the Bay-Delta Plan Amendment, as follows:

1. Without implementation of the Bay-Delta Plan Amendment wherein the water supply and demand assumptions contained in Section 8.4 of the 2020 plan would be applicable
2. With implementation of a voluntary agreement between the SFPUC and the State Water Resources Control Board that would include a combination of flow and non-flow measures that are designed to benefit fisheries at a lower water cost, particularly during multiple dry years, than would occur under the

Bay-Delta Plan Amendment) With implementation of the Bay-Delta Plan Amendment as adopted wherein the water supply and demand assumptions contained in Section 8.3 of the 2020 plan would be applicable

Water supply shortfalls during dry years would be lowest without implementation and highest with implementation of the Bay-Delta Plan Amendment. Shortfalls under the proposed voluntary agreement would be between those with and without implementation of the Bay-Delta Plan Amendment.

Under these three scenarios, the SFPUC would have adequate water to meet demand in San Francisco through 2045 in wet and normal years. Without implementation of the Bay-Delta Plan Amendment, water supplies would be available to meet demand in all years except for a 4.0 million gallons per day (5.3 percent) shortfall in years four and five of a multiple year drought based on 2045 demand.

With implementation of the Bay-Delta Plan Amendment, shortfalls would range from 11.2 million gallons per day (15.9 percent) in a single dry year to 19.2 million gallons per day (27.2 percent) in years two through five of a multiple year drought based on 2025 demand levels and from 20.5 million gallons per day (25.4 percent) in a single dry year to 28.5 million gallons per day (35.4 percent) in years four and five of a multiple year drought based on 2045 demand.

The proposed project does not require a water supply assessment under the California Water Code. Under sections 10910 through 10915 of the California Water Code, urban water suppliers like the SFPUC must prepare water supply assessments for certain large "water demand" projects, as defined in CEQA Guidelines section 15155. The project would result in 16,300 square feet of commercial space; as such it does not qualify as a "water-demand" project as defined by CEQA Guidelines section 15155(a)(1) and a water supply assessment is not required and has not been prepared for the project. The following discussion considers the potential water supply impacts for projects – such as the proposed project – that do not qualify as "water-demand" projects.

No single development project alone in San Francisco would require the development of new or expanded water supply facilities or require the SFPUC to take other actions, such as imposing a higher level of rationing across the city in the event of a supply shortage in dry years. Therefore, a separate project-only analysis is not provided for this topic. The following analysis instead considers whether the proposed project in combination with both existing development and projected growth through 2045 would require new or expanded water supply facilities, the construction or relocation of which could have significant impacts on the environment that were not identified in the Water System Improvement Program (WSIP) program environmental impact report (PEIR).[90] It also considers whether a high level of rationing would be required that could have significant cumulative impacts. It is only under this cumulative context that development in San Francisco could have the potential to require new or expanded water supply facilities or require the SFPUC to take other actions, which in turn could result in significant physical environmental impacts related to water supply. If significant cumulative impacts could result, then the analysis considers whether the project would make a considerable contribution to the cumulative impact.

Based on guidance from the California Department of Water Resources and a citywide demand analysis, the SFPUC has established 50,000 gallons per day as the maximum water demand for projects that do not meet

[90] San Francisco Planning Commission, Water System Improvement Program California Environmental Quality Act Findings: Findings of Fact, Evaluation of Mitigation Measures and Alternatives, and Statement of Overriding Considerations, adopted October 30, 2008 (Motion No. 17734).

the definitions provided in CEQA Guidelines section 15155(a)(1). The project development would represent 33 percent of the 500,000 square feet of commercial space provided in section 15155(1)(A) and (B), respectively. In addition, the proposed project would incorporate water-efficient fixtures as required by Title 24 of the California Code of Regulations and the city's Green Building Ordinance.

Estimated daily water demand by the project is approximately 2,420 gallons. Therefore, the project's water demand would represent a small fraction of the city's total projected demand, less than 0.01 percent between 2025 and 2045.[91] As such, the project's water demand would not require or result in the relocation or construction of new or expanded water facilities the construction or relocation of which could cause significant environmental effects.

Sufficient water supplies are available to serve the proposed project and reasonably foreseeable future development in normal, dry, and multiple dry years unless the Bay-Delta Plan Amendment is implemented. As indicated above, the proposed project's maximum demand would represent less than 0.01 percent of the total demand in 2045 when the retail supply shortfall projected to occur with implementation of the Bay-Delta Plan Amendment would be up to 35.4 percent in a multi-year drought. The SFPUC has indicated that it is accelerating its efforts to develop additional water supplies and explore other projects that would improve overall water supply resilience through an alternative water supply program. The SFPUC has taken action to fund the study of additional water supply projects, but it has not determined the feasibility of the possible projects and has determined that the identified potential projects would take anywhere from 10 to 30 years or more to implement. The potential impacts that could result from the construction and/or operation of any such water supply facility projects cannot be identified at this time. In any event, under such a worst-case scenario, the demand for the SFPUC to develop new or expanded dry-year water supplies would exist regardless of whether the proposed project is constructed.

Given the long lead times associated with developing additional water supplies, in the event the Bay-Delta Plan Amendment were to take effect sometime after 2022 and result in a dry-year shortfall, the expected action of the SFPUC for the next 10 to 30 years (or more) would be limited to requiring increased rationing. The SFPUC has established a process through its Retail Water Shortage Allocation Plan for actions it would take under circumstances requiring rationing. The level of rationing that would be required of the proposed project is unknown at this time. Both direct and indirect environmental impacts could result from high levels of rationing. However, the small increase in potable water demand attributable to the project compared to citywide demand would not substantially affect the levels of dry-year rationing that would otherwise be required throughout the city. Therefore, the proposed project would not make a considerable contribution to a cumulative environmental impact caused by implementation of the Bay-Delta Plan Amendment. Project impacts related to water supply would be ***less than significant***.

Impact UT-3: The project would not generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals. (*Less than Significant*)

The project could significantly affect solid waste disposal facilities if it were to generate volumes of waste material that exceed local waste diversion goals or the daily tonnage limit of local landfills.

[91] San Francisco Public Utilities Commission, *2020 Urban Water Management Plan for the City and County of San Francisco*, June 2021, https://sfpuc.org/sites/default/files/programs/local-water/SFPUC_2020_UWMP2020_%20FINAL.pdf, accessed August 18, 2021.

In September 2015, the City and County of San Francisco approved an agreement with Recology, Inc., for the transport of the city's municipal solid waste and its disposal at the Recology Hay Road Landfill in Vacaville (Solano County). The city began disposing of its municipal solid waste at that landfill in January 2016, and is expected to continue that practice for approximately nine years, with an option to renew the agreement thereafter for an additional six years. The Hay Road Landfill has a maximum permitted capacity of 37 million cubic yards; it is permitted to accept up to 2,400 tons per day, and in 2010, the landfill had a remaining capacity of 30.4 million cubic yards. Under existing conditions, the Hay Road Landfill receives an average of approximately 1,850 tons per day from all sources, with approximately 1,200 tons per day coming from San Francisco, including residential and commercial waste and demolition and construction debris that cannot be reused or recycled.[92] The city's contract with the Recology Hay Road Landfill will extend until 2031 or when the city has disposed of 5 million tons of solid waste, whichever occurs first. At that point, the city would either extend the landfill contract further or find and entitle an alternative landfill site. Other landfills in the region include the Altamont Landfill in Livermore, which has a permitted capacity of 124.4 million cubic yards and a remaining capacity of 65.4 million cubic yards,[93] and the Corinda Los Trancos Landfill (Ox Mountain) Landfill in Half Moon Bay, which has a permitted capacity of 60.5 million cubic yards and remaining capacity of 22.2 million cubic yards.[94]

In 2019, San Francisco generated a total of about 713,000 tons of landfill waste.[95] Approximately 418,000 tons were directed to the Hay Road Landfill, with the remaining 295,000 tons received at 23 other landfills.[96] All facilities used by the city are permitted to accept the type of waste generated by the project.

Construction

Project construction and demolition activities would generate construction debris that would add to the overall volume of San Francisco's solid waste disposal. During construction, all waste materials would be stockpiled onsite and separated according to waste characterization criteria. Concrete and asphalt and nonhazardous metal fencing, pipes, and conduits would be sent to appropriate recycling facilities. Wood fencing, nonhazardous soil, and other nonhazardous debris that cannot be recycled would likely be sent to the Recology Hay Road Landfill (Class II/III) facility in Vacaville or the Altamont Landfill in Livermore, as needed; other debris would be hauled to the Republic Corinda Los Trancos Ox Mountain Landfill in Half Moon Bay. Hazardous soil and lead- and asbestos-containing debris would be sent to the Clean Harbors Buttonwillow Facility (Class I) in Buttonwillow, California, or the Recology Hay Road Landfill (Class II, III) in Vacaville. A California-licensed hazardous-materials removal contractor would excavate and remove the soil. An estimated maximum of 3,700 cubic yards of contaminated soil, demolition debris, and other debris would be excavated or otherwise removed from the site and delivered to appropriate disposal facilities. The

[92] San Francisco Planning Department, *Agreement for Disposal of San Francisco Municipal Solid Waste at Recology Hay Road Landfill in Solano County, Final Negative Declaration,* Planning Department Case No. 2014.0653*,* May 21, 2015, *http://sfmea.sfplanning.org/2014.0653E_Revised_FND.pdf*, accessed March 23, 2021.

[93] California Department of Resources Recycling and Recovery, Solid Waste Information System, Altamont Landfill and Resource Recovery (01-AA-0009) Facility Detail, *https://www2.calrecycle.ca.gov/swfacilities/Directory/01-AA-0009/*, accessed February 26, 2019.

[94] California Department of Resources Recycling and Recovery, *Solid Waste Information System,* Corinda Los Trancos Landfill (Ox Mountain) (41-AA-0002) Facility Detail, https://www2.calrecycle.ca.gov/swfacilities/Directory/41-AA-0002/, accessed February 26, 2019.

[95] California Department of Resources Recycling and Recovery, CalRecycle Disposal Reporting System, Jurisdiction Disposal and Alternative Daily Cover (ADC) Tons by Facility, *https://www2.calrecycle.ca.gov/LGCentral/DisposalReporting/Destination/DisposalByFacility*, accessed March 22, 2021.

[96] California Department of Resources Recycling and Recovery, CalRecycle Disposal Reporting System, Jurisdiction Disposal and Alternative Daily Cover (ADC) Tons by Facility, https://www2.calrecycle.ca.gov/LGCentral/DisposalReporting/Destination/DisposalByFacility, accessed March 22, 2021.

amount of excavated material that would be sent to the Buttonwillow facility, an estimated 1,500 cubic yards, is less than 1 percent of available landfill capacity.

The materials would be either recycled or disposed of in compliance with all applicable regulatory standards. The San Francisco Construction and Demolition Ordinance (Ordinance No. 27-06) requires that at least 65 percent of construction and demolition debris be recycled or diverted from landfills. This ordinance would apply only to the nonhazardous and undesignated construction and demolition waste generated during construction. The remaining 35 percent of construction and demolition debris, a maximum of approximately 770 cubic yards, could be disposed of at the Recology Hay Road Landfill. The total volume of excavated soil that could be sent to the Recology Hay Road Landfill would be far less than 1 percent of the remaining capacity of the landfill; at a maximum, it would account for approximately 0.01 percent of the allowed daily throughput.

Because the project would be consistent with San Francisco ordinances, and because the local landfills would have sufficient capacity to accept the remaining construction waste, the project would be served by a landfill(s) with sufficient permitted capacity to accommodate its solid waste disposal needs. As a result, the impact would be ***less than significant***.

Operation

Project operation would generate solid waste and recyclables. Trash containers would be placed in the project area, and either these containers would include separate receptacles for recyclables or the recyclables would be sorted from the trash after collection, in accordance with City Ordinance 100-09, the Mandatory Recycling and Composting Ordinance. According to the California Department of Resources Recycling and Recovery, in 2019 San Francisco residents generated approximately 4.5 pounds of solid waste per resident per day for disposal in a landfill, while commercial uses generated approximately 5.3 pounds per employee per day for disposal in a landfill.[97] Waste generation from recreational uses would be generally similar. Both of these rates are below the annual per-capita disposable target rates, meant to comply with the Integrated Waste Management Act of 1998, of 6.6 and 10.6 pounds per day, respectively. For these reasons, project operation would not exceed available permitted landfill capacity or impair attainment of solid waste reduction goals; the impact would be ***less than significant***.

Impact UT-4: The project would comply with federal, state, and local management and reduction statutes and regulations related to solid waste. (*Less than Significant*)

The California Integrated Waste Management Act of 1989,[98] enacted through Assembly Bill 939 and modified by subsequent legislation, required municipalities to implement programs to divert at least 50 percent of all solid waste generated by the year 2000 and established the goal of diverting at least 75 percent of generated waste (based on per capita disposal rates) by 2020. A jurisdiction's *diversion rate* is the percentage of its total waste that it diverts from disposal through reduction, reuse, recycling, and composting programs. As part of their integrated waste management plans, counties must ensure that a minimum of 15 years of disposal capacity is available to serve the county and its cities. Since 2007, the achievement of waste diversion rates has

[97] California Department of Resources Recycling and Recovery, Disposal Rate Calculator, https://www2.calrecycle.ca.gov/LGCentral/AnnualReporting/DisposalRateCalculator, accessed March 19, 2021.

[98] California Public Resources Code, sections 40000-49620.

been measured based on per capita disposal rates, expressed in pounds per person per day of wastes disposed of in landfills. The City and County of San Francisco has made a pledge to advance toward zero waste by:

(1) Reducing municipal solid waste generation per capita by at least 15 percent by 2030 compared to 2015; and

(2) Reducing the amount of municipal solid waste disposed of at landfills and incinerated by at least 50 percent by 2030 compared to 2015, and increasing the diversion rate away from landfills and incineration to at least 70 percent by 2030.

The San Francisco Construction and Demolition Ordinance (Ordinance No. 27-06) requires that a minimum of 65 percent of all construction and demolition debris be recycled and diverted from landfills. Waste disposal for the project would comply with the construction and demolition debris diversion rate.

As discussed in topic E.18, Hazards and Hazardous Materials, excavated soil could be classified as a hazardous waste. To determine the appropriate disposal facility for excavated materials, excavated soils would be stockpiled, sampled, and analyzed for hazardous materials in accordance with landfill criteria. Accordingly, the project would also be required to follow federal and state regulations for the disposal of hazardous wastes at a permitted disposal or recycling facility.

In addition to complying with the solid waste disposal policies and regulations identified above, the solid waste facilities serving the city are also required to meet federal, state, and local solid waste regulations.

Therefore, the project would have a ***less-than-significant*** impact with respect to compliance with solid waste statutes and regulations.

Impact C-UT-1: The project, in combination with cumulative projects, would not result in significant utilities and service system impacts. (*Less than Significant*)

The geographic scope for potential cumulative impacts on utilities and service systems consists of the project area, its immediate vicinity, and the service areas of regional service/utility providers. Wastewater system facilities in the project vicinity include San Francisco's combined wastewater system and the Oceanside Treatment Plant. Multiple landfills that could be used by the cumulative projects listed in EIR Table 3.1-3 (EIR p. 3.1-7), and by a wide variety of additional users, are located within 100 miles. The project would result in less-than-significant impacts on utilities and service systems.

Construction

The cumulative projects under construction at the same time within the vicinity would use the same wastewater systems as the project, which would increase the demand on such facilities. Construction of projects listed in EIR Table 3.1-3 (EIR p. 3.1-7) and construction of the project could occur at the same time. These cumulative projects would be subject to the same set of regulations as the project, requiring a discharge permit for all construction-related discharges to the local sewer system. Permit requirements would ensure that discharges would not exceed the volume or treatment requirements of SFPUC. Similar to the project, the cumulative projects would use small amounts of potable water temporarily during construction. Accordingly, no significant cumulative impact related to water supply or wastewater treatment would result from the cumulative scenario to which the project's incremental impact could contribute.

Most of the cumulative projects listed in Table 3.1-3 (EIR p. 3.1-7), regardless of construction date, would dispose of construction debris at available landfills, which would contribute to reductions in available landfill capacity. As discussed in Impact UT-3, the project would dispose of approximately 2,200 cubic yards of nonhazardous solid waste, which would be deposited in a landfill (assuming compliance with the city's 65 percent diversion requirement). The other cumulative projects would also be required to divert at least 65 percent of the solid waste generated; however, construction debris could be disposed of at several landfills. The Hay Road, Altamont, and Corinda Los Trancos (Ox Mountain) landfills have a collective remaining capacity of 118 million cubic yards, which is expected to be sufficient to accept waste from the cumulative projects under construction at the same time as the project. Accordingly, the cumulative impact on landfill capacity would be ***less than significant***.

Operation

Once operational, the project along with some of the cumulative projects would use potable water, electricity, and other utilities, and would generate wastewater. These projects would be subject to the same set of regulations as the project, including the water and energy efficiency standards of the San Francisco Green Building Code and stormwater management requirements. The cumulative projects listed in EIR Table 3.1-3 (EIR p. 3.1-7) that could generate solid waste during operation are the Ocean Beach Climate Change Adaptation project and the Park Merced project. The landfills that would serve the project also serve a wide variety of users throughout the Bay Area. Similar to the project, the Ocean Beach Climate Change Adaptation and Park Merced projects, and other projects in San Francisco served by the same landfills, would be subject to the city's Ordinance 100-09, the Mandatory Recycling and Composting Ordinance. Compliance with the Mandatory Recycling and Composting Ordinance would ensure that the cumulative impact on landfill capacity or attainment of solid waste reduction goals during project operation would be ***less than significant***.

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E.14 Public Services

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
14. PUBLIC SERVICES. Would the project:					
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services such as fire protection, police protection, schools, parks, or other public facilities?	☐	☐	☒	☐	☐

Issues related to parks, which are referred to in topic E.14(a), are addressed above in topic E.12, Recreation. Issues related to access for emergency vehicles are discussed in topic E.6, Transportation and Circulation. Issues related to wildland fires are addressed in topic E.22, Wildfire.

Impact PS-1: The project would not result in an increase in demand for fire protection, police protection, schools, or other services to an extent that it would result in substantial adverse physical impacts associated with the construction or alteration of governmental facilities. (*Less than Significant*)

A project would have a significant impact on public services if (1) it would require the construction of new or physically altered governmental facilities to maintain acceptable levels of public services, *and* (2) the construction or alteration of such facilities would result in one or more substantial adverse impacts on the environment.

The project area currently receives services from the relevant city departments. The project site is served by several San Francisco Fire Department fire stations: Station 19, 390 Buckingham Way at Winston Street (approximately 1.25 miles northeast of the project site); Station 18, 1935 32nd Avenue at Ortega Street (approximately 2.5 miles northwest of the project site); and Station 34, 499 41st Avenue at Geary Boulevard (approximately 4.5 miles north of the project site).[99] The project site is served by the San Francisco Police Department's Taraval and Richmond District stations. The Taraval station is located at 2345 24th Avenue at Taraval Street (approximately 2 miles northeast of the project site) and the Richmond District station is located at 461 6th Avenue (approximately 4.7 miles northeast of the project site).[100] The San Francisco Unified School District provides school services to residents in the project vicinity, and the San Francisco Public Library system provides library services to project area residents.

[99] San Francisco Fire Department, Fire Station Locations, https://sf-fire.org/fire-station-locations, accessed April 7, 2020.

[100] San Francisco Police Department, Station Finder, https://www.sanfranciscopolice.org/station-finder, accessed April 7, 2020.

Construction

Incidents requiring law enforcement, fire protection, or emergency medical services could occur during construction. As described in Chapter 2, Project Description, project construction would take about 24 months and require an estimated maximum of 15 workers. Responding to construction-related incidents is routine for the police and fire departments, as construction projects are common and ongoing in the city. Construction of the project is not expected to increase calls to emergency services, and any construction-related increase in demand for public services would be temporary and within the existing capacity of the city's existing emergency response service providers. For these reasons, the impact of project construction on public services would be ***less than significant***.

Operation

As discussed in section E.3, Population and Housing (Impact PH-1), the project would not construct residential units. Increases in demand for public services generally result from a permanent increase in a population in a given area. The proposed project would not generate any new school-aged children. Additionally, the project would not increase demand for or use of public libraries. Therefore, the project would not result in new or physically altered school or library facilities.

Project operation would increase daytime and evening recreational use of the site. The anticipated increase in the intensity of use is not expected to increase service calls to San Francisco fire or police services. No new stations are proposed in the project vicinity; however, the project is consistent with planned and expected growth, and emergency services in San Francisco have sufficient resources to accommodate operation of the project. The impact of project operation on public services would be ***less than significant***.

CUMULATIVE IMPACTS

Impact C-PS-1: The project, in combination with cumulative projects, would not result in significant impacts associated with the provision of new or physically altered governmental facilities. (*Less than Significant*)

The geographic scope for potential public services impacts encompasses the service areas of the police districts and fire stations that would serve the project. The project would contribute to a significant cumulative effect if:

(1) An increase in demand during project construction or operation would make a cumulatively considerable contribution to the public services demands of other projects listed in EIR Table 3.1-3, p. 3.1-7, that in combination, would require the construction of new or physically altered governmental facilities (i.e., fire or police stations); *and*

(2) The construction of such facilities would have a significant adverse impact on the environment.

EIR Section 3.1, Overview, Table 3.1-3, (EIR p. 3.1-7), lists cumulative projects near the project area that could be under construction during some portion of the project's approximately 24-month construction period.

Construction

During construction, the project could result in the need for law enforcement, fire protection, or emergency medical services response. Cumulative projects could result in the same need for police, fire, and emergency services during construction, from the same public services providers that serve the project area. The

potential increase in demand for police, fire, and emergency services during construction of the project and cumulative projects would be temporary. Any increased need for law enforcement or fire protection services resulting from the project and cumulative projects would not be expected to exceed the level of demand anticipated and provided by the police and fire departments, or to require the construction of new or physically altered governmental facilities that were not already planned. As a result, the project in combination with the cumulative projects would result in a ***less-than-significant*** impact related to emergency services.

Construction of the project would not result in the need for new or expanded schools or parks as a result of the relocation of construction workers. Therefore, project construction would not contribute to any potential cumulative impact on schools or parks, resulting in the need for new or physically altered governmental facilities.

Operation

Cumulative development in the project vicinity would include improvements to existing wastewater collection system infrastructure, intersection improvements, new recreational trails or recreational facilities, and mixed-use development (Parkmerced Redevelopment). The project would enhance recreational use in the area and would not contribute to cumulative demand for school or library facilities. The fire and police departments, and other city agencies, respond to growth and other changing service needs through ongoing analysis of applicable metrics, such as staffing, capacity, response times, and call volumes. The combination of these projects with mixed-use development would not result in the need for new or expanded government facilities, especially not beyond levels anticipated and planned for by public services providers. For these reasons, the proposed project would not combine with cumulative projects to create a significant cumulative impact on public services and the cumulative operational impact would be ***less than significant***.

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E.15 Biological Resources

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
15. BIOLOGICAL RESOURCES. Would the project:					
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐	☐
c) Have a substantial adverse effect on federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☒	☐	☐	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☒	☐	☐	☐
f) Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☐	☒

The project site is not located within any local, regional or state habitat conservation plan areas; therefore, Topic 15(f) is not applicable to the project and is not discussed further. The project is also not located within any designated critical habitat for special-status species.

This section describes the existing terrestrial and aquatic biological resources that occur or have the potential to occur on the project site or in the immediate vicinity. Information on natural communities, plant and animal species, and sensitive biological resources used in preparation of this section was obtained from regional databases, plans, and reports relevant to the project, including the California Department of Fish and Wildlife

Natural Diversity Database,[101] the California Native Plant Society Electronic Inventory,[102] the U.S. Fish and Wildlife Service,[103] standard biological literature, eBird.org,[104,105] previous biological reports of the project site,[106] biological reports and studies on other Lake Merced shoreline locations in the project vicinity (listed below), and a Biological Resources Assessment[107] and Aquatic Resources Delineation[108] prepared for the project. **Appendix H** includes the Biological Resources Assessment and Aquatic Resources Delineation.

In addition to reports on biological resources of the site associated with the soil remediation project, certain project sites in the vicinity of Lake Merced have been previously surveyed for biological resources, including special-status plants animals, waters of the United States and of the state, and other sensitive natural communities. The following documents were reviewed and are referenced to support the analysis of potential environmental impacts of the project:

Pacific Rod and Gun Club Upland Soil Remediation Project Mitigated Negative Declaration[109]

Pacific Rod and Gun Club Riparian/Wetland Restoration Monitoring Reports, Years 1 (2016) through 5 (2020)[110]

Pacific Rod and Gun Club Upland Tree and Shrub Restoration Monitoring Reports, Years 1 (2016) through 5 (2020)[111]

Lake Merced Watershed Report[112]

Significant Natural Resource Areas Management Plan Staff Report[113]

Significant Natural Resource Areas Management Plan–Final Draft[114]

Significant Natural Resource Areas Management Plan Draft EIR[115]

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[101] California Department of Fish and Wildlife (CDFW), California Natural Diversity Database (CNDDB) Rarefind version 5 query of the San Francisco North and San Francisco South USGS 7.5-minute topographic quadrangles, Commercial Version, March 29, 2021.

[102] California Native Plant Society (CNPS), Inventory of Rare and Endangered Plants for San Francisco North and San Francisco South USGS 7.5-minute topographic quadrangles, http://www.rareplants.cnps.org/result.html?adv=t&quad=3712264:3712274, April 4, 2021.

[103] U.S. Fish and Wildlife Service (USFWS), My Project, IPaC Trust Resource Report and List of Federally Endangered and Threatened Species that may occur in the Lake Merced West Project location, and/or may be affected by the proposed project, April 4, 2021.

[104] eBird: Lake Merced—Gun Club Marsh, https://ebird.org/hotspot/L1247236, accessed May 6, 2020.

[105] eBird: Lake Merced—Concrete Bridge area, https://ebird.org/hotspot/L791371?yr=all&m=&rank=hc&hs_sortBy=date&hs_o=desc, accessed May 6, 2020.

[106] Pacific Rod and Gun Club Upland Soil Remediation Project Specialty Environmental Monitoring Reports documenting western pond turtle, nesting birds, roosting bat preconstruction survey and biological monitoring during construction reports, April 2015 through January 2016.

[107] Coast Ridge Ecology, 2020a. *Biological Resources Assessment for the Lake Merced West Recreation Project Site.* Prepared for the San Francisco Planning Department, April 2020.

[108] CRE, 2020b. *Lake Merced West Recreation Project Aquatic Resources Delineation.* Prepared for the San Francisco Public Utilities Commission, April 2020.

[109] San Francisco Planning Department, 2014. *Mitigated Declaration, Pacific Rod and Gun Club Upland Soil Remediation Project*. Planning Department Case No. 2013.1220E. Prepared for the San Francisco Public Utilities Commission, June 25, 2014, amended October 23, 2014.

[110] Environmental Science Associates, Pacific Rod and Gun Club Riparian/Wetland Restoration Monitoring Report Years 1 (2016) through 5 (2020).

[111] Environmental Science Associates, Pacific Rod and Gun Club Upland Tree and Shrub Restoration Monitoring Report, Years 1 (2016) through 5 (2020).

[112] San Francisco Public Utilities Commission (SFPUC), 2011. *Lake Merced Watershed Report*, January 2011.

[113] San Francisco Recreation and Park Department, 1995. Staff Report on the *Significant Natural Resource Areas Management Plan*, San Francisco Recreation and Park Commission, January 1995.

[114] San Francisco Recreation and Park Department (SFRPD), *Significant Natural Resource Areas Management Plan– Final Draft*, February 2006.

[115] San Francisco Planning Department, *Significant Natural Resource Areas Management Plan Draft Environmental Impact Report*, Planning Department Case No. 2005.1912E, State Clearinghouse No. 2009042102, August 2011a.

The findings of these database searches, species lists, and reports were used to compile the list of special-status species that may occur at the project site (Appendix H, Biological Resources Assessment, Table 1) and inform the impact analysis.

ENVIRONMENTAL SETTING

Lake Merced is located on the western portion of the San Francisco Peninsula, at the southern edge of San Francisco. Lake Merced, the largest natural freshwater lake in San Francisco, is comprised of four interconnected lakes: North, East, South, and Impound Lakes. Lake Merced was historically a lagoon fed by five relatively small streams and groundwater, with occasional connection to the Pacific Ocean.[116] The project site is located on the southwest shore of South Lake, referred to generally hereinafter as Lake Merced. The project site extends from the southern fence line along John Muir Drive to the open waters of Lake Merced. The greater Lake Merced system, and the immediate project vicinity, make up the larger biological resources study area considered in this analysis.

Land uses in the project vicinity include parks, golf courses, and urban residential and commercial development. Urban development is primarily concentrated on the south side of John Muir Drive and the east side of Lake Merced Boulevard. While the project site is located within a densely developed portion of San Francisco, limited human interference onsite since restoration activities in 2016 has allowed the restored habitats to establish. Several diverse vegetation communities, discussed below, provide refuge for local wildlife among the largely developed upland areas bordering the Lake Merced system.

EXISTING CONDITIONS

As discussed in the Project Description, project site soils were remediated in 2015 and replaced with clean fill. Areas within the project site which did not undergo remediation consist of soil under the rifle range building, beneath trees which were not removed, and within wetlands and waters jurisdictional to the U.S. Army Corps of Engineers. Therefore, with the exception of these areas, existing vegetation of the project site is a result of revegetation and restoration activities following remediation for purposes of erosion control or to fulfill mitigation requirements for impacts to vegetation resources. Native coastal scrub, dune scrub and grassland seed mixes were applied to the clean fill soils with hydromulch for revegetation and erosion control. Native trees and shrubs lining the south and west boundaries of the site were planted as mitigation for trees removed by the soil remediation project and to fulfill aesthetic viewshed mitigation requirements and replace avian habitat. Arroyo willow (*Salix lasiolepis*), swamp knotweed (*Persicaria amphibia*), and California bulrush (*Schoenoplectus californicus*) were planted along the shoreline as mitigation for temporary impacts to riparian habitat and coastal freshwater marsh wetlands jurisdictional to the San Francisco Regional Water Quality Control Board, California Department of Fish and Wildlife, and the California Coastal Commission. All restoration planting and seeding of the soil remediation project area was performed in the first quarter of 2016; therefore, the majority of existing vegetation communities and wildlife habitat within the project site is approximately five years old. Largely as a result of successful restoration, coastal scrub along the south site boundary adjacent to John Muir Drive is dense, particularly east of the site entrance, hosts nesting birds throughout the breeding season and provides forage and cover for birds and small terrestrial wildlife. The arroyo willow restoration area along the shoreline is dense and well established after five years of growth, also providing foraging and nesting habitat for resident and migratory birds. Restored

[116] San Francisco Public Utilities Commission (SFPUC), 2011. *Lake Merced Watershed Report*, January 2011.

coastal freshwater marsh along the shoreline nearest the open water provide habitat consistency for wildlife inhabiting the South Lake shoreline wetland vegetation such as waterfowl, turtles, and small mammals.

VEGETATION COMMUNITIES AND HABITAT TYPES

The Biological Resources Assessment[117] prepared for the project characterized vegetation of the site to the alliance level according to *A Manual of California Vegetation.*[118] For the purposes of this initial study, these categories have been summarized into the communities depicted in **Table 14** and are described below. In addition, "Developed" and "Lacustrine" habitat have been added for discussion. The location of these vegetation communities and habitats within the site are depicted in **Figure 10**.

Table 14 Vegetation of the Project Site

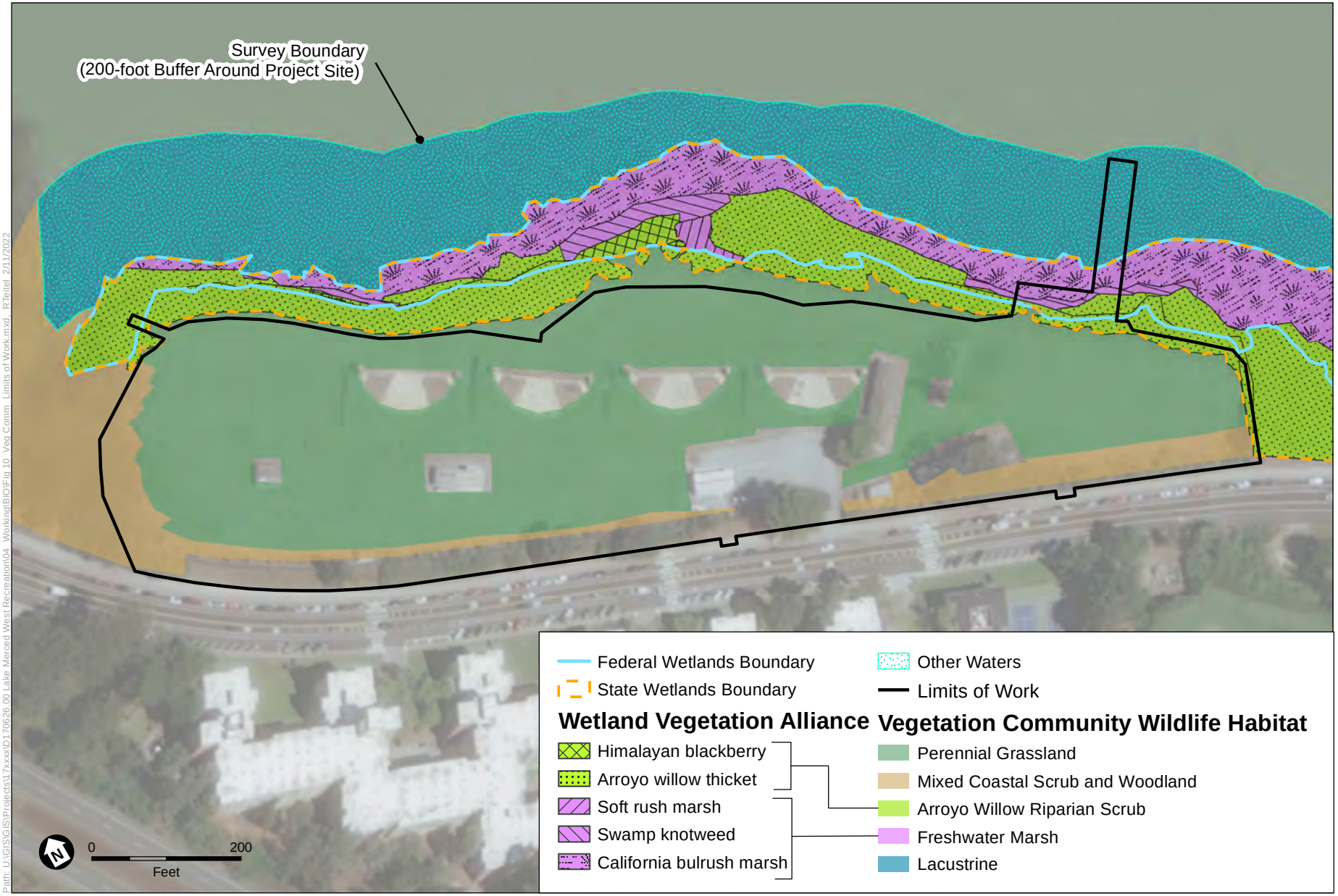
Alliance Classification	Vegetation Community/Habitat Type
Tufted hairgrass meadow	Perennial grassland
Coast live oak woodland	Mixed Coastal Scrub and Woodland
Eucalyptus semi-natural woodland stand	
Himalayan blackberry	Arroyo Willow Riparian Scrub
Arroyo willow thicket	
Soft rush marsh	Freshwater marsh
Swamp knotweed	
California bulrush marsh	
-	Lacustrine
-	Developed

PERENNIAL GRASSLAND

Much of the project site is comprised of recently established perennial grassland, both on the level areas around the existing buildings, structures and gravel parking area, and open meadow areas upslope of the riparian and freshwater marsh communities. These areas were seeded with a native grassland mix of perennial bunch grasses, herbs, and forbs following site remediation and have maintained high species diversity with a dominance of native species since that time. This community contains the tufted hairgrass meadow vegetation alliance. The most prevalent grass species throughout the meadow areas is native tufted hairgrass (*Deschampsia caespitosa*), with California brome grass (*Bromus carinatus*), Idaho fescue (*Festuca idahoensis*), and blue wildrye (*Elymus glaucus*). Native annual small fescue (*Festuca microstachys*) is also present among the native perennial bunchgrass. Other native herbaceous species in abundance throughout the meadow include California yarrow (*Achillea millefolia*), willow herb (*Epilobium ciliatum*), blue-eyed grass (*Sisyrinchium bellum*), and bicolored lupine (*Lupinus bicolor*) with yellow-bush lupine

[117] Coast Ridge Ecology, 2020a. *Biological Resources Assessment for the Lake Merced West Recreation Project Site.* Prepared for the San Francisco Planning Department, April 2020.

[118] Sawyer, John; Keeler-Wolf, T.; and Evans, J., 2009. A Manual of California Vegetation, second edition. California Native Plant Society, Sacramento.



SOURCE: Coast Ridge Ecology, 2020a; ESA, 2021; San Francisco Public Works, 2021

Lake Merced West

Figure 10
Project Site Vegetation Communities and Wildlife Habitats

ESA

(*Lupinus arboreus*) and marsh gumplant (*Grindelia stricta* var. *angustifolia*) shrubs scattered throughout. Non-native species are present in low abundance with the most prevalent species consisting of brome fescue (*Festuca bromoides*) and California burclover (*Medicago polymorpha*). The dominance and diversity of native grasses, forbs, and herbs within this vegetation community are supportive of insect forage for birds and bats. Bird species observed onsite or expected to use this habitat include tree swallow (*Tachycineta bicolor*), house finch (*Haemorhous mexicanus*), American goldfinch (*Spinus tristis*), lesser goldfinch (*Spinus psaltria*), Brewer's blackbird (*Euphagus cyanocephalus*), black phoebe (*Sayornis nigricans*), western bluebird (*Sialia mexicana*). Red-tailed hawk and red-shouldered hawk (*Buteo jamaicensis, B. lineatus*) have been frequently observed perching on existing structures to hunt small mammals of the meadow, such as deer mouse (*Peromyscus maniculatus*) or vagrant shrew (*Sorex vagrans*).

MIXED COASTAL SCRUB AND WOODLAND

A narrow strip of dense coastal scrub and woodland vegetation occurs along the entire south boundary of the site and wraps north along the west site boundary. Following remediation, this area was planted with native trees and shrubs as a mitigation requirement for tree removal and associated aesthetic impacts. This community contains the coast live oak woodland and eucalyptus semi-natural woodland stand vegetation alliances. Planted species include coast live oak (*Quercus agrifolia*), Catalina ironwood (*Lyonothamnus floribundus*), Ray Hartman wild lilac (*Ceanothus* var. *Ray Hartman*), and California coffeeberry (*Frangula californica*) from container stock, supplemented with a native coastal scrub seed mix. Black sage (*Salvia mellifera*), California sage (*Artemisia californica*), lizard tail (*Eriophyllum staechadifolium*), yarrow (*Achillea millefolium*), deerweed (*Acmispon glaber* var. *glaber*), and sticky monkeyflower (*Diplacus aurantiacus*) are well established and form the diverse native shrub layer of this community beneath the immature native trees. Blue gum eucalyptus (*Eucalyptus globulus*) saplings are prevalent within this community along the west site boundary where mature trees overhang the project site. Saplings also occur east of the site entrance where several mature trees were not removed during the soil remediation project due to proximity with onsite building foundations. With the exception of the eucalyptus areas, this community has minimal bare ground and a low presence of non-native and invasive species, especially east of the site entrance where the native shrub layer has a higher density. This scrub community provides important cover for terrestrial mammals and reptiles such as California vole (*Microtus californicus*), northern and southern alligator lizard (*Elgaria coerulea, E. multicarinata*), western fence lizard (*Sceloporus occidentalis*), and gopher snakes (*Pituophis catenifer*) and supports foraging and nesting avian species such as Bewick's wren (*Thryomanes bewickii*), white-crowned sparrow (*Zonotrichia leucophrys*) and California towhee (*Melozone crissalis*).

ARROYO WILLOW RIPARIAN SCRUB

A dense thicket of native arroyo willow is present in a band along the banks of South Lake, within and adjacent to the northern project site boundary. Willow stakes harvested from around Lake Merced were planted onsite following soil remediation as mitigation for temporary impacts to riparian habitat. Since restoration planting in 2016, the willows have rapidly matured and reestablished riparian wetland habitat onsite. This community contains the arroyo willow thicket and Himalayan blackberry vegetation alliances. A combination of native dune scrub and coastal scrub seed mixes were applied adjacent and upland of the willow restoration area and many plants included in the seed mixes are now present in the riparian understory. Native species in abundance include California blackberry (*Rubus ursinus*), Canada horseweed (*Equisetum canadensis*), California hairgrass, with poison hemlock (*Conium maculatum*), poison oak (*Toxicodendron diversilobum*) and coyote brush (*Baccharis pilularis*) shrubs and moss groundcover patches in some areas. Non-native species are less present within the thickets and include Himalayan blackberry (*Rubus armeniacus*), English ivy (*Hedera helix*), and bull thistle (*Cirsium vulgare*). Arroyo willow riparian scrub

at South Lake is important habitat for migratory and resident birds, including Townsend's warbler (*Dendroica townsendi*), ruby-crowned kinglet (*Regulus calendula*), green heron (*Butorides virescens*), western kingbird (*Tyrannus verticalis*), and warbling vireo (*Vireo gilvus*).

FRESHWATER MARSH

Adjacent to and, in some areas, beneath the riparian habitat onsite, freshwater marsh wetlands are present along the South Lake shoreline. This community contains the California bulrush marsh, soft rush marsh, and swamp knotweed vegetation alliances. Swamp knotweed and California bulrush are dominant species within this community onsite and lakeside of the project footprint, with tules (*Schoenoplectus acutus* var. *occidentalis*) and broadleaf cattail (*Typha latifolia*) to a lesser extent. Common bog rush (*Juncus effusus*) and spreading rush (*J. patens*) are also present within this community around the lake margin, primarily where willow canopy overhang occurs. Small areas of freshwater marsh were planted with swamp knotweed, California bulrush, or seeded with common bog rush following soil remediation and as mitigation for impacts to state wetlands. The restored and preexisting freshwater marsh north of the site is continuing to blend together as the planted vegetation becomes more established over time. This freshwater marsh wetland habitat bordering the lake is valuable to many avian species foraging and nesting annually at Lake Merced, such as marsh wren (*Cistothorus palustris*), song sparrow (*Melospiza melodia*), common yellowthroat (*Geothlypis trichas*), pied-billed grebe (*Podilymbus podiceps*), mallard (*Anas platyrhynchos*) and American coot (*Fulica americana*).[119]

LACUSTRINE

North of the site's shoreline freshwater marsh wetlands, the open waters of South Lake provides aquatic habitat for a variety of resident and seasonal wildlife. Frequently observed native dabbling duck species include northern shoveler (*Spatula clypeata*), wood duck (*Aix sponsa*), mallard, and American wigeon (*Mareca americana*), and diving duck species bufflehead (*Bucephala albeola*) and ruddy duck (*Oxyura jamaicensis*).[120] During the breeding season, western and Clark's grebes (*Aechmophorus occidentalis, A. clarkii*) exhibit courtship behavior in South Lake with both species known to nest in the Lake Merced system.[121] Common to South Lake offshore of the project site are a cotillion of Forster's and Caspian terns (*Sterna forsteri, Hydroprogne caspia*) aerial diving for fish, and large rafts of western and California gull (*Larus occidentalis, L. californicus*).

The Lake Merced system supports a wide range of native and non-native fish species. Throughout its history Lake Merced has undergone changes in fish species composition due to changes in surrounding land use and vigorous management of its fisheries resources, including the establishment of a recreational fishery.[122] The fish assemblage in Lake Merced would not occur naturally and is only present here due to decades of intensive management for recreational fishing. A 2004 seining survey concluded that the Lake Merced fish assemblage is dominated by largemouth bass (*Micropterus salmoides*), Sacramento blackfish (*Orthodono microlepidotus*), and rainbow trout (*Oncorhynchus mykiss*), while tule perch (*Hysterocarpus traskii*), common

[119] San Francisco Field Ornithologists, *San Francisco Breeding Bird Atlas*, 2003.

[120] eBird: Lake Merced—Concrete Bridge area, https://ebird.org/hotspot/L791371?yr=all&m=&rank=hc&hs_sortBy=date&hs_o=desc, accessed May 6, 2020.

[121] Golden Gate Audubon Society, *Lake Merced: San Francisco's Birding Jewel.* February 27, 2020.

[122] EDAW, 2004. Lake Merced: Initiative to raise and maintain lake level and improve water quality. Task 4 technical memorandum, Prepared for the San Francisco Public Utilities Commission (SFPUC), September.

carp (*Cyprinous carpio*), and smaller native species such as prickly sculpin (*Cottus asper*) also are present.[123] Rainbow trout are native to California, but not to Lake Merced. The population is not self-sustaining and is maintained entirely through an extensive restocking program by the California Department of Fish and Wildlife for recreational fishing because the lake does not contain the range of habitat requirements to support the species' full life cycle.

The composition of the fish community within Lake Merced varies. EDAW (2004) summarized confirmed species observations from sporadic sampling efforts between 1939 and 1990 (**Table 15**). Of these, only seven were observed during a 2004 fish survey of Lake Merced.[124]

Table 15 Confirmed Fish Species Occurrences in Lake Merced

Common Name	Scientific Name	Native to California	Present in 2004
Rainbow trout	*Oncorhynchus mykiss*	x (stocked)	x
Kokanee	*Oncorhynchus nerka*	x	
Brook trout	*Salvelinus fontinalis*		
Brown trout	*Salmo trutta*		
Sacramento sucker	*Catostomus occidenotalis*	x	
Hitch	*Lavinoia exilicauda*	x	
Sacramento blackfish	*Orthodono microlepidotus*	x	x
Hardhead	*Mylopharodono conoocephalus*	x	
Tule perch	*Hysterocarpus traskii*	x	x
Prickly sculpin	*Cottus asper*	x	x
Threespine stickleback	*Gasterosteus aculeatus*	x	
Largemouth bass	*Micropterus salmoides*		x
Green sunfish	*Lepomis cyanoellus*		
Bluegill	*Lepomis macrochirus*		
Channel catfish	*Ictalurus punoctatus*		x
White catfish	*Ameiurus catus*		
Brown bullhead	*Ameiurus noebulosus*		
Black bullhead	*Ameiurus melas*		
Goldfish	*Carassius auratus*		
Common carp	*Cyprinous carpio*		x

SOURCE: EDAW, 2004; Maristics, Inc., 2007.

[123] Maristics, Inc., 2007. Lake Merced Fish Community Study. Prepared for The Lake Merced Task Force, San Francisco, CA and San Francisco Department of Recreation and Parks, San Francisco, CA.

[124] Maristics, Inc., 2007. Lake Merced Fish Community Study. Prepared for The Lake Merced Task Force, San Francisco, CA and San Francisco Department of Recreation and Parks, San Francisco, CA.

DEVELOPED

Existing buildings onsite and other built structures, such as fences, and paved or gravel portions of the project are considered "developed", including the trailer, construction equipment and materials staged within the gravel parking lot of the project site.[125] Some ruderal vegetation occurs adjacent to existing buildings and at the margins of the soil remediation project limits where larger stands of non-native and invasive species border the project site to the south, east, and west. This vegetation is generally comprised of non-native black mustard, field radish (*Raphanus sativus*), poison hemlock (*Conium maculatum*), and iceplant (*Carpobrotus edulis*) with some non-native grasses.

Developed and ruderal areas can provide cover, foraging, and nesting habitat, albeit somewhat limited compared to natural habitats, for a variety of birds, reptiles and small mammals, especially those that are tolerant of human presence. Birds observed in developed and ruderal portions of the project site include non-native house sparrow (*Passer domesticus*), rock pigeon (*Columba livia*), and European starling (*Sturnus vulgaris*), as well as some of the native bird species that utilize grassland habitat of the site. These avian species are common to highly developed urban areas and each could nest within or atop staged equipment and materials or on the roofs of buildings of the site. Other wildlife that are expected within the developed portions of the site include striped skunk (*Mephitis mephitis*) and raccoon (*Procyon lotor*), and non-natives such as Virginia opossum (*Didelphis virginiana*) and feral cat, especially because of the dense vegetative cover provided by coastal scrub and riparian communities of the site. Vacant buildings on the project site can serve as nesting sites for common urbanized birds such as barn owl (*Tyto alba*) and mourning dove (*Zenaida macroura*). Common bats, such as the Brazilian free-tailed bat (*Tadarida brasiliensis*), can adapt to living in urban areas near water and forage over Lake Merced waters, especially in the shallows near shore, and may roost in structures that provide adequate thermal regulation, such as onsite buildings or cavities within the few remaining mature trees.

WETLANDS AND OTHER WATERS

Wetlands provide important habitat for birds, fish, and other wildlife, and provide many ecosystem services. Because of their value and vulnerability, wetlands are protected by a series of special laws and regulations. Wetlands on the project site include the arroyo willow riparian scrub and freshwater marsh. The U.S. Army Corps of Engineers, Regional Water Quality Control Board, California Department of Fish and Wildlife, and California Coastal Commission protect and regulate wetlands and other waters that meet the respective agencies' criteria for defining wetland or water features. Three definitions of "wetland" are considered for purposes of this project, one administered by the Corps under the federal Clean Water Act (federal wetlands and other waters), one administered by the State Water Resources Control Board and San Francisco Bay Regional Water Quality Control Board under the Porter-Cologne Water Quality Control Act (state wetlands and other waters), and one administered by the California Coastal Commission under the California Coastal Act (wetlands and other waters in the Coastal Zone).

An aquatic resources delineation for the project was conducted in December 2019 to identify the presence and extent of potential federal and state wetlands and other waters within the delineation study area.[126] The 30-acre delineation study area consists of the 11-acre project site and a 200-foot buffer area around the

[125] Since the soil remediation project concluded, the SFPUC has utilized the gravel parking lot onsite for temporary field offices and staging local project equipment and materials.

[126] CRE, 2020b. *Lake Merced West Recreation Project Aquatic Resources Delineation.* Prepared for the San Francisco Public Utilities Commission, April 2020.

project site. **Table 16** summarizes delineated acreage of wetland vegetation alliances and other waters within the delineation study area. Figure 10 (above) depicts the regulated wetlands and other waters within the study area. Shoreline wetlands meeting both the three-parameter federal[127] and state[128] definitions as well as the one-parameter coastal commission wetland definition[129] are present within the delineation study area. The delineation identified Lake Merced as a traditional navigable water and therefore an "other water" of the United States under section 404 of the federal Clean Water Act and section 10 of the River and Harbors Act.[130] Lake Merced is also regulated as a water of the state under the Porter-Cologne Water Quality Control Act and subject to regulation under the California Coastal Act.

WILDLIFE MOVEMENT CORRIDORS

Wildlife movement corridors are considered an important ecological resource by the California Department of Fish and Wildlife and U.S. Fish and Wildlife Service. Movement corridors may provide favorable locations for wildlife to travel between different habitat areas such as foraging sites, breeding sites, cover areas, and preferred summer and winter range locations. They may also function as dispersal corridors allowing animals to move between various locations within their range. Project site conditions are generally consistent with surrounding upland and shoreline wetland and riparian habitat of South Lake that provide the same or similar habitat opportunity for local wildlife to occupy and move along the Lake Merced shoreline.

[127] Wetlands are a subset of waters of the United States and receive protection under Section 404 of the Clean Water Act. The term "waters of the United States," as defined in the Code of Federal Regulations under the Navigable Waters Protection Rule (33 CFR Part 328), includes: 1) Territorial seas and navigable waters; 2) perennial and intermittent tributaries that, in a typical year, contribute surface water flow to such [territorial seas and navigable] waters; 3) certain lakes, ponds, and impoundments of jurisdictional waters; and 4) wetlands adjacent (hydrologically connected in a typical year through surface water [includes connections resulting from normal flooding]) to other jurisdictional waters. Federal wetlands are defined in Title 33, Chapter II, Part 328.4 of the Code of Federal Regulations: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

[128] The State Water Resources Control Board adopted the following definition of state wetlands on April 2, 2019, which became effective May 28, 2020: "An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation." The Water Code defines "Water of the state" broadly to include "any surface water or groundwater, including saline waters, within the boundaries of the state." "Waters of the state" includes all "water of the U.S."

[129] Wetlands and other environmentally sensitive habitats in California's Coastal Zone are regulated by the California Coastal Commission under the California Coastal Act of 1976. The commission broadly defines wetlands under the Coastal Act (Cal. Pub. Res. Code §30121) as follows: "Wetland means lands within the coastal zone which may be covered periodically or permanently with shallow water and include saltwater marshes, freshwater marshes, open or closed brackish water marshes, swamps, mudflats, or fens." Whereas both the federal and state water board definitions require the presence of all three wetland identification parameters to be met (hydrophytic vegetation, hydric soils, and hydrology), the commission regulations (California Code of Regulations Title 14 (14 CCR)) establish a "one parameter definition" that only requires evidence of a single parameter to establish wetland conditions.

[130] The term "waters of the United States," as defined in the Code of Federal Regulations under the Navigable Waters Protection Rule (33 Code of Federal Regulations Part 328), includes: (1) territorial seas and navigable waters; (2) perennial and intermittent tributaries that, in a typical year, contribute surface water flow to such [territorial seas and navigable] waters; (3) certain lakes, ponds, and impoundments of jurisdictional waters; and (4) wetlands adjacent (hydrologically connected in a typical year through surface water [includes connections resulting from normal flooding]) to other jurisdictional waters.

Table 16 Aquatic Resources within the Delineation Study Area

Aquatic Resource Type	Federal and State Water Board Aquatic Resources		Coastal Commission Aquatic Resources	
	Area (ac)	Area (sq ft)	Area (ac)	Area (sq ft)
WETLANDS				
Swamp Knotweed	0.231	10,073.66	0.231	10,073.66
Soft Rush Marsh	0.059	2,554.55	0.059	2,554.55
California Bulrush Marsh	1.817	79,161.81	1.817	79,161.81
Arroyo Willow Thicket	1.283	55,900.30	2.823	122,983.20
Himalayan Blackberry	0.108	4,704.16	0.108	4,704.16
Total Wetlands	***3.498***	***152,394.47***	***5.039***	***219,483.19***
OTHER WATERS				
Lake Merced South Lake	5.490	239,139.40	5.490	239,139.40
Total Other Waters	**5.490**	**239,139.40**	**5.490**	**239,139.40**

NOTES:

[a] The 30-acre delineation study area consists of the 11-acre project site and a 200-foot buffer around the project site; therefore, the total aquatic resources within the project site would be less than acreage shown in table. Impacts to regulated aquatic resources within the project site would be determined when 65% project design is available.

[b] Due to regulatory changes surrounding wetlands under the authority of the State Water Resources Control Board and Regional Water Quality Control Boards which became effective after the delineation report was finalized, the results presented above have been adapted to reflect current regulations. Further, wetlands and waters of the study area jurisdictional to the California Coastal Commission have been added to the results summary table.

SOURCE: CRE, 2020b. Lake Merced West Recreation Project Aquatic Resources Delineation. Prepared for the San Francisco Public Utilities Commission, April 2020.

SPECIAL-STATUS AND OTHERWISE PROTECTED SPECIES

A review of databases and biological reports identified special-status plant and animal species with potential to occur in the biological resources study area, the project site and greater Lake Merced system. Appendix H, Biological Resources Assessment, Table 1 lists special-status plants and animals, their preferred habitats and plant blooming periods, and likelihood for occurrence at the project site. Conclusions regarding habitat suitability and species occurrence are based on the understanding of habitat conditions of the project site and greater Lake Merced system, proximity of database query occurrence records to the project site, and the analysis of existing literature and previous studies of the project site and surrounding vicinity. It was then determined whether there is a low, moderate, or high potential for species occurrence at the project site. Only species with a moderate or high potential for occurrence at the project site are discussed further in this section.

Species unlikely to occur within the project site due to lack of suitable habitat or range were eliminated from the discussion. Based on historical survey records and the lack of connectivity of Lake Merced to the Pacific Ocean, no special-status fish species are expected within the project site's aquatic habitat. Also eliminated from further discussion are special-status plant species due to the complete revegetation of the site in 2016 following soil remediation and low potential for rare plant species to have colonized suitable habitat in such a short period of time. The only special-status species with at least a moderate potential to occur onsite are western pond turtle and several special-status birds, discussed in detail below.

Special-Status Terrestrial Animals

Western pond turtle

Western pond turtle (*Actinemys marmorata*) is a California species of special concern. It inhabits rivers, streams, natural and artificial ponds, and lakes, using exposed banks, mats of vegetation, logs, or rocks to bask in the sun. Adjacent terrestrial habitat with loose sandy soils is also critical for egg laying, winter refuge, and dispersal. Two distinct habitats may be used for egg laying: 1) along large slow-moving streams, in which eggs are deposited in nests constructed in sandy banks and 2) along foothill streams, where females may climb hillsides, sometimes moving considerable distances to find a suitable nest site.[131] One Bay Area study documented female western pond turtles selecting egg laying sites within 100 yards of aquatic habitat and among tall grasses with sun exposure.[132]

This species has been documented in East Lake (2007)[133] and North Lake (2000)[134] and suitable aquatic habitat for western pond turtle is present within the entire Lake Merced system. The breeding status of Lake Merced turtle population, if still present, is unknown; however, abundant shoreline vegetation throughout the lake system, including adjacent to the project site, appears sufficient to support a viable local population.[135] This species was not observed during focused preconstruction surveys or biological monitoring conducted during the soil remediation project; however, due to the recorded presence of western pond turtles in East Lake and North Lake, interconnectedness of the Lake Merced system, and presence of suitable terrestrial habitat for this species, western pond turtle is considered to have a moderate potential to occur within the project site.

Special-status Birds

Bank swallow (*Riparia riparia*), a California threatened species, is known to nest in the sandy bluffs north of Fort Funston and to forage over the open waters of Lake Merced. This species has the potential to move through the project site while foraging over the restored grassland, shoreline wetlands, and open water of South Lake; however, all active nesting sites are farther than 0.5 mile from the project site in the bluffs above Ocean Beach, Fort Funston, and Phillip Burton Memorial Beach.[136,137] San Francisco (or saltmarsh) common yellowthroat (*Geolthlypis trichas sinuosa*), a California species of special concern, has repeatedly been observed within riparian habitat of the project site, most recently during field surveys to inform the project's biological resources assessment, and is known to nest in the riparian wetlands along the periphery of Lake Merced.[138,139] Yellow warbler (*Setophaga petechia*), also a California species of special concern, has been documented within shoreline vegetation.[140] Tricolored blackbirds (*Agelaius tricolor*), a California species of special concern,

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[131] Storer, T. I. 1930. Notes on the range and life-history of the Pacific fresh-water turtle, Clemmys marmorata. Univ. Calif. Publ. Zool. 32:429-441.

[132] Jones, Carolyn. 2013. Study dials up western pond turtle. SFGate. July 29, 2013. Available at: https://www.sfgate.com/science/article/Study-dials-up-western-pond-turtles-4694326.php

[133] San Francisco Public Utilities Commission (SFPUC), 2011. Lake Merced Watershed Report, January.

[134] CDFW, 2021. California Natural Diversity Database Rarefind 5. Biogeographic Data Branch, Sacramento. Data dated Janaury, 2021.

[135] SFRPD, 2006. Significant Natural Resource Areas – Final Draft. February.

[136] National Park Service, 2019. Bank Swallow Monitoring at Fort Funston, GGNRA, 2019 NPS Report.

[137] National Park Service, 2020. 2020 Bank Swallow Summary Report.

[138] Coast Ridge Ecology, 2020a. *Biological Resources Assessment for the Lake Merced West Recreation Project Site.* Prepared for the San Francisco Planning Department, April 2020.

[139] California Department of Fish and Wildlife (CDFW), California Natural Diversity Database (CNDDB) Rarefind version 5 query of the San Francisco North and San Francisco South USGS 7.5-minute topographic quadrangles, Commercial Version, March 29, 2021.

[140] Ibid.

occasionally intermix with flocks of red-winged blackbird which visit freshwater marsh vegetation of Lake Merced throughout the year; although breeding is not documented at Lake Merced.[141] White-tailed kite (*Elanus leucurus*), a species considered fully protected by the California Department of Fish and Wildlife, may hunt or nest within the project site. Cooper's hawk (*Accipiter cooperi*), a department watch list species, may use the project site's dense riparian scrub for foraging or nesting. Northern harrier (*Circus hudsonius*) may also forage over the site but would not be expected to nest. These special-status birds are all considered to have at least a moderate potential to occur within the project site.

Resident and Migratory Birds

Several resident and migratory birds that do not have special federal or state species status could nest within or nearby the project site in trees, shrubs, and on remaining buildings and other structures. Several raptors known to nest in San Francisco could also occupy the site during breeding season, and establish nests within remaining mature eucalyptus and Monterey cypress trees or in cavities of these trees or remaining buildings. These species may include red-tailed hawk (*Buteo jamaicensis*), red-shouldered hawk (*Buteo lineatus*), American kestrel (*Falco sparverius*), and great horned owl (*Bubo virginianus*).[142] Additional native birds which would be expected to nest in the project vicinity include marsh wren, black phoebe, pygmy nuthatch (*Sitta pygmaea*), Anna's hummingbird (*Calypte anna*), and white-crowned sparrow.[143] The Migratory Bird Treaty Act and California Fish and Game Code protect raptors, most native migratory birds, and breeding birds that would occur at the project site or nest in the larger biological resources study area.

CRITICAL HABITAT

The project site is not located within designated critical habitat for any listed species.[144]

ENVIRONMENTALLY SENSITIVE HABITAT AREAS

California Coastal Act section 30107.5 defines an environmentally sensitive habitat area (ESHA) as "any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments." For a resource to be determined an ESHA, it must retain three qualities: (1) the area contains rare species or habitat, which may include globally rare but locally abundant resources that have experienced historical decline; (2) the species or habitat is especially valuable, such as being unusually pristine, supporting species at the edge of their range, or otherwise special nature; and (3) the species or habitat in question is vulnerable to human disturbance or degradation.

The California Coastal Commission retains authority to designate ESHA in jurisdictions where it has not certified a Local Coastal Program (LCP) and/or implementing maps and policies. Local jurisdictions have primary authority to designate ESHA within their boundaries through their LCPs. The coastal commission is generally restricted in its ability to designate ESHA other than those set forth in an LCP adopted by the relevant jurisdiction. The project would be subject to the city's certified LCP, the Western Shoreline Area Plan. This document does not identify specific ESHA within the plan area, but rather makes reference to ESHA that

[141] eBird: Lake Merced—Concrete Bridge area, https://ebird.org/hotspot/L791371?yr=all&m=&rank=hc&hs_sortBy=date&hs_o=desc, Accessed May 6, 2020.

[142] San Francisco Field Ornithologists, *San Francisco Breeding Bird Atlas - Draft*, last revised June, 2003.

[143] Ibid.

[144] USFWS Critical Habitat for Threatened and Endangered Species portal, https://fws.maps.arcgis.com/home/webmap/viewer.html?webmap=9d8de5e265ad4fe09893cf75b8dbfb77, Accessed August 5, 2021.

may be associated with bluffs, dunes, beaches, and intertidal areas. Because the coastal commission retains jurisdiction over Lake Merced, it would ultimately determine whether ESHA are present in the portion of the project area under its retained jurisdiction.

The freshwater marsh wetlands and arroyo willow riparian scrub of the project site have previously been determined ESHA by the coastal commission because these shoreline communities adjacent to Lake Merced provide unique habitat in the region for special-status species (western pond turtle and several special-status birds) that is easily disturbed or degraded by human activities or development.[145] For these reasons, the freshwater marsh wetlands and arroyo willow riparian scrub of the project site are considered potential ESHA for the purposes of the CEQA analysis. The final determination of whether these resources are ESHA will be made by the city's planning commission or the coastal commission through consideration of the coastal development permit required for the project and may differ from the conclusion presented here.

DISCUSSION

Impact BI-1: Construction and operation of the project could have a substantial adverse effect on the special-status species western pond turtle. (*Less than Significant with Mitigation*)

The project site could support the western pond turtle's full lifecycle because of the presence of open water aquatic habitat, shoreline wetland vegetation, loose, sandy soils for egg laying, and upland grassland habitat for dispersal. This species is known to occur in the greater, interconnected Lake Merced system, specifically within East Lake and North Lake.[146] Although western pond turtle has not yet been documented adjacent to the project site, including during the focused surveys and monitoring performed onsite during the 18-month soil remediation project, site conditions meet this species' ecological requirements and it is therefore presumed present.

Construction

Vegetation clearing, grubbing, and grading within the disturbance footprint would remove existing grasslands throughout the site and some riparian and wetland habitat for the dock and soft landing project components. Willow trimming may be required to support construction of the boathouse and installation of the cantilevered viewing deck but extensive clearing and grubbing or grading within riparian or wetland habitat is not associated with these project components (see Figure 10, above). Contaminated soil removal at the soft landing would remove wetland vegetation and require in-water work, disturbing aquatic habitat for the turtle. These construction activities could result in harassment or direct mortality of western pond turtles which would be a significant impact. Implementation of **Mitigation Measure M-BI-1a, Worker Environmental Awareness Program Training**, and **Mitigation Measure M-BI-1b, Avoidance and Minimization Measures for Western Pond Turtle** would reduce potential impacts on this species to a *less-than-significant* level by educating workers on this species and its presence in the project vicinity, requiring the limited placement of exclusion fencing within the project site, conducting preconstruction surveys, and requiring additional protection measures during construction should this species be observed onsite. The resulting impact on western pond turtle following implementation of mitigation measures described below would be ***less than significant with mitigation***.

[145] California Coastal Commission, Staff Report, Application Number 2-14-1612, December 19, 2014.

[146] CDFW, 2021. California Natural Diversity Database Rarefind 5. Biogeographic Data Branch, Sacramento. Data dated Janaury, 2021.

Mitigation Measure M-BI-1a: Worker Environmental Awareness Program Training.

A project-specific Worker Environmental Awareness Program (WEAP) training shall be developed and implemented by a qualified biologist for the project and attended by all construction personnel prior to beginning work onsite. The training could consist of a recorded presentation that could be reused for new personnel. The WEAP training shall generally include but not be limited to the following:

- Applicable State and federal laws, environmental regulations, project permit conditions, and penalties for non-compliance;
- Special-status animal species with potential to occur on or in the vicinity of the project site, avoidance measures, and a protocol for encountering such species including a communication chain;
- Preconstruction surveys and biological monitoring requirements associated with each phase of work;
- Known sensitive resource areas in the project vicinity which are to be avoided and/or protected (e.g. wetlands) as well as approved project work areas; and
- Best Management Practices and their location on the project site for erosion control and/or species exclusion.

Mitigation Measure M-BI-1b: Avoidance and Minimization Measures for Western Pond Turtle.

During construction, RPD and SFPUC shall ensure a biological monitor is present during installation of exclusion fencing, during initial vegetation clearing and ground disturbance within grassland, riparian, and wetland habitats, and during all in-water construction. Also, the following measures shall be implemented:

- Within one week before construction commences, a qualified biologist shall supervise the installation of exclusion fencing along limits of vegetation removal and grading within riparian and wetland habitat as the biologist deems necessary to prevent western pond turtles from entering the work areas. Exclusion fencing may be installed with wings at the edges of locations where vegetation removal would occur within riparian and wetland vegetation to redirect species away from the work areas and back into suitable habitat that would not be disturbed by the project. This would avoid installation of fencing along the entire north (lakeside) boundary of the site if disturbance to riparian and wetland vegetation is localized to the dock and soft landing project components on the east end of the site. The construction contractor shall install CDFW-approved species exclusion fencing, with a minimum height of 3 feet above ground surface and with an additional 4–6 inches of fence material buried such that species cannot burrow under the fence. Fencing can be multipurpose silt fencing (see Mitigation Measure M-BI-3a, Restoration of Arroyo Willow Riparian Scrub and Freshwater Marsh Wetlands, below) and exclusion fencing.
- Any erosion and sediment control materials used onsite shall be free of plastic monofilament material that could cause animal entanglement.
- A qualified biologist shall survey the project area within 48 hours before the start of initial ground-disturbing activities and shall be present during initial vegetation clearing and ground-disturbing activities in grassland, wetland and riparian habitat within 100 yards of the shoreline.

The extent of disturbance within aquatic, wetland, and riparian habitat areas to accommodate construction of in-water project components shall be minimized. A qualified biologist shall be present during installation of the coffer dam around the soft landing soil remediation area and during dewatering activities.

- If western pond turtles are found during construction, construction activity that poses a threat to the individual shall be halted in the vicinity as determined by the qualified biologist. If possible, the individual shall be allowed to move out of the work area of its own volition (e.g., if it is near the exclusion fence that can be temporarily removed to let it pass). The qualified biologist shall relocate turtles to the nearest suitable habitat should they not leave the work area of their own accord. Construction shall resume after the individual is out of harm's way. If western pond turtles occur repeatedly onsite after the exclusion fencing has been installed, a qualified biologist shall initiate preconstruction sweeps of the project site for this species prior to start of construction on a daily basis and thereafter throughout the duration of the project.
- Excavations deeper than 6 inches shall have a sloping escape ramp of earth or a wooden plank installed at a 3:1 rise.
- Openings, such as pipes, where western pond turtles might seek refuge shall be covered when not in use.
- All trash that may attract predators or hide western pond turtles shall be properly contained each day, removed from the worksite, and disposed of regularly.

Following site construction, the contractor shall remove all trash and construction debris from the work areas.

Significance after Mitigation: Less than Significant

Operation

Proposed recreational use of the project site would not result in substantial adverse effects on western pond turtle. The location of most project amenities, including the pathway system, are sited in uplands which allows the site's wetland and aquatic habitat to continue to provide unobstructed foraging, basking, and egg laying opportunity for this species. As arroyo willow riparian habitat continues to mature, dense and woody vegetation would provide a natural buffer between public use areas and wetland and aquatic habitat. Facilitated project activities along the shoreline and within aquatic habitat for this species are concentrated at the boat dock and soft landing. Public use of these facilities may cause western pond turtle to avoid this location; however, ample wetland and aquatic habitat available for use along the rest of the project shoreline and similar proximate habitat would result in a ***less than significant*** impact on western pond turtle from project operations.

Impact BI-2: Construction and operation of the project would not have a substantial adverse effect on special-status birds. (*Less than Significant*)

Several special-status birds are known to forage or nest in suitable habitat of the project site and vicinity. Potential impacts from the project on these species are discussed below. Other resident and migratory birds without special status and the potential impact of the project on their nests and movement are discussed under Impact BI-5.

Construction

The project site's current lack of activity, its proximity to Lake Merced waters, and thriving diverse native habitats result in an attractive environment for birds to forage, hunt, seek shelter or nest, more so than other San Francisco locations that have higher levels of human activity and presence. Bank swallow, San Francisco common yellowthroat, yellow warbler, tricolored blackbird, white-tailed kite, Cooper's hawk and Northern harrier are the special-status birds expected to use the vegetation communities of the project site for shelter, foraging and hunting. San Francisco common yellowthroat, yellow warbler, and Cooper's hawk may also use the project site's freshwater marsh and arroyo willow riparian scrub habitats for breeding, nesting, and rearing young. During the nesting season (February 1–August 30), construction activities necessary for site development, especially those that involve physical disturbance to habitat, such as vegetation removal, tree removal and ground disturbance, and the use of heavy machinery, may adversely affect use of the site by special-status birds and disrupt nesting efforts within 250 feet of the project site. Removal of mixed coastal scrub and woodland, arroyo willow riparian scrub and freshwater marsh wetland vegetation, disturbance to perennial grassland from site clearing, grubbing, and grading, and demolition of existing buildings and structures onsite could discourage foraging and roosting (resting) behavior within the project site and destroy active nests, if present. Portions of the site where existing habitat would not be developed (e.g., any existing landscaped trees and shrubs or riparian habitat that would be retained throughout site development) would continue to provide quality foraging and nesting opportunity for these birds throughout project construction and operation.

Birds currently occupying onsite habitats are accustomed to varying levels of ambient noise emanating from nearby human activities, such as the police firing range to the west and traffic along John Muir Drive to the south. However, construction activities and an increased human presence at the project site would generate additional noise and visual disturbances that could adversely affect bird foraging, roosting, breeding and nesting behaviors onsite and nearby. Both long- and short-term loud noises can affect bird foraging and roosting by temporarily disturbing these behaviors and may deter bird use of an area (including for nesting) if such noises persist over the long term. Construction activities that would substantially alter the noise environment could disrupt birds foraging or roosting, attempting to nest, or could displace mated pairs. The activities anticipated to produce the greatest noise variance from baseline conditions include building demolition and site grading. Effects of visual or noise disturbance on birds vary, but typically birds will avoid disturbance areas and move to more preferable environments that provide similar habitat characteristics. This behavior would be expected for the special-status bird species with potential to be present at the project site during construction. Such temporary alteration of behavior would not be substantially adverse, especially considering the abundant similar shoreline vegetation available for these special-status birds in the greater Lake Merced system.

Once the level of both noise and visual disturbance on the site increases, disturbance-sensitive birds are less likely to be attracted to portions of the site where such disturbance is concentrated, and thus the potential for construction-related impacts on birds and their nests would decrease as construction progresses through planned phases and suitable habitat onsite for foraging and nesting is reduced. The greatest potential for impacts to bird behavior and nesting efforts would occur during Phase 1 (building demolition, tree removal, vegetation trimming and removal, and clearing and grubbing), after which suitable habitat onsite would be limited to the retained vegetation around the perimeter of the site. These areas may be less attractive to birds during construction depending on the proximity to and type of construction activity (e.g., new building construction).

The loss or disruption of an active nest occupied by a special-status bird attributable to project construction activities would be considered a significant impact and could constitute unauthorized take. Nest abandonment and mortality to eggs and chicks would also be considered significant impacts. The loss of an active special-status bird nest by, for example, removing a tree or shrub containing an active nest or causing visual or auditory disturbance that leads to nest abandonment is also prohibited under federal and state law.

The project would comply with all local, state, and federal requirements for protection of nesting and migratory birds. Through implementation of RPD's standard construction measure 3, Biological Resources, and the SFPUC's standard construction measure 7, Biological Resources (refer to Appendix C), the project would avoid potential impacts on special-status nesting birds. A qualified biologist would conduct surveys of the project site for active nests during nesting season and would establish protective measures around active nests, such as restricting certain construction activities in buffer zones during the time of year when and where birds are breeding and nesting. Buffers would be determined by considering the bird species, whether the nest has a visual line of sight from work activities, and the types of work activities in process. A qualified biologist would monitor the active nest to confirm the buffer is sufficient to avoid impacts and would increase or decrease the buffer as necessary. The buffer would be maintained until the birds fledge. Based on the urbanized setting surrounding the project area, the need for expansive buffer distances is not anticipated. The impact would therefore be ***less than significant***.

Operation

Following project construction, the project area would provide similar, suitable habitat and nesting opportunities for local special-status birds. San Francisco yellowthroat, yellow warbler, Cooper's hawk, and tricolored blackbird would be expected to continue to occupy the retained arroyo willow riparian scrub habitat and freshwater marsh wetlands along the shoreline. Bank swallow would be expected to continue to forage over retained or restored portions of perennial grassland north of the pathway system and over the open water of Lake Merced. White-tailed kite and northern harrier may have reduced opportunity to use the project site once developed but would be expected to continue hunt small mammals in retained or restored portions of the perennial grassland at dawn and dusk when recreational users are less abundant.

Noise and visual disturbances generated during daytime and evening operating hours are not expected to substantially disrupt special-status bird use of the site or impact active nests as public activities are concentrated in the center of the site which avoids or minimizes public presence in the higher quality habitat areas to which these birds would be attracted. This includes potential adverse effects associated with potential dog use of the site during operation. Consistent with the RPD's Final Dog Policy, the project site would be evaluated to determine the exact boundaries of sensitive habitat areas in which dog use would be prohibited.[147] Because of the policy's restrictions of dog use within sensitive habitat areas, impacts on special-status birds use of these areas during project operation would be less than significant.

Public proximity to suitable nesting habitat during operation would not be different than other areas of the lake and the project would not substantially alter the ambient noise environment (refer to Topic E.4, Noise and Vibration). Occasional nighttime use of project facilities with amplified noise (up to twelve times per year and in compliance with San Francisco Police Department regulations and RPD permit requirements generally limiting duration to five hours) is also not expected to result in substantial adverse effects on special-status

[147] San Francisco Recreation and Park Department, 2002. Final Dog Policy. May 8. Available at: https://sfrecpark.org/DocumentCenter/View/14206/SFRPD-Dog-Polic

bird use of the site or on active nests because of the location of the restaurant and deck in the center of the site, away from high quality habitat.

Potential impacts on special-status birds resulting from project operations would therefore be ***less than significant***.

Impact BI-3: The project would have a substantial adverse effect on California Department of Fish and Wildlife-designated sensitive natural communities, riparian habitat or jurisdictional wetlands or waters. (*Less than Significant with Mitigation*)

A sensitive natural community is a biological community that is regionally rare, provides important habitat opportunities for wildlife, is structurally complex, or is in other ways of special concern to local, state, or federal agencies. The California Department of Fish and Wildlife California Natural Diversity Database reports no sensitive natural community occurrences within the project site. In addition, no sensitive natural communities were identified on the project site during the focused Biological Resources Assessment[148] and Aquatic Resources Delineation[149] field surveys (refer to Appendix H). The project would have no impact on sensitive natural communities.

Construction

The project includes components along the shoreline to facilitate recreational access and viewing opportunities of Lake Merced, including the boathouse, boat dock and soft landing and the cantilevered viewing deck. Construction of these components would require removal of arroyo willow riparian scrub and freshwater marsh vegetation and necessary remediation of contaminated soil or sediment from the boat dock and soft landing component footprints. Within the project limits of work at the boat dock and soft landing, 0.22 acre of arroyo willow riparian scrub and 0.34 acre of freshwater marsh wetlands are present. The boat dock would be a permanent floating structure within the open waters of the lake connected to the shore by a suspended gangway. The soft landing would require permanent removal of existing vegetation to allow boater access to the water. Because minor trimming of willows could be needed to accommodate construction of the cantilevered viewing deck and boathouse rather than temporary or permanent removal of arroyo willow riparian scrub habitat (and no impacts to freshwater marsh wetlands), impacts to jurisdictional wetlands from these components is not discussed further.

Section 404 of the federal Clean Water Act prohibits dredging or filling wetlands unless it can be demonstrated that such a discharge will not degrade the chemical, physical, and biological integrity of federal waters. The open waters of Lake Merced and associated wetlands are regulated under Section 404 of the Clean Water Act as waters of the U.S., and navigable waters are regulated under Section 10 of the Rivers and Harbors Act, administered by the U.S. Army Corps of Engineers. California's Porter-Cologne Act establishes a comprehensive program to protect water quality in the state, and applies to surface waters, wetlands, and ground water. Wetlands and other waters of the state (including riparian habitat of the project site) are regulated by the Regional Water Quality Control Board (regional board) under Section 401 of the Clean Water Act and the Porter-Cologne Water Pollution Control Act, and by the City and County and of San Francisco and the California Coastal Commission under the California Coastal Act. California's "no net loss" policy for wetlands also

[148] CRE, 2020a. *Biological Resources Assessment for the Lake Merced West Recreation Project Site.* Prepared for the San Francisco Planning Department, April 2020.

[149] CRE, 2020b. *Lake Merced West Recreation Project Aquatic Resources Delineation.* Prepared for the San Francisco Public Utilities Commission, April 2020.

requires that dredge or fill activities be conducted in a manner to ensure no overall net loss and long-term net gain in the quantity, quality, and permanence of wetlands acreage and values in the state.[150] Both the arroyo willow riparian scrub habitat and freshwater marsh wetland qualify as wetlands under the Coastal Act and may also be determined environmentally sensitive habitat areas.[151]

To comply with these laws, regulations, and policies, project activities resulting in the discharge of fill or other disturbance of jurisdictional wetlands and other waters require permit approval from the U.S. Army Corps of Engineers, a water quality certification and/or waste discharge requirements from the regional board, and/or a coastal development permit from the California Coastal Commission. Project impacts on wetlands and waters within the lake would occur within those areas subject to the Western Shoreline Area Plan (the city's Local Coastal Program), and in areas where the coastal commission has retained jurisdiction. Finally, the California Department of Fish and Wildlife has jurisdiction over riparian habitat, including lake and stream bed and banks, pursuant to Sections 1600-1616 of Fish and Game Code. Any project activity resulting in an alteration to lake or channel bed or banks, extending to the outer dripline of trees forming the riparian corridor, is subject to their jurisdiction; therefore, construction of the boathouse, dock and soft landing, pathway system, and cantilevered viewing deck would also require a Lake and Streambed Alteration Agreement from the department.

While complete clearing and grubbing of existing vegetation to accommodate construction of the boat dock and soft landing may not be necessary, this analysis conservatively assumes construction would include ground disturbance along the northern site boundary which would impact areas delineated with arroyo willow riparian scrub, swap knotweed, and California bulrush wetland vegetation, or open water. At a minimum, permanent placement of fill within other waters, wetlands and/or riparian areas would occur within the project component footprints of the boat dock and soft landing. A greater temporary disturbance area beyond the project component footprints is expected at locations requiring removal of contaminated sediment. Temporary disturbance and permanent fill of jurisdictional wetlands and waters would be a significant impact.

Implementation of **Mitigation Measure M-BI-3a, Restoration of Arroyo Willow Riparian Scrub and Freshwater Marsh Wetlands**, and **Mitigation Measure M-BI-3b, Compensation for Permanent Fill of Wetlands and Waters**, which require restoration of temporarily impacted areas and compensation for permanent impacts to the site's jurisdictional aquatic resources to ensure no-net loss of wetlands through onsite or off-site creation, restoration or enhancement, or payment to a mitigation bank for in-kind habitat credits, would reduce the project's temporary and permanent impacts to riparian habitat and jurisdictional wetlands and other waters to less-than-significant levels. In addition, as described in Chapter 2, Project Description, Section 2.H, Project Approvals, and summarized above, to comply with relevant laws, regulations, and policies, RPD and/or its concessionaire would be required to obtain permits and authorizations from the federal and state agencies with jurisdiction over Lake Merced and its associated wetlands and riparian habitat prior to project disturbance of regulated areas. Conditions of these permits

[150] California Governor's Executive Order W-59-93.

[151] California Coastal Act section 30107.5 defines an environmentally sensitive habitat area as "any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments." For a resource to be determined an environmentally sensitive habitat area, it must retain three qualities: (1) the area contains rare species or habitat, which may include globally rare but locally abundant resources that have experienced historical decline; (2) the species or habitat is especially valuable, such as being unusually pristine, supporting species at the edge of their range, or otherwise special nature; and (3) the species or habitat in question is vulnerable to human disturbance or degradation.

and authorizations would include requirements for restoration to pre-project conditions for jurisdictional wetlands and riparian habitat temporarily impacted during construction, and compensatory mitigation for the permanent placement of fill material within federal and state jurisdictional wetlands and waters. Compensatory mitigation obligations from permanent project fill could be satisfied through on-site or off-site creation, restoration, or enhancement of waters, wetlands and/or riparian habitat, or payment into an approved mitigation bank for in-kind habitat credits, or other compensatory actions that avoid a net loss in these aquatic resources and as determined by regulatory agencies. Refer to Topic E.17, Hydrology and Water Quality, for discussion of project construction impacts on water quality.

As discussed in Topic E.17, Hydrology and Water Quality, the project would implement RPD's standard construction measure 2, Water Quality, and SFPUC's standard construction measure 3, Water Quality, to avoid or minimize potential impacts to water quality during construction. Temporary impacts on jurisdictional wetlands and other waters of Lake Merced during project construction, particularly during remediation of contaminated soil upland and sediment along the shoreline, could result in impacts on water quality from accidental release of deleterious material and sedimentation which would be significant. Federal and state laws and regulations require that discharges of potential pollutants to jurisdictional waters of the United States or state must comply with water quality standards (refer to Topic E.17, Hydrology and Water Quality). The city would be required by federal and state law to protect water quality, and would implement project-specific construction measures specified in the soil management plan (for contaminated upland soils), sediment sampling and management plan (for contaminated sediments), or in a stormwater pollution prevention plan prepared for the project consistent with state and federal regulations and enforced by the State Water Resources Control Board and the Regional Water Quality Control Board. Measures could include installing a coffer dam around the in-water work area to localize turbidity and avoid dispersal of contaminated sediment; pumping water from the coffer dam into a settling tank before returning it to the lake; and conducting any refueling or maintenance activities in a dedicated, controlled and contained upland area with drainage and spill control features. Implementation of best management practices to comply with the federal and state laws and regulations discussed above, and implementation of RPD's standard construction measure 2, Water Quality, and the SFPUC's standard construction measure 3, Water Quality (refer to Topic E.17, Hydrology and Water Quality), would ensure that potential impacts on riparian habitat or jurisdictional wetlands or waters during project construction would be ***less than significant*** by isolating the project activities to the project footprint with the installation of stormwater BMPs, thereby protecting the remaining riparian and wetland habitat and jurisdictional waters which surround the project site during construction activities.

Mitigation Measure M-BI-3a: Restoration of Arroyo Willow Riparian Scrub and Freshwater Marsh Wetlands.

Arroyo willow riparian scrub habitat and freshwater marsh wetlands temporarily affected during construction to facilitate project components or sediment remediation shall be restored in-place to pre-project conditions. A Riparian and Wetland Restoration and Mitigation Monitoring Plan shall be prepared for the affected areas, subject to approval by the appropriate regulatory agencies, and shall generally include, but not be limited to, the following:

- A final grading plan for the affected riparian scrub habitat and wetlands which would restore the topography of the affected habitat areas to pre-project conditions;
- A planting plan, composed of native riparian scrub and freshwater marsh wetland plant species, consistent with these communities of Lake Merced;

- A weed control plan that prevents the spread of invasive non-native plant species on the project site;
- Performance criteria for the revegetated areas that establish success thresholds over a specific amount of time (typically five years) as determined by the regulatory agencies with jurisdiction over the affected areas;
- A monitoring and reporting program under which progress of the revegetated areas shall be tracked to ensure survival of the mitigation plantings. The program shall document overall health and vigor of mitigation plantings throughout the monitoring period and provide recommendations for adaptive management as needed to ensure the site is successful, according to the established performance criteria. An annual report documenting monitoring results and providing recommendations for improvement throughout the year shall be provided to the regulatory agencies; and
- A best management practices element describing erosion control measures to be installed around the affected areas following mitigation planting in order to avoid sediment runoff into the adjacent waters of Lake Merced.

Mitigation Measure M-BI-3b: Compensation for Permanent Fill of Wetlands and Waters.

The project sponsor shall provide compensatory mitigation for placement of fill associated with installation of new structures in jurisdictional wetlands, waters and riparian habitat of Lake Merced as further determined by the regulatory agencies with authority over Lake Merced during the permitting process. Compensatory mitigation shall achieve at least at a 1:1 ratio of acreage impacted to acreage created/restored/enhanced to ensure no-net-loss of wetlands, waters, and riparian habitat.

Compensatory mitigation obligations from permanent project fill could be satisfied through on-site or off-site creation, restoration, or enhancement of waters, wetlands and/or riparian habitat, or payment into an approved mitigation bank for in-kind habitat credits, or other compensatory actions that avoid a net loss in these aquatic resources and as determined by regulatory agencies.

Significance after Mitigation: Less than Significant

Operation

Project operation would facilitate recreational (non-motorized) watercraft use of Lake Merced from the site, consistent with other facilities around the lake. Long-term maintenance of the soft landing or floating dock may require occasional vegetation removal but would not require routine sediment disturbance or use of equipment in jurisdictional waters. User vehicles, RPD and city arborist vehicles and equipment accessing the site would not result in significant adverse effects on lake water quality. As explained in Topic E.17, Hydrology and Water Quality, the project would incorporate stormwater control measures and conduct maintenance of these measures to protect water quality of the lake in compliance with the San Francisco Stormwater Management Ordinance. Stormwater control measures would include an operation and maintenance plan and the identification of stormwater runoff treatment best management practices (BMPs) to reduce pollutant loads in stormwater runoff via infiltration, detention, bioretention, or biofiltration. Anticipated increase in boats on the lake and general site use would not result in significant adverse effects on water quality through litter. Project compliance with article 6 of the San Francisco Health Code, Garbage and Refuse, and the Trash Amendment of the Water Quality Control Plan for Inland Surface Waters, Enclosed

Bays, and Estuaries of California would require that specific measures to capture and contain site and user litter are implemented during operation to reduce the potential for water quality impacts (see Topic E.17, Hydrology and Water Quality). Therefore, project operational impacts on jurisdictional wetlands and waters would be ***less than significant***.

Impact BI-4: Construction and operation of the project would not interfere substantially with the movement of any native resident or migratory wildlife species or established migratory corridors. (*Less than Significant*)

Project construction and operation would not interfere with the movement of native or migratory fish. Increased (non-motorized) recreational boating during project operation would not substantially disrupt waterfowl movement or use of the lake. Because recreational boating is already a permitted use of the lake, additional boats would not create a new impact on waterfowl. These birds which raft within Lake Merced and wade along the shoreline are accustomed to small boat traffic and minor increases are not expected to significantly alter waterfowl behavior or use of the lake. Recreational boaters would not be permitted to enter sensitive habitat areas of shoreline vegetation where nesting waterfowl might be present which would limit adverse effects from increased vessel traffic to rafting waterfowl. Therefore, the operational impact from increased recreational boater traffic on waterfowl movement would be ***less than significant***.

Terrestrial animals likely use the site's riparian and wetland vegetation for cover while to moving along the perimeter of the lake. Temporary exclusion fencing and erosion control measures may alter wildlife movement within and through the site during construction. Because the only permanent disturbance to existing wetland and riparian vegetation under the project is located at the boat dock and soft landing, use of these habitat areas for wildlife movement would not be substantially altered under the project over the long term. Because the project would not result in any permanent barriers to wildlife movement, the project impact would be ***less than significant***.

The San Francisco Peninsula is located along the Pacific Flyway, a main north-south travel corridor for migrating birds extending from Alaska to Patagonia. Birds frequently pause in desirable stopover habitats during migration to forage and rest within San Francisco's natural areas, including Lake Merced aquatic and shoreline habitats. New sources of artificial night lighting on the project site during construction or operations is not expected to significantly disrupt bird migration along the Pacific Flyway. As discussed in Chapter 2, Project Description, during construction no night work or artificial nighttime illumination is proposed. The project would introduce new sources of artificial lighting to the site for public safety during the evening and nighttime hours of operation in parking areas, main pedestrian walkways, and around buildings. No recreational lighting would be provided. Lighting on site would be consistent with the city's Standards for Bird-Safe Buildings (San Francisco Planning Code section 139), which require minimal lighting, shields on lighting, and prohibit uplighting or event searchlights. As discussed in Topic E.2, Aesthetics, because of the existing street lighting along John Muir Drive, the additional safety lighting proposed onsite, shielded and directed downward, would not substantially increase the overall lighted environment. Therefore, the project impact on avian migration related to artificial nighttime illumination would be ***less than significant***.

Impact BI-5: Construction and operation of the project would not have a substantial adverse effect on nesting bird wildlife nursery sites or result in an increase in bird collisions with project features. (*Less than Significant*)

Construction

Construction activities would produce noise and visual disturbance that could adversely affect common nesting bird species within 250 feet of the project site during the nesting season (February 1 – August 30). As discussed under Impact BI-2, the same construction-related activities generating noise above ambient conditions that could disrupt nesting special-status birds (San Francisco yellowthroat, yellow warbler, and Cooper's hawk) could also affect other passerine (perching) and raptor species nesting in perennial grassland, coastal scrub and woodland, and riparian and wetland habitats of the project site or nesting on or within existing structures. These activities would primarily include physical disturbance to habitat, such as vegetation removal, tree removal and ground disturbance, and demolition of existing buildings and structures, which would produce noise from construction equipment supporting these activities. An increase in human presence and large equipment on the project site above baseline levels (e.g., traffic along John Muir Drive and the police firing range) may also cause visual disturbance and adversely affect nesting efforts and active nests if present on the project site where work is occurring.

Construction activities that would substantially alter the noise environment could disrupt birds attempting to nest, disrupt parental foraging activity, or displace mated pairs with territories in the project vicinity. Direct impacts on birds or their nests could result from vegetation removal, tree removal, clearing, grubbing, and grading, and demolition of existing buildings and structures. The loss or disruption of an active nest occupied by a bird species protected by the federal Migratory Bird Treaty Act or California Fish and Game Code would be considered a significant impact. Nest abandonment and mortality to eggs and chicks would also be considered significant impacts. Thus, the loss of any active nest by, for example, removing a tree or shrub containing an active nest or causing visual or noise disturbance that leads to nest abandonment is prohibited under federal and state law.

The project would avoid potential impacts on common nesting birds through implementation of SFPUC's standard construction measure 7, Biological Resources, and RPD's standard construction measure 3, Biological Resources, and through compliance with all local, state, and federal requirements for protection of nesting and migratory birds. A qualified biologist would conduct surveys of the project site for active nests during nesting season and would establish protective measures around active nests, such as restricting certain construction activities in buffer zones during the time of year when and where birds are breeding and nesting. Buffers would be determined by considering the bird species, whether the nest has a visual line of sight from work activities, and the types of work activities. A qualified biologist would monitor the active nest to confirm the buffer is sufficient to avoid impacts and would increase or decrease the buffer as necessary. The buffer would be maintained until the birds fledge. Based on the urbanized setting surrounding the project area, the need for expansive buffer distances is not anticipated. The impact would be ***less than significant***.

Operation

Nesting Birds

Retained or restored vegetation communities of the project site would provide similar suitable habitat and nesting opportunity for other non-special-status birds during project operation as currently exist. As discussed under Impact BI-2, noise and visual disturbances associated with daytime use of the project site

would be concentrated in the developed center, away from high quality habitat that would attract birds to nest. Similarly, occasional nighttime use of the developed center of the site with amplified music would be limited in duration and is not expected to result in substantial adverse effects on birds or their nests due to the distance between project facilities and high quality habitat areas where nests would be concentrated. Potential impacts on nesting birds due to project operations would therefore be ***less than significant***.

Aerial Avian Collisions

The project proposes several small one-story buildings (see Chapter 2, Project Description, and Figure 2-3). The project site and greater Lake Merced system are designated as *urban bird refuges* in San Francisco.[152] Any building within 300-feet of an urban bird refuge presents a location-related hazard for birds in flight. Open space, even in highly urbanized areas, attracts birds, and buildings constructed within or adjacent to open space habitat, such as ornamental landscaping that could be used for foraging, roosting, or rest by birds *on the wing* (in flight), pose the risk of bird collisions, particularly if the design contains exterior reflective surfaces or artificial night lighting. Each of the proposed low-profile buildings would be required comply with the city's adopted Standards for Bird-Safe Buildings[153] and would incorporate specific design elements into the development to avoid or minimize avian collisions. The city's standards reflect the most current and widely-accepted measures to prevent bird strikes, addressing location-related hazards and/or feature-related hazards for birds in flight. The standards describe glass and façade treatments, wind generators and grates, and lighting treatments for buildings that can reduce avian collisions. Some examples include creating a visual signal or a visual noise barrier that alerts birds to the presence of glass objects, such as ceramic dots, or *frits*[154] applied between layers of insulated glass to reduce transmission of light. Feature-related hazards include building- or structure-related features that are considered potential *bird traps,* (e.g., glass courtyards, transparent building corners, or clear glass walls on rooftops or balconies) regardless of location. If these elements are used in the proposed buildings or structures within a bird hazard area, they must be fully treated (100 percent) with bird-safe glazing to be compliant. Through mandatory compliance with the Standards for Bird-Safe Buildings, the project would avoid or minimize the adverse effects of avian collisions with buildings during operation; therefore, this impact would be ***less than significant***.

Impact BI-6: Construction and operation of the project could substantially impede the use of bat maternity colonies as wildlife nursery sites. (*Less than Significant with Mitigation*)

Construction

During preconstruction surveys for the soil remediation project in 2015, the site was assessed for bat roosts, and suitable habitat was identified within the large trees and the empty buildings on the project site, most of which remain on site.[155] The biological resources assessment for the project determined that no special-status bats are expected on-site based on the lack of recent or proximate records to the project site and prior negative results for special-status bat species during nighttime emergence surveys.[156] These same surveys detected common Brazilian free-tailed bats acoustically and observed bats foraging near two of the mature

[152] As defined in planning code section 139, an Urban Bird Refuge includes open spaces 2 acres and larger dominated by vegetation, including vegetated landscaping, forest, meadows, grassland, or wetlands, or open water.

[153] San Francisco Planning Department, Standards for Bird-Safe Buildings, 2011, http://www.sf-planning.org/ftp/files/publications_reports/bird_safe_bldgs/Standards%20for%20Bird%20Safe%20Buildings%20-%2011-30-11.pdf.

[154] Frits are lines, dots, or other patterns incorporated into the glass or applied on its surface to make it more visible.

[155] Coast Ridge Ecology, 2020a. *Biological Resources Assessment for the Lake Merced West Recreation Project Site.* Prepared for the San Francisco Planning Department, April 2020.

[156] Ibid.

Monterey cypress trees that were subsequently removed prior to remediation activities. All buildings and structures onsite were sealed in 2015 following the nighttime emergence surveys to prevent bat occupancy during the soil remediation project. Some exterior panels around the base of some structures have since fallen off or have been removed. As common bats were detected during soil remediation project preconstruction surveys, it is expected that common bats could roost in remaining large trees. Additionally, there is some potential that bats could have colonized the remaining structures where exclusion measures have failed.

The remaining mature Monterey cypress and blue gum eucalyptus trees on the project site and existing buildings provide suitable roosting habitat for common bat species. Bats could establish maternity roosts within tree cavities, beneath bark, or among dense foliage of project area trees and within cracks, crevices, and eaves of vacant onsite buildings or other structures. Maternity roosts are roosts occupied by pregnant females or females with non-flying young. Non-breeding roosts are day roosts without pregnant females or non-flying young. Destruction of an occupied non-breeding bat roost resulting in the death of bats, disturbance that causes the loss of a maternity colony of bats (resulting in the death of young), or destruction of a hibernation roost[157] would be considered a significant impact.

Project construction would require demolition of all existing buildings and most other structures onsite. Building demolition could result in direct mortality of or indirect disturbance to roosting bats (e.g., bats avoid routine foraging or fail to return to a maternity roost due to an increase in human presence and construction activity within the project area), if present. Mortality of bats resulting from direct actions such as destruction of an occupied day or maternity roost, or indirect actions, such as elevated noise or vibration that causes roost or young abandonment, attributable to project construction would be a significant impact. Implementation of **Mitigation Measure M-BI-6**, **Avoidance and Minimization Measures for Bats**, would reduce potential impacts on bat maternity roosts to a less-than-significant level by requiring preconstruction surveys and implementing minimization and avoidance measures if active bat maternity roosts are found.

Mitigation Measure M-BI-6: Avoidance and Minimization Measures for Bats

A qualified biologist with at least a four-year degree and professional experience in biological sciences and related resource management activities, who is experienced with bat surveying techniques (including auditory sampling methods), behavior, roosting habitat, and identification of local bat species, shall conduct a preconstruction survey within one year prior to the start of construction, during the period when bat maternity roosts would be in use (April 15 – August 15) to identify potential bat habitat and potentially active maternity roost sites in the project area. If the preconstruction survey does not identify bat habitat or signs of potentially active bat roosts within the project area such as guano, urine staining, or dead bats, then no further action is required. A brief, written report documenting the results of the survey shall be provided to the planning department.

The following measures shall be implemented if the preconstruction survey identifies potential roosting habitat or potentially active bat roosts in buildings to be demolished under the project:

1. In areas identified as potential roosting habitat during the preconstruction survey, building/structure demolition shall avoid the bat maternity roosting season and period of winter *torpor* (a state of decreased physiological activity with reduced body temperature and metabolic rate) when bats are most vulnerable. Building/structure demolition shall instead be conducted

[157] Due to sufficiently high temperatures in the Bay Area, bats may be active year round such that hibernation roosts are not established.

when bats are active and able to flee from disturbance activities, approximately between the periods of March 1 to April 15 and August 15 to October 15. Depending on the preconstruction survey outcomes discussed below, the qualified biologist shall conduct additional preconstruction surveys of potential bat roost sites identified during the initial preconstruction survey no more than 14 days prior to building/structure demolition.

2. If active bat roosts or evidence of roosting are identified during preconstruction surveys, a no-disturbance buffer shall be established around roost sites until the qualified biologist determines they are no longer active. The size of the no-disturbance buffer shall be determined by the qualified biologist and would depend on the species present, roost type, and existing screening around the roost site (such as dense vegetation or a building), as well as the type of construction activity that would occur around the roost site.
3. If maternity or hibernation roosts are detected during these surveys, appropriate species- and roost-specific avoidance and protection measures shall be developed by the qualified biologist. Such measures may include postponing the removal of occupied buildings or other structures, establishing exclusionary work buffers while the roost is active (e.g., 100-foot no-disturbance buffer), or other avoidance measures depending on the species present, their protection status, and roost type. If a maternity roost of any size supporting any bat species is detected during surveys, an avoidance buffer, as determined by the qualified biologist, shall be maintained until the young bats are flying. The qualified biologist shall determine the extent of protective buffers, and buffer placement would depend on: the species' sensitivity to disturbance, which can vary among species; the level of noise or construction disturbance; the line-of-sight between the roost and the disturbance; ambient noise (baseline noise) and other disturbances under existing conditions; and consideration of other topographical or artificial barriers.
4. The qualified biologist shall be present during building/structure demolition if potential bat roosting habitat or active bat roosts are present and roosts do not contain young. Buildings/structures with active roosts shall be disturbed only under clear weather conditions when precipitation is not forecast for three days and when daytime temperatures are at least 50 degrees Fahrenheit.
5. Removal of buildings/structures containing or suspected to contain active bat roosts shall be dismantled under the supervision of the qualified biologist in the evening and after bats have emerged from the roost to forage. Buildings/structures shall be partially dismantled to significantly change the roost conditions, causing bats to abandon and not return to the roost.

Significance after Mitigation: Less than Significant

Operation

Project operation would not substantially inhibit bats from using remaining suitable habitat to establish maternity roosts. Remaining habitat for roosting is likely limited to the mature Monterey cypress and blue gum eucalyptus trees onsite as new buildings would lack the cracks, crevices and other entry points the old (demolished) buildings contained. Due to the anticipated use of the facility, any bat maternity roosts that are established in the retained mature trees onsite during or post-construction are considered habituated to operational activity. Therefore, project operations would have a ***less than significant*** impact on bat maternity roosts and no mitigation is required.

Impact BI-7: Construction and operation of the project would conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance. (*Less than Significant with Mitigation*)

San Francisco Urban Forestry Ordinance

As discussed in Chapter 2, Project Description, the project would require the removal of trees associated with the proposed vehicle and pedestrian entrances and arborist office and yard. Most trees to be removed are native coast live oak and Catalina ironwood trees that were planted during restoration activities following the soil remediation project. Trees at the project site within 10 feet of the public right-of-way may be significant trees as identified in San Francisco Public Works Code article 16, section 808. The project site is not under the jurisdiction of Public Works. In the project vicinity, the public right-of-way is limited to John Muir Drive and its adjacent sidewalks. A qualifying significant tree measures 20 feet or greater in height, has a canopy width of 15 feet or greater, or has a trunk diameter that is 12 inches or greater when measured at 4.5 feet above the ground. Compliance with the city's tree protection policy for significant trees, which would be required as part of the city's project approval process, would require that trees to be retained be adequately protected during construction and those identified for removal would receive public notice and be approved by the SFPUC in accordance with the substantive requirements of the code. The project would plant replacement trees for those removed. Through compliance with the city's tree protection policy and planting replacement trees onsite, the project would not conflict with the city's policy protecting significant trees (if present) and the impact would be less than significant.

Natural Resource Management Plan

The Natural Resource Management Plan identifies management areas and actions for the Lake Merced natural area which surrounds the project site (see section C, Compatibility with Existing Zoning and Plans, Figure 1 and Table 1). As discussed in Section C-1, two management areas overlap the project site: Management Area 1e and Management Area 1a. The management actions identified for Management Area 1e include the following: remove approximately 100 invasive trees on slopes and in wetlands; maintain and enhance mixed forest and oak woodland; maintain views; augment sensitive plant populations; reintroduce sensitive plants; and consider development of new trail. The soil remediation project removed most invasive blue gum eucalyptus trees from the site and introduced mixed oak woodland and native scrub and perennial grassland communities to the site during restoration. No sensitive plant species or populations are present onsite. The project is consistent with the Management Area 1e actions as it would retain much of the oak woodland habitat created after remediation, maintain views of the lake, and introduce a new trail along the waterfront.

The singular action for of Management Area 1a is to maintain "tule" marsh wetland (i.e., Freshwater Marsh wetlands described above). Development of the boat dock and soft landing would conflict with this action where freshwater marsh wetland is removed. Construction of the boat dock and soft landing would require permanent removal of shoreline wetland and riparian vegetation. The aquatic resources delineation documented 1.817 acres of California bulrush wetland within the delineation study area (the delineation study area is larger than the project disturbance area).[158] Of the 1.817 acres of California bulrush marsh mapped in the study area, 0.06 acre occurs within the project limits of work. The Lake Merced Vegetation Mapping Update for the Lake Merced Natural Area documents 21.10 acres of California bulrush wetland

[158] Coast Ridge Ecology, 2020b. *Lake Merced West Recreation Project Aquatic Resources Delineation.* Prepared for the San Francisco Public Utilities Commission, April 2020.

within the Lake Merced system.[159] The project impact on California bulrush wetland would be 0.28 percent of this vegetation community within the lake system. Although construction of the boat dock and soft landing would conflict with an identified management action for the lake and overlapping the project site, the loss of some tule marsh wetland under the project would not substantially reduce the presence of this vegetation community in the greater Lake Merced system. Further, as discussed in Impact BI-3, the city would be required to compensate for permanent loss of tule marsh wetland from development of the boat dock and soft landing by on-site or off-site creation, restoration, or enhancement of wetlands, or payment into an approved mitigation bank for in-kind habitat credits, or other compensatory actions that avoid a net loss in wetlands through implementation of Mitigation Measures M-BI-3a and M-BI-3b and as identified in permits from the U.S. Army Corps, Regional Water Quality Control Board, and California Coastal Commission. Therefore, the project conflict with management actions identified for Lake Merced in the Significant Natural Resource Areas Management Plan would be ***less than significant with mitigation***.

Mitigation Measure M-BI-3a, Restoration of Arroyo Willow Riparian Scrub and Freshwater Marsh Wetlands

Mitigation Measure M-BI-3b, Compensation for Permanent Fill of Wetlands and Waters

Significance after Mitigation: Less than Significant

CUMULATIVE IMPACTS

Impact C-BI-1: The project, in combination with the cumulative projects in the vicinity, would not result in significant impacts on biological resources. (*Less than Significant*)

The geographic scope for potential cumulative impacts on biological resources encompasses the species occurrences, habitats, and sensitive natural communities within the biological resources study area, as well as biologically linked areas sharing the adjacent shoreline of Lake Merced or occurring in the southwestern portion of San Francisco where the project is located. Such projects are generally within 5-miles of the project because this distance encompasses a reasonable representative range for populations of the sensitive species, such as nesting birds, identified in the impact analysis for the project. The temporal extent of the analysis for considering cumulative impacts related to biological resources includes all projects that may affect biological resources concurrently with the proposed project.

Table 3.1-3 in Section 3.1.5.2, *Approach to Cumulative Impact Analysis in this EIR*, (p. 3.1-7) provides a description of projects considered in the cumulative analysis. Unless otherwise exempt, all of the cumulative projects that would involve physical environmental effects are subject to California Environmental Quality Act review and would be required to implement measures or project modifications to avoid or mitigate significant environmental effects, as feasible. The following cumulative projects could affect biological resources also affected by the project:

- Parkmerced Redevelopment – noise/visual disturbance to nesting birds

[159] Nomad Ecology, 2011. Lake Merced Vegetation Mapping Update, Lake Merced Natural Area, City and County of San Francisco, California, revised draft. Prepared for San Francisco Public Utilities Commission, May.

- Vista Grande Drainage Basin Improvement Project – western pond turtle, riparian and wetland impacts, noise/visual disturbance to nesting birds and roosting bats, tree removal
- Oceanside Treatment Plant Improvements (Seismic Retrofits) – noise/visual disturbance to nesting birds
- The San Francisco Zoo Recycled Water Pipeline Project – noise/visual disturbance to nesting birds
- Ocean Beach Climate Change Adaptation Project, Long Term Improvements – noise/visual disturbance to nesting birds and roosting bats, tree removal
- Westside Force Main Reliability Project – noise/visual disturbance to nesting birds
- Lake Merced Trail Renovations – noise/visual disturbance to nesting birds and roosting bats, tree removal

Construction

Potential short-term project construction impacts include disturbance of western pond turtle and their aquatic and wetland egg laying and dispersal habitat, nesting special-status and other birds and their breeding habitat, riparian habitat, wetlands and other waters of the United States and State, and wildlife nursery sites for roosting bats. All the projects listed above would be required to comply with applicable regulatory requirements protecting these biological resources, similar to those of the project.

As explained in Impact BI-1, project construction would require removal of riparian and wetland habitat and disturbance to aquatic habitat suitable for western pond turtle. Individuals could be adversely affected if present in these areas during construction. As discussed, the potential project impacts on western pond turtle would be reduced to a less than significant level with mitigation. The Vista Grande Drainage Basin Improvement Project also requires removal of shoreline vegetation and construction in open waters of Lake Merced. Vista Grande project components within Lake Merced shoreline vegetation would disturb habitat for western pond turtle. The Vista Grande project's construction disturbance of shoreline vegetation and aquatic habitat suitable for this species may occur concurrently with project construction. Similar to the project, the Vista Grande project would require both temporary vegetation removal to accommodate access to the lake and permanent removal of vegetation for project components. Both project locations in South Lake and Impound Lake are small and in combination would disrupt a minute portion of the overall shoreline habitat available to western pond turtle in the lake system. Given the only known occurrences for western pond turtle in Lake Merced system are located in North Lake and East Lake, and the small footprint of habitat disturbance under both projects, the cumulative impacts on western pond turtle during construction would be ***less than significant***.

As explained in Impacts BI-2 and BI-5, project construction would result in noise and visual disturbance that could adversely affect special-status birds and other birds nesting in the project area. As discussed, the potential project impacts on nesting birds would be less than significant with implementation of RPD's standard construction measure 3, Biological Resources and the SFPUC's standard construction measure 7, Biological Resources. Many of the identified cumulative projects would generate noise and/or create visual disturbance during construction, which could affect nesting birds. Further, some of these projects may require tree and/or vegetation removal during the nesting bird season. While the project and several of the cumulative projects could affect nesting birds, the combined effect would not be substantially adverse because many of the cumulative projects are within developed city areas with little habitat for nesting birds to occupy or in locations where baseline noise levels and human disturbance among existing habitat are high. Projects that would require tree or vegetation removal—activities that present a higher risk to nesting birds should this work occur during the nesting season—would be required to comply with regulations

protecting birds and their nests from direct impacts, as would the project. The RPD and SFPUC projects in the cumulative scenario would be subject to the same standard construction measures as the project, which protect biological resources (standard construction measures 3 and 7, respectively). Further, birds nesting within San Francisco are accustomed to a baseline level of noise and visual disturbance and thus have a higher tolerance for some construction activities, making it less likely such indirect disturbances would contribute to nest failure. Therefore, the combined effect on other nesting birds due to the project and the cumulative projects would be ***less than significant***.

Impact BI-3 explains how project construction would require permanent removal of riparian and wetland vegetation and contaminated sediment from the footprint of the boat dock and soft landing, within federal and state jurisdictional wetlands and waters. Permanent placement of fill in jurisdictional wetlands and waters would result from construction of these project components. Implementation of project-specific mitigation requiring restoration of temporarily affected wetlands and riparian habitat (M-BI-3a) and through implementation of compensatory mitigation (M-BI-3b) required consistent with federal and state law and executive orders, and negotiated with federal and state agencies, would reduce the project impact to a less than significant level. Equipment use during these activities and other site development, particularly grading, could also affect lake water quality from contaminated runoff or sedimentation. As discussed, with implementation of the RPD and SFPUC standard construction measures protecting water quality (standard construction measures 2 and 3, respectively), the soil management plan, and a project-specific stormwater pollution prevention plan, project impacts would be less than significant. Of the cumulative projects considered, only the Vista Grande Drainage Basin Improvement Project would result in impacts on Lake Merced jurisdictional riparian habitat, wetlands and waters, either through the direct placement of fill or through indirect impacts on water quality. Like the project, this cumulative project would be required to avoid and minimize potential direct and indirect impacts on wetlands and waters consistent with federal and state laws and executive orders, consistent with regulatory permits that specify measures to avoid and minimize potential direct and indirect impacts, and to compensate for any unavoidable impacts on jurisdictional waters. For these reasons, the combined effects on regulated waters due to the project and the cumulative projects would be ***less than significant***.

As explained in Impact BI-6, project construction would include demolition and/or construction activities that generate noise and increase human activity above pre-project conditions, which could have a substantial adverse effect on maternal bat roosts, if present; these impacts would be reduced to a less-than-significant level with mitigation. Cumulative projects that involve tree removal or demolition of buildings or structures that provide suitable roosting habitat for bats could result in similar impacts as the project. While the project and some of the cumulative projects listed above could affect bat maternity roosts if present, the combined effect would not be substantially adverse because sufficient roosting habitat would remain available during construction of the cumulative projects. Of the cumulative projects considered, the Vista Grande Drainage Basin Improvement Project, Ocean Beach Climate Change Adaptation Project, and Lake Merced Trail Renovations Project are located in areas that contain potentially suitable habitat for bat maternity roosts and would trim or remove trees. Tree removal proposed under the Vista Grande Drainage Basin Improvement Project and Ocean Beach Climate Change Adaptation Project is not extensive relative to available habitat for tree-roosting bats along the Lake Merced shoreline. Although up to 120 declining or hazardous trees are proposed for removal under the Lake Merced Trail Renovation Project, this quantity is small relative to the available habitat around the lake for bats to roost. Artificial structures that do not have human occupants and that might attract bats to establish maternity roosts are scarce in the western portion of the city, and few if any of the cumulative projects involve building demolition that could directly affect roosts if present. Therefore, the risk of cumulative projects substantially affecting bat maternity roosts is low

and, combined with the residual effect of the project after mitigation, the resulting impact on bats would be ***less than significant***.

In summary, adverse effects on western pond turtle, special-status and other nesting birds, jurisdictional waters and bat maternal roosts could occur during construction of the project and the cumulative projects. After mitigation and implementation of RPD and SFPUC standard construction measures, through compliance with applicable local, state, and federal regulations protecting these resources, and through participation in the permitting process for project impacts on regulated wetlands waters, the cumulative impact on these biological resources would be ***less than significant***.

Operations

Potential operational impacts considered above include barriers to wildlife movement and increased avian collisions. Impact BI-4 explains how the project would not result in any permanent barriers to wildlife movement along the Lake Merced shoreline or substantially disrupt waterfowl movement and use of the lake. Impact BI-4 also discusses how permanent nighttime lighting under the project would not disrupt birds migrating along the Pacific Flyway or pausing onsite to rest during migration as lighting would be compliant with measures specified in the city's Standards for Bird-Safe Buildings to minimize lighting spillover into the sky and suitable terrestrial habitat. The Parkmerced Redevelopment Project, located 0.5 mile east of the project site, would introduce new sources of nighttime lighting to the residential and mixed-use development area during operation. The Ocean Beach Climate Change Adaptation Project, located nearly one mile from the project site, would include nighttime lighting during operations, associated with large sand placement events on Ocean Beach. Other sources of permanent nighttime lighting are also proposed for the Ocean Beach project's service road but would be similar to existing conditions. Similar to the project, permanent nighttime lighting for both of these projects would have to comply with the city's standards. Because night lighting on the project would be limited to safety lighting in parking areas and along trails during evening and limited nighttime hours, there would be no cumulative impact related to nighttime lighting that would adversely affect migrating birds. Therefore, the cumulative impact would be ***less than significant***.

Impact BI-5 explains that the potential increased risk of bird collisions with new buildings on the project site would be less than significant because each building would be designed to minimize avian risks resulting from collision with structures. The other cumulative projects within San Francisco would also be required to comply with the protection measures specified in the city's Standards for Bird-Safe Buildings, which would minimize other projects' effects related to bird collisions. Therefore, the long-term cumulative impact on birds resulting from collisions would be ***less than significant***.

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E.16 Geology and Soils

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
16. GEOLOGY AND SOILS. Would the project:					
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:					
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐	☐
iv) Landslides?	☐	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐	☐
c) Be located on geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐	☐

The project would not include the use of septic tanks or alternative onsite wastewater disposal systems; therefore, topic E.14(e) is ***not applicable***.

The project site is on the southwest shore of Lake Merced. Geologic maps of the area indicate that the eastern half of the project site along the lakeshore is composed of artificial fill and the upland half of the project site is composed of alluvial deposits.[160] Geologic units at the site currently include artificial fill in areas closest to the lake's edge and in upland areas that were backfilled after excavation as part of the soil remediation. Before the soil remediation project, 60 soil cores were taken across the site to depths of 5 feet

[160] Bonilla, M. G., *Preliminary Geologic Map of the San Francisco South 7.5' Quadrangle and Part of the Hunters Point 7.5' Quadrangle, San Francisco Bay Area, California.* Prepared by the U.S. Geological Survey, 1998.

below ground surface; these encountered poorly graded sand, clayey sand, and silt with sand.[161] The soil remediation removed the upper 0.5 foot to 10.5 feet of the existing soil and replaced it with fill. The depth of this fill varies throughout the project site, but in on average is up to 4 feet.

Beneath the alluvial sediments, at depth, is the Pleistocene-age Colma Formation that underlies the project area.[162] The Colma Formation is regionally described as friable well-sorted sand that contains a few beds of sandy silt, clay, and gravel. Lake Merced is incised into the Colma Formation, which constitutes the shallowest aquifer in the Westside Groundwater Basin.

The project site is located in a seismically active region containing numerous active faults.[163] The closest active fault is the San Andreas fault, which is offshore approximately 2 miles southwest of the site. Another offshore active fault, the San Gregorio fault, is located approximately 5 miles southwest. To the east is the Hayward fault, approximately 17 miles from the project site. Other active faults considered capable of causing seismic shaking at the project site include the Mount Diablo Thrust, Calaveras, Green Valley, West Napa, Greenville, and Rodgers Creek faults. Groundshaking may affect areas hundreds of miles distant from the earthquake's epicenter. Historic earthquakes have caused strong groundshaking and damage in the San Francisco Bay Area, such as the Loma Prieta earthquake in October 1989 and the 2014 West Napa Earthquake. The effects of an earthquake depend on multiple factors including the depth of displacement, distance to the epicenter, duration of shaking, and characteristics of underlying materials.

Impact GE-1: The project would not directly or indirectly expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, seismic groundshaking, seismically induced ground failure, or landslides. (*Less than Significant*)

Fault Rupture

The Alquist-Priolo Earthquake Fault Zone for the San Andreas Fault is more than 2 miles south of the project site.[164] There are no active or potentially active earthquake faults or fault zones on or in the immediate vicinity of the site. Therefore, ***no impact*** related to fault rupture would occur.

Groundshaking

The project site is located in an area with numerous active faults and seismic activity in the region that can cause seismic groundshaking at the site. Based on mapping of seismic shaking hazards by the Association of Bay Area Governments, the project site could experience violent groundshaking in an earthquake on one of the regional faults.[165],[166] The project would include construction of structures, intended for various

[161] AMEC, *Supplemental Investigation and Health Risk Assessment Report*. Prepared by AMEC, Oakland, California, 2012

[162] Bonilla, M. G., *Preliminary Geologic Map of the San Francisco South 7.5' Quadrangle and Part of the Hunters Point 7.5' Quadrangle, San Francisco Bay Area, California*. Prepared by the U.S. Geological Survey, 1998.

[163] A fault is considered active if it has shown evidence of displacement during the last 11,700 years.

[164] California Department of Conservation, Division of Mines and Geology, *State of California Special Studies Zones, San Francisco South, Revised Official Map.* January 1, 1982.

[165] Association of Bay Area Governments, Hazard Maps, San Francisco County Earthquake Hazard, San Francisco County Hazard Map, https://abag.ca.gov/our-work/resilience/data-research/hazard-viewer. Accessed August 18, 2021.

[166] Shaking hazard maps provided by the Association of Bay Area Governments show likely shaking intensity in any 50-year period from all possible faults. It is the equivalent risk to a 500-year flood. The Association of Bay Area Governments selected this interval because it most closely aligns to the levels of shaking the current building code is designed to withstand.

recreational activities, that could expose visitors and workers to groundshaking hazards if not constructed appropriately. However, construction of these buildings would not exacerbate these seismic hazards. These proposed structures and related facilities would not expose people to substantial adverse effects from groundshaking because the proposed improvements would be designed and constructed in accordance with the most current edition of the San Francisco Building Code, which is based on the California Building Code with local amendments.

Under section 1803 of the San Francisco Building Code, a site-specific geotechnical investigation, where required, must provide information about geotechnical hazards to be addressed in the project's design.[167] Section 1803.6 states that the geotechnical report shall include, but need not be limited to, the following information:

- A plot showing the location of the soil investigations.
- A complete record of the soil boring and penetration test logs and soil samples.
- A record of the soil profile.
- Elevation of the water table, if encountered.
- Recommendations for foundation type and design criteria, including but not limited to: bearing capacity of natural or compacted soil; provisions to mitigate the effects of expansive soils; mitigation of the effects of liquefaction, differential settlement, and varying soils strengths; and the effects of adjacent loads.
- Expected total and differential settlement.
- Special design and construction provisions for foundations of structures founded on expansive soils, as necessary.
- Compacted fill material properties in accordance with section 1803.5.8.
- Controlled low-strength material properties in accordance with section 1803.5.9.

The geotechnical investigation report must include recommendations for the appropriate foundation type, structural systems, ground stabilization, or any combination of these to address the effects of groundshaking, liquefaction, and related phenomena. The recommendations of the geotechnical report that address such hazards must be incorporated into the design of proposed improvements.

Under the project, incorporation of the appropriate engineering and design features in accordance with geotechnical recommendations prepared by a qualified professional and the building code would reduce the potential for the proposed improvements to suffer substantial damage and for pedestrians and other bystanders to be injured. Therefore, project impacts related to groundshaking would be ***less than significant***.

Liquefaction, Lateral Spreading, and Earthquake-Induced Settlement

The project site is located in an area of liquefaction potential identified by the California Geological Survey (formerly known as the California Department of Conservation, Division of Mines and Geology) under the

[167] City and County of San Francisco Department of Building Inspection, Information Sheet S-05, *Geotechnical Report Requirements*, May 7, 2019.

Seismic Hazards Mapping Act of 1990.[168] However, the U.S. Geological Survey has mapped this area as having low liquefaction potential.[169] Also, similar to what was described above, construction of the proposed improvements would not exacerbate any liquefaction hazards, if present. Further, the project would be required to incorporate appropriate geotechnical engineering and design from a state-licensed geotechnical engineer consistent with San Francisco Building Code requirements and Chapter 18 of the California Building Code. Chapter 18 requires analysis of liquefaction and lateral spreading, plus an evaluation of lateral pressures on basement and retaining walls (if any), liquefaction and soil strength loss, and lateral movement or reduction in foundation soil-bearing capacity. Therefore, the impact of the project related to liquefaction, lateral spreading, and earthquake-induced settlement would be ***less than significant***.

Earthquake-Induced Landslides

With the exception of slopes along the lakeshore, the project site is relatively flat. No areas of mapped earthquake-induced landslide susceptibility identified by the California Geological Survey under the Seismic Hazards Mapping Act of 1990 are located within the project site.[170] Therefore, ***no impact*** related to earthquake-induced landslides would occur.

Impact GE-2: The project would not result in substantial erosion or loss of topsoil. (*Less than Significant*)

Excavation conducted as part of the soil remediation activities or ground-disturbing activities associated with construction of the other proposed improvements could create the potential for wind- and water-borne soil erosion. As discussed in topic E.17, Hydrology and Water Quality (Impact HY-1), the project would implement the erosion and sediment controls specified in the Construction General Stormwater Permit,[171] which would reduce the potential for substantial erosion to occur during construction. Ground areas disturbed during construction would be covered by the proposed improvements or revegetated as part of the proposed landscaping and would also include drainage control measures. With appropriate backfilling, hydroseeding, landscaping, and implementation of drainage control features, there would be a low potential for soil erosion upon completion of the project. Therefore, impacts from soil erosion during and after construction would be ***less than significant***.

Topsoil is a fertile soil horizon that typically contains a seed base. Much of the surface soils on the site were excavated for remediation, replaced with clean backfill, and revegetated with native plants as part of the environmental remediation. The proposed new planting plan would retain the existing plantings throughout the property where feasible. The existing plant restoration areas would be replaced, transplanted, or otherwise emulated in areas disturbed during construction. Therefore, impacts related to the loss of topsoil would be ***less than significant***.

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[168] California Department of Conservation, Division of Mines and Geology, *State of California Seismic Hazard Zones, City and County of San Francisco, Official Map*, November 17, 2000.

[169] U.S. Geological Survey, *Maps of Quaternary Deposits and Liquefaction Susceptibility in the Central San Francisco Bay Region, California*, Open-File Report 06-1037, 2006.

[170] California Department of Conservation, Division of Mines and Geology, *State of California Seismic Hazard Zones, City and County of San Francisco, Official Map*, November 17, 2000.

[171] *NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ).

Impact GE-3: The project site would not be located on a geologic unit or soil that is unstable or that could become unstable as a result of the project. (*Less than Significant*)

For the areas that would require soil remediation, excavations would be conducted to remove the contaminated soil, which is estimated to range from approximately 0.5 foot to 4 feet below ground surface. These areas would be backfilled to original grade with clean fill compacted to engineering standards, consistent with building code requirements, which would reduce the potential for future settlement upon completion of project construction. Other areas where structures are proposed would be evaluated for stability and the ability to support the new loads (i.e., new improvements). The design-level geotechnical report would include recommendations consistent with San Francisco Building Code requirements to ensure that site soils could support the proposed improvements. Chapter 18 of the California Building Code covers the requirements of geotechnical investigations (section 1803), excavation, grading, and fills (section 1804), load-bearing of soils (1806), as well as foundations (section 1808), shallow foundations (section 1809), and deep foundations (section 1810). Therefore, potential impacts related to construction on a geologic unit that could become unstable as a result of the project would be ***less than significant***.

Impact GE-4: The project would not create substantial risks to life or property as a result of locating buildings or other features on expansive or corrosive soils. (*Less than Significant*)

Much of the project site is underlain directly by artificial fill of various soil types, which could include some expansive clay. Any backfill materials used for the project would have low expansion potential and would be adequately compacted in accordance with the recommendations of the geotechnical reports prepared for the project. As noted above, the geotechnical report would be required to include evaluations of geotechnical hazards consistent with chapter 18 of the California Building Code. Chapter 18 not only defines parameters for defining potentially expansive soils, but also provides requirements for avoiding potential adverse effects of expansive or corrosive soils.

Corrosive soils can damage buried metal and concrete structures such as pipelines and foundations that are in direct contact with soil or bedrock. While corrosive soils could be present at the project site, buried features of the project would be constructed to resist corrosion in accordance with the San Francisco Building Code. Therefore, impacts related to expansive and corrosive soils would be ***less than significant***.

Impact GE-5: The project could directly or indirectly destroy a unique paleontological resource or site or unique geologic feature. (*Less than Significant with Mitigation*)

The project site is generally flat, with no unique topographic, geologic, or physical features. The areas excavated for remediation purposes were backfilled to original grade with clean fill and compacted according to engineering standards. The areas that had previously been remediated were also backfilled with clean fill and ranged in depth from 0.5 foot to 10.5 feet with most areas backfilled to a depth of 4 feet. Beneath the artificial fill are dune sands, and at depth, the project site is underlain by early Pleistocene alluvium (the Colma Formation). The depth to the Colma Formation at the project site is greater than 5 feet, based on soil coring conducted before the soil remediation project, but the exact depth is not known. These Pleistocene sediments in the Colma Formation have moderate potential to contain paleontological resources.

Paleontological resources are the fossilized evidence of past life found in the geologic record. Fossils are preserved in sedimentary rocks and may include bones, teeth, shells, leaves, and wood. Despite the abundance of these rocks, and the vast number of organisms that have lived through time, preservation of

plant or animal remains as fossils can be a rare occurrence. Paleontological resources are considered nonrenewable resources because the organisms they represent no longer exist, and once destroyed, can never be replaced. Not all paleontological discoveries are considered scientifically important; therefore, several criteria exist for determining the scientific importance of fossils. These criteria include whether fossils provide data on the following: evolutionary relationships and developmental trends among organisms, both living and extinct; the age of rock units, sedimentary strata, or depositional history of the region; development of biological communities; or unusual or spectacular circumstances in the history of life.[172,173] These data are important because they are used to examine evolutionary relationships, provide insight on the development of and interaction between biological communities, and establish time scales for geologic studies, and for many other scientific purposes.

The probability of finding paleontological resources can be broadly predicted from the geologic units present at or near the surface. Therefore, geologic mapping classifications of soil units can be used to assess the potential for the occurrence of paleontological resources. The city, in collaboration with a qualified paleontologist, developed the San Francisco Paleontological Sensitivity Map[174] to classify the potential for areas of the city to yield paleontological findings, using the modified Potential Fossil Yield Classification System as the basis for its designations of paleontological potential.[175] The classification system is a predictive resource-management tool founded on two basic facts of paleontology: (1) Occurrences of paleontological resources are closely tied to the geologic units (i.e., formations, members, or beds) that contain them; and (2) the likelihood of the presence of fossils can be broadly predicted from the distribution of geologic units at or near the surface. The paleontological-potential designations classify soil potential from very low to very high.

In San Francisco, paleontological potential ranges from very low to moderate, and unknown potential. The types of geologic units that contain a high or very high occurrence of paleontological resources in the city were not identified based on currently available data.

As stated above, and according to the San Francisco Planning Department's classifications of paleontological potential, a portion of the project may disturb Pleistocene-age surficial deposits and the Colma Formation and has a moderate potential to encounter paleontological resources. Vertebrate fossils, including parts of mammoths and bison, have been found in the Colma Formation in San Francisco near the Cliff House at the northern end of Ocean Beach, at the base of Telegraph Hill, and near the Twin Peaks Tunnel.[176] Project excavation could extend into the underlying Colma Formation in portions of the 10-acre site where previous remediation activities did not require excavations deeper than 5 feet.

Based on the potential that paleontological resources may be present at some locations, these proposed excavations could damage or destroy paleontological resources; therefore, this impact would be potentially

[172] Murphey, P. C., G. E. Knauss, L. H. Fisk, T. A. Deméré, and R. E. Reynolds, Best Practices in Mitigation Paleontology, *Proceedings of the San Diego Society of Natural History*, No. 47, 2019.

[173] Society of Vertebrate Paleontology, *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*. Impact Mitigation Guidelines Revision Committee, 2010.

[174] Paleo Solutions, Inc., March 15, 2018.

[175] U.S. Department of the Interior, Bureau of Land Management, *Potential Fossil Yield Classification (PFYC) System for Paleontological Resources on Public Lands*, IM 2016-124. Instruction Memorandum, undated, https://www.blm.gov/sites/blm.gov/files/uploads/IM2016-124_att1.pdf. Accessed August 12, 2021.

[176] Rodda, Peter U., and Nina Baghai, Late Pleistocene Vertebrates from Downtown San Francisco, California, *Journal of Paleontology* 67(6):1058–1063, November 1993.

significant. The impact would be reduced to a less-than-significant level with implementation of **Mitigation Measure M-GE-5, Inadvertent Discovery of Paleontological Resources**. This measure would minimize potential environmental impacts by ensuring that workers could recognize paleontological resources and by putting in place procedures should unforeseen discovery of paleontological resources occur. With implementation of Mitigation Measure M-GE-5, the potential impact of the project would be ***less than significant with mitigation***.

Mitigation Measure M-GE-5: Inadvertent Discovery of Paleontological Resources

Worker Awareness Training. Prior to commencing construction, and ongoing throughout ground disturbing activities (e.g., excavation, utility installation), the RPD and SFPUC and/or their designee shall ensure that all project construction workers are trained on the contents of the Paleontological Resources Alert Sheet, as provided by the planning department. The Paleontological Resources Alert Sheet shall be prominently displayed at the construction site during ground disturbing activities for reference regarding potential paleontological resources.

In addition, the RPD and SFPUC shall inform the contractor and construction personnel of the immediate stop work procedures and other procedures to be followed if bones or other potential fossils are unearthed at the project site. Should new workers that will be involved in ground disturbing construction activities begin employment after the initial training has occurred, the construction supervisor shall ensure that they receive the worker awareness training as described above.

The RPD and SFPUC shall complete the standard form/affidavit confirming the timing of the worker awareness training to the Environmental Review Officer (ERO). The affidavit shall confirm the project's location, the date of training, the location of the informational handout display, and the number of participants. The affidavit shall be transmitted to the ERO within five business days of completion of excavation.

Paleontological Resource Discoveries. In the event of the discovery of an unanticipated paleontological resource during project construction, ground disturbing activities shall temporarily be halted within 25 feet of the find until the discovery is examined by a qualified paleontologist meeting the qualifications stated by the Society of Vertebrate Paleontology standards (SVP 2010). Work within the sensitive area shall resume only when deemed appropriate by the qualified paleontologist in consultation with the ERO.

The qualified paleontologist shall determine: 1) if the discovery is scientifically significant; 2) the necessity for involving other responsible or resource agencies and stakeholders, if required or determined applicable; and 3) methods for resource documentation or recovery. If a paleontological resource assessment results in a determination that the resource is not scientifically important, this conclusion shall be documented in a Paleontological Evaluation Letter to demonstrate compliance with applicable statutory requirements (e.g., Federal Antiquities Act of 1906, CEQA Guidelines Section 15064.5, California Public Resources Code Chapter 17, Section 5097.5, Paleontological Resources Preservation Act 2009). The Paleontological Evaluation Letter shall be submitted to the ERO for review within 30 days of the discovery.

If the qualified paleontologist determines that a paleontological resource is of scientific importance, and there are no feasible measures to avoid disturbing this paleontological resource, the qualified paleontologist shall prepare a Paleontological Mitigation Program. The mitigation program shall

include measures to fully document the resource of scientific importance and to determine if recovery is appropriate. The qualified paleontologist shall submit the mitigation program to the ERO for review and approval within 10 business days of the discovery. Upon approval by the ERO, ground disturbing activities in the project area shall resume and be monitored as determined by the qualified paleontologist for the duration of such activities.

The mitigation program shall include: 1) procedures for construction monitoring at the project site; 2) fossil preparation and identification procedures; 3) curation of paleontological resources of scientific importance into an appropriate repository; and 4) preparation of a Paleontological Resources Report (report or paleontology report) at the conclusion of ground disturbing activities. The report shall include dates of field work, results of monitoring, fossil identifications to the lowest possible taxonomic level, analysis of the fossil collection, a discussion of the scientific significance of the fossil collection, conclusions, locality forms, an itemized list of specimens, and a repository receipt from the curation facility.

The SFPUC (for demolition and soil remediation) or RPD (for all other construction) shall be responsible for the preparation and implementation of the mitigation program, in addition to any costs necessary to prepare and identify collected fossils, and for any curation fees charged by the paleontological repository. The paleontology report shall be submitted to the ERO for review within 30 business days from conclusion of ground disturbing activities, or as negotiated following consultation with the ERO.

CUMULATIVE IMPACTS

Impact C-GE-1: The project, in combination with other cumulative projects, would not result in a considerable contribution to impacts related to geologic hazards or paleontological resources. (*Less than Significant*)

The entire Bay Area is a seismically active region with a high risk of seismic hazards and a wide variety of geologic conditions. Nevertheless, the geographic scope of potential geology and soils impacts is restricted to the project site and immediate vicinity because related risks are relatively localized or site-specific. As a result, the geographic scope of potential cumulative impacts for these resources includes the project area and immediately adjacent areas. The Vista Grande Drainage Basin Improvement Project would include trenching for a rehabilitated pipeline immediately south of the project site.

Cumulative projects could require various levels of excavation and grading, which would affect local geologic conditions. As noted above, the Vista Grande Drainage Basin Improvement Project would involve excavation adjacent to the project area. The project area is subject to strong groundshaking. However, as discussed in Impact GE-1, project components would be designed and constructed in accordance with the most current building code requirements and applicable engineering standards for seismic safety, which would minimize the potential for damage. The Vista Grande project would also be required to comply with the state and local building codes. Implementing the projects in accordance with building code and engineering requirements would minimize safety risks related to seismic hazards. Therefore, the cumulative impact related to seismic hazards would be ***less than significant***.

Regarding soil erosion, the project could increase erosion in the vicinity of Lake Merced, as discussed in Impact GE-2. Implementing the Vista Grande Drainage Basin Improvement Project (Project 3) could also

increase the potential for soil erosion near Lake Merced. The project and all of the identified cumulative projects would be required to implement the requirements of article 4.2 of the San Francisco Public Works Code (discussed in more detail in topic E.17, Hydrology and Water Quality), which would reduce the potential for a cumulative impact. As a result, the cumulative impact related to erosion from construction sites would be ***less than significant.*** (See Impact GE-2 for a discussion of the public works code requirements.)

Implementing the recommendations of the geotechnical reports for each project and excavation safety requirements specified in California Code of Regulations title 8 would reduce the likelihood that construction activities undertaken for the cumulative projects and the project would result in unstable soils or geologic units. Therefore, cumulative impacts related to unstable soils and geologic units would be ***less than significant***.

The geographic scope of cumulative impacts on paleontological resources includes projects adjacent to the proposed project that could disturb the same potential fossils, if present, within the Pleistocene-aged Colma and Merced formations. As discussed in Impact GE-5, project-related excavation could encounter the Colma and Merced formations, and these geologic units have high paleontological sensitivity based on the identification of several vertebrate fossils in similarly aged sediments in the area. None of the cumulative projects would overlap activities at the project site, nor are there any known paleontological resources on the project site that extend outside of the site and could be affected by nearby development. The potential impact is site-specific and would be generally limited to the immediate construction area. Therefore, the project would not combine with cumulative projects to result in a significant cumulative impact on paleontological resources, and the cumulative impact would be ***less than significant***.

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E.17 Hydrology and Water Quality

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
17. HYDROLOGY AND WATER QUALITY. Would the project:					
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?	☐	☐	☒	☐	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:					
i) Result in substantial erosion or siltation on- or offsite;	☐	☐	☒	☐	☐
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or offsite;	☐	☐	☒	☐	☐
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐	☐
iv) Impede or redirect flood flows?	☐	☐	☐	☐	☒
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☒	☐	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐	☐

The project site is located in the Lake Merced watershed, which historically was a coastal estuary that would overflow and connect to the ocean during heavy storms. The lake originally drained an area of 6,320 acres in size, approximately 10 square miles, which included the Daly City, Westlake, and Stonestown areas. Development has altered the hydrology and the lake levels are currently managed.

The project site is not in a Special Flood Hazard Area identified on San Francisco's Interim Floodplain Maps.[177] The project does include new structures, but because it is not located in the floodplain, it would not impede or redirect flood flows. Therefore, topic E.17(c.iv) is ***not applicable***.

[177] City and County of San Francisco, *San Francisco Interim Floodplain Map, West*, Final Draft. July 2008.

Impact HY-1: The project would not violate water quality standards or otherwise substantially degrade water quality. (*Less than Significant*)

Detailed quarterly water quality monitoring has occurred at Lake Merced since 1997. Lake Merced is considered a shallow eutrophic lake (a lake rich in minerals and organic nutrients that promote algae growth). The SFPUC manages Lake Merced water quality and regularly assesses multiple constituents including dissolved oxygen, pH, secchi depth, algae, total bioavailable nitrogen, nitrogen to phosphorus ration, total coliform, and E. coli.[178]

The lake is on the State of California Clean Water Act Section 303(d) list for pH and dissolved oxygen, meaning that the lake does not meet water quality standards for these two constituents. Dissolved oxygen concentrations in Lake Merced are affected by temperature, algal photosynthetic activity (driven in part by the available nutrients in the lake), and diffusion from the atmosphere. During the summer, in deeper portions of the lake dissolved oxygen concentrations have fallen below water habitat criteria. Lake Merced water pH levels are similarly driven in part by the available nutrients in the lake; algal photosynthetic activity removes carbon dioxide from the water raises pH. Average pH of the lake is 8.1, which exceeds the recommended value of 7.[179]

While swimming is prohibited in Lake Merced, the total coliform and E. coli levels typically are well below state guidelines for the protection of public health in recreational waters.[180]

Construction

During project construction, stormwater quality could be affected by erosion from grading, excavation for soil removal, and earthmoving operations or a release of fuels or other chemicals used during construction. Grading and earthmoving would expose soil and, if not managed appropriately, could result in erosion and transport of excess sediments in stormwater runoff to Lake Merced. Stormwater runoff from unremediated areas and the temporary onsite use and storage of vehicles, fuels, wastes, and building materials could also carry pollutants to Lake Merced if these materials were handled improperly.

The project would disturb more than 1 acre of land and is located in an area adjacent to Lake Merced that is served by a separate storm sewer system. Therefore, stormwater discharges from construction would be subject to the State of California's Construction General Stormwater Permit (construction general permit).[181] Construction activities subject to this permit include ground disturbances such as clearing, grading, and excavating, as well as soil stockpiling. The following discussion describes the requirements of the construction general permit.

During excavation activities in unremediated areas of the project site (the soil beneath existing buildings was not remediated during the soil remediation project), the construction contractor would also be required to implement the soil management plan developed for the project site and approved by the San Francisco Bay Regional Water Quality Control Board. The soil management plan, the requirements of which are also detailed

[178] San Francisco Public Utilities Commission, 2018 Lake Merced Water Quality Monitoring Report, June 30, 2019.

[179] San Francisco Public Utilities Commission, 2018 Lake Merced Water Quality Monitoring Report, June 30, 2019.

[180] San Francisco Public Utilities Commission, 2018 Lake Merced Water Quality Monitoring Report, June 30, 2019.

[181] *NPDES General Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities* (Order 2009-0009-DWQ, NPDES No. CAS000002; as amended by Orders 2010-0014-DWQ and 2012-006-DWQ).

below, describes the protocols to be followed if and when contaminated soil is anticipated or encountered during routine maintenance, new construction, or other subsurface excavations at the project site.

Construction General Permit

Under the Construction General Stormwater Permit, construction projects are characterized by the level of risk to water quality. This characterization uses a combination of the project's sediment risk and the risk to receiving-water quality. Projects can be characterized as level 1, level 2, or level 3, and the minimum best management practices (BMPs) and monitoring that must be implemented during construction are based on the risk level. The BMPs are designed to prevent pollutants from coming in contact with stormwater and to keep all products of erosion and stormwater pollutants from moving offsite into receiving waters. They are specified in a storm water pollution prevention plan (SWPPP) that must be prepared by a Qualified SWPPP Developer and submitted to the San Francisco Bay Regional Water Quality Control Board before construction begins.

Sediment risk is determined based on the expected intensity of rainfall during the construction period, the soil's erodibility, and the slope of the construction site. Therefore, the project's sediment risk would depend on when the project is implemented; the sediment risk would be higher if the project were implemented during the rainy season. Receiving-water risk is based on whether the project drains to a *sediment-sensitive water body*, which is a water body that either appears on the most recent 303(d) list of water bodies as impaired for sediment,[182] has a U.S. Environmental Protection Agency–approved total maximum daily load implementation plan for sediment,[183] or has the beneficial uses of cold freshwater habitat, fish migration, and fish spawning.

Lake Merced is listed as an impaired water body for dissolved oxygen and pH, but not for sediment.[184] In addition, the San Francisco Bay Basin Plan identifies beneficial uses of Lake Merced as body-contact recreation (e.g., swimming, wading, and fishing), noncontact recreation (e.g., rowing), warm freshwater habitat, cold freshwater habitat, fish spawning, and wildlife habitat.[185] SFPUC also maintains Lake Merced as a non-potable emergency water supply to be used for firefighting or sanitation purposes, subject to a boil-water order, if no other sources of water are available. In the event of a major disaster (e.g., catastrophic earthquake), Lake Merced water could be pumped into San Francisco's drinking water distribution system to maintain firefighting, basic sanitary needs (e.g., toilet flushing), and other critical needs. Because of this potential for emergency water supply use, full-body-contact recreation (e.g., swimming, wading) is not allowed in the lake (SFPUC Resolution No. 10,435). However, Lake Merced is not considered a sediment-sensitive water body, because it is not listed as impaired for sediment and does not have all three beneficial uses of cold freshwater habitat, fish migration, and fish spawning. This means that the project would pose a level 2 risk under the Construction General Stormwater Permit if it were implemented during a rainy period, when the

[182] An *impaired water body* is one that does not meet water quality standards or does not support its identified beneficial uses.

[183] A *total maximum daily load* is the amount of a pollutant that a water body can receive and still meet water quality standards. A total maximum daily load implementation plan describes how the water quality of an impaired water body will be restored and how water quality standards will be achieved.

[184] State Water Resources Control Board, *2014 and 2016 Integrated Report (Clean Water Act Section 303[d]) List/305(b) Report*, https://www.waterboards.ca.gov/water_issues/programs/tmdl/2014_16state_ir_reports/category5_report.shtml. Last updated October 3, 2017. Accessed April 13, 2020.

[185] San Francisco Bay Regional Water Quality Control Board, 2017. *San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan),* https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/planningtmdls/basinplan/web/docs/BP_all_chapters.pdf. Last updated May 4, 2017. Accessed April 13, 2020.

sediment risk could be medium or high, or a level 1 risk if it were implemented when the sediment risk would be low.

For construction activities characterized as level 1, the Construction General Stormwater Permit specifies minimum BMPs to be implemented that address good-housekeeping practices, including those for managing hazardous materials used during construction, non-stormwater management, erosion and sediment control, and run-on and runoff control. A qualified professional must inspect the required BMPs weekly when there is no rain and daily during a qualifying rainstorm.

For construction activities characterized as level 2, the minimum requirements identified for level 1 apply, along with some more stringent requirements. For instance, erosion controls must be implemented in conjunction with sediment controls in active construction areas, and linear sediment controls must be used along slopes. In addition, a Qualified SWPPP Developer must prepare a rain event action plan for level 2 construction activities. This plan would identify the designated site stormwater manager, the provider of erosion and sediment controls, and the stormwater sampling agent, as well as the trades active at the site during all construction phases. The plan would include suggested actions for each construction phase.

In addition, samples of stormwater discharges must be collected daily during qualifying rain events and analyzed for pH and turbidity, at a minimum. If the analytical results exceed the pH numeric action level of 6.5 to 8.5 or the turbidity numeric action level of 250 nephelometric turbidity units, the results must be reported to the State Water Resources Control Board. RPD and SFPUC would be required to implement corrective actions to ensure that the pH and turbidity remain within acceptable limits. Corrective actions could include adjusting BMPs found to be deficient, implementing new BMPs, or potentially halting work until the rain is over.

Soil Management Plan

The cleanup technique approved under the soil management plan would be to excavate contaminated material and dispose of the material at a properly licensed offsite disposal facility. EIR Chapter 2, Section 2.5.1 describes the steps to complete cleanup consistent with the soil management plan. The soil management plan was developed to protect water quality during construction activities in contaminated areas of the site. The plan includes requirements for stockpiling of excavated material, confirmation sampling and analysis, and waste management that would apply in addition to the BMPs identified in a SWPPP.

Summary

Implementing the requirements of the General Construction Stormwater Permit and the soil management plan would ensure that project construction activities would not result in substantial amounts of erosion or sedimentation in Lake Merced, and that hazardous materials used during construction would be managed in accordance with good-housekeeping practices to prevent a release. Therefore, water quality impacts related to discharge of construction-related stormwater runoff would be ***less than significant***.

Operation

The final design of the project would be required to comply with the San Francisco Stormwater Management Ordinance and the stormwater management requirements implementing the ordinance. In separate sewer areas like the project site, projects that would add or replace 2,500 square feet or more of impervious area must manage stormwater using green infrastructure (i.e., stormwater controls or BMPs) and maintain that

green infrastructure for the life of the project. Compliance with the ordinance would require preparation of a stormwater control plan for the project describing the BMPs that would be implemented, including a plan for post-construction operation and maintenance of the BMPs. Specifically, the plan would include a site characterization, design and development goals, site plan, site design, source controls, treatment BMPs, comparison of the design to established goals, and an operations and maintenance plan.

Existing site conditions and the pollutants of concern at the project site (nutrients, dissolved oxygen, and pH) guide the selection of treatment BMPs to reduce pollutant loads in stormwater runoff. Implementing treatment BMPs would reduce the loading of pollutants in stormwater via infiltration (e.g., permeable pavement or infiltration basins or trenches), detention (constructed wetlands, a detention pond or vault, or a wet pond), bioretention (e.g., a flow-through planter or rain garden), or biofiltration (e.g., vegetated areas; media, sand, or vegetated rock filters; or swirl separators, water quality inlets, or drain inserts). One or more treatment BMPs could be required to address each potential stormwater pollutant of concern.

The operations and maintenance plan prepared as part of the stormwater control plan would identify which person or entity has the operational responsibility for the facility; the applicable maintenance requirements for each stormwater control; detailed requirements for each treatment and control BMP; and required maintenance of facilities. These requirements would transfer to any new owner, occupant, or lessee of the facility.

The stormwater control plan must be reviewed and stamped by a licensed landscape architect, architect, or engineer. SFPUC would review the plan and certify compliance with the guidelines and inspect stormwater BMPs once they are constructed; any issues noted during the inspection must be corrected. The owner would be responsible for completing an annual self-certification inspection, and must submit completed checklists and maintenance logs for the year to SFPUC. In addition, SFPUC would inspect all stormwater BMPs every third year, and any issues identified by either inspection must be resolved before SFPUC could renew the certificate of compliance.

Picnickers or other site users might bring single-use or other materials that could become litter. RPD and any concessionaire would be required to place containers in appropriate locations for the collection of refuse pursuant to article 6 of the San Francisco Health Code. In addition, as discussed in topic E.13, Utilities and Service Systems, the project would be required to comply with other city ordinances that decrease the amount of non-degradable trash generated by the new users of the project site. The San Francisco Mandatory Recycling and Composting Ordinance requires facilities to separate their refuse into recyclables, compostables, and trash. In addition, the Food Service Waste Reduction Ordinance prohibits any establishment that serves food prepared in San Francisco from using polystyrene foam (Styrofoam) to-go containers. This ordinance also requires that any containers used in the city's programs be either recyclable or compostable.

With compliance with the Stormwater Management Ordinance and guidelines and San Francisco ordinances related to waste management, impacts related to additional sources of polluted runoff during operations would be ***less than significant***.

Impact HY-2: The project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin. (*Less than Significant*)

Construction and Operation

Lake Merced is hydraulically connected to the Westside Groundwater Basin and is a surface expression of the shallow aquifer.

The project would not require any groundwater dewatering or the use of groundwater for construction or operation of the project. During construction, water supplies needed for dust control or potable use would be brought to the site. During operations, as discussed in Impact UT-2, water would be provided by existing municipal supplies. As a result, the project would not have any adverse impact on groundwater supplies.

The project would increase the impervious area on the site and would be required to incorporate low-impact design measures for stormwater management, in accordance with the Stormwater Management Requirements. Pursuant to these requirements, the low-impact design measures included in the project design would reduce the stormwater runoff rate and volume by 25 percent relative to pre-development conditions for the two-year, 24-hour design storm.[186] These measures would encourage stormwater infiltration at the project site, thus reducing effects of impervious areas on groundwater recharge. The project would therefore result in ***less-than-significant*** impacts with respect to groundwater supplies, groundwater recharge, or sustainable groundwater management of the basin.

Impact HY-3: The project would not alter the existing drainage pattern of the area in a manner that would result in substantial erosion, siltation, or flooding onsite or offsite. (*Less than Significant*)

Construction

The project includes excavation of some areas for removal of contaminated soils and building foundations, as well as site grading for the proposed improvements. Project construction would not substantively change drainage patterns but could expose soils to erosion and siltation. As noted above in Impact HY-1, all earthwork activities during construction would be conducted in accordance with the construction general permit and the soil management plan, which include BMP requirements to minimize erosion and siltation and other drainage controls to minimize the potential for adverse effects related to sediment in stormwater runoff. Implementing BMPs would also reduce the effects of construction activities on drainage patterns by controlling stormwater runoff such that onsite or offsite flooding effects would be avoided or reduced. Construction activities would result in ***less-than-significant*** impacts related to drainage patterns and associated erosion, siltation, or flooding.

Operation

Once constructed, as with any San Francisco development draining to a separate sewer system that creates or replaces more than 2,500 square feet of impervious area, the project must implement post-construction stormwater controls in accordance with San Francisco Public Works Code article 4.2, section 147, and must comply with the city's stormwater management requirements and design guidelines. San Francisco Public Works Code article 4.2, section 147, and the Stormwater Management Requirements and Design Guidelines

[186] San Francisco Public Utilities Commission, *San Francisco Stormwater Management Requirements and Design Guidelines, Chapter 5. Combined Sewer Area Performance Requirements*, May 2016.

require that the stormwater controls for individual development projects reduce or maintain existing stormwater runoff flow rates and volumes.

The project would include stormwater management measures detailed in a stormwater control plan that would comply with the city's Stormwater Management Ordinance (discussed in greater detail in Impact HY-1). The measures would be designed to reflect low-impact design concepts such as infiltration or temporary retention of runoff to avoid increasing the volume of runoff from impervious areas. These required drainage control features would minimize the potential for erosion or siltation caused by runoff from new impervious areas and would control stormwater volumes such that the potential for flooding onsite or offsite would also be reduced. Therefore, the project would not alter drainage patterns in a way that would result in adverse onsite or offsite effects, such as flooding, erosion, or siltation, and the impact would be ***less than significant***.

Impact HY-4: The project would not create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. (*Less than Significant*)

Construction

During construction, the project would not create additional runoff and thus would not exceed the capacity of existing drainage systems. As noted above in Impact HY-1, construction activities would include BMPs to protect water quality by minimizing erosion and release of other pollutants to minimize the potential for adverse effects related to sediment in stormwater runoff. Therefore, during project construction, this impact would be ***less than significant***.

Operation

As noted above, the project would develop new or replace existing impervious areas at the site, and as a result, would be required to implement BMPs that would infiltrate, evapotranspire, bioretain, and/or biotreat the stormwater volume generated by the 90th percentile, 24-hour storm (or a storm resulting in 0.75 inch of rainfall). In compliance with the required stormwater control requirements, the project must control the volume and rate of stormwater runoff discharged from the project site. However, considering that the project would implement BMPs to control runoff and the remaining runoff from the site would drain to Lake Merced, there would be no limitations on the existing capacity of stormwater drainage systems from the proposed improvements. Therefore, runoff from proposed improvements would not exceed the capacity of the drainage infrastructure, and the potential impact of project operation would be ***less than significant***.

Impact HY-5: The project would not risk the release of pollutants due to inundation by flooding, seiche waves, or tsunami waves. (*Less than Significant*)

Construction and Operation

As noted above, the project site is not in a Special Flood Hazard Area identified on San Francisco's Interim Floodplain Maps. The project is not in a tsunami hazard zone, as identified in the Community Safety Element of the San Francisco General Plan.[187]

[187] San Francisco Planning Department, *Community Safety, an Element of the General Plan of the City and County of San Francisco.* October 2012.

A *seiche* is caused by oscillation of the surface of an enclosed body of water, such as Lake Merced, during an earthquake. The city has not mapped areas of potential inundation by seiche, but seiche waves could be experienced along the shoreline. The project includes the construction of a boat dock and boathouse that could be affected by seiche waves. However, there would be no storage of any significant quantities of hazardous materials along the lakeshore, and the project would complete remediation of contaminated soils onsite. Therefore, impacts related to the risk of release of pollutants involving inundation by flooding, seiche, or tsunami waves would be ***less than significant***.

Impact HY-6: The project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. (*Less than Significant*)

Construction and Operation

Both construction and operation of the project would adhere to all state and local water quality regulations, including the policies and objectives of the San Francisco Bay Basin Plan administered by the San Francisco Bay Regional Water Quality Control Board and requirements of the site closure plan approved by the regional board, as discussed in Impact HY-1. As noted in Impact HY-2, the project site is located in the Westside Groundwater Basin but would not require the use of groundwater resources or substantively interfere with groundwater recharge. Therefore, impacts related to conflicting or obstructing implementation of a water quality control plan or sustainable groundwater management plan would be ***less than significant***.

CUMULATIVE IMPACTS

Impact C-HY-1: The project, in combination with cumulative projects in the site vicinity, would not considerably contribute to significant impacts on hydrology and water quality. (*Less than Significant*)

The project site is next to Lake Merced, and the potential water quality effects of the project would be restricted to the lake. Therefore, the geographic scope of potential cumulative water quality effects is restricted to areas that drain to Lake Merced.

Construction

The project would have less-than-significant water quality impacts related to violation of water quality standards, alteration of existing drainage patterns, and risk of inundation by seiche. As discussed under Impact HY-1, the project would excavate and backfill soil next to Lake Merced, which could result in increased erosion and, in turn, affect water quality in Lake Merced; however, the project would implement the requirements of the construction general permit, which would reduce the adverse water quality effects of project construction. The Vista Grande Drainage Basin Improvement Project includes construction of a stormwater conveyance structure and treatment wetlands along John Muir Drive near the project site, the construction of which also could create sediment-laden runoff that could drain toward Lake Merced. The Vista Grande project would be subject to these same requirements during construction, or to the construction site runoff requirements of San Francisco Public Works Code article 4.2, section 146, which include measures to avoid adverse water quality effects during construction. As a result, cumulative impacts from erosion or changes to drainage patterns from the construction of the project, in combination with the other cumulative projects, would be ***less than significant***.

Operation

As discussed above, the project would also have less-than-significant water quality and hydrology impacts during operation because runoff from the site would be managed consistent with the city's stormwater management requirements. Operation of the Vista Grande project would divert stormwater into Lake Merced that otherwise would flood areas of Daly City, and includes an overflow structure that controls the maximum water level in Lake Merced. To reduce effects on water quality, runoff would be treated in wetlands before flowing into Lake Merced. As discussed in Impact HY-1, the project would incorporate BMPs that would reduce runoff and improve runoff water quality.

The project, along with the Vista Grande project, could alter the water quality and hydrology of Lake Merced, a potentially significant cumulative impact; however, the water quality and hydrology of Lake Merced would be managed by the features of the Vista Grande project. The project's contribution to the cumulative impact would not be considerable, and cumulative impacts would be ***less than significant***.

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E.18 Hazards and Hazardous Materials

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
18. HAZARDS AND HAZARDOUS MATERIALS. Would the project:					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires?	☐	☐	☐	☐	☒

The project site is not located within one-quarter mile of an existing or proposed school; for this reason, topic E.18(c) is ***not applicable*** to the project. The nearest public airport, San Francisco International Airport, is located approximately nine miles southeast of the project site, and the site is not within the airport's land use plan area. For this reason, topic E.18(e) is ***not applicable*** to the project. The project site is not located within any wildlands or in a designated fire hazard severity zone as indicated by the California Department of Forestry and Fire Protection.[188] Therefore, topic E.18(g) is ***not applicable*** to the project and not discussed further.

[188] California Department of Forestry and Fire Protection, *Fire Hazard Severity Zones in LRA, San Francisco County*, January 13, 2020.

RECENT REMEDIATION ACTIVITIES AT THE PROJECT SITE

The former Pacific Rod and Gun Club built skeet and trap shooting facilities at the project site and operated its facilities there from 1934 to 2015. Since the Pacific Rod and Gun Club ceased operations at the project site in 2015, the site has been closed to the public.

During the Pacific Rod and Gun Club operations, lead shotgun pellets and clay targets fell onto the uplands within the project site and adjacent to Lake Merced. In response to contaminated soil identified on the project site, SFPUC developed a remedial action plan[189] that identified lead and polycyclic aromatic hydrocarbons (PAHs) as the primary chemicals of concern and established cleanup goals for the chemicals based on site-specific human health risk assessments.

Following closure of the Pacific Rod and Gun Club operations, SFPUC implemented the remedial action plan and conducted an extensive soil remediation project in the uplands area of the project site between May 2015 and April 2016. The soil remediation project resulted in the excavation and removal of approximately 88,000 tons of soil and debris from the project site. Confirmation soil samples were collected throughout the project site to evaluate the effectiveness of the soil remediation activities. The results of the confirmation samples demonstrated compliance with the site cleanup goals, except in the following two areas[190]:

- Residual PAH concentrations that exceeded the cleanup goal were detected in a sample from the excavation grid located in the northeast corner of the project site along the water line edge of Lake Merced. Removing additional soil from that location was not feasible because of groundwater infiltration.
- Debris containing PAHs remains in the soil beneath and directly adjacent to the former rifle range building.

After completion of the soil remediation activities, the project site was backfilled with clean imported sandy material and graded to generally reestablish preconstruction topography, stabilize slopes, and maintain positive drainage patterns. In addition, specific site features that included the semicircular paths at four former skeet fields were restored to their original size, configuration, and location. A gravel parking area was installed near the site entrance gate, gravel perimeter surface treatments were installed around select structures on the project site, and new vegetation was planted and hydroseed was applied across the majority of the site.

IMPACTS

Impact HZ-1: The project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials or reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. (*Less than Significant*)

Construction

Construction would proceed in four phases as discussed in EIR Chapter 2, Project Description. During all four phases, construction activities would routinely use varying amounts of hazardous materials. The materials that could be transported to and used at the project site include fuels (diesel and gasoline), lubricants,

[189] AMEC, *Draft Remedial Action, Plan Pacific Rod and Gun Club San Francisco, California*, July 2013.

[190] These areas would be included as part of the planned remediation activities associated with the project as discussed further below in Impact HZ-4.

paints, solvents, and flammable gases for welding. Storage and use of hazardous materials during construction activities could result in the release of small volumes of hazardous materials, which could impact soil and groundwater or surface water quality in Lake Merced. In addition, during the first phase of construction, approximately 2,200 cubic yards of building demolition debris would be generated for offsite removal. This material could consist of lead- and asbestos-containing building materials; recyclable materials including metal, glass, and concrete; and nonrecyclable materials. During the second and fourth phases of construction, excavation that removes soil or sediment contaminated by previous Pacific Rod and Gun Club activities could also release contaminants into the environment.

As discussed in detail below, hazardous materials handling, disposal, and transportation during all four construction phases would occur in accordance with applicable federal, state, and local regulations, which would reduce the risk of a release of hazardous materials into the environment.

Routine Use of Hazardous Materials during All Construction Phases

Before the start of any construction activities, the contractor would prepare a site-specific health and safety plan that would address chemical hazards identified for construction including hazardous materials brought onsite for construction activities (e.g., diesel and gasoline), potential lead and asbestos-containing building debris generated during building demolition, and soil impacted with chemicals of concern.

The health and safety plan would be consistent with all applicable regulations in California Code of Regulations (CCR) title 8 or other applicable regulations, and with SFPUC's health and safety requirements. The plan would establish, in detail, the protocols necessary for the recognition, evaluation, and control of all hazards associated with the construction activities performed by the contractor and its subcontractors. The health and safety plan would include but not be limited to: information about the chemicals to be encountered, handled, or used, and associated action levels for site worker safety; worker safety monitoring requirements and protocols, and emergency response procedures; and inspection requirements.

Compliance with additional laws and regulations would ensure the safe transportation and disposal of hazardous materials. Off-hauling of contaminated materials and any other potentially hazardous waste could result in an incremental increase in the potential for a release of hazardous materials as a result of an accident; however, the California Department of Transportation and the California Highway Patrol regulate the transportation of hazardous materials and wastes, including container types and packaging requirements, as well as licensing and training for truck operators, chemical handlers, and hazardous waste haulers. Worker safety regulations (California Occupational Safety and Health Administration [Cal/OSHA] requirements) cover hazards related to the prevention of exposure to hazardous materials and a release to the environment from hazardous materials use. Regulations and criteria for the disposal of hazardous materials mandate disposal at an appropriate landfill.

Handling of Contaminated Soil and Sediments

As discussed in EIR Chapter 2, Project Description, SFPUC would implement the soil management plan approved by the San Francisco Bay Regional Water Quality Control Board during further soil excavation in upland areas still contaminated by Pacific Rod and Gun Club activities, such as beneath the rifle range building.[191]

[191] Kennedy/Jenks Consultants, *Soil Management Plan Former Pacific Rod and Gun Club*, February 16, 2016. The plan was approved as part of the San Francisco Bay Regional Water Quality Control Board–approved Remedial Completion Report in a letter dated May 16, 2016.

A new plan would be prepared and submitted to the regional board for approval before any excavation of sediment for the boat soft landing; the new plan would contain safety measures similar to those in the soil management plan. The soil management measures described in the soil management plan include protocols to facilitate protection of human health and the environment from chemicals of concern in soils that are anticipated or that may be encountered during construction activities. Soil potentially contaminated with chemicals of concern would be managed in accordance with applicable regulations and health and safety requirements. Soil management protocols generally involve notification to the regional board about and characterization of the nature and extent of potential soil impacts within the limits of the project site, soil excavation, stockpile management, contaminant profiling, transportation, and disposal.

According to the soil management plan, contaminated soil and debris would be sampled, analyzed, excavated, and managed by implementing the following key activities:

- ***Pre-excavation activities:*** Obtaining the necessary regulatory approvals and utility clearances, and placing temporary facilities and site controls.
- ***Soil excavation and materials management activities:*** Removing soil and debris using standard earthmoving equipment and manual methods, collecting confirmation soil samples to evaluate the effectiveness of the remedial activities, conducting additional excavation if initial confirmation sample results exceed the established cleanup goals, and stockpiling soil on plastic sheeting, covering, and installing perimeter berms.
- ***Management of waste generated from the excavation activities:*** Collecting samples from soil stockpiles to determine whether the waste classification as either a Resource Conservation and Recovery Act federal waste, a California state non–Resource Conservation and Recovery Act waste, or a nonhazardous waste for offsite disposal consideration. The stockpiled waste material would be profiled in accordance with the requirements of the offsite disposal facilities. The transportation and disposal of waste materials would be coordinated and conducted in accordance with all applicable laws and regulations.

As outlined in the soil management plan, the following construction monitoring and mitigation measures would be implemented to address potential construction-related impacts during soil remediation activities:

- Deliberate communication with stakeholders and the project team, including field oversight during all excavation and disposal operations, and field documentation that would include the preparation of daily field reports.
- Construction quality control monitoring of excavation activities, fill placement, and compaction during site stabilization.
- Establishment and compliance with health and safety protocols as presented in the site-specific health and safety plan.
- Monitoring and control of air quality impacts during debris and soil removal operations, following San Francisco Department of Public Health article 22B requirements.
- Stormwater management and erosion and sediment control as described in the storm water pollution prevention plan.

As discussed in Impact HY-1 in topic E.17, Hydrology and Water Quality, project construction activities would be required to comply with the requirements of the State Water Resources Control Board NPDES General Permit

for Stormwater Discharges Associated with Construction and Land Disturbance Activities (general permit: SWRCB Order No. 2009-0009-DWQ, NPDES No. CAS000002). In accordance with the general permit, a storm water pollution prevention plan would be required that would describe best management practices for managing hazardous materials at the project site during construction and operation. These measures would include the proper storage and use of hazardous materials in a manner that would minimize accidental spills from being released to the environment and/or impacting stormwater. Best management practices would be installed and maintained in accordance with industry standard, such as those described in the California Stormwater Association's *Storm Water Best Management Practice Handbook–Construction*. Regular inspections would be conducted to maintain, adjust, and update the implemented stormwater pollution controls.

Hazardous Building Materials during Demolition

The project would demolish structures that, because of their age, are likely to contain hazardous building materials, including asbestos-containing materials and lead-based paint. Electrical equipment may contain polychlorinated biphenyls (PCBs), while fluorescent light ballasts may contain PCBs or di (2-ethylhexyl) phthalate (DEHP), and fluorescent light tubes would contain mercury vapors. Before demolition, SFPUC would perform surveys to identify the presence of these materials in the buildings to be demolished.

During building demolition, workers and the public could be exposed to hazardous building materials if they were not abated before demolition. However, there is a well-established regulatory framework for the abatement of hazardous building materials, and impacts related to exposure to these materials would be less than significant with compliance with regulatory requirements. In accordance with Bay Area Air Quality Management District rule 11, regulation 2, the city would be required to retain a qualified contractor to conduct a survey to identify asbestos-containing materials in any building planned for demolition. If asbestos-containing materials are identified, the city would retain a qualified asbestos removal contractor certified as such by the Contractors State License Board to remove the regulated materials before demolition activities.

Disturbance of building and equipment components that include lead-based paint during demolition could expose workers and the public to lead. However, demolition activities would be subject to section 3426 of the San Francisco Building Code and the Cal/OSHA Lead in Construction Standard (CCR title 8, section 1532.1), which requires specific notifications and work standards, and identifies prohibited work methods and penalties.

Other hazardous building materials that could be present within the structures to be demolished include electrical transformers that could contain PCBs, fluorescent light ballasts that could contain PCBs or DEHP, and fluorescent light tubes that could contain mercury vapors, some of which would be classified as universal wastes under California law. Electrical transformers that contain PCBs, fluorescent light ballasts that contain PCBs or DEHP, fluorescent light tubes, and any universal wastes encountered during demolition would be removed and disposed of in accordance with CCR title 22, section 66261.24.

Conclusion

Because SFPUC, RPD, and their contractors would be required to comply with existing hazardous materials laws and regulations for the transport, storage, use, and disposal of hazardous materials during construction, impacts associated with the potential to create significant hazards to the public or the environment would be ***less than significant***.

Operation

Project site operations would include the use and storage of small volumes of hazardous materials, including diesel and gasoline fuels. These materials would be stored in gallon-sized containers and used for fueling a rescue boat and lawn/maintenance equipment. RPD would require the storage and use of these materials to follow all San Francisco risk management requirements for hazardous materials including their proper storage, use, and transport. For these reasons, the potential impact related to the routine transport, use, or disposal of hazardous materials or reasonably foreseeable upset and accident conditions during operation would be ***less than significant***.

Impact HZ-2: The project would be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5; however, it would not create a significant hazard to the public or the environment. (*Less than Significant*)

Construction

The project site is listed in the San Francisco Bay Regional Water Quality Control Board's list of cleanup sites[192] according to the Geotracker database. The status of the site is listed as "Completed – Case Closed" as of June 18, 2019. As described in EIR Chapter 2, Project Description, additional soil remediation would be conducted during construction. Approximately 1,500 cubic yards of PAH-contaminated soil is anticipated to be present at the project site immediately adjacent to and beneath the former rifle range building, and will require further remedial action following building demolition. Soil deposits exhibiting potential contamination would be characterized for potential waste profiling and removal. The planned remediation includes the removal of contaminated soil and debris exceeding concentrations protective of human health and/or sensitive ecological receptors. Remediation protocols are required because of the potential for encountering additional unknown contaminated soil during earth-disturbing activities at the project site during development and at previously identified areas, including the rifle range building. In addition, sediment remediation would be necessary for construction of the watercraft soft landing area. Remediation activities would be managed, and contaminated materials disposed of, in accordance with applicable federal, state, and local laws and requirements as outlined in an approved soil management plan.

Before any remedial activities, a site-specific health and safety plan would be prepared, as discussed in Impact HZ-1. The plan would be implemented that, at a minimum, conforms to the general requirements of Occupational Safety and Health Administration standards (Code of Federal Regulations title 29, section 1910.120) and Cal/OSHA standards (CCR title 8, section 5192) for protecting workers and the community from construction hazards and chemicals of concern in soil. The city would also implement requirements of the soil management plan. The use of engineering controls, work practices, and personal protective equipment as specified in the health and safety plan and soil management plan would ensure that exposure to hazardous materials would not result in adverse health impacts. These practices would reduce the potential for an accidental release of contaminated soil during remedial and construction activities.

Soil remediation would be performed in accordance with all regulatory requirements for handling, transport, and disposal of contaminated soil, which would reduce the potential for accidental releases and harmful exposure to hazardous materials in site soils. For these reasons, impacts related to location on a site identified on the list of hazardous materials sites compiled pursuant to Government Code section 65962.5 and creation of

[192] State Water Resources Control Board, Geotracker: Pacific Rod and Gun Club (T10000005188), *http://geotracker.ca.gov_profile_report.asp?global_id=T10000005188*. Accessed May 8,2020.

a significant hazard to the public of the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment during construction would be ***less than significant***.

Operation

As discussed in EIR Chapter 2, Project Description, the soil remediation project conducted in 2015 was completed to remove elevated concentrations of lead and PAHs from upland areas to meet human health cleanup standards and allow unrestricted future use of the site. In particular, the site cleanup goals in the remedial action plan were based on the California Human Health Screening Level for residential properties, published by the Office of Environmental Health Hazard Assessment, and site-specific background concentrations, as approved by the regional board.[193,194,195] Confirmation sampling conducted during the remediation project showed that the cleanup goals were met in all locations except under the rifle range building and in the far northwestern corner of the site, meaning that the site is suitable for unrestricted (including residential or recreational) use. As discussed in Chapter 2 and above, the project would implement remediation of the contaminated soil under the rifle range building and contaminated lake sediments in areas that could be accessible to the public, i.e., the boat launch and dock area. Because these areas would be remediated to cleanup levels that do not pose a human health risk, recreational use of the site would not create a significant hazard to the public or the environment, and thus would result in a ***less-than-significant*** impact.

The public is currently allowed to launch personal nonmotorized craft into North Lake Merced. South Lake Merced is used by local rowing clubs but is not accessible to the public by boat or for swimming. The project would provide a public nonmotorized watercraft access point to South Lake Merced. As discussed previously, lead and PAHs were released into the sediments of South Lake Merced during former use of the site by the Pacific Rod and Gun Club. The city has undertaken cleanup of sediment in South Lake Merced to reduce the presence of these contaminants; during a cleanup dredging effort in 1985 and 1986, the city removed 128 tons of lead pellets from the lake.[196] When site investigations were conducted between 1989 and 1992, water samples from the lake showed no detectable lead. SFPUC conducts regular sampling of Lake Merced; the lead concentration in the lake water has consistently been below 2.0 micrograms per liter, which is below the concentration that would adversely affect any beneficial use such as water recreation, and was not detected in the most recent sampling conducted.[197,198] In addition, the San Francisco Bay Basin Plan identifies beneficial uses of Lake Merced as body-contact recreation (e.g., swimming, wading, and fishing), noncontact recreation (e.g., rowing), warm freshwater habitat, cold freshwater habitat, fish spawning, and wildlife

[193] Office of Environmental Health Hazard Assessment, *Revised California Human Health Screening Levels for Lead,* September 2009, http://oehha.ca.gov/risk/pdf/LeadCHHSL091709.pdf, accessed August 18, 2021.

[194] AMEC, *Remedial Action Plan: Pacific Rod and Gun Club, San Francisco, California,* prepared for the San Francisco Public Utilities Commission, July 12, 2013.

[195] San Francisco Bay Regional Water Quality Control Board, *Water Board Staff Concurrence with the Human Health Cleanup Standards for the Pacific Rod and Gun Club Property Located at 520 John Muir Drive, Lake Merced, San Francisco,* August 29, 2013.

[196] San Francisco Bay Regional Water Quality Control Board, *Order No. R2-2019-0018, Rescission of Site Cleanup Requirements Order No. R2-2013-0023 for Pacific Rod and Gun Club and the City and County of San Francisco, San Francisco Public Utilities Commission*, June 5, 2019.

[197] San Francisco Public Utilities Commission, *2018 Lake Merced Water Quality Monitoring Report*, Memorandum, June 30, 2019.

[198] San Francisco Bay Regional Water Quality Control Board, *Water Quality Control Plan*, Table 3-4 Freshwater Water Quality objectives for Toxic Pollutants for Surface Waters, May 4, 2017.

habitat.[199] Given the previous cleanup and results of ongoing lake water sampling, the project would not create a significant hazard to the public or the environment related to lake water quality, and the impact would be ***less than significant***.

Impact HZ-3: The project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. (*Less than Significant*)

Construction

As discussed in topic E.6, Transportation and Circulation, with implementation of the project, adequate emergency access to the project site would continue, and there would be no changes to John Muir Drive that could affect emergency vehicle access to the surrounding area. Project construction activities would not require full closures of any streets, except for intermittent temporary closures associated with maneuvering by large trucks and equipment; emergency vehicles would have continuous access to all public roadways. Therefore, the project would not impair implementation of or physically interfere with an emergency response plan or an emergency evacuation plan, and project construction impacts would be ***less than significant***.

Operation

The project would not permanently alter the existing street network; therefore, operation of the project would not alter emergency evacuation/response access routes. ***No impact*** would occur.

CUMULATIVE IMPACTS

Impact C-HZ-1: The project, in combination with cumulative projects in the site vicinity, would not result in significant impacts related to hazardous materials. (*Less than Significant*)

The geographic scope for cumulative impacts associated with hazards and hazardous materials includes the project site and the immediate vicinity of the project area. This is because the impacts from hazards and hazardous materials are generally site-specific, given the need to quickly contain spills and the site-specific nature of contamination at hazardous materials sites. As a result, cumulative impacts typically do not occur unless the cumulative projects are close to one another and incidents occur contemporaneously. The Vista Grande project is the only project near the proposed project, although it would not excavate materials from the same site as the proposed project.

Construction and operation of the cumulative projects would involve the use of hazardous materials, similar to those identified for the project. The effects of such uses are generally site-specific and depend on controls and precautions that are employed during construction activities. Cumulative impacts related to exposure to hazards and hazardous materials in soil could occur if the cumulative project construction activities were to entail excavation within contaminated areas. In addition, construction of the cumulative projects could result in accidental releases of hazardous construction materials. Any potential hazards occurring at these cumulative project sites would be subject to the same safety and/or remediation regulations and ordinances required for the project, which would reduce potential cumulative hazards.

[199] San Francisco Bay Regional Water Quality Control Board, 2017. *San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan),* https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/planningtmdls/basinplan/web/docs/BP_all_chapters.pdf. Last updated May 4, 2017. Accessed April 13, 2020.

Once constructed, the cumulative projects would be required to comply with federal, state, and local regulations applicable to the use, storage, and disposal of any hazardous materials and wastes. The proposed project in combination with other projects would have a ***less-than-significant*** cumulative impact related to hazards and hazardous materials.

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E.19 Mineral Resources

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
19. MINERAL RESOURCES. Would the project:					
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	☐	☐	☐	☐	☒

For purposes of this analysis, mineral resources include sand, clay, gravel, and rock deposits that could be located within the project area and would be of value to the region and residents of the state. Under the Surface Mining and Reclamation Act of 1975, the project area is classified by the California Geological Survey as Mineral Resource Zone[200] (MRZ) MRZ-1, which is defined as "areas where adequate information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence."[201] The MRZ-1 mapping north and east of the project site, including Lake Merced, indicates that adequate information exists to conclude that no significant mineral deposits are present, or little likelihood exists for their presence.[202] The *San Francisco General Plan* confirms that because San Francisco is a very urban place, mineral resources are not found in the city to any appreciable extent, and as a result, consideration of mineral resources is omitted from the general plan.[203] Further, no mines, mineral plants, or oil, gas, or geothermal wells are located within the project area.[204,205] Therefore, the project would not result in the loss of availability of a known mineral resource that is of value to the region. The *San Francisco General Plan* does not identify any areas of important mineral resource recovery sites in San Francisco. For these reasons, topics E.17(a) and E.17(b) are ***not applicable*** to the project and there would be no cumulative impacts to consider.

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[200] California Department of Conservation, Division of Mines and Geology, *Mineral Land Classification: Aggregate Materials in the San Francisco–Monterey Bay Area*, Special Report 146, Part II, 1987.

[201] *Classification* of mineral resource zones is based on geologic and economic factors without regard to existing land use and land ownership. *Designation* is the formal recognition by the state, after consultation with lead agencies and other interested parties, of areas containing mineral deposits of regional or statewide significance.

[202] California Department of Conservation, Division of Mines and Geology, *Mineral Land Classification: Aggregate Materials in the San Francisco–Monterey Bay Area*, Special Report 146, Part II, Plate 2.41, San Francisco North Quadrangle; and Plate 2.42, San Francisco South Quadrangle, 1987.

[203] City and County of San Francisco, *San Francisco General Plan*, Environmental Protection Element, https://generalplan.sfplanning.org/I6_Environmental_Protection.htm, accessed December 16, 2019.

[204] California Department of Conservation, Well Finder, https://www.conservation.ca.gov/calgem/Pages/wellfinder.aspx, accessed August 12, 2021.

[205] U.S. Geological Survey, Active Mines and Mineral Plants in the U.S., 2003, http://mrdata.usgs.gov/mineral-resources/active-mines.html, accessed December 16, 2019.

E.20 Energy

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
20. ENERGY. Would the project:					
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐	☐

Impact EN-1: The project would not result in potentially significant environmental impacts due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation. (*Less than Significant*)

Construction Energy

Project construction would require the use of fuel-powered equipment and vehicles for construction activities, and electricity for construction trailers. Heavy construction equipment (e.g., cranes, dump trucks, backhoes, loaders) and generators would be diesel powered, while smaller construction vehicles, such as pick-up trucks would be gasoline powered. The precise amount of fuel required for project construction is uncertain; however, it is expected that the quantity of gasoline and diesel use for construction equipment, as well as workers' vehicles and haul vehicles, would be comparable to the quantity used for large construction projects within the city. The majority of electric power usage would result from service to the construction trailers. In addition, indirect electricity usage would occur associated with the supply, distribution, and treatment of water used for construction. While a direct connection to the electrical grid might be available, the analysis conservatively assumes all electrical power would be obtained from generators. The construction contractor would have financial incentive to use fuel and energy efficiently, because excess usage would reduce profits. Fuel and energy usage during construction would not be wasteful or inefficient, and the impact from construction fuel and energy usage would be less than significant.

Operational Energy and Water Resources

Fuels. The project could contribute to the estimated increase in the use of transportation fuels by generating new vehicle trips and increasing demand for natural gas for the restaurant. However, the project would be served by public transportation opportunities and improve pedestrian and bicycle infrastructure on the project site. With these features, employees and site visitors would be encouraged to use public transportation or use alternative transportation methods. Should one travel in a personal vehicle, the use of low emission and fuel-efficient vehicles would be encouraged by providing designated parking spots in the public parking lot in accordance with San Francisco Green Building Code section 5.106.5.2. Therefore, the project would not result in the wasteful use of transportation fuels and this impact would be ***less than significant***.

Energy. The project would require the use of energy for purposes such as lighting, heating, cooling, ventilation, and equipment operation. San Francisco adopted its own green building code, implementing the

California Green Building Code and California Building Energy Efficiency Standards, with amendments. Accordingly, the design of the buildings would need to meet or exceed the energy efficiency requirements of the 2019 San Francisco Green Building Code which, at a minimum, would require compliance with the 2019 California Building Energy Efficiency Standards. The project would comply with the state's Title 24 and San Francisco Green Building Code requirements for energy efficiency and renewable energy.

Compliance with Title 24 regulations and the San Francisco Green Building Code would ensure that the project would not use energy in a wasteful manner. Therefore, the project would not result in the wasteful use of energy and this impact would be ***less than significant***.

Water. The project would require the indoor use of water for toilet flushing and other sanitary needs, food preparation, and other indoor activities. However, the project would be required to comply with the water conservation measures specified in the 2019 California Green Building Code and the 2019 San Francisco Green Building Code.

For outdoor water use (landscape irrigation), the project sponsor would be required to use climate-appropriate plants and submit the required landscape documentation to the SFPUC in accordance with the San Francisco Water Efficient Irrigation Ordinance and the San Francisco Green Landscaping Ordinance. Installation of weather- or soil moisture-based irrigation controllers that would automatically adjust irrigation in response to changes in plants' needs as weather conditions change would also be required. Compliance with the above standards would ensure that water is not used wastefully during operation of the project.

The project would not cause a wasteful use of energy, and effects related to use of fuel, water, and energy would be ***less than significant***.

Impact EN-2: The project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency. (*Less than Significant*)

California's renewable energy and energy efficiency plans include the Renewables Portfolio Standard Program (as revised by SB X1-2), which requires utilities to increase their renewable energy generation to 33 percent by 2020, and the California Energy Efficiency Strategy Plan, which was developed to provide a roadmap for energy efficiency in California through the year 2020 and beyond. As a local level, the majority of the city's energy-efficiency requirements are geared toward commercial and residential development and would only apply to the proposed restaurant.

As described in Topic E.9, Greenhouse Gas Emissions, the project was determined to be consistent with San Francisco's GHG reduction strategy. The city's GHG reduction strategy is consistent with the long-term GHG reduction goals of Executive Order S-3- 05, Executive Order B-30-15, Assembly Bill 32, Senate Bill 32 and the 2017 Clean Air Plan. Therefore, because the project is consistent with the city's GHG reduction strategy, it is also consistent with the GHG reduction goals of Executive Order S-3-05, Executive Order B-30-15, Assembly Bill 32, Senate Bill 32 and the 2017 Clean Air Plan, and would not conflict with these plans. For these reasons, the project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency, resulting in a ***less-than-significant*** impact.

CUMULATIVE IMPACTS

Impact C-EN-1: The proposed project, in combination with cumulative projects, would not result in significant cumulative impacts to energy resources. (*Less than Significant*)

There is no existing significant adverse condition with regard to energy resources in the project vicinity or broader region of California that would be worsened or intensified by the project. The project would result in increased electricity, diesel, gasoline, and water consumption as discussed in Impact EN-1. All current and proposed projects in the region require the use of fuel and energy for construction and potentially operation.

The demand for fuel, energy, and water that would be created by the project would be insubstantial in the cumulative context of citywide demand and would not require an expansion of power facilities. All development projects in San Francisco, including those listed in EIR Table 3.1-3 (p. 3.1-7), would be required to comply with the city's Green Building Ordinance and title 24 of the California Code of Regulations, both of which are enforced by the building department. Thus, cumulative projects would be required to adhere to all applicable rules and regulations associated with energy use during construction and operations and implement the latest energy conservation measures that discourage activities which result in the use of large amounts of fuel, water, or energy, or use these resources in a wasteful or inefficient manner. In addition, project contractors have a financial incentive to use fuel and energy efficiently during construction.

As a result, the proposed project, in combination with cumulative projects, would not result in a cumulative impact related to energy resources and impacts would be ***less than significant***.

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E.21 Agriculture and Forestry Resources

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
21. AGRICULTURE AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:					
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☐	☒
e) Involve other changes in the existing environment that, due to their location or nature, could result in conversion of farmland to non-agricultural use or forest land to non-forest use?	☐	☐	☐	☐	☒

The project area is classified as zoning district P (Public) and is not used for farming or agricultural activities. No land in the City and County of San Francisco has been designated by the California Department of Conservation's Farmland Mapping and Monitoring Program as agricultural land. Because the project site does not contain agricultural uses and is not zoned or designated for such uses by city or the state, the project would not involve the conversion of farmland to non-agricultural use. The project also would not conflict with any existing agricultural zoning or Williamson Act contracts.[206,207] Similarly, the project site does not contain forest land or timberlands, does not support timber uses, and is not zoned for timber uses. Therefore, the project

[206] California Department of Conservation, California Important Farmland Finder, https://maps.conservation.ca.gov/DLRP/CIFF/, accessed August 18, 2021.

[207] The *Williamson Act* is a California law enacted in 1965 that provides property tax relief to owners of farmland and open space land in exchange for a 10-year agreement that the land will not be developed or converted into another use.

would not conflict with zoning for forest land, cause a loss of forest land, or convert forest land to a different use. For these reasons, topics E.21(a) through E.21(e) are ***not applicable*** to the project, and these topics are not discussed further in the EIR, including this initial study.

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E.22 Wildfire

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
22. WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:					
a) Substantially impair an adopted emergency response plan or emergency evacuation plans?	☐	☐	☐	☐	☒
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☐	☒
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☐	☒
d) Expose people or structure to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☐	☒

San Francisco and bordering areas in San Mateo County do not have any state responsibility areas for fire prevention or lands that have been classified as very high fire hazard severity zones.[208] Therefore, topics E.22(a) through E.22(d) are ***not applicable*** to the project and are not discussed further in the EIR, including this initial study. See topic E.18, Hazards and Hazardous Materials, for a discussion of wildland fire risks.

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[208] California Department of Forestry and Fire Protection, *Fire and Resource Assessment Program, Fire Hazard Severity Zone Viewer*, https://egis.fire.ca.gov/FHSZ/ Accessed August 18, 2021.

E.23 Mandatory Findings of Significance

Topic	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact	Not Applicable
23. MANDATORY FINDINGS OF SIGNIFICANCE. Does the project:					
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐	☐
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☐	☐	☒	☐	☐
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐	☐

NOTE: Authority cited: Public Resources Code sections 21083 and 21083.05, 21083.09. Reference: Section 65088.4, Gov. Code; Public Resources Code sections 21073, 21074, 21080(c), 21080.1, 21080.3, 21083, 21083.05, 21083.3, 21080.3.1, 21080.3.2,21082.3, 21084.2, 21084.3, 21093, 21094, 21095, and 21151; *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296; *Leonoff v. Monterey Board of Supervisors* (1990) 222 Cal.App.3d 1337; *Eureka Citizens for Responsible Govt. v. City of Eureka* (2007) 147 Cal.App.4th 357; *Protect the Historic Amador Waterways v. Amador Water Agency* (2004) 116 Cal.App.4th at 1109; *San Franciscans Upholding the Downtown Plan v. City and County of San Francisco* (2002) 102 Cal.App.4th 656.

a) This initial study and the EIR together provide a comprehensive discussion of the potential for the project to affect the quality of the environment. Specifically, topic E.14, Biological Resources, discusses the potential for the project to substantially affect habitats, fish/wildlife populations, and sensitive natural communities. As discussed, all impacts related to biological resources would be less than significant, or less than significant with mitigation. Topic E.4, Cultural Resources and EIR Section 3.2, Historic Architectural Resources, discusses the potential for the project to affect important examples of California history. As discussed, the project would result in a significant effect on historic architectural resources. Topics E.4, Cultural Resources, E.5, Tribal Cultural Resources, and E.16, Geology and Soils, discuss the potential for the project to affect important examples of California prehistory. As discussed, all impacts on archeological resources, tribal cultural resources, and paleontological resources would be less than significant with implementation of standard construction measures or mitigation.

b) The project in combination with the past, present and reasonably foreseeable projects as discussed in Section E, *Evaluation of Environmental Effects*, and in Section 3.2, Historic Architectural Resources, would not result in significant cumulative impacts.

c) Potential adverse effects on human beings have been considered as a part of the analysis of individual environmental topics in this Initial Study. As discussed above, the proposed project the potential to result in significant impacts with respect to historic has architectural resources, which could adversely affect human beings. The EIR assesses this topic and identifies mitigation measures where applicable.

F. Mitigation Measures

The following mitigation measures have been identified in this initial study to reduce potentially significant impacts of the project to less-than-significant levels. Other potentially significant impacts are fully analyzed in Chapter 3 of the EIR, and mitigation measures are identified for significant impacts. The RPD and SFPUC will implement all mitigation measures identified in the initial study.

Mitigation Measure M-NO-2: Noise Control Plan for Outdoor Amplified Sound.

The San Francisco Recreation and Parks Department shall require special event amplified noise permits to contain the following requirements:

- The special-event sponsor shall comply with noise controls and restrictions in the amplified sound event permit.
- Speaker systems shall be directed away from the nearest residences to the degree feasible.
- Amplified sound equipment use shall be restricted to 5 hours between 9:00 a.m. and 10:00 p.m.
- Outdoor speaker systems shall be operated such that amplified event noise levels do not exceed 80 dBA at a distance of 100 feet from the equipment.
- The special-event sponsor shall notify residents within 300 feet of the project site in advance of each special event. The notice shall include the phone number of an RPD contact for noise complaints.
- The San Recreation and Park Department shall have a contact person available to respond to noise complaints, monitor noise levels to confirm compliance with permit requirements, and adjust noise levels (if needed).

Mitigation Measure M-BI-1a: Worker Environmental Awareness Program Training.

A project-specific Worker Environmental Awareness Program (WEAP) training shall be developed and implemented by a qualified biologist for the project and attended by all construction personnel prior to beginning work onsite. The training could consist of a recorded presentation that could be reused for new personnel. The WEAP training shall generally include but not be limited to the following:

- Applicable State and federal laws, environmental regulations, project permit conditions, and penalties for non-compliance;
- Special-status animal species with potential to occur on or in the vicinity of the project site, avoidance measures, and a protocol for encountering such species including a communication chain;
- Preconstruction surveys and biological monitoring requirements associated with each phase of work;
- Known sensitive resource areas in the project vicinity which are to be avoided and/or protected (e.g. wetlands) as well as approved project work areas; and
- Best Management Practices and their location on the project site for erosion control and/or species exclusion.

Mitigation Measure M-BI-1b: Avoidance and Minimization Measures for Western Pond Turtle.

During construction, RPD and SFPUC shall ensure a biological monitor is present during installation of exclusion fencing, during initial vegetation clearing and ground disturbance within grassland, riparian, and wetland habitats, and during all in-water construction. Also, the following measures shall be implemented:

- Within one week before construction commences, a qualified biologist shall supervise the installation of exclusion fencing along limits of vegetation removal and grading within riparian and wetland habitat as the biologist deems necessary to prevent western pond turtles from entering the work areas. Exclusion fencing may be installed with wings at the edges of locations where vegetation removal would occur within riparian and wetland vegetation to redirect species away from the work areas and back into suitable habitat that would not be disturbed by the project. This would avoid installation of fencing along the entire north (lakeside) boundary of the site if disturbance to riparian and wetland vegetation is localized to the dock and soft landing project components on the east end of the site. The construction contractor shall install CDFW-approved species exclusion fencing, with a minimum height of 3 feet above ground surface and with an additional 4–6 inches of fence material buried such that species cannot burrow under the fence. Fencing can be multipurpose silt fencing (see Mitigation Measure M-BI-3a, Restoration of Arroyo Willow Riparian Scrub and Freshwater Marsh Wetlands, below) and exclusion fencing.
- Any erosion and sediment control materials used onsite shall be free of plastic monofilament material that could cause animal entanglement.
- A qualified biologist shall survey the project area within 48 hours before the start of initial ground-disturbing activities and shall be present during initial vegetation clearing and ground-disturbing activities in grassland, wetland and riparian habitat within 100 yards of the shoreline. The extent of disturbance within aquatic, wetland, and riparian habitat areas to accommodate construction of in-water project components shall be minimized. A qualified biologist shall be present during installation of the coffer dam around the soft landing soil remediation area and during dewatering activities.

  If western pond turtles are found during construction, If western pond turtles are found during construction, construction activity that poses a threat to the individual shall be halted in the vicinity as determined by the qualified biologist. If possible, the individual shall be allowed to move out of the work area of its own volition (e.g., if it is near the exclusion fence that can be temporarily removed to let it pass). The qualified biologist shall relocate turtles to the nearest suitable habitat should they not leave the work area of their own accord. Construction shall resume after the individual is out of harm's way. If western pond turtles occur repeatedly onsite after the exclusion fencing has been installed, a qualified biologist shall initiate preconstruction sweeps of the project site for this species prior to start of construction on a daily basis and thereafter throughout the duration of the project.
- Excavations deeper than 6 inches shall have a sloping escape ramp of earth or a wooden plank installed at a 3:1 rise.
- Openings, such as pipes, where western pond turtles might seek refuge shall be covered when not in use.

- All trash that may attract predators or hide western pond turtles shall be properly contained each day, removed from the worksite, and disposed of regularly.

Following site construction, the contractor shall remove all trash and construction debris from the work areas.

Mitigation Measure M-BI-3a: Restoration of Arroyo Willow Riparian Scrub and Freshwater Marsh Wetlands.

Arroyo willow riparian scrub habitat and freshwater marsh wetlands temporarily affected during construction to facilitate project components or sediment remediation shall be restored in-place to pre-project conditions. A Riparian and Wetland Restoration and Mitigation Monitoring Plan shall be prepared for the affected areas, subject to approval by the appropriate regulatory agencies, and shall generally include, but not be limited to, the following:

- A final grading plan for the affected riparian scrub habitat and wetlands which would restore the topography of the affected habitat areas to pre-project conditions;
- A planting plan, composed of native riparian scrub and freshwater marsh wetland plant species, consistent with these communities of Lake Merced;
- A weed control plan that prevents the spread of invasive non-native plant species on the project site;
- Performance criteria for the revegetated areas that establish success thresholds over a specific amount of time (typically five years) as determined by the regulatory agencies with jurisdiction over the affected areas;
- A monitoring and reporting program under which progress of the revegetated areas shall be tracked to ensure survival of the mitigation plantings. The program shall document overall health and vigor of mitigation plantings throughout the monitoring period and provide recommendations for adaptive management as needed to ensure the site is successful, according to the established performance criteria. An annual report documenting monitoring results and providing recommendations for improvement throughout the year shall be provided to the regulatory agencies; and
- A best management practices element describing erosion control measures to be installed around the affected areas following mitigation planting in order to avoid sediment runoff into the adjacent waters of Lake Merced.

Mitigation Measure M-BI-3b: Compensation for Permanent Fill of Wetlands and Waters.

The project sponsor shall provide compensatory mitigation for placement of fill associated with installation of new structures in jurisdictional wetlands, waters and riparian habitat of Lake Merced as further determined by the regulatory agencies with authority over Lake Merced during the permitting process. Compensatory mitigation shall achieve at least at a 1:1 ratio of acreage impacted to acreage created/restored/enhanced to ensure no-net-loss of wetlands, waters, and riparian habitat.

Compensatory mitigation obligations from permanent project fill could be satisfied through on-site or off-site creation, restoration, or enhancement of waters, wetlands and/or riparian habitat, or

payment into an approved mitigation bank for in-kind habitat credits, or other compensatory actions that avoid a net loss in these aquatic resources and as determined by regulatory agencies.

Mitigation Measure M-BI-6: Avoidance and Minimization Measures for Bats

A qualified biologist with at least a four-year degree and professional experience in biological sciences and related resource management activities, who is experienced with bat surveying techniques (including auditory sampling methods), behavior, roosting habitat, and identification of local bat species, shall conduct a preconstruction survey within one year prior to the start of construction, during the period when bat maternity roosts would be in use (April 15 – August 15) to identify potential bat habitat and potentially active maternity roost sites in the project area. If the preconstruction survey does not identify bat habitat or signs of potentially active bat roosts within the project area such as guano, urine staining, or dead bats, then no further action is required. A brief, written report documenting the results of the survey shall be provided to the planning department.

The following measures shall be implemented if the preconstruction survey identifies potential roosting habitat or potentially active bat roosts in buildings to be demolished under the project:

1. In areas identified as potential roosting habitat during the preconstruction survey, building/structure demolition shall avoid the bat maternity roosting season and period of winter torpor (a state of decreased physiological activity with reduced body temperature and metabolic rate) when bats are most vulnerable. Building/structure demolition shall instead be conducted when bats are active and able to flee from disturbance activities, approximately between the periods of March 1 to April 15 and August 15 to October 15. Depending on the preconstruction survey outcomes discussed below, the qualified biologist shall conduct additional preconstruction surveys of potential bat roost sites identified during the initial preconstruction survey no more than 14 days prior to building/structure demolition.
2. If active bat roosts or evidence of roosting are identified during preconstruction surveys, a no-disturbance buffer shall be established around roost sites until the qualified biologist determines they are no longer active. The size of the no-disturbance buffer shall be determined by the qualified biologist and would depend on the species present, roost type, and existing screening around the roost site (such as dense vegetation or a building), as well as the type of construction activity that would occur around the roost site.
3. If maternity or hibernation roosts are detected during these surveys, appropriate species- and roost-specific avoidance and protection measures shall be developed by the qualified biologist. Such measures may include postponing the removal of occupied buildings or other structures, establishing exclusionary work buffers while the roost is active (e.g., 100-foot no-disturbance buffer), or other avoidance measures depending on the species present, their protection status, and roost type. If a maternity roost of any size supporting any bat species is detected during surveys, an avoidance buffer, as determined by the qualified biologist, shall be maintained until the young bats are flying. The qualified biologist shall determine the extent of protective buffers, and buffer placement would depend on: the species' sensitivity to disturbance, which can vary among species; the level of noise or construction disturbance; the line-of-sight between the roost and the disturbance; ambient noise (baseline noise) and other disturbances under existing conditions; and consideration of other topographical or artificial barriers.

4. The qualified biologist shall be present during building/structure demolition if potential bat roosting habitat or active bat roosts are present and roosts do not contain young. Buildings/structures with active roosts shall be disturbed only under clear weather conditions when precipitation is not forecast for three days and when daytime temperatures are at least 50 degrees Fahrenheit.
5. Removal of buildings/structures containing or suspected to contain active bat roosts shall be dismantled under the supervision of the qualified biologist in the evening and after bats have emerged from the roost to forage. Buildings/structures shall be partially dismantled to significantly change the roost conditions, causing bats to abandon and not return to the roost.

Mitigation Measure M-GE-5: Inadvertent Discovery of Paleontological Resources

Worker Awareness Training. Prior to commencing construction, and ongoing throughout ground disturbing activities (e.g., excavation, utility installation), the RPD and SFPUC and/or their designee shall ensure that all project construction workers are trained on the contents of the Paleontological Resources Alert Sheet, as provided by the planning department. The Paleontological Resources Alert Sheet shall be prominently displayed at the construction site during ground disturbing activities for reference regarding potential paleontological resources.

In addition, the RPD and SFPUC shall inform the contractor and construction personnel of the immediate stop work procedures and other procedures to be followed if bones or other potential fossils are unearthed at the project site. Should new workers that will be involved in ground disturbing construction activities begin employment after the initial training has occurred, the construction supervisor shall ensure that they receive the worker awareness training as described above.

The RPD and SFPUC shall complete the standard form/affidavit confirming the timing of the worker awareness training to the Environmental Review Officer (ERO). The affidavit shall confirm the project's location, the date of training, the location of the informational handout display, and the number of participants. The affidavit shall be transmitted to the ERO within five business days of completion of excavation.

Paleontological Resource Discoveries. In the event of the discovery of an unanticipated paleontological resource during project construction, ground disturbing activities shall temporarily be halted within 25 feet of the find until the discovery is examined by a qualified paleontologist meeting the qualifications stated by the Society of Vertebrate Paleontology standards (SVP 2010). Work within the sensitive area shall resume only when deemed appropriate by the qualified paleontologist in consultation with the ERO.

The qualified paleontologist shall determine: 1) if the discovery is scientifically significant; 2) the necessity for involving other responsible or resource agencies and stakeholders, if required or determined applicable; and 3) methods for resource documentation or recovery. If a paleontological resource assessment results in a determination that the resource is not scientifically important, this conclusion shall be documented in a Paleontological Evaluation Letter to demonstrate compliance with applicable statutory requirements (e.g., Federal Antiquities Act of 1906, CEQA Guidelines Section 15064.5, California Public Resources Code Chapter 17, Section 5097.5, Paleontological Resources Preservation Act 2009). The Paleontological Evaluation Letter shall be submitted to the ERO for review within 30 days of the discovery.

If the qualified paleontologist determines that a paleontological resource is of scientific importance, and there are no feasible measures to avoid disturbing this paleontological resource, the qualified paleontologist shall prepare a Paleontological Mitigation Program. The mitigation program shall include measures to fully document the resource of scientific importance and to determine if recovery is appropriate. The qualified paleontologist shall submit the mitigation program to the ERO for review and approval within 10 business days of the discovery. Upon approval by the ERO, ground disturbing activities in the project area shall resume and be monitored as determined by the qualified paleontologist for the duration of such activities.

The mitigation program shall include: 1) procedures for construction monitoring at the project site; 2) fossil preparation and identification procedures; 3) curation of paleontological resources of scientific importance into an appropriate repository; and 4) preparation of a Paleontological Resources Report (report or paleontology report) at the conclusion of ground disturbing activities. The report shall include dates of field work, results of monitoring, fossil identifications to the lowest possible taxonomic level, analysis of the fossil collection, a discussion of the scientific significance of the fossil collection, conclusions, locality forms, an itemized list of specimens, and a repository receipt from the curation facility.

The SFPUC (for demolition and soil remediation) or RPD (for all other construction) shall be responsible for the preparation and implementation of the mitigation program, in addition to any costs necessary to prepare and identify collected fossils, and for any curation fees charged by the paleontological repository. The paleontology report shall be submitted to the ERO for review within 30 business days from conclusion of ground disturbing activities, or as negotiated following consultation with the ERO.

G. Public Notice and Comment

On June 9, 2021, the San Francisco Planning Department mailed a Notice of Preparation of an Environmental Impact Report and Notice of Public Scoping Meeting to property owners within 300 feet of the project site, tenants, and other potentially interested parties. In addition, the planning department held a public scoping meeting on June 23, 2021, to receive input on the scope of the environmental review for this project. During the scoping period, a total of 79 comment letters and emails were submitted to the planning department and 23 speakers provided oral comments at the public scoping session. The environmental issues raised in the comment letters are addressed in this initial study and in the EIR to which this initial study is attached, as appropriate (see EIR Chapter 1, Introduction and Background, for additional detail on the public noticing and comments). The notice of preparation is included as Appendix B in this EIR.

H. Determination

On the basis of this Initial Study:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, no further environmental documentation is required.

February 23, 2022
DATE

Lisa Gibson
Environmental Review Officer
for
Rich Hillis
Director of Planning

I. Initial Study Preparers

San Francisco Planning Department
Environmental Planning Division
49 South Van Ness Avenue, Suite 1400
San Francisco, CA 94103

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- Principal Environmental Planner: Julie Moore
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- Archeologist: Sally Morgan

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- Director of Property Management: Dana Ketcham
- Senior Planner: Chris Townes
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- Garrett Leidy, Biological Resources
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- Kenneth Leung, Hazards and Hazardous Materials
- Randall Young, Hazards and Hazardous Materials

APPENDIX B
NOTICE OF PREPARATION

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San Francisco Planning

49 South Van Ness Avenue, Suite 1400
San Francisco, CA 94103
628.652.7600
www.sfplanning.org

PUBLIC NOTICE

NOTICE OF PREPARATION OF ENVIRONMENTAL IMPACT REPORT

Date:	June 9, 2021
Case No.:	**2019-014146ENV**
Project Title:	**Lake Merced West Project** **520 John Muir Drive**
Zoning:	P (Public)
Height & Bulk District:	Open Space Height and Bulk District
Planning Area:	Western Shoreline Area Plan
Block/Lot:	7283/004
Site Area:	11 acres (approx.)
Project Sponsor:	San Francisco Recreation and Parks Department
Staff Contact:	Chris Townes – (415) 350-4337 Chris.Townes@sfgov.org
Lead Agency:	San Francisco Planning Department
Staff Contact:	Julie Moore – (628) 652-7566 CPC.LakeMercedWestEIR@sfgov.org

This Notice of Preparation (NOP) of an environmental impact report (EIR) has been prepared by the San Francisco Planning Department in connection with the project listed above. The purpose of an EIR is to provide information about potential significant physical environmental effects of the proposed project, to identify possible ways to minimize the significant effects, and to describe and analyze possible alternatives to the project in compliance with the California Environmental Quality Act (CEQA). The San Francisco Planning Department is issuing this NOP to inform the public, responsible agencies, and interested parties about the project and the intent to prepare an EIR, and to solicit comments regarding the scope of the environmental review. Pursuant to CEQA section 21083.9 and CEQA Guidelines section 15206, a public scoping meeting will be held to receive oral comments concerning the scope of the EIR. The scoping meeting will be held online and a meeting link along with presentation materials are available at: sfplanning.org/sfceqadocs. The meeting will be held on **June 23, 2021 at 6:30 p.m.**, accessible at the link on page 17. Pursuant to CEQA Guidelines Section 21092, written comments should be sent to Julie Moore, San Francisco Planning Department, 49 South Van Ness Avenue, Suite 1400, San Francisco, CA 94103 or emailed to CPC.LakeMercedWestEIR@sfgov.org. This NOP is also available online at: sfplanning.org/sfceqadocs.

Project Description

Project Overview and Location

The San Francisco Recreation and Parks Department (RPD) proposes to implement the Lake Merced West Project (the project), which would create a recreational facility on approximately 11 acres located at 520 John Muir Drive, on the southwest side of Lake Merced, in southwestern San Francisco, California (**Figure 1**, Project Location). The Lake Merced West site (project site) is the largest area of flat land around Lake Merced outside Harding Park Golf Course. The nearest cross street is Skyline Boulevard to the west. The City and County of San Francisco, under the jurisdiction of the San Francisco Public Utilities Commission (SFPUC), owns the project site. The RPD and SFPUC collectively manage recreation at Lake Merced including the lease of the former site tenant (The Pacific Rod and Gun Club) pursuant to a Memorandum of Understanding between the departments. RPD will also manage recreation activities at Lake Merced West.

Project and Site Background

The Pacific Rod and Gun Club built and operated skeet and trap shooting facilities at the site from 1934 to 2015. These activities resulted in lead shotgun pellets and other debris falling onto the site and into the lake. The project site was vacated by the Pacific Rod and Gun Club in 2015 and is currently closed to the public. After the gun club vacated the site, the SFPUC implemented the Pacific Rod and Gun Club Upland Soil Remedial Action Project (the soil remediation project), which included extensive soil remediation under the oversight of the San Francisco Bay Regional Water Quality Control Board (RWQCB). Under the soil remediation project, contaminated soils impacted by elevated levels of lead and polyaromatic hydrocarbons were excavated to depths ranging from 1 foot to 10 feet below ground surface and about 88 tons of contaminated material was hauled to a licensed disposal facility. The site was backfilled with clean fill, and historic features and vegetation were restored. Following completion of the site investigation and soil remediation activities, the RWQCB approved the project site for unrestricted land uses. The RWQCB has issued cleanup case closure, which includes a soil management plan that specifies soil management protocols for treatment of soil in areas that were inaccessible during the soil remediation project, such as beneath the existing buildings.[1]

Because most of the buildings and structures on the site are more than 50 years old, the entire site was evaluated for its potential significance as a cultural landscape[2] during the environmental review for the soil remediation project.[3] The historic resource evaluation determined that the site is a cultural landscape that appears eligible for listing in the National Register of Historic Places and the California Register of Historic Resources at the local level of significance under Criterion A/1 for its association with the broad pattern of history related to the increased popularity of sport hunting and the interrelated development of skeet, during the period prior to World War II in which skeet evolved from a shooting practice into a competitive sport.[4,5] For these reasons, the project site is considered a historical resource as defined under CEQA. Refer to

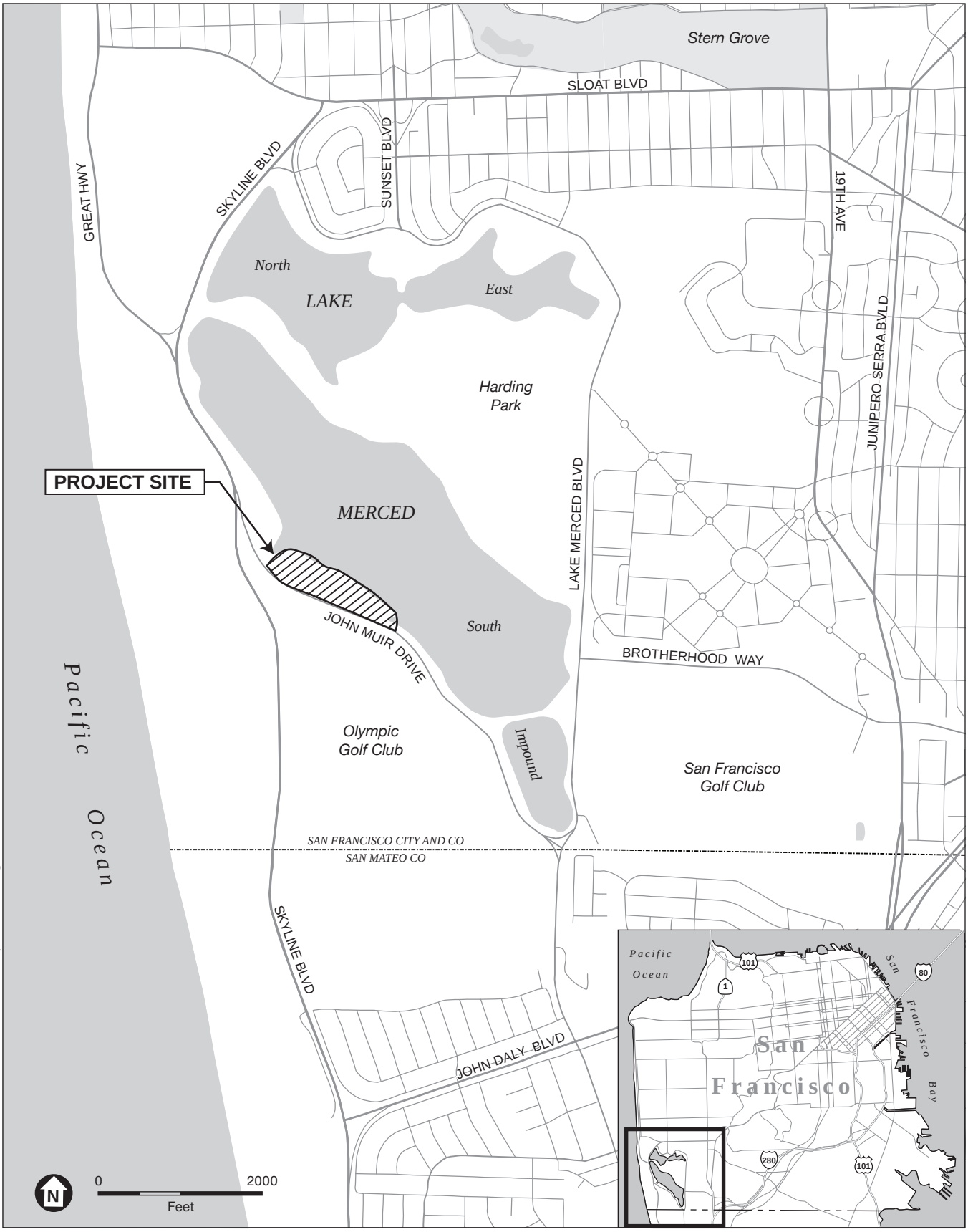
[1] State Water Resources Control Board GeoTracker Case Summary Report, Regional Board Case No. 247266, Available at: https://geotracker.waterboards.ca.gov/profile_report?global_id=T10000005188. Accessed March 6, 2020. This document (and all documents referenced in this NOP unless otherwise noted) is available for review at https://tinyurl.com/Lake-Merced-West-EIR.

[2] A cultural landscape is defined as a geographic area shaped by human activity which can result from a conscious design or plan, or evolve as a byproduct or result of people's activities.

[3] San Francisco Planning Department Final Mitigated Negative Declaration, Pacific Rod and Gun Club Upland Soil Remedial Action Project, Planning Department Case No. 2013.1220E, October 23, 2014.

[4] Denise Bradley, Cultural Landscapes, 2014. Pacific Rod and Gun Club San Francisco CA Cultural Landscape Evaluation Report. May.

[5] Skeet is a form of trap shooting. Trap is the oldest of shotgun games and was intended to replicate the experience and utilize the skills of shooting birds in the field. A property can qualify as a "historic property" under Criterion A/1 if it is associated with events that have made a significant contribution to the broad patterns of our history and cultural heritage.



SOURCE: ESA

Lake Merced West

Figure 1
Project Location

ESA

Figure 2 for a layout of existing features at the project site, including the contributing features to the historical cultural landscape.

Once SFPUC completed soil remediation at the site, the SFPUC and RPD began assessing approaches to develop the site for more varied recreational use. RPD considered multiple site layout concepts. According to the RPD, the proposed conceptual site plan, shown on **Figure 3**, minimizes area devoted to vehicular circulation in order to maximize open space while providing a variety of recreational activities on the site. Facilities are clustered around the main parking area to ensure adequate access for a variety of users. The RPD indicates that the main buildings and terrace are situated at the optimal topographic location on the site to take advantage of scenic lake views; the layout also maintains open space between the structures and the lake shoreline.

Project Characteristics

The proposed recreation facility would offer an array of active and passive activities open to the public, such as trail use, picnicking, paddle boarding, kayaking, fishing, field sports, fitness activities, a ropes course, bird watching, space for outdoor exercise, skateboarding, multi-use courts for basketball and other activities, as well as restaurant dining, and indoor space for gatherings such as community meetings and birthday parties. The facility would include areas that could be used flexibly for a wide variety of uses such as picnics and larger gatherings, as well as areas designated for programmed activities. No entrance fee to the site is anticipated, although some fees would be required for participation including the challenge course, boat rentals, boat launch, programming, and group picnic areas. The features of the proposed recreation facility are described in the following sections.

BUILDINGS AND STRUCTURES

Based on their poor condition and lack of compliance with current building standards, the existing buildings would be demolished. A new community building and restaurant would be built near the center of the site. A new boathouse building and arborist office and yard are proposed at the southeastern end of the site, along with new restrooms on the west side of the site.

Upon project completion, the project site would include the following buildings:

- **Community Building.** The community building would be used for activities such as community group meetings, birthday parties, recreational activities, and administrative offices.
- **Restaurant and associated outdoor dining area.** The restaurant would have capacity for approximately 150 people inside and 70 people on the patio.
- **Boathouse.** The boathouse would house watersports equipment and a rental kiosk, administrative office, storage space, and public restrooms.
- **Restrooms and Storage.** Public restrooms and storage at the west end of the site would be used for ropes course and landscape equipment storage.
- **SFPUC Arborist Office and Yard.** The arborist office and yard would provide office space and storage to provide support for the SFPUC's Natural Resources Land Management Division's San Francisco Arborist Team responsible for proper care, trimming and vegetation management within the local watershed and across the city.

Key to Location of Features

Contributing Feature
Non-Contributing Feature
Site Boundary

1 Former Location of Trap Field 1
2 Former Location of Trap Field 2
3 Former Location of Trap Field 3
4 Skeet Field 4
5 Skeet Field 5
6 Skeet Field 6
7 Skeet Field 7
8 Former Location of Skeet Field 8
9 Former Location of Skeet Field 9
10 Trap House
11 Restroom Building
12 Shell House
13 Parking Lot
14 Entrance
15 Garage
16 Caretaker's House
17 Clubhouse
18 Rifle Range Building
19 Barbeque Shed
20 Eucaluptus Trees

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SOURCE: Denise Bradley Cultural Landscapes, 2020; Base Map Google Earth

Lake Merced West

Figure 2
Existing Project Site and Cultural Landscape Features

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SOURCE: San Francisco Public Works

Lake Merced West

Figure 3
Conceptual Site Plan

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OUTDOOR FEATURES

In addition to the new buildings described above, the recreation facility would include the following outdoor features (shown on Figure 3):

- Picnic areas
- Playground
- Boat dock
- Watercraft soft landing area
- Walking paths
- Ropes course
- Birdwatching benches
- Basketball courts
- Cantilevered bird viewing deck
- Multipurpose sports courts (for activities such as volleyball, handball, roller skating/inline skating, tai chi, Zumba or other group cardio activities, bicycle polo, roller hockey)
- Skateboard park

LAND RECREATION

As shown on Figure 3, many of the proposed outdoor features are proposed away from the edge of Lake Merced. These include picnic areas, a playground, trails, a basketball court, multipurpose sports courts, a ropes course, birdwatching benches, and a skateboarding park.

The proposed ropes course area would be located at the northwestern edge of the project site near a stand of existing tall trees and would be the tallest proposed recreational structure on site. The ropes course elements of varying heights would have an anticipated maximum height of 35 feet.

A path system would connect the main areas of the site. In addition to paths between the parking areas and various site amenities, a trail paralleling the lake edge would provide walking and running opportunities as well as access from one end of the site to the other. The shoreline buffer of dense wetland vegetation would be retained and the trail would not provide pedestrian access to the water's edge; the steep grade and dense vegetation existing along the lake shore would not change and would discourage pedestrian access between the trail and the shore.

WATER RECREATION

To provide water access for visitors and their small crafts, as well as rental boats, the project would include a boat dock and a soft landing (beach) for shoreline boat access. The dock and soft landing would be designed to allow the hand launching of small watercraft such as kayaks, canoes, and paddleboards. A second driveway would allow recreationists to access the boathouse, boat dock and soft landing area by vehicle for loading purposes.

PARKING AND CIRCULATION AND LANDSCAPE FEATURES

A new driveway to the main parking area would be provided from John Muir Drive, to the west of the existing driveway. The facility would include 80 public parking spaces. The main public parking area would have approximately 70 spaces, including Americans with Disabilities Act-compliant spaces. A small parking and loading area near the ropes course would accommodate 6 vehicles. A second driveway would provide access to the boat launch and arborist facility. Approximately four short-term parking spaces would be located near

the boat house. Four parking spaces for SFPUC arborist staff would be within the arborist facility. Bicycle racks would be located at various locations across the site to accommodate 30 bicycles. If bicycle parking demand increases, additional bicycle racks could be installed in other areas of the site.

Landscape restoration work has been completed throughout the site as a part of previous site activities and would be retained where feasible. Some vegetation removal would occur in areas of new facilities, and existing vegetation disturbed during construction would be replaced once construction is complete. Additional native trees would also be planted onsite. An open metal fence would be installed along the project boundary adjacent to John Muir Drive.

Project Construction

CONSTRUCTION ACTIVITIES, STAGING, AND ACCESS

Before construction, the selected contractor would identify construction equipment staging and support areas, site access, exclusion areas, excavation areas, soil stockpile areas, truck lanes, parking areas, and locations for site office trailers. All of these activities would take place within the project site. Construction vehicles would access the site via the existing driveway on John Muir Drive.

Construction activities would proceed in four general phases. In the first phase, existing structures would be demolished and upland vegetation removed. Should any contaminated soil be encountered underlying the existing buildings (in particular, contaminated soil is anticipated to be beneath and adjacent to the Rifle Range Building), a phase of soil remediation would occur in accordance with the RWQCB-approved soil management plan. Once demolition and soil remediation are complete, buildings and structures in upland areas would be newly constructed. Recreational facilities along the lake shoreline (boat dock and boathouse) would be constructed in the final phase.

CONSTRUCTION SCHEDULE, EQUIPMENT, AND WORKFORCE

Construction is anticipated to begin in summer 2024 and take approximately 24 months. The construction start date would depend upon permit approvals. Construction would occur Monday through Friday, from 7:00 a.m. to 6:00 p.m. No nighttime or weekend construction is anticipated or proposed.

Construction would include the use of standard earth-moving equipment for grading, large trucks for hauling, and a small crane for some building construction. The project would require excavation to a depth of approximately 5 feet below ground surface for most project structures.

The construction workforce is anticipated to average eight daily workers with a maximum of fifteen workers on a given day.

STANDARD CONSTRUCTION MEASURES

RPD and SFPUC have adopted required standard construction measures to reduce potential environmental effects during construction. These standard construction measures include air and water quality measures, biological resources measures, visual and aesthetic considerations, and cultural resources measures. In some cases, the standard construction measures would be superseded by mitigation measures developed by the planning department for the project.

Operations

Project operation would include public recreational activities such as trail use, picnicking, paddleboarding, kayaking, fishing, fitness activities, basketball, skateboarding, a ropes course, bird watching, space for outdoor exercise, restaurant dining, and indoor spaces for gatherings such as community meetings and birthday parties. RPD estimates that the park would receive an average of 200 visitors each day.

During regular hours the public could freely move about the site in areas that are not reserved or do not require fees. The public would have access to the site's path and trail system, open space, playground, basketball court, multipurpose sport court, skateboard park, the viewing deck, parking areas, and non-group picnic and terrace patio. Some areas of the site that would require fees for participation include the ropes course, boat rentals, boat launch, programming, and group picnic areas. No entrance fee to the site is anticipated during normal operations. Operation of the boathouse, restaurant, and ropes course would employ up to 20 full time equivalent employees.

NORMAL OPERATING HOURS AND SPECIAL EVENTS

The regular recreation facility would operate during daylight hours, and the restaurant would be open until 9:00 p.m. daily. Special events hosting up to 500 people, such as weddings, community events, and business group events, would be permitted up to twelve times per year. Special events could involve exceptions to normal operating hours and temporary use of amplified sound in compliance with San Francisco Police Department regulations and RPD permit requirements. No permanent amplified sound equipment would be installed on the site; its use would be specific to an event. Each special event would be individually permitted by RPD.

SAN FRANCISCO ARBORIST OFFICE AND YARD OPERATION

The SFPUC arborist team, approximately 6 existing employees, would operate an office at the project site and store equipment and vehicles at the yard. Typically, the arborist office and yard would operate between 6:30 a.m. to 3:00 p.m. Monday through Friday. A separate entrance driveway from John Muir Boulevard would provide access to the arborist office and yard. Arborists would be dispatched from the facility to perform work at sites across the city. Minor maintenance of vehicles and equipment would occur in the yard.

LIGHTING AND SECURITY

Safety lighting for evening and nighttime illumination would be provided in parking areas, main pedestrian walkways, and around buildings. No recreational lighting would be provided. Lighting on site would be consistent with the city's Standards for Bird-Safe Buildings, which require minimal lighting, shields on lighting, and prohibit uplighting or event searchlights. Security cameras are under consideration and could be installed within the site.

Anticipated Permits and Approvals

The permits and approvals needed for the project will be confirmed during EIR preparation. The following is a preliminary list of potential approvals needed for project construction and operation. This list is not intended to be inclusive of all permits required.

- U.S. Army Corps of Engineers (Corps): Clean Water Act Section 404 permit, Nationwide Permit section 36 Boat Ramps
- California Coastal Commission: Issuance of Coastal Development Permit
- State Water Resources Control Board: National Pollutant Discharge Elimination System order 2009-0009-DWQ, General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction General Permit)
- California Department of Fish and Wildlife: Section 1602 Lake and Streambed Alteration Agreement
- California Office of Historic Preservation: National Historic Preservation Act Section 106 consultation
- San Francisco Regional Water Quality Control Board: Clean Water Act Section 401 Water Quality Certification and/or a Porter-Cologne Water Quality Control Act Report of Waste Discharge; notification and approval of soil and sediment remediation completion activities
- San Francisco Planning Commission: Certification of EIR
- San Francisco Planning Department Zoning Administrator: Approval of a Notice of Coastal Permit Authorization
- SFPUC: General Manager or Commission approval of the lease agreement between the San Francisco Recreation and Park Department and the vendor; soil and sediment remediation construction contracts
- San Francisco Board of Supervisors and RPD: Approval of lease agreement with vendor
- San Francisco Department of Building Inspection: demolition and building permits
- San Francisco Health Department permit
- Civic Arts Commission Design Review

Summary of Potential Environmental Issues

The proposed project could result in potentially significant environmental effects. Therefore, the San Francisco Planning Department will prepare an initial study and EIR in accordance with CEQA, the CEQA Guidelines, and Chapter 31 of the San Francisco Administrative Code, and will assess both project-specific and cumulative impacts for all topics. The EIR will further examine those issues identified in the initial study as having potentially significant and unavoidable effects, identify mitigation measures, and analyze whether the mitigation measures would reduce the environmental effect(s) to a less-than-significant level. The initial study will be published as an appendix to the draft EIR and will be considered part of the EIR. The EIR also will evaluate a No Project Alternative, as well as additional project alternatives that could reduce or potentially avoid any significant impacts associated with the project.

It is anticipated that the EIR will include a focused assessment of impacts on historic resources and that alternatives to be considered for this project will include one or more alternatives that preserve some or all of the historic resource on the project site. Other environmental topics are anticipated to be analyzed in the initial study, unless significant impacts are identified that cannot be mitigated to a less-than-significant level, in which case, any such impacts will be included in the EIR. Key environmental topics to be addressed in the EIR (including initial study) are described briefly below.

AESTHETICS

The project is designed in part to enhance and improve the visual and scenic quality of the project site, and would include new sources of lighting. The EIR's aesthetics analysis will consider potential project effects on scenic vistas, scenic resources, and whether the project would conflict with applicable zoning or regulations governing scenic quality, as well as impacts related to new substantial light or glare.

HISTORIC RESOURCES

The project site is a cultural landscape that has been previously determined to be eligible for listing in the National Register of Historic Places and the California Register of Historic Resources. It is eligible for listing at the local level of significance under Criterion A/1 for its association with the broad pattern of history related to the increased popularity of sport hunting and the interrelated development of skeet, during the period prior to World War II in which skeet evolved from a shooting practice into a competitive sport. For these reasons, the project site is considered a historical resource as defined by CEQA. The project would demolish the buildings and structures that are contributors to the cultural landscape. The EIR will describe the historical resource on the project site and identify potential impacts of the project on these resources based upon a *historic resources evaluation* prepared by a qualified consultant, and a *historic resources evaluation response* prepared by the Planning Department.

TRANSPORTATION AND CIRCULATION

Construction activities would temporarily generate additional vehicle traffic, including construction vehicles traveling to and from work sites, and transporting supplies and equipment. Once operational, the project would provide new recreation facilities along John Muir Drive that would attract new visitors to the site. The transportation and circulation analysis will evaluate specific transportation impacts associated with the project's construction and operations. The EIR will consider transit conditions, pedestrian and bicycle conditions, and emergency access, and evaluate cumulative effects of the project with regard to changes in potentially hazardous conditions, accessibility, public transit delay, vehicle miles traveled, and whether loading or parking demand in the vicinity of the project could result in secondary effects that would create potentially hazardous conditions.

NOISE

Project construction would include the use of heavy equipment, which would temporarily increase noise and vibration levels in the project area. In addition, with permanent modifications in traffic patterns, new recreational facilities, and the occasional use of amplified sound, long-term noise levels could also change. The EIR will include analysis of noise compatibility standards for residential and other land uses and discuss the long-term impacts of noise that could result from the project. Short-term construction-related noise and vibration impacts also will be described, and the analysis will evaluate the potential for noise from the project to adversely affect nearby sensitive land uses.

BIOLOGICAL RESOURCES

Project construction would involve vegetation removal, increased noise, and ground disturbance near and in Lake Merced. While the project area's ecology has been substantially modified over the years, it continues to provide important habitat for biological resources, including special-status plants and wildlife. The EIR will analyze potential direct and indirect effects of project construction and operation on special-status plants and animals and their habitats; sensitive natural communities; movement of any native resident or

migratory fish or wildlife species; and potential conflicts with relevant, applicable local policies and ordinances, including the city's tree protection regulations.

HAZARDS AND HAZARDOUS MATERIALS

The project is located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code section 65962.5. As discussed above, extensive site remediation was conducted under RWQCB oversight to remove soil contamination resulting from previous Pacific Rod and Gun Club activities. Residual contamination under existing buildings and in shoreline sediments at the boat launch would be removed during construction. The EIR will assess the potential for project construction and operation to create a significant hazard to the public or the environment resulting from hazardous materials in the subsurface or through the routine transport, use, or disposal of hazardous materials.

HYDROLOGY AND WATER QUALITY

The project would involve changes in impervious surface area, drainage modifications, and development in close proximity to Lake Merced. The EIR's hydrology and water quality analysis will assess the project's potential to violate water quality standards or otherwise degrade water quality; substantially alter drainage patterns or surface runoff; cause substantial erosion; and increase risk of pollution due to flood hazard, tsunami, or seiche. The analysis will also consider project effects on groundwater supplies and potential to conflict with or obstruct implementation of a water quality control or sustainable groundwater management plan.

OTHER ENVIRONMENTAL ISSUES AND TOPICS

All topics listed on the city's initial study checklist will be considered in the project EIR. In addition to the key topics identified above, potential effects associated with the environmental topics listed below will also be analyzed.

- Land Use and Planning
- Population and Housing
- Archeological Resources
- Tribal Cultural Resources
- Air Quality
- Greenhouse Gas Emissions
- Wind
- Shadow
- Recreation
- Utilities and Service Systems
- Public Services
- Geology and Soils, including Paleontological Resources
- Hazards and Hazardous Materials
- Mineral Resources
- Energy
- Agriculture and Forestry Resources
- Wildfire

Pursuant to CEQA, the EIR will analyze a range of alternatives that would reduce or avoid significant environmental impacts identified in the EIR, including a No Project Alternative, as described in CEQA Guidelines Section 15126.6. The EIR will also address other topics required by CEQA, including growth-inducing impacts, significant unavoidable impacts; significant irreversible impacts; known controversy associated with environmental effects; issues to be resolved by the decision-makers; and the potential for the project to contribute to significant cumulative effects.

Finding

This project may have a significant effect on the environment and an Environmental Impact Report is required. This determination is based upon the criteria of the State CEQA Guidelines, sections 15063 (Initial Study), 15064 (Determining Significant Effect), and 15065 (Mandatory Findings of Significance). The purpose of an EIR is to provide information about potential significant physical environmental effects of a proposed project, to identify possible ways to minimize the significant effects, and to describe and analyze possible alternatives to a proposed project. Preparation of a NOP or EIR does not indicate a decision by the city to approve or to disapprove the project. However, prior to making any such decision, the decision makers must review and consider the information contained in an EIR.

Public Scoping Process

You may participate in the public process concerning the proposed project's environmental review by submitting written or verbal comments to the planning department. Pursuant to CEQA section 21083.9 and CEQA Guidelines section 15206, the planning department will hold a public scoping meeting to receive oral comments concerning the scope of the EIR. The meeting will be held on **June 23, 2021** at **6:30 p.m.** Due to the COVID-19 emergency, in order to protect the health of city staff and members of the public, the meeting will occur virtually through video and teleconference. The meeting will consist of a staff presentation describing the project background, proposed features, and the environmental review process, followed by an opportunity for the public to provide oral comments. Members of the public are encouraged to participate in the meeting by internet video conference (https://bit.ly/LakeMercedWest), or by telephone (888-788-0099; Meeting ID: 848 5205 8374). Staff's scoping meeting presentation, meeting procedures and instructions—including on how to provide oral comments—are available at sfplanning.org/sfceqadocs. To request a language interpreter, please call (628) 652-7550 at least 72 hours in advance of the meeting to ensure availability.

Written comments will be accepted **until 5 p.m. on Friday, July 9, 2021**. Written comments should be mailed to Julie Moore, EIR Coordinator, San Francisco Planning Department, 49 South Van Ness Avenue, Suite 1400, San Francisco, CA 94103, or emailed to CPC.LakeMercedWestEIR@sfgov.org. Your comments should focus on significant environmental issues concerning the project, information that would help the environmental analysis or factors to consider in the environmental analysis.

State Agencies: If you represent an agency that is a Responsible or a Trustee Agency, we need to know the views of your agency as to the scope and content of the environmental information that is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency may need to use the EIR when considering a permit or other approval for this project. Please include the name of a contact person in your agency. If you have questions concerning environmental review of the proposed project, please contact **Julie Moore** at (628) 652-7566 or CPC.LakeMercedWestEIR@sfgov.org.

Members of the public are not required to provide personal identifying information when they communicate with the commission or the department. All written or oral communications, including submitted personal contact information, may be made available to the public for inspection and copying upon request and may appear on the department's website or in other public documents.

June 9, 2021
Date

Lisa Gibson
Environmental Review Officer

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APPENDIX C
SAN FRANCISCO RECREATION AND PARKS DEPARTMENT AND SAN FRANCISCO PUBLIC UTILITIES COMMISSION STANDARD CONSTRUCTION MEASURES

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London N. Breed, Mayor
Philip A. Ginsburg, General Manager

General Manager Directive 19-03
Adopting Standard Construction Measures
December 17, 2019

To: RPD Capital and Planning Division

From: Philip Ginsburg, General Manager

cc: Toks Ajike, Director of Capital and Planning
Stacy Radine Bradley, Deputy Director of Planning

Re: Adopting Standard Construction Measures

With this GM Directive, RPD Capital and Planning Division staff are directed to use the attached *Standard Construction Measures* ("Measures") for all capital projects. These Measures ensure compliance with environmental laws and best practices. The following measures are included in these standards:

- Air Quality
- Water Quality
- Biological Resources
- Visual and Aesthetic Considerations, Project Site
- Cultural Resources, Archaeology and Historic Resources

During project planning the PM should use the measures to identify and address specific environmental concerns. In addition to complying with all applicable Local, State, and Federal laws and regulations, these Measures are to be followed as a standard practice in the execution of every capital RPD project. These measures align with Public Works standard construction measures. Public Works typically manages the bidding process for RPD capital improvements.

For projects that undergo full CEQA review (Mitigated Negative Declaration or Environmental Impact Report), these Measures may be superseded and/or amplified with more detailed, project-specific mitigation measures or conditions stipulated in the project CEQA document and/or permits. The PM is responsible for ensuring the Standard Construction Measures are integrated into their project.

For assistance with these measures, contact the RPD Planning Unit staff.

ATTACHMENT A – RPD Standard Construction Measures and Attachments A-H

San Francisco Recreation and Park Department
Standard Construction Measures

1. AIR QUALITY: All San Francisco Recreation and Park Department (RPD) projects will comply with the Construction Dust Control Ordinance (see Attachment A). Major construction projects that are estimated to require 20 or more days of cumulative days of work within the Air Pollutant Exposure Zone must comply with the additional clean construction requirements of the Clean Construction Ordinance[1] (see Attachment B).

2. WATER QUALITY: All RPD projects will implement erosion and sedimentation controls, as necessary, tailored to the project site, such as fiber rolls and/or gravel bags around storm drain inlets, installation of silt fences, and other such measures sufficient to prevent discharges of sediment and other pollutants to storm drains and all surface waterways, such as San Francisco Bay, the Pacific Ocean, water supply reservoirs, wetlands, swales, and streams. As required, based on project location and size, a Stormwater Control Plan (in most areas of San Francisco) or a Stormwater Pollution Prevention Plan (SWPPP) (in certain areas of San Francisco) will be prepared. If uncontaminated groundwater is encountered during excavation activities, it will be discharged in compliance with applicable water quality standards and discharge permit requirements.

3. BIOLOGICAL RESOURCES: The RPD will comply with all local, State, and federal requirements for surveys, analysis, and protection of biological resources (e.g., Migratory Bird Treaty Act, federal and State Endangered Species Acts, etc.). RPD will screen all RPD project sites and the immediately surrounding area to determine whether significant biological resources may be affected by construction. If significant biological resources are present, a qualified biologist will carry out a survey of the project site to note the presence of general biological resources and to identify whether habitat for special-status species and/or migratory birds is present. If necessary, measures will be implemented to protect biological resources, such as installing wildlife exclusion fencing, establishing work buffer zones, installing bird deterrents, monitoring by a qualified biologist, and other such measures. If tree removal is required, RPD would comply with any applicable tree protection ordinance and policy.

4. VISUAL AND AESTHETIC CONSIDERATIONS, PROJECT SITE: RPD will maintain all project sites in a clean and orderly state. Construction staging areas will be sited away from public view, and on currently paved or previously disturbed areas, where possible. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon project completion, project sites on City-owned lands will be returned to their general pre-project condition, including re-grading of the site and re-vegetation or re-paving of disturbed

[1] https://www.sfdph.org/dph/files/EHSdocs/AirQuality/San_Francisco_Clean_Construction_Ordinance_2015.pdf, accessed December 16, 2019.

areas to the extent this is consistent with the Park Code and San Francisco Administrative Code and Charter.

5. CULTURAL RESOURCES: RPD will screen all projects that will alter a building or structure, produce vibrations, or include soil disturbance[2] to assess whether cultural resources are or may be present and could be affected, in coordination with San Francisco Planning Department Environmental Planning (EP) staff as detailed below.

Archeological Resources. No archeological review is required for a project that will not entail soil disturbance. Projects involving soil disturbance will initially be screened by RPD staff to identify whether there is demonstrable evidence of prior soil disturbance at the project site to the maximum vertical and horizontal extent of the current project's planned disturbance. RPD will complete the RPD Preliminary Archeological Checklist (PAC), Part I only (see Attachment C). For projects where prior complete soil disturbance has occurred throughout areas of planned work, RPD will provide evidence of the previous disturbance in the environmental application to be reviewed by EP Archeological staff.

1) For projects that are on previously undisturbed sites or where the depth/extent of prior soil disturbance cannot be documented, or where the planned project-related soil disturbance will extend beyond the depth/extent of prior soil disturbance, additional screening will be carried out as detailed below and shown on the flow chart titled "RPD Standard Construction Measure #5 Archeological Assessment Process" (see Attachment D). The EP Archeologist will complete the Preliminary Archeological Checklist, Part II (PAC) for the project, which will include recommendations for one of three Standard Archeological Measures (I - Discovery, II – Monitoring, or III – Testing/Data Recovery) to be implemented by RPD to protect and/or treat significant archeological resources identified as being present within the site and potentially affected by the project (see Attachments E, F, and G). Additional research and documentation, such an Archeological Research Design and Treatment Plan (ARDTP), Archeological Sensitivity Study (ASA), Archeological Sensitivity Assessment Testing (ASAT), or an archeological field survey, may also be requested by EP Archeological staff. These documents will be completed by a qualified consultant from the EP Archeological Resources Consultant Pool and will be scoped, reviewed, and approved by EP Archeological staff.

2) RPD will implement the PAC recommendations prior to and/or during project construction consistent with Standard Archeological Measures I, II, and III, and will consult with the EP Archeologist in selecting a qualified archeological consultant from

[2] Soil is defined as native earthen deposits or introduced earthen fills. Soil does not include materials that were previously introduced as part of elevated planter beds or materials that were previously introduced as part of a parking lot or structure or roadway pavement section, including asphalt concrete-wearing surface, roadway base, and sub-base.

the EP Archeological Resources Consultant Pool, as needed, to implement these measures.

3) RPD will not begin soil-disturbing activities in archeologically sensitive areas, as identified through the above screening, until required preconstruction archeological measures of the PAC (e.g., preparation of an Archeological Monitoring Plan, Archeological Treatment Plan, and/or an Archeological Research Design and Data Recovery Plan) have been implemented.

Historic (Built Environment) Resources. RPD will consult with Planning Department Preservation staff to determine if projects that would modify an existing building, structure, or landscape feature require preservation review and if a Historic Resource Evaluation (HRE) or Cultural Landscape Report (CLR) will be required. The HRE or CLR will be prepared by a qualified architectural historian and will be scoped with Planning Department Preservation staff. Where the potential for the project to have adverse effects on an historical resource is identified by Planning Department Preservation staff, the Planning Department Preservation Planner will consult with RPD to determine if the project can be conducted as planned or if the project design can be revised to avoid the significant impact. If these options are not feasible, the project will need to undergo further environmental review with the Planning Department and mitigation may be required. If so, the project would not qualify for a Categorical Exemption from CEQA review.

Where construction will take place in proximity to a building, structure, landscape, or monument identified as a significant historical resource but would not otherwise directly affect it, RPD will implement protective measures, such as but not limited to, the erection of temporary construction barriers to ensure that inadvertent impacts to such elements are avoided. RPD will develop these measures prior to construction and document them in a Construction Best Practices for Historical Resources Plan and a plan outlining the Construction Monitoring for Historical Resources Program to be reviewed and approved by Planning Department Preservation staff prior to construction.

If a project includes or is directly adjacent to historic buildings, structures, or monument susceptible to vibration (such as but not limited to unreinforced masonry, earthen construction, lathe and plaster, statues, or fragile architectural ornamentation) as determined in consultation with Planning Department Preservation staff, the Planning Department will determine if vibrations associated with proposed construction activities has the potential to cause damage to such buildings or structures. Generally, vibration below 0.12 inches per second peak particle velocity does not have the potential to damage sensitive buildings or structures. A vibration study may be necessary to determine if such vibration levels will occur. If RPD determines in consultation with Planning Department Preservation staff that vibration damage may occur, RPD will engage a qualified historic architect or historic preservation professional to document and photograph the pre-construction condition of the building, structure, or monument and prepare a plan for monitoring the building, structure, or monument during construction. RPD

will submit the monitoring plan to the Planning Department Preservation Planner for review and approval prior to the beginning of construction. The monitoring plan will identify how often monitoring will occur, who will undertake the monitoring, reporting requirements on vibration levels, reporting requirements on damage to adjacent historical resources during construction, reporting procedures to follow if such damage occurs, and the scope of the preconstruction survey and post-construction conditions assessment. RPD will implement the approved monitoring plan during construction.

If any damage to a historic building, structure, or monument occurs, RPD will immediately notify the Planning Department Preservation Planner and modify activities to minimize further vibration. If the event of damage, RPD will repair the building following the Secretary of the Interior's Standards for the Treatment of Historic Properties under the guidance of a qualified historic architect or historic preservation professional in consultation with a Planning Department Preservation Planner.

Reporting. RPD will follow the reporting requirements specified in the applicable Standard Archeological Measures (see Attachments E—G). If Construction Best Practices for Historical Resources Plan and/or a plan outlining the Construction Monitoring for Historical Resources Program, as discussed above are required, RPD will follow reporting requirements outlined in those approved plans. RDP will provide monthly project updates to Planning Department staff.

ATTACHMENTS

A. Construction Dust Control Measures
B. Clean Construction Measures
C. Recreation and Park Department Preliminary Archeological Checklist (PAC)
D. Recreation and Park Department Standard Construction Measure #5 Archeological Assessment Process
E. Recreation and Park Department Archeological Measure I (Archeological Discovery)
F. Recreation and Park Department Archeological Measure II (Archeological Monitoring)
G. Recreation and Park Department Archeological Measure Ill (Archeological Testing/Data Recovery)
H. Archeological Alert Sheet

Attachment A: San Francisco Recreation & Parks Department (RPD) Dust-Control Measures

For the purposes of this document, "sensitive receptor" means residence, school, childcare center, hospital or other health-care facility or group living quarters, and "visible dust" means dust comprising visible emissions as defined in Bay Area Air Quality Management Board Regulation 6 – Particulate Matter.

For all projects, RPD will institute though its construction specifications the following dust- control measures to achieve a goal of no visible dust emissions:

- Clean up spillage on City streets, whether directly or indirectly caused by construction operations.
- Remove demolition debris from the Site no later than the end of each workday. Any hazardous materials and/or suspected hazardous materials stored on site shall be stored in accordance with all applicable Cal EPA regulations, including being stored in proper containers and being protected from exposure from the elements. Any such materials shall be removed from the site as soon as possible for disposal/recycling in accordance with all applicable statutes and regulations.
- Keep the Site and adjacent areas clean and perform wet sweeping at the end of each shift.
- Perform continuous water spraying during dust generating activities. Mist or spraying shall be conducted in such a way as to prevent puddling or generation of runoff. Mist any immediate area of demolition with a water spray to prevent airborne dust particles.
- Wet all exposed soil surfaces at least three times daily during dry weather or more frequently if dust is blowing or if required by the City. Any serpentine residuals on the street shall be wet swept immediately.
- Use dust enclosures, curtains, and dust collectors as necessary to control dust.
- Load haul trucks, hauling debris, soils, sand or other such materials so that the material does not extend above the walls or back of the truck bed. Wet before covering and tightly cover the surface of each load before the haul truck leaves the loading area.
- Limit vehicle speed limit on unpaved roads to 15 miles per hour (mph).
- Cover any inactive (no disturbance for more than seven days) stockpiles greater than ten cubic yards or 500 square feet of excavated materials, backfill material, import material, gravel, sand, road base, and soil with a 10 mil (0.01 inch) polyethylene plastic or equivalent tarp and brace it down or use other equivalent soil stabilization techniques.
- Reclaimed water will be used for all dust-control operations to the extent feasible (without resorting to extraordinary means and measures) and allowed by law.

If the project grades or excavates more than one half acre surface area at any given time, and the project is within 1,000 feet of a sensitive receptor as defined above, RPD or its contractor shall prepare a Site-Specific Dust Control Plan for the review and approval of the Department of Public Health. The site-specific dust control plan shall contain mapping identifying locations of sensitive receptors and contain additional site-specific dust monitoring and control measures that will apply to the project. These site-specific measures may include the following or equivalent measures, which accomplish the goal of minimizing visible dust:

- Wetting down areas around soil improvement operations, visibly dry disturbed soil surface areas, and visibly dry disturbed unpaved driveways at least three times per shift per day.

- Analysis of the wind direction.

- Placement of upwind and downwind particulate dust monitors.

- Recordkeeping for particulate monitoring results.

- Hiring of an independent third party to conduct inspections for visible dust and keeping records of those inspections.

- Requirements for when dust generating operations have to be shut down due to dust crossing the property boundary or if dust is contained within the property boundary but not controlled after a specified number of minutes.

- Establishing a hotline for surrounding community members to call and report visible dust problems so that RPD or its contractor can promptly fix those problems; posting signs around the site with the hotline number and making sure that the number is given to adjacent residents, schools and businesses.

- Limiting the area subject to excavation, grading, and other demolition or construction activities at any one time.

- Minimizing the amount of excavated material or waste materials stored at the site.

- Installing dust curtains, plastic tarps or windbreaks, or planting tree windbreaks on the property line on windward and down windward sides of construction areas, as necessary.

- Paving, applying water three times daily, or applying non-toxic soil stabilizers on all unpaved access roads, parking areas and staging areas at the construction site. Reclaimed water must be used if required by Article 21, Section 1100 et seq. of the San Francisco Public Works Code, Article 22. If not required, reclaimed water should be used whenever possible.

- Establishing speed limits so that vehicles entering or exiting construction areas shall travel at a speed that minimizes dust emissions. This speed shall be no more than 15 mph.

- Installing wheel washers to clean all trucks and equipment leaving the construction site. If wheel washers cannot be installed, tires or tracks and spoil trucks shall be brushed off before they re-enter City streets to minimize deposition of dust-causing materials.

- Terminating excavation, grading, and other construction activities when winds speeds exceed 25 mph.

- Hydroseeding inactive construction areas, including previously graded areas inactive for at least 10 calendar days, or applying non-toxic soil stabilizers.

- Sweeping of surrounding streets during demolition, excavation and construction at least once per day to reduce particulate emissions.

SECTION 01 35 48

ADDITIONAL CLEAN CONSTRUCTION REQUIREMENTS ON MAJOR CONSTRUCTION PROJECTS

PART 1 – GENERAL

1.01 SUMMARY

A. This Section 01 35 48 incorporates additional requirements of the San Francisco Clean Construction Ordinance ("Ordinance") for projects that meet the requirements of Environment Code Section 2504(a), which are located in the Air Pollutant Exposure Zone and which are within 1,000 feet of a Sensitive Use, as set forth in Chapter 25 of the Environment Code and Section 6.25 of the Administrative Code.

B. For projects that meet Environment Code Section 2504(b), which are located outside the Air Pollutant Exposure Zone, or which are in the Air Pollutant Exposure Zone but are not within 1,000 feet of a Sensitive Use, refer to Section 00 73 73, Article "CLEAN CONSTRUCTION REQUIREMENTS ON MAJOR CONSTRUCTION PROJECTS."

C. The Department of the Environment is responsible for administering the Ordinance. For more information about the Ordinance and its implementation, please visit the Department of Public Health website at: https://www.sfdph.org/dph/EH/Air/CleanConstruction.asp and https://www.sfdph.org/dph/files/EHSdocs/AirQuality/San_Francisco_Clean_Construction_Ordinance_2015.pdf.

1.02 DEFINITIONS

A. "Air Pollutant Exposure Zone" means a zone having a substantially greater than average concentration of air pollutants as defined in Health Code Section 3804.

B. "Alternative Fuels" means any transportation fuel that is less polluting than gasoline or petroleum diesel fuel, as determined by the California Air Resource Board and that is shown to have lower lifecycle carbon emissions than gasoline or petroleum diesel. Alternative Fuels may include, but are not limited to: natural gas; propane; biofuels from low carbon, sustainable and preferably local sources; hydrogen produced from low carbon and/or renewable sources; and electricity.

C. "Alternative Sources of Power" means utility-based electric power or other power sources other than diesel engines.

D. "ARB" means the California Air Resources Board.

E. "Clean Construction" means the performance of all work required to be performed under a Public Works contract meeting the requirements in Sections 2504, 2505 and 2506 of the Environment Code, as applicable.

F. "Construction" means building, demolition, excavation, grading or foundation work, whether or not the work requires a City permit.

G. "Construction Activities" means the performance of all work involved in or required for Construction, except for the issuance or obtaining of a site permit for a project.

H. "Construction Phase" means a particular construction activity over a certain period of time. Construction phases may include, but are not limited to, demolition, site preparation, grading, building construction, architectural coatings, and paving. Multiple Construction Phases of a single project may take place at the same time.

I. "Equipment" means off-road and on-road equipment.

J. "Equipment Type" means a category of off-road equipment. Types of off-road equipment include bore/drill rigs, cranes, crawler tractors, excavators, graders, off-highway tractors, off-highway trucks, other construction equipment, pavers, paving equipment, rollers, rough terrain forklifts, rubber-tired dozers, rubber-tired loaders, scrapers, skid steer loaders, surfacing equipment, tractors/loaders/backhoes, and trenchers.

K. "Major Construction Project" means a public work to be performed within the geographic limits of the City that uses off-road equipment and that is estimated to require 20 or more cumulative days of work, including non-consecutive days, to complete.

L. "Most Effective Verified Diesel Emission Control Strategy" means a device, system or strategy that is verified, pursuant to Division 3, Chapter 14, of Title 13 of the California Code of Regulations, to achieve the highest level of pollution control tram an off-road vehicle.

M. "Off-Road Engine" means a non-road engine as defined in Title 40 of the Code of Federal Regulations, Section 89.2.

N. "Off-Road Equipment" means equipment with an off-road engine having greater than 25 horsepower and operating for more than 20 total hours over the entire duration of Construction Activities.

O. "On-Road Equipment" means a heavy-duty vehicle as defined in Title 40 of the Code of Federal Regulations, Section 86.1803-01.

P. "Portable Diesel Engine" means a diesel engine that is portable as defined in 71 California Code of Regulations, Section 93116.2(bb).

Q. "Sensitive Use" means a category of building use identified as a "Sensitive Use" in Health Code Section 3804.

R. "Tier 2 Off-Road Emission Standards" means the Tier 2 new engine emission standards in Title 13, California Code of Regulations, Section 2423(b)(1)(A) and/or Title 40, Code of Federal Regulations, Part 89.112(a).

S. "VDECS" means a verified diesel emission control strategy, designed primarily for the reduction of diesel particulate matter emissions, which has been verified by ARB pursuant to "Verification Procedures, Warranty and In-Use Strategies to Control Emissions from Diesel Engines," Title 13, California Code of Regulations, Sections 2700-2710. VDECS can be verified to achieve Level 1 diesel particulate matter reductions (at least 25 percent), Level 2 diesel particulate matter reductions (at least 50 percent), or Level 3 diesel particulate matter reductions (at least 85 percent).

1.03 SUBMITTALS

A. Construction Emissions Minimization Plan:

1. Contractor shall submit its initial Construction Emissions Minimization Plan no less than 28 days prior to mobilization. (See Subsection 1.04B.)

2. Contractor shall submit an updated Construction Emissions Plan on a quarterly basis in compliance with Subsection 1.04B.5.a, and submit each quarterly report within seven business days of the end of each quarter.

3. Contractor shall submit a final Construction Emissions Minimization Plan report summarizing construction activities within two weeks of achieving Substantial Completion in compliance with Subsection 1.04B.5.b.

B. Clean Construction Emissions Plan Certification Statement: Contractor shall submit this statement with its Construction Emissions Minimization Plan. (See Subsection 1.04B.3.)

C. Waiver Request: Contractor shall submit a waiver request to the Department Head no less than two weeks prior to the planned use of a specific piece of off-road equipment. (See Subsection 1.05A.)

1.04 REQUIREMENTS FOR MAJOR CONSTRUCTION PROJECTS WITHIN THE AIR POLLUTANT EXPOSURE ZONE

A. For all Major Construction Projects that meet the requirements of Environment Code Section 2504(a) and which are located in the Air Pollutant Exposure Zone and within 1,000 feet of a Sensitive Use, the following requirements apply:

1. All off-road equipment shall have engines that (a) meet or exceed either United States Environmental Protection Agency or ARB Tier 2 off-road

emission standards, and (b) have been retrofitted with an ARB Level 3 VDECS. Equipment with engines meeting Tier 4 Interim or Tier 4 Final off- road emission standards automatically meet this requirement. See Section 1.05A regarding the procedure for requesting a waiver to this requirement.

2. Where access to alternative sources of power is available, use of portable diesel engines to perform work on the project shall be prohibited. See Section 1.05B regarding the waiver procedure for this requirement.

3. Diesel engines, whether for off-road or on-road equipment, shall not be left idling for more than two minutes at any location, except as allowed for in applicable state regulations regarding idling for off-road and on-road equipment (e.g., traffic conditions, safe operating conditions). The Contractor shall post legible and visible signs, in English, Spanish, and Chinese, in designated queuing areas and at the construction site to remind operators of the idling limit. Refer to the following link for the Clean Construction Sign Template: https://www.sfdph.org/dph/EH/Air/CleanConstruction.asp.

4. The Contractor shall instruct construction workers and equipment operators on the maintenance and tuning of construction equipment, and require that such workers and operators properly maintain and tune equipment in accordance with manufacturer specifications.

B. Construction Emissions Minimization Plan: All Major Construction Projects that meet the requirements of Environment Code Section 2504(a), which are located in the Air Pollutant Exposure Zone and are within 1,000 feet of a Sensitive Use, also must comply with the following requirements:

1. Before starting on-site Construction Activities, the Contractor shall submit a Construction Emissions Minimization Plan ("Emissions Plan") to the City Representative for review and approval. The Emissions Plan shall state, in reasonable detail, how the Contractor will meet the requirements of Section 2505 of the Environment Code.

2. The Emissions Plan shall include estimates of the construction timeline by phase, with a description of each piece of off-road equipment required for each Construction Phase.

   a. The description may include, but is not limited to: equipment type, equipment manufacturer, equipment identification number, engine model year, engine certification (Tier rating), horsepower, engine serial number, and expected fuel usage and hours of operation.

   b. For the VDECS installed, the description may include, but is not limited to: technology type, serial number, make, model,

manufacturer, ARB verification number level, and installation date and hour meter reading on installation date.

c. For off-road equipment using alternative fuels, the description shall also specify the type of alternative fuel.

d. Contractor may use the Clean Construction Equipment Inventory Template to satisfy the Emissions Plan requirements. Refer to the following link for that template: https://www.sfdph.org/dph/EH/Air/CleanConstruction.asp.

3. The Contractor agrees to comply fully with the Emissions Plan and acknowledges that a significant violation of the Emissions Plan shall constitute a material breach of the Agreement. Contractor must submit a signed Clean Construction Emissions Plan Certification Statement to the City Representative. Refer to the following link for the Emissions Plan Certification Statement Template: https://www.sfdph.org/dph/EH/Air/CleanConstruction.asp.

4. After City review and approval, the Contractor shall make the Emissions Plan available to the public for review onsite during working hours.

a. The Contractor shall post at the construction site a legible and visible sign summarizing the Emissions Plan. Refer to the following link for the Clean Construction Sign Template: https://www.sfdph.org/dph/EH/Air/CleanConstruction.asp.

b. The sign shall also state that the public may ask to inspect the Emissions Plan for the project at any time during working hours, and shall explain how to request to inspect the Emissions Plan.

c. The Contractor shall post at least one copy of the sign in a visible location on each side of the construction site facing a public right-of-way.

5. Reporting:

a. After Construction Activities begin, the Contractor shall update the Emissions Plan on a quarterly basis documenting changes from the original plan and demonstrating compliance with the Emissions Plan. The report shall be submitted to the City Representative quarterly and a copy shall also be maintained at the construction site.

b. Prior to receiving a Notice of Final Completion, or within six months of completion of Construction Activities if a final certificate of acceptance is not required, the Contractor shall submit to the City Representative a final report summarizing Construction Activities, including the start and end dates and duration of each Construction Phase, and the specific information required in the Emissions Plan.

1.05 WAIVERS

A. Waivers Under Subsection 1.04A.

1. The Contractor may request to waive the equipment requirements of Paragraph 1.04A.1 if: (a) a particular piece of off-road equipment with an ARB Level 3 VDECS is technically not feasible; (b) the equipment would not produce desired emissions reduction due to expected operating modes; (c) installation of the equipment would create a safety hazard or impaired visibility for the operator; or, (d) there is a compelling emergency need to use off-road equipment that is not retrofitted with an ARB Level 3 VDECS.

2. Contractor shall submit a waiver request to the Department Head, or designee, no less than two weeks prior to the planned use of a specific piece of off-road equipment.

3. If the Department Head, or designee, grants the waiver specified in Section 1.05A.1, the Contractor must use the next cleanest piece of off-road equipment, according to Table 1, below.

Table 1
Off-Road Equipment Compliance Step Down Schedule*

Compliance Alternative	Engine Emission Standard	Emissions Control
1	Tier 2	ARB Level 2 VDECS
2	Tier 2	ARB Level 1 VDECS
3	Tier 2	Alternative Fuel**

* If the City determines that the equipment requirements cannot be met, the Contractor must meet Compliance Alternative 1. If the City determines that the Contractor cannot supply off-road equipment meeting Compliance Alternative 1, then the Contractor must meet Compliance Alternative 2. If the City determines that the Contractor cannot supply off-road equipment meeting Compliance Alternative 2, then the Contractor must meet Compliance Alternative 3.

** Alternative fuels are not a VDECS

B. Waivers Under Subsection 1.04A.2.

1. The Department Head, or designee, may waive the alternative source of power requirement set forth in Subsection 1.04A.2 if an alternative source of power is limited or infeasible at the project site. If the City grants the waiver, the Contractor must submit documentation that the equipment used for onsite power generation meets the requirements of Subsection 1.04A.1, above.

C. All Other Waivers: The Department Head or designee also may waive the requirements of the Ordinance on the grounds set forth in Section 2507 of the Environment Code.

D. For any waiver granted in this Subsection 1.05, the City Representative will within two business days prepare a written notice of the waiver and a written memorandum explaining the basis for the waiver and the steps that will be taken to safeguard public and City employee health during the noncomplying work. The memorandum will also state the steps that the City and the Contractor will take to minimize the use of noncomplying equipment or engines during the noncomplying work.

1.06 NONCOMPLIANCE AND PENALTIES

A. Liquidated Damages: By entering into the Agreement, Contractor and City agree that if Contractor uses off-road equipment and/or off-road engines in violation of the Clean Construction requirements set forth in Administrative Code Section 6.25 and Chapter 25 of the Environment Code, the City will suffer actual damages that will be impractical or extremely difficult to determine. Accordingly, Contractor and the City agree that Contractor shall pay the City the amount of $100 per day per each piece of off-road equipment and each off-road engine used to complete Work on the Project in violation of the Ordinance. Such amount shall not be considered a penalty, but rather agreed monetary damages sustained by City because of Contractor's failure to comply with the Clean Construction requirements.

B. False Representations: False representations by the Contractor, in connection with the bidding, execution or performance of any City contract, regarding the nature or character of the off-road equipment and/or off-road engines to be utilized, on the contract, or to the City about the nature or character of the off-road equipment and/or off-road engines actually used may subject the Contractor to the consequences of noncompliance specified in Section 2510 of the Environment Code, including but not limited to the penalties prescribed therein. The assessment of penalties for noncompliance shall not preclude the City from exercising any other rights or remedies to which it is entitled.

END OF SECTION

SAN FRANCISCO
PLANNING DEPARTMENT

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San Francisco Recreation and Park Department Preliminary Archeological Checklist (PAC)

PART I - PROJECT INFORMATION:

Date:_____ **RPD RA Staff**: _____

Project name: _____

Case No: _____

Application type: ☐ EE CatEx ☐

Project address: _____

APN/Cross streets: _____

EP Planner:_____**EP Archeologist:** _____

Consultant Archeologist name/firm (if applicable):_____

1. PROJECT DESCRIPTION: (include description of construction methods, all potentially ground-disturbing activities including parking, staging, equipment and spoils storage, temporary and permanent work areas, utility lines)

2. POTENTIAL GROUND DISTURBANCE

Yes	No	Project Component
☐	☐	Excavation (basement, elevator, utilities, seismic retrofit, remediation, underground vaults, septic tank system, culverts, etc.)

Maximum depth:

2. POTENTIAL GROUND DISTURBANCE (cont.)

☐ ☐ Pipeline replacement or installation (specify cut and cover, directional drilling, pipe bursting, etc):
☐ ☐ Tunnels, transport storage boxes
☐ ☐ Bore pits, test pits
☐ ☐ Shallow Building Foundation (Mat, Spread Footings, etc.)
Depth:
☐ ☐ Piles, piers, micropiles, pilings, piling replacement
☐ ☐ Grading, scraping
☐ ☐ Demolition
☐ ☐ Construction staging, spoils on unpaved area, fill
☐ ☐ Road construction
☐ ☐ Geotechnical trenching (dimensions)_____
☐ ☐ New rip rap
☐ ☐ Wharf or seawall modification
☐ ☐ Other (specify):

Anticipated maximum extent of project ground disturbance:
Vertical_____Horizontal_____
APE Map Attached Y ☐ N ☐

3. PREVIOUS SOILS DISTURBANCE AT PROJECT SITE:
Has the project site been previously disturbed by any of the following?

Yes	No	**Component of disturbance**
☐	☐	Existing Basement Depth:_____ Area:_____
☐	☐	Existing Foundation (footings, perimeter, piles, micropiles, etc.) Depth:
☐	☐	Site remediation/UST installation or removal, other excavation. Depth:
☐	☐	Site Grading
☐	☐	Demolition
☐	☐	Dredging
☐	☐	Piling installation (depth):_____
☐	☐	Riprap
☐	☐	Seawall construction
☐	☐	Other (specify):

4. Has the entire project area previously been disturbed to the maximum depth and extent of proposed project disturbance? Y ☐ N ☐
(Attach documentary evidence such as plans and profiles of prior trenching, utility street occupancy, historic photos, specifications from prior projects, etc.)
List attachments provided:_____
_____

☐ **Complete prior disturbance adequately documented. No further archeological assessment is required. EP Archeologist Concurs:** _____

☐ **Prior ground disturbance is unknown or cannot be adequately documented; Part II Required.**

PART II - ARCHEOLOGICAL DATA ASSESSMENT

1. ARCHIVAL AND DATA REVIEW

Dates of review:_____

Resources reviewed:

- ☐ Maher zone maps. Dates/ origin/ depth of fill if known_____
- ☐ Geotechnical data for project site and vicinity. Report_____
- ☐ EP Archeological GIS maps (all layers or specify applicable layers)_____

_____

- ☐ Sanborn Insurance maps (1887-93, 1899-1900)
- ☐ U.S. Coast Survey maps (1853, 1857, 1869)
- ☐ Information Center archeological records search (attach request and response)
- ☐ NAHC Sacred Lands File
- ☐ Native American/ Ethnic group consultation
- ☐ Other:_____
- ☐ Historical Maps or other information provided by RPD

2. ARCHEOLOGICAL FIELD INVENTORY

- ☐ Not warranted; no exposed ground surface in project area
- ☐ Results negative
- ☐ Results positive
- ☐ Survey results inconclusive

Archeologist/ Firm_____ Date of Survey_____

Attach Archeological Survey Report/Memo; may combine with results of archival review.

3. SUMMARY OF RESULTS OF PROJECT ASSESSMENT

Site History/Formation:

Recorded/documented archeological sites/ investigations on/in the vicinity of the project site:

4. CONCLUSIONS AND RECOMMENDATIONS

a) **NO EFFECTS TO ARCHEOLOGICAL RESOURCES EXPECTED:**

- ☐ Project effects limited to previously-disturbed soils
- ☐ Project effects limited to culturally sterile soils
- ☐ Based on assessment above, no potentially CEQA-significant archeological resources are expected within project area affected soils.

b) AVOIDANCE AND TREATMENT MEASURES NECESSARY TO AVOID AN ADVERSE EFFECT TO SIGNIFICANT ARCHEOLOGICAL RESOURCES:

- ☐ Discovery: potential to adversely affect archeological resources; may be avoided by implementation of **RPD Standard Archeological Measure I** (Discovery during Construction), with implementation of Standard Archeological Measures II (Monitoring) and/or III (Testing/ Data Recovery) in the event of a discovery during construction.

- ☐ Monitoring: some potential for the project to adversely affect archeological resources; may be avoided by implementation of **RPD Standard Archeological Measure II** (Archeological Monitoring) during construction.

- ☐ Testing/Data Recovery: potential of the project to adversely affect archeological resources; may be avoided by implementation of **RPD Standard Archeological Measure III** (Archeological Testing/Data Recovery)
  Implementation Required:
  ☐ prior to ☐ during construction.

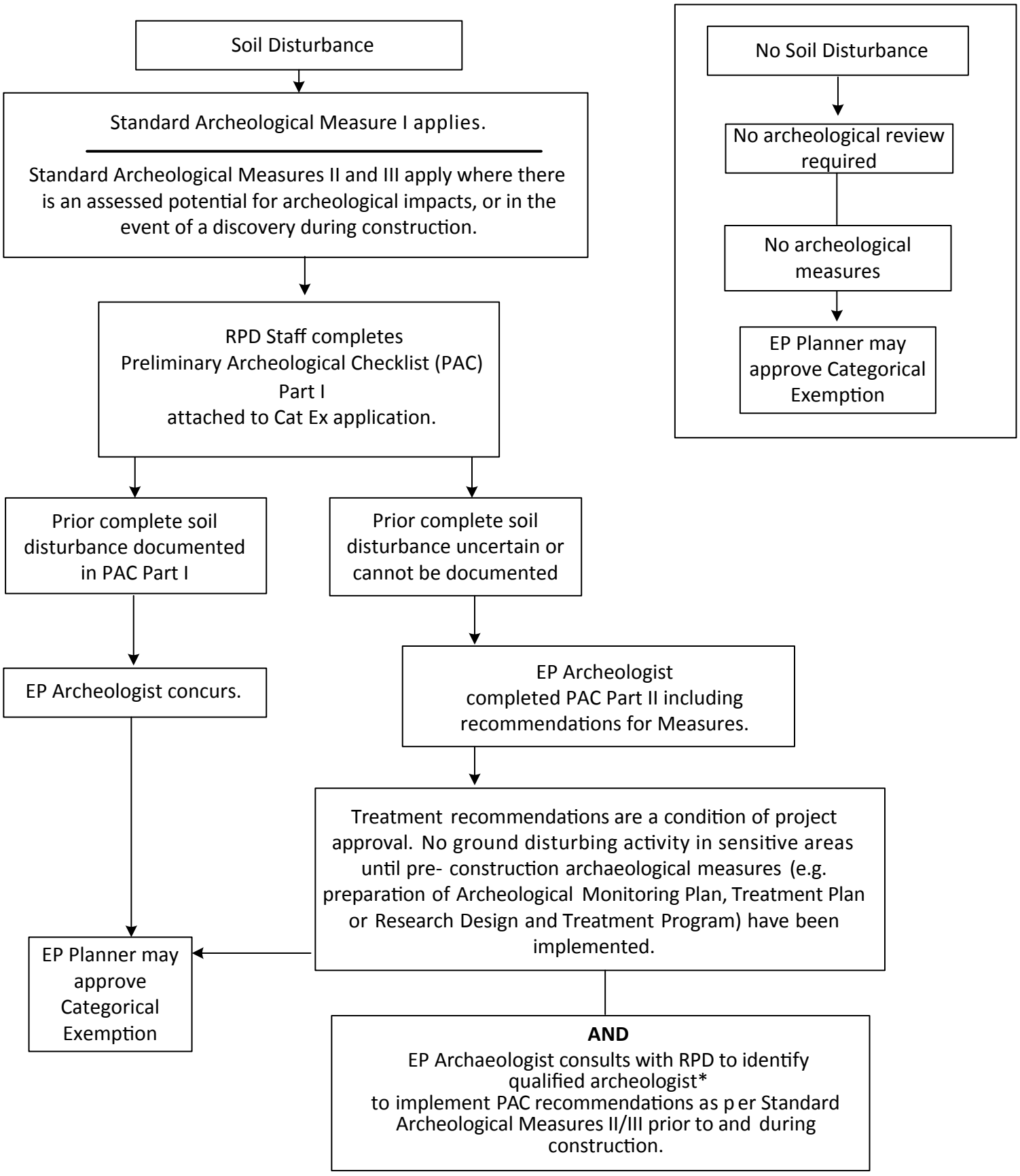
- ☐ CEQA evaluation of the project requires preparation and implementation of an archeological research design and treatment plan (ARDTP) by a qualified archeological consultant. See attached scope of work for the ARDTP

- ☐ Consultation requested.

Signature

Attachment D:

RPD Standard Construction Measure #5 Archeological Assessment Process



* Archeologist or archeological consultant who meets the Secretary of the Interior's Professional Qualifications Standards (36 CFR 61) as defined in Standard Archeological Measure I.

Attachment E: Archeological Measure I (Archeological Discovery)

The following requirements are applicable to:

- All projects that will include soil disturbance,
- Any discovery of a potential historical resource or of human remains, with or without an archeological monitor present.

Prior to ground disturbing activities:

A. Alert Sheet. RPD shall, prior to any soils disturbing activities, distribute the Planning Department archeological resource "ALERT" sheet to each project contractor or vendor involved in project-related soils disturbing activities; ensure that each contractor circulates it to all field personnel; and provide the Environmental Review Officer (ERO) with a signed affidavit from each contractor confirming distribution to all field personnel.

Upon making a discovery:

B. Work Suspension. Should a potential archeological resource be encountered during project soils disturbing activity, with or without an archeological monitor present, the project Head Foreman shall immediately suspend soils-disturbing activities within 50 feet (15 meters) of the discovery in order to protect the find from further disturbance, and notify the RPD Project Manager (PM), who shall immediately notify the ERO for further consultation.

C. Qualified Archeologist. All archeological work conducted under this measure shall be performed by an archeologist who meets the Secretary of the Interior's Professional Qualifications Standards (36-CFR 61); consultants will be selected in consultation with the ERO and meeting the criteria or specialization required for the resource type as identified by the ERO in a manner consistent with RPD contracting requirements.

D. Assessment and Additional Measures. If the ERO determines that the discovery is a potential archeological/historical resource, the qualified archeologist, in consultation with the ERO, shall document the find, evaluate based on available information whether it qualifies as a significant historical resource under the CEQA criteria, and provide recommendations for additional treatment as warranted. The ERO will consult with RPD and the qualified archeologist on these recommendations and may require implementation of additional measures as set forth below in Archeological Measures II and III, such as preparation and implementation of an Archeological Monitoring Plan, an Archeological Testing Plan, and/or an Archeological Data Recovery Plan, and including associated research designs, descendant group consultation, other reporting, curation, and public interpretation of results.

E. Report Reviews. All plans and reports prepared by an archeological consultant, as specified herein, shall be submitted first and directly to the ERO for review and comment with a copy to RPD and shall be considered draft reports subject to revision until final approval by the ERO.

F. Draft and Final Archeological Resources Reports. For projects in which a significant archeological resource is encountered and treated during project implementation (see Archeological Measures II and III), the archeological consultant shall submit a draft Final Archeological Resources Report (FARR) to the ERO that evaluates the historical significance of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken, research questions addressed, and research results. Information that may put at risk any archeological resource shall be provided in a separate, removable insert within the draft final report.

Once approved by the ERO, copies of the FARR shall be distributed as follows: two copies to the applicable California Historic Information System Information Center (CHRIS), one copy to each descendant group involved in the project, and documentation to the San Francisco Planning Department of transmittal of the above copies. In addition, the Planning Department shall be provided one bound, one unbound and one unlocked, searchable PDF copy on CD of the FARR, which shall include copies of any formal site recordation forms (CA DPR 523 series) and/or National Register of Historic Places/California Register of Historical Resources nominations.

G. Other Reports. In instances of high public interest or interpretive value, the ERO may require different or additional final report content, format, and distribution than that presented above.

H. Human Remains, Associated or Unassociated Funerary Objects. RPD shall ensure that human remains and associated or unassociated funerary objects discovered during any soils disturbing activity are treated in compliance with applicable State and federal laws. In the event of the discovery of potential human remains, the construction contractor shall ensure that construction activity within 50 feet of the find is halted and the RPD PM, ERO, and the County Coroner are notified immediately. If the Coroner determines that the remains are of Native American origin, he/she will notify the California State Native American Heritage Commission. Subsequent consultation on and treatment of the remains shall be conducted consistent with Public Resources Code Section 5097.98 and CEQA Guidelines Section 15064.5(d), in consultation with the ERO.

I. Consultation with Descendant Communities. Consistent with AB 52 requirements, if requested, RPD shall provide opportunities for Native American descendant groups to provide input during project planning for projects that may affect potential Tribal Cultural Resources. In addition, on discovery during construction of an archeological site associated with descendant Native Americans, the Overseas Chinese, or other descendant group, an appropriate representative of the descendant group shall be contacted by RPD at the direction of the ERO. RPD will offer this representative the opportunity to monitor archeological field investigations of the site and to consult with the ERO regarding the appropriate treatment and, if applicable, interpretation of the site and the recovered materials.

J. Construction Delays. Archeological monitoring and/or data recovery programs required by this measure may suspend construction of the project for up to a maximum of four weeks. At the direction of the ERO, the suspension of construction can be extended beyond four weeks only if this is the only feasible means to reduce potential effects on a significant archeological find to a less-than-significant level.

Attachment F. RPD Archeological Measure II (Archeological Monitoring)

A. Archeological Monitoring Plan (AMP). Where an archeological field investigation to identify expected buried or submerged resources cannot reasonably be carried out during project planning/ environmental review (for example, where definitive determination would require extensive street opening prior to construction), prior to any project-related soils-disturbing activities the qualified archeologist identified under Archeological Measure I.C. shall consult with RPD and the ERO to develop an Archeological Monitoring Plan (AMP). The AMP which will be implemented in conjunction with soil-disturbing activities during construction. Preparation and implementation of an AMP also may be required based on the results of pre-construction archeological testing or upon a discovery during construction.

The AMP shall include the following elements, at minimum:

- Historical context and research design for assessment of resource types likely to be encountered;
- Project activities to be archeologically monitored and intensity of monitoring of each type and location of project construction activity; and
- Procedures for the documentation, significance and integrity assessment, treatment, curation, interpretation and reporting of the types of resources likely to be encountered.

B. Reporting. Whether or not significant archeological resources are encountered, the archeological consultant shall submit a written report of the findings of the monitoring program to the ERO at the end of construction (See Archeological Measure I.E [Report Reviews] and I.F. [Draft and Final Archeological Research Report]).

C. Monitoring Authorities

- The archeological monitor will have the authority to halt construction activity at the location of a suspected resource for inspection, documentation, and assessment of the need for further measures as set forth in Archeological Measure III.
- The Archeological Monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis.
- The Archeological Monitor(s) shall be present on the project site according to a schedule identified in the AMP, subject to modification upon ERO concurrence, based on findings.

D. Testing/Data Recovery. In the event of a discovery during construction, if the ERO and archeological consultant determine that the discovery is a significant resource (that is, a

resource that meets the eligibility criteria of the California Register of Historic Resources or qualifies as a unique archeological resource) that will be adversely affected (that is, where the project would result in loss of data potential) or that additional investigation is required to make this determination, all applicable elements of Archeological Measure III (Archeological Testing/Data Recovery) also shall be implemented.

Attachment G. RPD Archeological Measure III (Testing / Data Recovery)

The following provisions apply prior to or during construction when a significant archeological resource (as defined in Measure II.D) or an archeological resource of undetermined significance is expected to be present in the work area and the ERO, in consultation with the qualified archeologist, determines that an archeological field investigation is needed to determine: a) the presence of an archeological resource, b) whether it retains depositional integrity, and c) whether it qualifies as a legally significant resource under CEQA criteria. All archeological work under this Measure will be carried out by a qualified archeologist as identified in Archeological Measure I.C. Per Archeological Measure I.J, implementation of this measure shall not exceed four weeks except at the direction of the ERO and only if this is the only feasible means to reduce potential effects on a significant archeological find to a less-than-significant level.

A. Archeological Testing Program. If an archeological investigation is required in order to verify resource location and/ or assess the significance of the resource, the archeological consultant shall consult with the ERO to prepare and implement an Archeological Testing Plan (ATP) that identifies:

- Key research questions and associated data needs,
- Testing/ sampling methods, and
- Testing locations.

Results of testing shall be presented to ERO in a written report following Measure I.E. If, based on the archeological testing program, the archeological consultant finds and the ERO concurs that significant archeological resources may be present, Measures III.B and/or III.C below will be implemented.

B. Treatment. If the project could adversely affect a significant (CRHR-eligible) archeological resource, preservation in place is the preferred manner of mitigating impacts, as detailed in CEQA Guidelines 15126.6(b) (3)(a) and (b).

If preservation in place is determined to be infeasible, the RPD at its discretion shall either:

- Re-design the proposed project so as to reduce the adverse effect to a less-than-significant level through preservation in place or other feasible measures; and/or
- For a resource important for its association with an important event or person, or which is of demonstrable public interest for both its scientific and historical values (e.g., a submerged ship), and where feasible, preserve the resource in place with appropriate documentation; or, if not feasible to preserve in place,

systematically document and/or recover for interpretive use, at the discretion of the ERO, and/or;

- For an archeological resource significant primarily for its data potential, design and implement an archeological data recovery program, as detailed under Measure III.D, below.

C. Archeological Data Recovery Plan (ADRP). For resources for which the elected treatment is archeological data recovery, the archeological consultant, in consultation with the ERO, shall prepare and implement an ADRP. It will identify how the significant information the archeological resource is expected to contain will be recovered and preserved. Data recovery results will be reported in the FARR, as detailed in Measure I.F. The ADRP shall include the following elements:

- Historic context and research design
- Field methods and procedures, including sampling strategy
- Archeological monitoring recommendations for ongoing construction
- Cataloguing and laboratory analysis
- Discard, deaccession, and curation policy
- Interpretive program
- Security measures

ALERT!

This project site is in an archeologically sensitive area. If you uncover a concentration of historic-era materials (such as bottles or ceramics); wood floors and brick foundations; soils containing shells or bones; or human bones or suspected human bones, you are required to:

1. Immediately stop soil disturbance at the discovery location.
2. Protect the find in place.
3. Call a Planning Department archeologist. Either Allison Vanderslice (415) 575-9075, Sally Morgan (415) 575-9024 or Kari Lentz (415) 558-9023.
4. Ensure that ground-disturbing work around the discovery location does not resume until the archeologist has evaluated the find and any necessary treatment has been implemented.

Material that may indicate the presence of an archeological site include:

- Concentrations of shells or bones
- Dark, greasy soils, with ash, charcoal, burnt earth
- Native American artifacts such as arrowheads and mortar bowls
- Building foundation, wall or floor remains, clay roof/floor tiles
- Trash pits, privy (outhouse) pits, wells
- Concentration of bottles, ceramics, animal bones, hardware, etc.
- Evidence of 1906 Earthquake and Fire (layer of burned building debris, charcoal, fused glass, etc.)
- Wood structural remains (building, pipelines, ship, wharf, etc.)
- Rails, rail ties, rail cars or carts
- Gravestones, carved or cut granite, limestone or marble

Native American tools including obsidian and bone

Shell deposit, often in dark soil

Close-up of shell deposit

Brick foundation

Outhouse pit

Refuse pit

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San Francisco
Water Power Sewer
Services of the San Francisco Public Utilities Commission

OFFICE OF THE GENERAL MANAGER
525 Golden Gate Avenue, 13th Floor
San Francisco, CA 94102-3220
T 415.554.0740
F 415.554.3161
TTY 415.554.3488

MEMORANDUM

TO: Michael Carlin, Juliet Ellis, Barbara Hale, Kathryn How, Tommy Moala, Steven Ritchie, Eric Sandler

DATE: July1, 2015

FROM: Harlan L. Kelly, Jr. General Manager

SUBJECT: SFPUC Standard Construction Measures

In 2006, the SFPUC General Manager (GM) directed SFPUC staff to incorporate the Standard Construction Measures (Measures) in all SFPUC projects via memorandum on August 16, 2006. The directive was updated and clarified on December 6, 2006. The GM updated and re-issued the Measures on February 7, 2007. The purpose then, as it is now, was for the SFPUC to adopt environmentally responsible practices to apply to all SFPUC projects.

This directive further updates the Measures. In particular, the protocol for cultural resources is included in detail in order to fully incorporate the San Francisco Planning Department's recently adopted approach to this resource area so that all SFPUC are constructed consistently with this protocol. The updated cultural resources protocols are set forth in full and are attached to this memorandum.

In addition to complying with all applicable local, State, and federal laws and regulations, these Measures are to be followed as a standard practice in the execution of every SFPUC project. While some of the Measures may not apply to a project, it is important to address each of the Measures either by implementing the Measure as described, explaining why it is not applicable to the particular project, or undertaking further investigation and developing a more detailed work plan to address the resource as provided in the resource-specific Measures. Some of the Measures are very broad and will be tailored to suit each project site and surrounding circumstances.

For projects that undergo full CEQA review (Mitigated Negative Declarations or Environmental Impact Reports) a n d / or receive resource agency permits (e.g., US Army Corps of Engineers, California Department of Fish and Wildlife, etc.), these Measures may be superseded and/or amplified with more detailed, project specific

mitigation measures or conditions stipulated in the project CEQA document and/or permits.

The Measures can be accessed at the following link:

S:\SFPUC Standard Construction Measures

The responsibility for implementation of the Standard Construction Measures rests with each Project Manager in Infrastructure and the SFPUC Enterprises. If you have any questions please contact Irina Torrey, Manager, Bureau of Environmental Management at 415-554-3232.

Please begin implementing these Measures immediately. Thank you for your cooperation.

SFPUC Standard Construction Measures

1. SEISMIC AND GEOTECHNICAL STUDIES: All projects will prepare a characterization of the soil types and potential for liquefaction, subsidence, landslide, fault displacement, and other geological hazards at the project site and will be engineered and designed as necessary to minimize risks to safety and reliability due to such hazards. As necessary, geotechnical investigations will be performed.

2. AIR QUALITY: All projects within San Francisco City (the City) limits will comply with the Construction Dust Control Ordinance. All projects outside the City will comply with applicable local and State dust control regulations. All projects within City limits will comply with the Clean Construction Ordinance. Projects outside City limits will comply with San Francisco or other applicable thresholds for health risks. All projects, both within and outside of City limits, will comply with either San Francisco or other applicable thresholds for construction criteria air pollutants.

To meet air quality thresholds, all projects (as necessary) will implement air quality controls to be tailored to the project, such as using high tier engines, Verified Diesel Emissions Control Strategies (VDECS) such as diesel particulate filters, customized construction schedules and procedures, and low emissions fuel.

3. WATER QUALITY: All projects will implement erosion and sedimentation controls to be tailored to the project site such as, fiber rolls and/or gravel bags around stormdrain inlets, installation of silt fences, and other such measures sufficient to prevent discharges of sediment and other pollutants to storm drains and all surface waterways, such as San Francisco Bay, the Pacific Ocean, water supply reservoirs, wetlands, swales, and streams. As required based on project location and size, a Stormwater Control Plan (in most areas of San Francisco) or a Stormwater Pollution Prevention Plan (SWPPP) (outside of San Francisco and in certain areas of San Francisco) will be prepared. If uncontaminated groundwater is encountered during excavation activities, it will be discharged in compliance with applicable water quality standards and discharge permit requirements.

4. TRAFFIC: All projects will implement traffic control measures sufficient to maintain traffic and pedestrian circulation on streets affected by construction of the project. Traffic control measures may include, but not be limited to, flaggers and/or construction warning signage of work ahead; scheduling truck trips during non-peak hours to the extent feasible; maintaining access to driveways, private roads, and off-street commercial loading facilities by using steel trench plates or other such method; and coordination with local emergency responders to maintain emergency access. For projects in San Francisco, the measures will also, at a minimum, be consistent with the requirements of San Francisco Municipal Transportation Agency (SFMTA)'s Blue Book. Any temporary rerouting of transit vehicles or relocation of transit facilities would be coordinated with the applicable transit agency, such as SFMTA Muni Operations in San Francisco. All Projects will obtain encroachment permits from the applicable jurisdiction for work in public roadways.

5. NOISE: All projects will comply with local noise ordinances regulating construction noise. The SFPUC shall undertake measures to minimize noise disruption to nearby neighbors and sensitive receptors during construction. These efforts could include using best available noise control technologies on equipment (i.e., mufflers, ducts, and acoustically attenuating shields),

locating stationary noise sources (i.e., pumps and generators) away from sensitive receptors, erecting temporary noise barriers, and other such measures.

6. HAZARDOUS MATERIALS: Where there is reason to believe that site soil or groundwater that will be disturbed may contain hazardous materials, the SFPUC shall undertake an assessment of the site in accordance with any applicable local requirements (e.g., Maher Ordinance) or using reasonable commercial standards (e.g., Phase I and Phase II assessments, as needed). If hazardous materials will be disturbed, the SFPUC shall prepare a plan and implement the plan for treating, containing or removing the hazardous materials in accordance with any applicable local, State and federal regulations so as to avoid any adverse exposure to the material during and after construction. In addition, any unidentified hazardous materials encountered during construction likewise will be characterized and appropriately treated, contained or removed to avoid any adverse exposure. Measures will also be implemented to prevent the release of hazardous materials used during construction, such as storing them pursuant to manufacturer recommendation, maintaining spill kits onsite, and containing any spills that occur to the extent safe and feasible followed by collection and disposal in accordance with applicable laws. SFPUC will report spills of reportable quantity to applicable agencies (e.g., the Governor's Office of Emergency Services).

7. BIOLOGICAL RESOURCES: All project sites and the immediately surrounding area will be screened to determine whether biological resources may be affected by construction. A qualified biologist will also carry out a survey of the project site, as appropriate, to note the general resources and identify whether habitat for special-status species and/or migratory birds, are present. In the event further investigation is necessary, the SFPUC will comply with all local, State, and federal requirements for surveys, analysis, and protection of biological resources (e.g., Migratory Bird Treaty Act, federal and State Endangered Species Acts, etc.). If necessary, measures will be implemented to protect biological resources, such as installing wildlife exclusion fencing, establishing work buffer zones, installing bird deterrents, monitoring by a qualified biologist, and other such measures. If tree removal is required, the SFPUC would comply with any applicable tree protection ordinance.

8. VISUAL AND AESTHETIC CONSIDERATIONS, PROJECT SITE: All project sites will be maintained in a clean and orderly state. Construction staging areas will be sited away from public view where possible. Nighttime lighting will be directed away from residential areas and have shields to prevent light spillover effects. Upon project completion, project sites on SFPUC-owned lands will be returned to their general pre-project condition, including re-grading of the site and re-vegetation or re-paving of disturbed areas to the extent this is consistent with SFPUC's Integrated Vegetation Management Policy. However, where encroachment has occurred on SFPUC-owned lands, the encroaching features may not be restored if inconsistent with the SFPUC policies applicable to management of its property. Project sites on non-SFPUC land will be restored to their general pre-project condition so that the owner may return them to their prior use, unless otherwise arranged with the property owner.

9. CULTURAL RESOURCES: All projects that will alter a building or structure, produce vibrations, or include soil disturbance will be screened to assess whether cultural resources are or may be present and could be affected, as detailed below.

Archeological Resources. No archeological review is required for a project that will not entail ground disturbance. Projects involving ground disturbance will undergo screening for

archeological sensitivity as described below and implement, as applicable, SFPUC's Standard Archeological Measures I (Discovery), II (Monitoring) and III (Testing/Data Recovery) per the Cultural Resources Attachments. Standard Construction Measure I will be implemented on all projects involving ground disturbance and Standard Archeological Measures II and III will be implemented based on the screening process described below for projects assessed as having the potential to encounter archeological sites and/or if an archeological discovery occurs during construction.

Projects involving ground disturbance will initially be screened to identify whether there is demonstrable evidence of prior ground disturbance in the project site to the maximum vertical and horizontal extent of the current project's planned disturbance. For projects where prior complete ground disturbance has occurred throughout areas of planned work, SFPUC will provide evidence of the previous disturbance in the Categorical Exemption application and no further archeological screening will be required.

For projects that are on previously undisturbed sites or where the depth/extent of prior ground disturbance cannot be documented, or where the planned project-related ground disturbance will extend beyond the depth/extent of prior ground disturbance, additional screening will be carried out as detailed below and shown on the attached flow chart titled "SFPUC Standard Construction Measure #9 Archeological Assessment Process". The additional screening will be conducted by the SFPUC's qualified archeologist (defined as meeting the Secretary of the Interior's Professional Qualifications Standards [36 CFR 61]) and, if a consultant, selected in consultation with the San Francisco Planning Department's Environmental Review Officer (ERO) and meeting criteria or specialization required for the resource type as identified by the ERO.

1) The SFPUC qualified archeologist will conduct an archival review for the project site, including review of Environmental Planning's (EP's) archeological GIS data and/or a records search of the California Historical Resources Information System (CHRIS) and other archival sources as appropriate. The qualified archeologist will also conduct an archeological field survey of the project site if, in the archeologist's judgment, this is warranted by site conditions. Based on the results, the archeologist will complete and submit to EP a Preliminary Archeological Checklist (PAC) (version dated 4/2015, to be amended in consultation with the ERO as needed). The PAC will include recommendations for the need for archeological testing, additional research and/or treatment measures consistent with Archeological Measures I, II, and III, to be implemented by the project to protect and/or treat significant archeological resources identified as being present within the site and potentially affected by the project.

2) The EP Archeologist (for projects within the City) or the ERO's archeological designee (for projects outside the City) will then conduct a Preliminary Archeological Review (PAR) of the PAC and other sources as warranted; concur with the PAC recommendations; and/or amend the PAC in consultation with the SFPUC archeologist or archeological consultant to require additional research, reports, or treatment measures as warranted based on his/her professional opinion.

3) The SFPUC shall implement the PAC/PAR recommendations prior to and/or during project construction consistent with Standard Archeological Measures I, II, and III, and

shall consult with the EP Archeologist in selecting an archeological consultant, as needed, to implement these measures.

4) Ground disturbing activities in archeologically sensitive areas, as identified through the above screening, will not begin until required preconstruction archeological measures of the PAC/PAR (e.g., preparation of an Archeological Monitoring Plan, Archeological Treatment Plan, and/or an Archeological Research Design and Data Recovery Plan) have been implemented.

Historic (Built Environment) Resources. For projects within the City that include activities with the potential for direct or indirect effects to historic buildings or structures, initial CEQA screening will include a review, for the project footprint and up to one parcel surrounding the footprint of CCSF's online planning map, all relevant survey data, preservation address files, and other pertinent sources for previously-identified, historically significant buildings and building and structures more than 45 years old that have not been previously evaluated. For projects outside of the City, initial CEQA screening will include a records search of EP's CCSF historical resources data, CHRIS, and other pertinent sources for historically significant or potentially significant buildings and structures older than 45 years.

For projects that would modify an existing building or structure that has been determined by EP as being a significant historical resource (i.e., appears eligible to qualify for the CRHR), or that would introduce new aboveground facilities in the vicinity of a significant historical resource, or that would affect previously unevaluated buildings or structures more than 45 years old, the SFPUC will retain a qualified architectural historian (defined as meeting the Secretary of the Interior's Professional Qualification standards and, if a consultant, also selected in consultation with the ERO) to conduct a historical resource evaluation (HRE). SFPUC will submit the project description and the HRE to the CCSF Planning Department Preservation Planner or to the ERO's-designated qualified architectural historian to assess potential effects. Where the potential for the project to have adverse effects on historic buildings or structures is identified, the CCSF Planning Department Preservation Planner or the ERO's designee will consult with SFPUC to determine if the project can be conducted as planned or if the project design can be revised to avoid the significant impact, and will comply with applicable procedures set forth in Historic Architectural Resource Measure I. If these options are not feasible, the project will need to undergo further review with EP and mitigation may be required. If so, the project would not qualify for a Categorical Exemption from CEQA review.

Where construction will take place in proximity to a building or structure identified as a significant historical resource but would not otherwise directly affect it, the SFPUC will implement protective measures, such as but not limited to, the erection of temporary construction barriers to ensure that inadvertent impacts to such buildings or structures are avoided.

CULTURAL RESOURCES ATTACHMENTS

Flow Chart: SFPUC Standard Construction Measure #9 Archeological Assessment Process

SFPUC Archeological Measure I (Archeological Discovery)

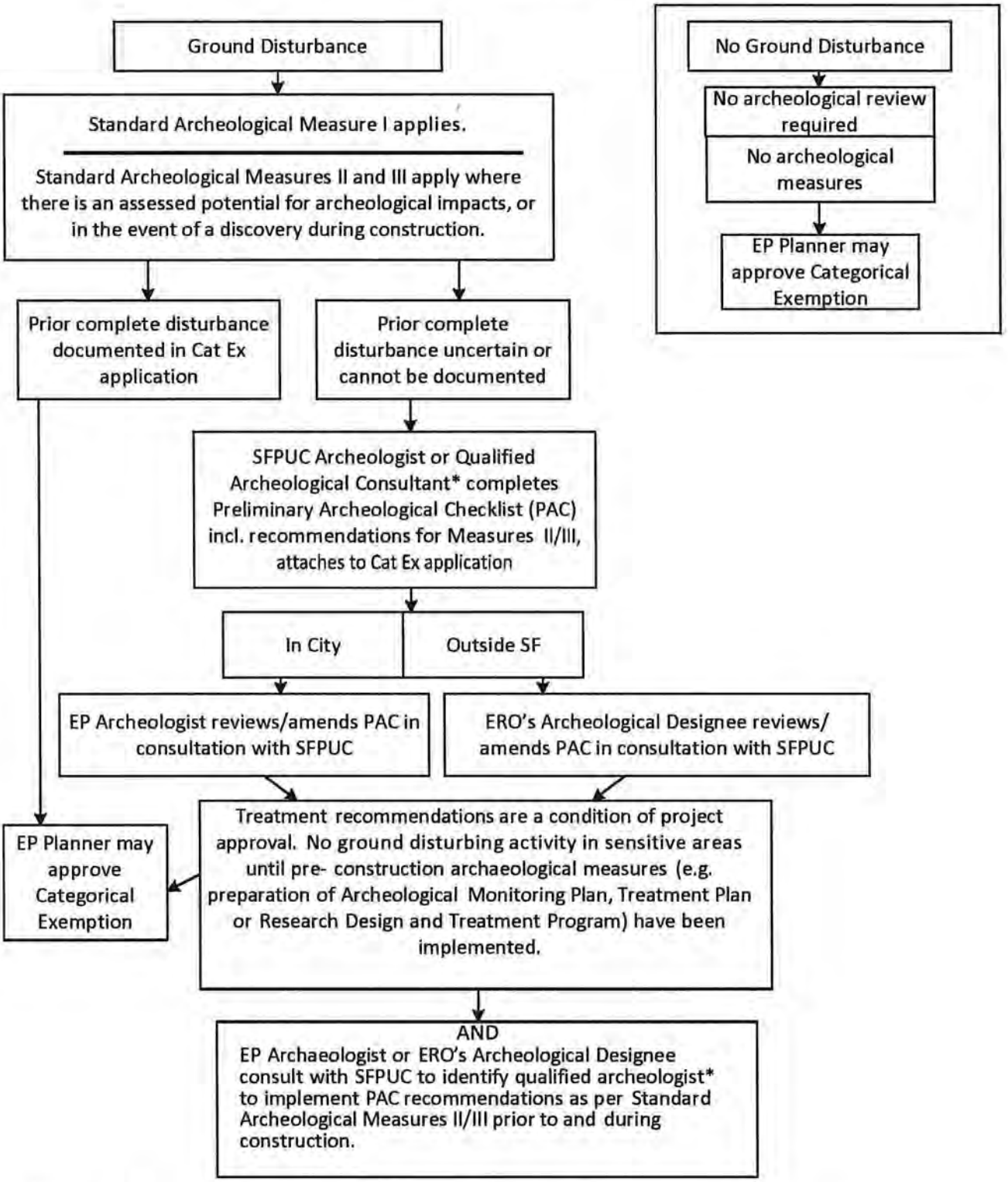
SFPUC Archeological Measure II (Archeological Monitoring)

SFPUC Archeological Measure III (Archeological Testing/Data Recovery)

Historic Architectural Resource Measure

SFPUC Preliminary Archeological Checklist (PAC)

Flow Chart: SFPUC Standard Construction Measure #9 Archeological Assessment Process



* Archeologist or archeological consultant who meets the Secretary of the Interior's Professional Qualifications Standards (36 CFR 61) as defined in Standard Archeological Measure I.

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5/28/2015. Subject to revision

SFPUC ARCHEOLOGICAL MEASURE I (Archeological Discovery)

The following requirements are applicable to:

- All projects that will include soil (ground) disturbance, and
- Any discovery of a potential historical resource or of human remains, with or without an archeological monitor present.

Prior to ground disturbing activities:

A. **Alert Sheet**. The SFPUC shall, prior to any soils disturbing activities, distribute the Planning Department archeological resource "ALERT" sheet to each project contractor or vendor involved in project-related soils disturbing activities; ensure that each contractor circulates it to all field personnel; and provide the Environmental Review Officer (ERO) with a signed affidavit from each contractor confirming distribution to all field personnel.

Upon making a discovery:

B. **Work Suspension.** Should a potential archeological resource be encountered during project soils disturbing activity, with or without an archeological monitor present, the project Head Foreman shall immediately suspend soils disturbing activities within 50 feet (15 meters) of the discovery, protect the find from further disturbance, and notify the SFPUC Project Manager (PM) and/or Environmental Project Manager (EPM), who shall immediately notify the ERO for further consultation.

C. **Qualified Archeologist.** All archeological work conducted under this measure shall be performed by an archeologist who meets the Secretary of the Interior's Professional Qualifications Standards (36-CFR 61); consultants will be selected in consultation with the ERO and meeting the criteria or specialization required for the resource type as identified by the ERO in a manner consistent with SFPUC's on-call contracting requirements.

D. **Assessment and Additional Measures.** If the ERO determines that the discovery is a potential archeological/historical resource, the archeologist, in consultation with the ERO, shall document the find, evaluate based on available information whether it qualifies as a significant historical resource under the CEQA criteria, and provide recommendations for additional treatment as warranted. The ERO will consult with SFPUC and the qualified archeologist on these recommendations and may require implementation of additional measures as set forth below in Archeological Measures II and III, such as preparation and implementation of an Archeological Monitoring Plan, an Archeological Testing Plan, and/or an Archeological Data Recovery Plan, and including associated research designs, descendant group consultation, other reporting, curation, and public interpretation of results.

E. **Report Reviews**. All plans and reports prepared by an archeological consultant, as specified herein, shall be submitted first and directly to the ERO for review and comment with a copy to the SFPUC and shall be considered draft reports subject to revision until final approval by the ERO.

F. **Draft and Final Archeological Resources Reports.** For projects in which a significant archeological resource is encountered and treated during project implementation (see Archeological Measures II and III), the archeological consultant

shall submit a draft Final Archeological Resources Report (FARR) to the ERO that evaluates the historical significance of any discovered archeological resource and describes the archeological and historical research methods employed in the archeological testing/monitoring/data recovery program(s) undertaken, research questions addressed, and research results. Information that may put at risk any archeological resource shall be provided in a separate, removable insert within the draft final report.

Once approved by the ERO, copies of the FARR shall be distributed as follows: two copies to the applicable California Historic Information System Information Center (CHRIS), one copy to each descendant group involved in the project, and documentation to the San Francisco Planning Department of transmittal of the above copies. In addition, the Planning Department shall be provided one bound, one unbound and one unlocked, searchable PDF copy on CD of the FARR, which shall include copies of any formal site recordation forms (CA DPR 523 series) and/or National Register of Historic Places/California Register of Historical Resources nominations.

G. **Other Reports.** In instances of high public interest or interpretive value, the ERO may require different or additional final report content, format, and distribution than that presented above.

H. **Human Remains, Associated or Unassociated Funerary Objects.** SFPUC shall ensure that human remains and associated or unassociated funerary objects discovered during any soils disturbing activity are treated in compliance with applicable State and federal laws. In the event of the discovery of potential human remains, the construction contractor shall ensure that construction activity within 50 feet of the find is halted and the SFPUC PM, EPM, ERO, and the County Coroner are notified immediately. If the Coroner determines that the remains are of Native American origin, he/she will notify the California State Native American Heritage Commission. Subsequent consultation on and treatment of the remains will be conducted consistent with Public Resources Code Section 5097.98 and CEQA Guidelines Section 15064.5(d), in consultation with the ERO.

I. **Consultation with Descendant Communities.** Consistent with AB 52 requirements, if requested, the SFPUC shall provide opportunities for Native American descendant groups to provide input during project planning for projects that may affect potential Tribal Cultural Resources. In addition, on discovery during construction of an archeological site associated with descendant Native Americans, the Overseas Chinese, or other descendant group, an appropriate representative of the descendant group shall be contacted by SFPUC at the direction of the ERO. SFPUC will offer this representative the opportunity to monitor archeological field investigations of the site and to consult with the ERO regarding the appropriate treatment and, if applicable, interpretation of the site and the recovered materials.

J. **Construction Delays**. Archeological monitoring and/or data recovery programs required by this measure may suspend construction of the project for up to a maximum of four weeks. At the direction of the ERO, the suspension of construction can be extended beyond four weeks only if this is the only feasible means to reduce potential effects on a significant archeological find to a less-than-significant level.

SFPUC ARCHEOLOGICAL MEASURE II (Archeological Monitoring)

A. **Archeological Monitoring Plan (AMP).** Where an archeological field investigation to identify expected buried or submerged resources cannot reasonably be carried out during project planning/ environmental review (for example, where definitive determination would require extensive street opening prior to construction), prior to any project-related soils-disturbing activities the qualified archeologist identified under Archeological Measure I.C. will consult with SFPUC and the ERO to develop an Archeological Monitoring Plan (AMP). The AMP which will be implemented in conjunction with soil-disturbing activities during construction. Preparation and implementation of an AMP also may be required based on the results of pre-construction archeological testing or upon a discovery during construction.

   The AMP shall include the following elements, at minimum:

   - Historical context and research design for assessment of resource types likely to be encountered;
   - Project activities to be archeologically monitored and intensity of monitoring of each type and location of project construction activity; and
   - Procedures for the documentation, significance and integrity assessment, treatment, interpretation and reporting of the types of resources likely to be encountered.

B. **Reporting.** Whether or not significant archeological resources are encountered, the archeological consultant shall submit a written report of the findings of the monitoring program to the ERO at the end of construction (See Archeological Measure I.E [Report Reviews] and I.F. [Final Archeological Research Report]).

C. **Monitoring Authorities**

   - The archeological monitor will have the authority to halt construction activity at the location of a suspected resource for inspection, documentation, and assessment of the need for further measures as set forth in Archeological Measure III.
   - The Archeological Monitor shall record and be authorized to collect soil samples and artifactual/ecofactual material as warranted for analysis.
   - The Archeological Monitor(s) shall be present on the project site according to a schedule identified in the AMP, subject to modification upon ERO concurrence, based on findings.

D. **Testing/Data Recovery.** In the event of a discovery during construction, if the ERO and archeological consultant determine that the discovery is a significant resource (that is, a resource that meets the eligibility criteria of the California Register of Historic Resources or qualifies as a unique archeological resource) that will be adversely affected (that is, where the project would result in loss of data potential) or that additional investigation is required to make this determination, all applicable elements of Archeological Measure III (Archeological Testing/Data Recovery) also will be implemented.

SFPUC ARCHEOLOGICAL MEASURE III (Testing / Data Recovery)

The following provisions apply prior to or during construction when a significant archaeological resource (as defined in Measure II.D) or an archeological resource of undetermined significance is expected to be present in the work area and the ERO, in consultation with the qualified archeologist, determines that an archeological field investigation is needed to determine: a) the presence of an archeological resource, b) whether it retains depositional integrity, and c) whether it qualifies as a legally significant resource under CEQA criteria. All archeological work under this Measure will be carried out by a qualified archeologist as identified in Archeological Measure I.C. Per Archeological Measure I.J, implementation of this measure shall not exceed four weeks except at the direction of the ERO and only if this is the only feasible means to reduce potential effects on a significant archeological find to a less-than-significant level.

A. **Archeological Testing Program.** If an archeological investigation is required in order to verify resource location and/ or assess the significance of the resource, the archeological consultant shall consult with the ERO to prepare and implement an Archeological Testing Plan (ATP) that identifies:

   - Key research questions and associated data needs,
   - Testing/ sampling methods, and
   - Testing locations.

   Results of testing shall be presented to ERO in a written report following Measure I.E. If, based on the archeological testing program, the archeological consultant finds and the ERO concurs that significant archeological resources may be present, Measures III.B and/or III.C below will be implemented.

B. **Treatment.** If the project could adversely affect a significant (CRHR-eligible) archeological resource, preservation in place is the preferred manner of mitigating impacts, as detailed in CEQA Guidelines 15126.6(b) (3)(a) and (b).

   If preservation in place is determined to be infeasible, the SFPUC at its discretion shall either:

   - Re-design the proposed project so as to reduce the adverse effect to a less- than-significant level through preservation in place or other feasible measures; and/or
   - For a resource important for its association with an important event or person, or which is of demonstrable public interest for both its scientific and historical values (e.g., a submerged ship), and where feasible, preserve the resource in place with appropriate documentation; or, if not feasible to preserve in place, systematically document and/or recover for interpretive use, at the discretion of the ERO, and/or;

   For an archeological resource significant primarily for its data potential, design and implement an archeological data recovery program, as detailed under Measure III.D, below.

C. **Archeological Data Recovery Plan (ADRP).** For resources for which the elected treatment is archeological data recovery, the archeological consultant, in consultation with the ERO, shall prepare and implement an ADRP. It will identify how the significant information the archeological resource is expected to contain will be recovered and

preserved. Data recovery results will be reported in the FARR, as detailed in Measure I.F. The ADRP shall include the following elements:

- Historic context and research design
- Field methods and procedures, including sampling strategy
- Archeological monitoring recommendations for ongoing construction
- Cataloguing and laboratory analysis
- Discard, deaccession, and curation policy
- Interpretive program
- Security measures

HISTORIC ARCHITECTURAL RESOURCE MEASURE

A. **Qualified Architectural Historian.** When a building or structure that has been determined to be an historical resource is identified within a project's area of potential effects, the SFPUC will retain a qualified architectural historian (defined as meeting the Secretary of the Interior's Professional Qualification standards and, if a consultant, selected in consultation with the ERO) to conduct a historical resource evaluation (HRE).

B. **Effects Assessment**. The SFPUC will submit the project description and the HRE to CCSF Planning Department Preservation Planner or to the ERO's-designated qualified architectural historian to assess potential effects. If a potential for the project to have adverse effects on historic buildings or structures is identified, the CCSF Planning Department Preservation Planner or the ERO's architectural historian designee will consult with SFPUC to determine if the project can be implemented as planned or if the project design can be revised to avoid the significant impact. If these options are not feasible, the project will need to undergo further review with EP and mitigation may be required. If so, the project may not qualify for a Categorical Exemption from CEQA review.

C. **Potential Vibration Effects.**

1. Where construction takes place in proximity to a building or structure identified as a significant historical resource but would not otherwise directly affect it, the SFPUC will implement protective measures, such as, but not limited to, the erection of temporary construction barriers to ensure that inadvertent impacts to such structures are avoided.

2. For projects that will use vibratory equipment generating vibration in excess of 0.2 inches per second, peak particle velocity adjacent to historic buildings susceptible to vibration, the SFPUC will engage a qualified historic architect or historic preservation professional to document and photograph the pre-construction condition of the building and prepare a plan for monitoring the building during construction. The monitoring plan will be submitted to and approved by CCSF Planning Department Preservation Planner or the ERO's architectural historian designee prior to the beginning of construction and will be implemented during construction. The monitoring plan will identify how often monitoring will occur, who will undertake the monitoring, reporting requirements on vibration levels, reporting requirements on damage to adjacent historical resources during construction, reporting procedures to follow if such damage occurs, and the scope of the preconstruction survey and post-construction conditions assessment.

3. If any damage to a historic building or structure occurs, the SFPUC will modify activities to minimize further vibration.
4. If any damage occurs, the building will be repaired following the Secretary of the Interior's Standards for the Treatment of Historic Properties under the guidance of a qualified historic architect or historic preservation professional.

D. **Minor Alteration of Historic Buildings or Structures.**

1. If a project involves minor alterations and/or rehabilitation to a building that qualifies as an historical resource, the proposed design will be reviewed by a qualified historic preservation professional in consultation with the CCSF Planning Department Preservation Staff or the ERO's architectural historian, who shall identify modifications to project design, as needed, to avoid or minimize effects to the historic integrity of the historical resource. The assessment also will provide direction on ensuring compliance with Secretary of the Interior's Standards and Guidelines.
2. To qualify for a Categorical Exemption, the project must be modified as identified in the HRE and all work must be conducted in compliance with Secretary of the Interior's Standards under the guidance of an architectural historian such that historical integrity of the building or structure would not be compromised.

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San Francisco Public Utilities Commission Preliminary Archeological Checklist (PAC)

A. PROJECT INFORMATION:

Date: _____ **SFPUC Archeological Reviewer:** _____

Project name: _____ **Case No:** _____

Application type: ☐ EE ☐ CatEx

☐ In City ☐ Outside of City

Project address: _____

APN/Cross streets: _____ OR **City/ County:** _____

EP Planner: _____ **EP Archeological Reviewer designee:** _____

Consultant Archeologist name/firm (if applicable): _____

1. PROJECT DESCRIPTION: (include description of construction methods, all potentially ground-disturbing activities including parking, staging, equipment and spoils storage, temporary and permanent work areas, utility lines)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

2. POTENTIAL GROUND DISTURBANCE

Yes	No	Project Component
☐	☐	Excavation (basement, elevator, utilities, seismic retrofit, remediation, underground vaults, septic tank system, culverts, etc.) Maximum depth: _____

2. POTENTIAL GROUND DISTURBANCE (cont.)

Yes	No	Project Component
☐	☐	Pipeline replacement or installation (specify cut and cover, directional drilling, pipe bursting, etc):
☐	☐	Tunnels, transport storage boxes
☐	☐	Bore pits, test pits
☐	☐	Shallow Building Foundation (Mat, Spread Footings, etc.) Depth:
☐	☐	Piles, piers, micropiles, pilings, piling replacement
☐	☐	Grading, scraping
☐	☐	Demolition
☐	☐	Construction staging, spoils on unpaved area, fill
☐	☐	Road construction
☐	☐	Geotechnical trenching (dimensions)_____
☐	☐	New rip rap
☐	☐	Wharf or seawall modification
☐	☐	Other (specify):

Anticipated maximum extent of project ground disturbance:
Vertical_____Horizontal_____

APE Map Attached: Y N

3. PREVIOUS SOILS DISTURBANCE AT PROJECT SITE:
Has the project site been previously disturbed by any of the following?

Yes	No	**Component of disturbance**
☐	☐	Existing Basement Depth:_____ Area:_____
☐	☐	Existing Foundation (footings, perimeter, piles, micropiles, etc.) Depth:
☐	☐	Site remediation/UST installation or removal, other excavation. Depth:
☐	☐	Site Grading
☐	☐	Demolition
☐	☐	Dredging
☐	☐	Piling installation (width and depth of trench):_____
☐	☐	Riprap
☐	☐	Seawall construction
☐	☐	Other (specify):

4. Has the entire project area previously been disturbed to the maximum depth and extent of proposed project disturbance? Y N
(Attach documentary evidence such as plans and profiles of prior trenching, utility street occupancy, historic photos, specifications from prior projects, etc.)
List attachments provided:_____
_____

☐ **Complete prior disturbance adequately documented; stop here, no further archeological assessment is required.** Assessed by: _____

☐ **Prior ground disturbance is unknown or cannot be adequately documented; continue to B.**

SFPUC Preliminary Archeological Checklist

B. ARCHIVAL AND ARCHEOLOGICAL DATA ASSESSMENT

1. ARCHIVAL AND DATA REVIEW

Dates of review:_____

Resources reviewed:

- ☐ Maher zone maps. Dates/ origin/ depth of fill if known_____
- ☐ Geotechnical data for project site and vicinity (Cite report_____)
- ☐ EP Archeological GIS maps (all layers or specify applicable layers)_____

_____

- ☐ Sanborn Insurance maps (1887-93, 1899-1900)
- ☐ U.S. Coast Survey maps (1853, 1857, 1869)
- ☐ Information Center archeological records search (attach request and response)
- ☐ USFS/ BLM/ NPS archeological files (upcountry projects)
- ☐ NAHC Sacred Lands File
- ☐ Native American/ Ethnic group consultation
- ☐ Other:

Findings:

- ☐ No previously documented resources present
- ☐ Archival research suggests resources are or may be present within or immediately adjacent to the project area where soils disturbance will occur

2. ARCHEOLOGICAL FIELD INVENTORY

- ☐ Not warranted; no exposed ground surface in project area
- ☐ Results negative
- ☐ Results positive
- ☐ Survey results inconclusive

Archeologist/ Firm_____ Date of Survey_____

Attach Archeological Survey Report/Memo; may combine with results of archival review.

3. SUMMARY OF RESULTS OF PROJECT ASSESSMENT

Site History/Formation:

_____

_____

_____

_____

_____

_____

Recorded/documented archeological sites/ investigations on/in the vicinity of the project site:

_____

_____

_____

C. SFPUC CONCLUSIONS AND RECOMMENDATIONS

1. NO EFFECTS TO ARCHEOLOGICAL RESOURCES EXPECTED:

- ☐ Project effects limited to previously-disturbed soils.
- ☐ Project effects limited to culturally sterile soils.
- ☐ Based on assessment under B, above, no potentially CEQA-significant archeological

resources are expected within project area affected soils.

2. AVOIDANCE AND TREATMENT MEASURES NECESSARY TO AVOID AN ADVERSE EFFECT TO SIGNIFICANT ARCHEOLOGICAL RESOURCES:

☐ Archeological Measure I, Discovery: low potential to adversely affect archeological resources; may be avoided by implementation of SFPUC Standard Archeological Measure I (Discovery during Construction), with implementation of Standard Archeological Measures II (Monitoring) and/or III (Testing/Data Recovery) in the event of a discovery during construction.

☐ Archeological Measure II, Monitoring: some potential for the project to adversely affect archeological resources; may be avoided by implementation of SFPUC Standard Archeological Measure II (Archeological Monitoring) during construction.

☐ Archaeological Measure III, Testing/Data Recovery: potential for the project to adversely affect archeological resources; may be avoided by implementation of SFPUC Standard Archeological Measure III (Archeological Testing/Data Recovery)

Implementation Required:

☐ prior to or ☐ during construction

☐ CEQA evaluation of the project requires preparation and implementation of an archeological research design and treatment plan (ARDTP) by a qualified archeological consultant. See attached scope of work for the ARDTP.

D. EP ARCHEOLOGIST/ ERO-ARCHEOLOGICAL DESIGNEE REVIEW

☐ I concur with the conclusions and recommendations provided in Section C, above.

☐ Additional/ alternative measures recommended (detail):

_____

_____

_____

_____

_____

_____

_____

☐ Meeting requested

APPENDIX D
HISTORICAL CULTURAL RESOURCES SUPPORTING DOCUMENTATION

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D1 HISTORIC RESOURCE EVALUATION RESPONSE PART 1

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SAN FRANCISCO
PLANNING DEPARTMENT

Historic Resource Evaluation Response

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Record No.:	**2019-014146ENV**
Project Address:	**520 John Muir Drive**
Zoning:	P – "Public" Zoning District OS Height and Bulk District
Block/Lot:	7283/004
Staff Contact:	Justin Greving – (415) 575-9169 justin.greving@sfgov.org

PART I: HISTORIC RESOURCE EVALUATION

PROJECT SPONSOR SUBMITTAL:

To assist in the evaluation of the proposed project, the Project Sponsor has submitted a:

☐ Supplemental Information for Historic Resource Determination Form (HRD)

☒ Consultant-prepared Cultural Landscape Evaluation Report (CLER): *Pacific Rod and Gun Club Cultural Landscape Evaluation Report* prepared by Denise Bradley Cultural Landscapes (October 23, 2014) (CLER), and *Addendum: Cultural Landscape Evaluation Report, 520 John Muir Drive/Lake Merced West Project* prepared by Denise Bradley Cultural Landscapes (March 2020), (CLER Addendum)

Staff consensus with Consultant's HRE report: ☒ Agree ☐ Disagree

Additional Comments:

In 2014 Denise Bradley Cultural Landscapes prepared a CLER for the Pacific Rod and Gun Club located at 520 John Muir Drive in advance of a hazardous material Remedial Action Project (remedial action) of the site that took place in 2015-2016 (Case no. 2013.1220E). The CLER identified the Pacific Rod and Gun Club as an historic resource. After completion of the remedial action, Denise Bradley prepared a follow up CLER Addendum to confirm eligibility of the Pacific Rod and Gun Club as a historical resource. Planning staff agree with the findings of the CLER and CLER Addendum.

BUILDINGS AND PROPERTY DESCRIPTION:

The Pacific Rod and Gun Club (PRGC) is an approximately 11-acre site situated on a narrow strip of land between the shoreline of South Lake of Lake Merced and John Muir Drive, just east of the intersection with Skyline Boulevard. While the following description provides a general outline of the key features and structures on the site, the CLER Addendum has a much more detailed description of the subject property as a cultural landscape as well as provides a description of elements that were removed as part of the remediation project (see p. 3-8 of the CLER Addendum for this detailed description). The main entrance from John Muir Drive leads to a surface parking lot and separates the site into west and east sections. Facing the lake are four skeet fields that are arranged in a linear fashion from west to east and named Skeet Fields 4, 5, 6, and 7, respectively. Each skeet field is shaped like a half circle, with the rounded edge facing away from the lake. Each skeet field also contains a high and low house that are located at the east and west ends of each field. Security fences separate each skeet field. A number of structures are located in the field between the skeet fields and John Muir Drive and include the Shell House, Trap building, and a public restroom. A temporary trailer and some portable restrooms are

situated on the surface parking lot. The section east of the parking lot contains the Caretaker's House, Clubhouse, Rifle Range building, garage, and BBQ shed.

PRE-EXISTING HISTORIC RATING / SURVEY

☐ Category A – Known Historic Resource, per: _____

☒ Category B – Age Eligible/Historic Status Unknown

☐ Category C – Not Age Eligible / No Historic Resource Present, per: _____

Adjacent or Nearby Historic Resources: ☒ No ☐ Yes: _____

CEQA HISTORICAL RESOURCE(S) EVALUATION:
Step A: Significance

Individual Significance		**Historic District/Context Significance**	
Property is individually eligible for inclusion in a California Register under one or more of the following Criteria:		Property is eligible for inclusion in a California Register Historic District/Context under one or more of the following Criteria:	
Criterion 1 - Event:	☒ Yes ☐ No	**Criterion 1** - Event:	☐ Yes ☒ No
Criterion 2 - Persons:	☐ Yes ☒ No	**Criterion 2** - Persons:	☐ Yes ☒ No
Criterion 3 - Architecture:	☐ Yes ☒ No	**Criterion 3** - Architecture:	☐ Yes ☒ No
Criterion 4 - Info. Potential:	☐ Yes ☒ No	**Criterion 4** - Info. Potential:	☐ Yes ☒ No
Period of Significance: 1934-1941		**Period of Significance:**	
		☐ Contributor ☐ Non-Contributor ☒ N/A	

Analysis:
The Pacific Rod and Gun Club was established in 1928 (and incorporated a year later on June 6, 1929) with an initial focus on conservation and sports fishing (this history is summarized from the historic of the PRGG on p. 19-28 of the CLER). The club initially leased land at Cuttings Wharf on the Napa River, but soon merged with the Bay Sportsmen's Club and expanded to operate a single skeet field in Fort Funston with permission from the Army. With membership in the club growing, the PRGG began a search for additional space for their activities. Despite some initial opposition from golfers and horseback riders, the PRGG secured a lease on the SFPUC-owned land just south of Lake Merced (subject property) with help by the Mayor at the time Angelo Rossi. The PRGG dedicated the new facility on June 9, 1934 which at the time consisted of an entrance road to the site and two skeet fields. A new clubhouse was opened July 25, 1937 and around this time a caretaker's house was also constructed. In late 1937 the lake rose by a few feet and forced the PRGG to abandon their original two skeet fields and constructed Skeet Fields 4-7 on higher ground. At the same time the club abandoned their original access road and built the existing entrance to the newly aligned John Muir Boulevard. In March 1939, an indoor rifle range building was also added to the site, just east of Skeet Field 7.

During the 1930s the PRGG held a number of regional and state skeet championships, safety classes, and benefit shoots, but the club was put on the national map when it was chosen to host the fifth National

Skeet Championships from August 8-12, 1939. This high-profile event attracted skeet shooters from around country, with 200 shooters competing from 27 different states. WPA funds were directed to prepare the site for the skeet championships, including the construction of 4 additional temporary skeet fields. Although the event was an important in the history of the PRGG, the only physical remnant of it taking place is in the Shell House, that was built sometime late 1939 or early 1940 and was constructed from the wooden platforms that had been erected for the championships.

The PRGC's activities were curtailed due to rationing during World War II and some members even resorted to playing horseshoe on the site because they could not obtain lead bullets. However, the club saw significant expansion immediately after the war and its membership continued to grow during the 1950s and 60s. During this period the club upgraded their skeet fields, built a number of new trap fields, and constructed a Trap House and a new restroom building. Membership in the club saw a substantial drop when the use of lead shot on the site was banned in 1993. Although membership eventually recovered, the Pacific Rod and Gun Club's lease ended in 2015 and the club ceased operations on the site that year.[1]

Planning department staff agrees with the findings of the CLER that the PRGC is eligible for listing in the California Register under Criterion 1 for its association with the broad pattern of history related to the increased popularity of sport hunting and with the interrelated development of skeet – during the period it evolved from a type of shooting practice into a competitive sport – that occurred during the decades preceding World War II within the context of the early 20th century wildlife conservation movement. The PRGC is important as an example of the type of sportsman's gun club that formed in the 1920s and 1930s within the context of the democratization of hunting, illustrating the social experience connected with the conservation movement. Additionally, the PRGC is important as the oldest extant skeet facility in the Bay Area and as the only sportsmen's club in the Bay Area to retain its original pre-World War II grounds configuration, skeet field structures, and club buildings. The period of significance of the PRGC begins in 1934 when the club moved to the Lake Merced site and ends in 1941 with the United States entry into World War II, which ended the club's initial period of development.

Based on a review of the findings in the CLER Addendum, planning staff agree that the project site continues to convey its significance after completion of the remedial action.

Step B: Integrity

The subject property has retained or lacks integrity from the period of significance noted in Step A:					
Location:	☒ Retains	☐ Lacks	**Setting:**	☒ Retains	☐ Lacks
Association:	☒ Retains	☐ Lacks	**Feeling:**	☒ Retains	☐ Lacks
Design:	☒ Retains	☐ Lacks	**Materials:**	☒ Retains	☐ Lacks
Workmanship:	☒ Retains	☐ Lacks			

[1] Rachel Swan, "SF settles for 8.25 million with Lake Merced gun club over contamination," San Francisco Chronicle, September 1, 2017 (accessed online, May 20, 2020 https://www.sfchronicle.com/bayarea/article/City-settles-for-8-25-million-with-Lake-Merced-12168085.php)

Analysis:

Planning staff agree with the findings of the CLER addendum that the site retains integrity after completion of the remedial action. According to the CLER addendum the spatial features of the site that include the location and linear arrangement of the skeet fields, the placement of structures on the periphery of the site, and the shoreline as a physical boundary, remain intact after remediation. As part of the remedial action most circulation features on the site, including concrete sidewalks and asphalt paths and an internal circulation road were removed. All these circulation features were identified as non-character defining and their removal does not compromise the integrity of the site.

The four contributing buildings identified on the site the Clubhouse, the Caretaker's House, the Rifle Range building, and the Shell House, remain in their original locations and were not moved during the remedial action. Plywood was added to window and door openings for safety but the buildings and their corresponding character-defining features remain unaltered after the remedial action.

Skeet Fields 4-7 were removed during the remedial action and rebuilt after completion of the remedial action. Key ancillary features including the High and Low houses, and security fences, were removed and stored during the remedial action and then returned to their original locations afterwards. Minor alterations including the steps up to the high house have not been replaced, and one security fence has fallen over. Non-contributing elements of the Skeet Fields 4-7, including the concrete added within each Skeet Fields, were removed. After the remedial action, the semi-circular paths within the Skeet Fields were reconstructed.

Non-contributing Trap Fields 1 to 3, and non-contributing Skeet Fields 8 and 9 were removed as part of the remedial action. Other miscellaneous small-scale features, and vegetation on the site that were not identified as character-defining were also removed. These non-contributing elements were not replaced after the remedial action.

In conclusion, most of the character-defining features on the site were either retained on site during the remedial action or removed and reinstalled after its completion. Other non-character-defining site features were removed but their removal did not compromise the integrity of the site. For a more detailed analysis of the site's integrity, see p. 12 of the CLER addendum.

Step C: Character Defining Features

The character-defining features of the subject property include the following:

- Linear arrangement of skeet fields 4-7 facing the lake, shoreline as a natural boundary, and location of buildings and structures on the periphery of the site
- Character defining features of skeet fields 4-7 (1938) includes the following:
    - a level terrace
    - semi-circular path system of each field with a high and low house at the opposite ends of each field
    - High House, wood frame tower structure with a flat roof, clad in a combination of wood siding and stucco, each with a door (west side) and window (east side) to allow loading and firing of the targets

- Low House, wood frame tower structure with flat roof, clad in combination of wood siding and stucco, each with a door (east side) and window (west side) to allow firing of targets
- Safety fences located between the skeet fields

- Buildings that housed operational and social functions of the club including:
  - The Clubhouse (1937) - Raised one-story wood-frame structure with horizontal wood siding, cross gable roof, and exposed eaves
  - Caretaker's House (ca. 1937) - One-story wood-frame building with a rectangular footprint, horizontal wood siding, gable roof, exposed eaves, gable ends with fish scale shingles (east elevation) and thin vertical siding (west elevation), wood double-hung windows on south, north, and west facades, fixed wood shutters and entry shed on north façade
  - Rifle Range Building (1939) – raised one-story building with rectangular footprint, horizontal wood siding, gable roof, exposed eaves, wood double-hung four-pane windows on north, south, and west façades
  - Shell House (ca. 1939, expanded 1949) – Once-story rectangular footprint, textured stucco cladding, low-pitched gable roof, exposed eaves, raised porch, wood frame picture window on west façade.

CEQA HISTORIC RESOURCE DETERMINATION:

☒ Individually-eligible Historical Resource Present
☐ Contributor to an eligible Historical District / Contextual Resource Present
☐ Non-contributor to an eligible Historic District / Context / Cultural District
☐ No Historical Resource Present

NEXT STEPS:

☒ HRER Part II Review Required
☐ Categorically Exempt, consult:
  ☐ Historic Design Review
  ☐ Design Advisory Team
  ☐ Current Planner

PART I: PRINCIPAL PRESERVATION PLANNER REVIEW

Signature: Allison Vanderslice Date: 6/9/2020

Allison Vanderslice, *Principal Preservation Planner*
CEQA Cultural Resources Team Manager, Environmental Planning Division

CC: Julie Moore, Principal Environmental Planner

Key to Location of Features
Contributing Feature
Non-Contributing Feature

1 Former Location of Trap Field 1
2 Former Location of Trap Field 2
3 Former Location of Trap Field 3
4 Skeet Field 4
5 Skeet Field 5
6 Skeet Field 6
7 Skeet Field 7
8 Former Location of Skeet Field 8
9 Former Location of Skeet Field 9
10 Trap House
11 Restroom Building
12 Shell House
13 Parking Lot
14 Entrance
15 Garage
16 Caretaker's House
17 Clubhouse
18 Rifle Range Building
19 Barbeque Shed
20 Eucaluptus Trees

Figure 1: Aerial view of Pacific Rod and Gun Club site showing location of extant contributing and noncontributing features (figure from CLER addendum)

Figure 2: Pacific Rod and Gun Club, Skeet fields 4,5, and 6 are visible in this photo as are the high houses and fences that separate each field. The Shell House (contributing feature), and Trap House (noncontributing feature) are in the far distance at the left of this photo (view northwest).

Figure 3: A typical Skeet field with the high and low houses and fence separations (view southeast, photo taken from Skeet Field 4 of fences flanking Skeet Field 5).

Figure 4: Shell House, a contributing feature (view northwest of north and east elevation).

Figure 5: Rifle Range building, a contributing feature (view southeast of west and south elevations)

Figure 6: Caretaker's House (view southeast of west and north elevations). Note the Clubhouse is also visible in this photo.

Figure 7: Clubhouse, a contributing feature (view southeast of north and west elevations).

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D2 HISTORIC RESOURCE EVALUATION RESPONSE PART 2

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San Francisco Planning

49 South Van Ness Avenue, Suite 1400
San Francisco, CA 94103
628.652.7600
www.sfplanning.org

PART II Historic Resource Evaluation Response

Record No.:	**2019-014146ENV**
Project Address:	**520 John Muir Drive**
Zoning:	P – "Public" Zoning District OS Height and Bulk District
Block/Lot:	7283/004
Staff Contact:	Justin Greving, Senior Preservation Planner – (628) 652 – 7553 Justin.greving@sfgov.org

PART I: Historic Resource Summary

The former Pacific Rod and Gun Club (PRGC) site is an approximately 11-acre site situated on a narrow strip of land between the shoreline of South Lake of Lake Merced and John Muir Drive. The main entrance from John Muir Drive leads to a parking lot that separates the site into east and west sections. Facing the lake in the west section are four Skeet fields arranged in a linear fashion from west to east and named Skeet Fields 4-7. Each skeet field is made up of a semi-circular level terrace and path system, a High and Low House, and safety fences between each skeet field. The Shell House, Trap House, and a public restroom are also located in the west section. The east section next to the parking lot contains the Caretaker's House, Clubhouse, Rifle Range building, garage, and BBQ shed.

Based on the findings of the HRE and HRER Part 1 the Pacific Rod and Gun Club is eligible for listing in the California Register under Criterion 1 for its association with the broad pattern of history related to the increased popularity of sport hunting and with the interrelated development of skeet.[1] The PRGC is important as an example of the type of sportsman's gun club that formed in the 1920s and 1930s within the context of the democratization of hunting, illustrating the social experience connected with the conservation movement. The site retains a high degree of integrity. The period of significance of the PRGC begins in 1934 when the club moved to the Lake Merced site and ends in 1941 with the United States entry into World War II, which ended the club's initial period of development.

Character-defining features of the site include the following:

[1] San Francisco Planning Department, *520 John Muir Drive, Historic Resource Evaluation Response*, (San Francisco: 6/9/2020), 4-5. Additional information about the history of the site is available in the CLER, *Pacific Rod and Gun Club Cultural Landscape Evaluation Report* prepared by Denise Bradley Cultural Landscapes (October 23, 2014), and, *Addendum: Cultural Landscape Evaluation Report, 520 John Muir Drive/Lake Merced West Project* prepared by Denise Bradley Cultural Landscapes (March 2020).

- Linear arrangement of skeet fields 4-7 facing the lake, shoreline as a natural boundary, and location of buildings and structures on the periphery of the site
- Character defining features of skeet fields 4-7 (1938) includes the following:
    - a level terrace
    - semi-circular path system of each field with a high and low house at the opposite ends of each field
    - High House, wood frame tower structure with a flat roof, clad in a combination of wood siding and stucco, each with a door (west side) and window (east side) to allow loading and firing of the targets
    - Low House, wood frame tower structure with flat roof, clad in combination of wood siding and stucco, each with a door (east side) and window (west side) to allow firing of targets
    - Safety fences located between the skeet fields
- Buildings that housed operational and social functions of the club including:
    - The Clubhouse (1937) - Raised one-story wood-frame structure with horizontal wood siding, cross gable roof, and exposed eaves
    - Caretaker's House (ca. 1937) - One-story wood-frame building with a rectangular footprint, horizontal wood siding, gable roof, exposed eaves, gable ends with fish scale shingles (east elevation) and thin vertical siding (west elevation), wood double-hung windows on south, north, and west facades, fixed wood shutters and entry shed on north façade
    - Rifle Range Building (1939) – raised one-story building with rectangular footprint, horizontal wood siding, gable roof, exposed eaves, wood double-hung four-pane windows on north, south, and west façades
    - Shell House (ca. 1939, expanded 1949) – Once-story rectangular footprint, textured stucco cladding, low-pitched gable roof, exposed eaves, raised porch, wood frame picture window on west façade.

PART II: Project Determination:

Based on the Historic Resource Evaluation in Part I and the assessment below, the project's scope of work:

☒ **Will** cause a significant impact to the **individual historic resource** as proposed.
☐ **Will** cause a significant impact to a **historic district / context** as proposed.

☐ **Will not** cause a significant impact to the **individual historic resource** as proposed.
☐ **Will not** cause a significant impact to a **historic district / context** as proposed.

PART II: Project Evaluation

Proposed Project:	Per Drawings Dated:
☒ **Demolition / New Construction** ☐ **Alteration**	3/19/2021

PROJECT DESCRIPTION

San Francisco Planning

49 South Van Ness Avenue, Suite 1400
San Francisco, CA 94103
628.652.7600
www.sfplanning.org

The proposed project includes the construction and operation of the Lake Merced West recreation facility. The recreation facility would offer an array of active and passive activities open to the public, such as trail use, picnicking, paddleboarding, kayaking, fishing, fitness activities, a ropes course, bird watching, space for outdoor exercise, skateboarding, multi-use courts for basketball and other activities, as well as restaurant dining, and indoor space for gatherings such as community meetings and birthday parties. The facility would include areas that could be used flexibly for a wide variety of uses such as picnics, and larger gatherings, or pop-up markets; as well as areas designated for programmed activities.

All of the existing buildings on the site would be demolished and five new buildings constructed to provide an expanded range of public amenities. At the center of the site, a new community center and restaurant would be constructed and sited to take advantage of views across Lake Merced. At the eastern end of the site, a new boathouse building with fishing dock and soft landing area for watercraft would provide both access to the water and watercraft rentals. A new SFPUC arborist office and support building would also be constructed in this part of the site. A second restroom building with storage is proposed for the western end of the site to serve the skate park and ropes course areas.

Additionally, Skeet Fields 5, 6, and 7 would be demolished to allow for the installation of a new playground, meadow and the community building. Skeet Field 4 would be retained and repurposed as a picnic area.

PROJECT EVALUATION

The proposed project's conformance with the Secretary of the Interior's Standards:								
Standard 1 – Minimal Change:	☐ Yes	☒ No	☐ N/A	**Standard 6** – Repairment:	☐ Yes	☒ No	☐ N/A
Standard 2 – Maintain Character:	☐ Yes	☒ No	☐ N/A	**Standard 7** – Treatments:	☐ Yes	☒ No	☐ N/A
Standard 3 – Avoid Conjecture:	☐ Yes	☒ No	☐ N/A	**Standard 8** – Archeology:	☐ Yes	☒ No	☐ N/A
Standard 4 – Acquired Significance:	☐ Yes	☒ No	☐ N/A	**Standard 9** – Compatibility:	☐ Yes	☒ No	☐ N/A
Standard 5 – Building Techniques:	☐ Yes	☒ No	☐ N/A	**Standard 10** – Reversibility:	☐ Yes	☒ No	☐ N/A

PROJECT IMPACT ANALYSIS

The proposed project requires the removal or alteration of most character-defining features of the subject property. The linear arrangement of skeet fields 4-7 facing the lake would be removed as only some elements of Skeet Field 4 are proposed to be retained as part of the project. Although the shoreline would continue to act as a natural boundary for the site and the location of buildings, the location of the new entry plaza and terrace along with the new community building and restaurant in the center of the site would interrupt the character-defining arrangement of buildings along the periphery of the site.

The character-defining features of skeet fields 5-7, including the semi-circular path system, high and low houses, and safety fences between the fields, would be removed for the construction of new recreational fields and picnic areas. Although it is likely that the level area where the skeet fields 5-7 would remain as this area is intended to be the site of a new playground area and lawn, the size and shape of the level area would in no way communicate previous use of the site for skeet shooting as all other physical elements of skeet fields 5-7 would be removed. Some elements of Skeet Field 4 are proposed to be retained as part of a picnic area.

All of the four contributing buildings, the Rifle Range building, Shell house, Caretaker's House, and the Clubhouse, are proposed to be demolished. In addition to the demolition of the contributing buildings, new buildings would be constructed on the site as part of the proposed project. This new construction, combined with the demolition of the contributing buildings, and removal of most site features associated with the former Pacific Rod and Gun Club, would detract from the spatial relationships of the landscape that make it significant.

The combined removal of most character-defining features and structures, and construction of new buildings and amenities on the site is such that the subject property would no longer communicate its significance under Criterion 1 as a sportsman's gun club that formed in the 1920s and 1930s. The extensive demolition would remove historic materials, features, and spaces that characterize the property and would result in physical destruction, damage or alteration such that the significance of the individual historical resource would be materially impaired. As such, staff finds that the proposed project would result in a significant unavoidable impact to the former Pacific Rod and Gun Club historic landscape.

MITIGATION MEASURES

Because it is determined that the proposed project would cause a significant unavoidable impact to the former Pacific Rod and Gun Club landscape, the Department requires the following mitigation measures to reduce impacts to the historic resource. Although these measures may reduce impacts to historic resources through the documentation of the affected property and presentation of the findings to the community, they would not reduce the impact to a less-than-significant-level. Only avoidance of substantial adverse changes would reduce impacts to less-than-significant levels. Although the following mitigation measures have been identified they may be amended, and additional measures may be required as the project develops.

Mitigation Measure 1: Documentation of Historical Resources. Before any demolition or reconstruction activities within the project site, the project sponsor shall retain a professional who meets the Secretary of the Interior's Professional Qualification Standards for Architectural History to prepare written and photographic documentation of The Pacific Rod and Gun Club with particular attention to the site as a cultural landscape and the character-defining features including skeet fields 4-7 and the four contributing buildings. The documentation shall be based on the National Park Service's Historic American Buildings Survey (HABS) or the Historic American Landscape Survey (HALS). This type of documentation is based on the Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation and the National Park Service's policy for photographic documentation, as outlined in the national register and National Historic Landmarks Survey Photo Policy Expansion. Documentation shall include:

- Accurate scaled mapping and architectural descriptions. If available, scaled architectural plans will also be included.
- Photographs in large-format (4"x5") black-and-white negatives and 8"x10" enlargements. Digital photography may be substituted for large-format negative photography if archived locally.
- A report containing site-specific history and appropriate contextual information. This information shall be gathered through site-specific and comparative archival research and oral history collection as appropriate.
- Print-on-Demand Book– The Print-on-Demand book shall be made available to the public for distribution. The project sponsor shall make the content from the historical report, historical photographs, HABS photography, measured drawings, and field notes available to the public through a

preexisting print-on-demand book service. This service will print and mail softcover books containing the aforementioned materials to members of the public who have paid a nominal fee. The sponsor shall not be required to pay ongoing printing fees once the book has been made available through the service.

The project sponsor shall transmit such documentation to the planning department and to repositories including the History Room of the San Francisco Public Library, San Francisco Heritage, the California Historical Society, the Northwest Information Center of the California Historical Information Resource System, and local or neighborhood historical societies. The qualified consultant will determine the requested documentation type for each facility, and the project sponsor will conduct outreach to identify other interested repositories. All documentation shall first be scoped and then be reviewed and approved by the planning department's preservation staff prior to issuance of the demolition or site permit.

Mitigation Measure 2: Video Documentation. Prior to any demolition of the individual historical resource, the project sponsor shall retain a qualified professional to undertake video documentation of the affected historical resource and its setting. This mitigation measure would supplement the traditional HABS/HALS documentation, and would enhance the collection of reference materials that would be available to the public and inform future research. The documentation shall be conducted by a professional videographer with experience recording architectural resources. The professional videographer shall provide a storyboard of the proposed video recordation for review and approval by Planning Department preservation staff.

The final video shall be reviewed and approved by the planning department preservation staff prior to issuance of a demolition permit or site permit or issuance of any Building Permits for the project. Archival copies of the video documentation shall be submitted to the planning department, and to repositories including: History Room at the San Francisco Public Library, San Francisco Heritage, Prelinger Archives, and the California Historical Society. This mitigation measure would supplement the traditional HABS documentation, and would enhance the collection of reference materials that would be available to the public and inform future research.

Mitigation Measure 3: Interpretive Program. The project sponsor shall facilitate the development of an interpretive program focused on the history of the project site highlighting the history of the site as a recreational shooting range. The interpretive program should be developed and implemented by a qualified preservation professional with demonstrated experience in displaying information and graphics to the public in a visually interesting manner. As feasible, coordination with local artists should occur. The primary goal of the program is to educate visitors about the property's historical themes, associations, and lost contributing features within broader historical, social, and physical landscape contexts.

This program shall be initially outlined in a proposal for an Historic Resources Public Interpretive Plan subject to review and approval by planning department preservation staff. The plan will include the general parameters of the interpretive program including the substance, media, and other elements of the interpretative program, which shall include within publicly accessible areas of the project site a permanent display(s) of interpretive materials concerning the history and architectural features of the historical resource, including both the site as a whole and the individual contributing buildings and features. The interpretative plan should also explore contributing to digital platforms that are publicly accessible.

The detailed content, media, and other characteristics of such an interpretive program shall be reviewed and approved by planning department staff prior to issuance of a Temporary Certificate of Occupancy.

Mitigation Measure 4: Oral Histories. The sponsor shall retain the services of a qualified historian to undertake an oral history of the Pacific Rod and Gun Club. This oral history project will consist of interviews and recollections of members of the Pacific Rod and Gun Club and possibly a demonstration of the activities that took place on the site. The success of this effort will depend primarily on the ability of the project sponsor to locate such persons, and on their willingness/ability to participate. Therefore, the project sponsor shall make a good faith effort to publicize the oral history project, conduct public outreach, and identify a wide range of potential interviewees. To accomplish this, the sponsor shall employ a range of measures that may include installing booths that allow participants to record their recollections, and/or hosting a website that allows interviewees to contribute remotely. Prior to undertaking this effort, the scope and methodology of the oral history project shall be reviewed and approved by the Environmental Review Officer, in consultation with preservation staff.

In addition to potentially being utilized for the on-site interpretive program, the recordings made as part of the oral history project shall be transcribed, indexed, and made available to the public at no charge through the Planning Department and other archives and repositories in order to allow for remote, off-site historical interpretation of the subject building.

CONCLUSION

Although these measures may reduce impacts to historic resources through the documentation of the affected property and presentation of the findings to the community, they would not reduce the impact to a less-than-significant-level. Only avoidance of substantial adverse changes would reduce impacts to less-than-significant levels.

PART II: Approval

Signature: Allison Vanderslice Date: 5/7/2021

Allison Vanderslice, Principal Preservation Planner
CEQA Cultural Resources Team Manager, Environmental Planning Division

CC: Julie Moore, Principal Environmental Planner

D3 CULTURAL LANDSCAPE EVALUATION REPORT AND ADDENDUM

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Pacific Rod and Gun Club
San Francisco, CA

Cultural Landscape Evaluation Report

Submitted
to
ESA
550 Kearny Street, Suite 800
San Francisco, CA 94108

Prepared
by
Denise Bradley, Cultural Landscapes
520 Frederick Street, No. 37
San Francisco, CA 94117

May 2014

TABLE OF CONTENTS

APPENDIX

I. INTRODUCTION

The purpose of this report to provide an evaluation of the Pacific Rod and Gun Club (PRGC) site under federal, state, and local criteria for its potential significance as a cultural landscape. Cultural landscapes are defined as geographic areas shaped by human activity; they can result from a conscious design or plan, or evolve as a byproduct or result of people's activities; and they may be associated with a historic event, activity, or person or exhibit other cultural or aesthetic values (NPS, 1996:4). Of the four general types of cultural landscapes (historic sites, designed landscapes, vernacular landscapes, and ethnographic landscapes), the PRGC can best be described as a vernacular landscape—that is, one that has evolved through use by the people whose activities or occupancy shaped it and one in which function plays a significant role (NPS, 1996:4-5).

This report includes the following sections:

- A description of the field, research, and evaluation methodology.
- A summary of the regulatory framework.
- Historic contexts within which to evaluate the significance of the PRGC site including the development of recreation around Lake Merced, the role of the Works Progress Administration (WPA) in the development of recreation in San Francisco, the history of skeet and trap shooting in San Francisco, and the recreational shooting activities at the PRGC within the context of sport hunting and its association with the early 20th century wildlife conservation movement.
- A history of the PRGC and the evolution of the site in relationship to this history.
- A description and analysis of the existing conditions of the cultural landscape features at the PRGC site.
- An evaluation of the significance and integrity of the PRGC as a cultural landscape under the federal, state, and local criteria.
- A bibliography of references used to prepare this memo.
- An appendix with historical images, a map showing the location of key features (Figure 1), a map showing the location of existing conditions photographs (Figure 2), and photographs of the existing conditions.

II. METHODS

A. Personnel

This Cultural Landscape Evaluation Report was prepared by Denise Bradley. Ms. Bradley (Master of Landscape Architecture, Louisiana State University) has 20 years of experience as a landscape historian in California and meets the Secretary of the Interior's Historic Preservation Professional Qualifications for Historical Landscape Architecture

and History. ESA Architectural Historian Brad Brewster provided written descriptions of the buildings and an assessment of their integrity.

B. Field Methods

Denise Bradley conducted an intensive survey of the cultural landscape at the PRGC on September 19, 2013. Field notes and photographs were taken to aid in the preparation of the description and the evaluation of the site. An additional site visit was conducted with ESA Architectural Historian Brad Brewster on October 2, 2013 to meet with Patrick Gilligan (PRGC President) to obtain information about the names and functions of the site features within the context of skeet and trap shooting.

C. Research Methods

The focus of the research for this Cultural Landscape Evaluation Report was a review of primary and secondary sources for information that would aid in the evaluation of the potential significance and integrity of the PRGC as a cultural landscape.

Repositories that were consulted included the San Francisco Public Utilities Commission (SFPUC) collections (Archives, Photographs Archives, and Record Management), the San Francisco Public Library, the University of California, Berkeley's Earth Sciences Map Room, the Pacific Aerial Surveys collection, the National Skeet Shooting Association-National Sporting Clays Association (NSSA-NCSA) Museum archives, the PRGC collection of historical photographs, memorabilia, scrap books, newspaper clippings, club histories, etc., and a variety of online repositories.

Key references that were consulted for the historic context on the development of recreation around Lake Merced included the *Lake Merced Watershed Report* (SFPUC, 2011); SFPUC annual reports from the 1930s, a report on WPA accomplishments in San Francisco (Healy, 1939), a publication, *I Am OMI*, on the surrounding neighborhoods prepared by the Western Neighborhoods Project (LaBounty, 2003), and the historic context on Lake Merced in the *San Francisco Groundwater Supply Project, City and County of San Francisco, Final Historic Resources Evaluation Report* (ESA, 2011).

Key references that were consulted on the role of the WPA in the development of recreation in San Francisco during the Depression included two summary reports on WPA accomplishments in the city (Mooser, 1938; Healy, 1939), SFPUC annual reports from the era, *San Francisco Parks and Playgrounds, 1839 to 1990: The History of A Public Good in One North American City* (Delehanty, 1993), *The Public Landscape of the New Deal* (Cutler, 1985), and the article "How the WPA Transformed San Francisco" from *Landscape Architecture Magazine* (Martensen, 1979).

Key references that were consulted on the history of skeet and trap shooting included information from the PRGC collection including histories prepared by two of its past presidents (Springer, 1949; Alkalay, n.d.), several target shooting instructional books that provided background information on the development of the sports (Nichols, 1939 [1947 edition]; Croft, 1990; Migdalski, 1997; Sapp, 2009, and information on the websites of national and state organizations and Bay Area target shooting clubs and facilities (listed

in the bibliography). Phone interviews were conducted with the director of the NSSA (Mayes, 2014) on the development of the sport nationally and with a board member of the California Skeet Shooting Association (CSSA) on the development of the sport in California and in the Bay Area (Burke, 2014). Information on the histories of other Bay Area target shooting organizations that appeared to have the potential to have facilities as old as those at the PRGC was gathered through personal communication with the clubs or club members (Boyle, 2014; Burke, 2014; Frenkel, 2014; Gobbell, 2014; Marazzani, 2014; Sargentini, 2014; Stockton Rod and Gun Club, 2014), site visits (to the Martinez and Richmond clubs), a review of information on the organizations' websites, and a review aerial photographs (on Google Earth and in the Pacific Aerial Surveys collection) to help to determine how long the clubs had been at their current sites and how these facilities had changed over time. Information on the nonextant Fort Mason Rod and Gun Club, which was located at Fort Funston, was gathered through personal communication (Martini, 2014; Williford, 2014) and a review of aerial photographs in the Pacific Aerial Surveys collection.

Key references for the development of the historic context that sets the recreational shooting activities at the PRGC within the context of sport hunting and its association with the wildlife conservation movement of the late 19th and early 20th centuries included *America Learns to Play: A History of Popular Recreation, 1607-1940 (*Dulles, 1965), *Hunting and the American Imagination* (Herman, 2001), *American Sportsmen and the Origins of Conservation* (Rieger, 2001), "Hunting Democracy" in *Montana: The Magazine of Western History* (Herman, 2005), *Mortal Stakes: Hunters and Hunting in Contemporary America* (Dizard, 2003), a history of game regulations on the California Department of Fish and Game website (DFG, 1999), and several early twentieth century accounts of conservation as it relates to hunting (Grinnell et al., 1918; Burnham, 1928; McAllister, 1930).

Key references on the history of the PRGC and the evolution of the site included written recollections and histories from members (Springer, 1949; Alkalay, n.d.; Kahn, 1987) and other information from the club's archive (including historical photographs, memorabilia, typewritten manuscripts, newspaper clippings, and past issues of the club's newsletter, the *Pacific Breeze)*, aerial photographs (Cartwright Aerial Surveys, 1965; GoogleEarth, 1938 and 2000-2013; Pacific Aerial Surveys, 1935-2001), and personal communication (Gilligan, 2013; Boyle, 2014).[1] Information on the three PRGC members who are in the CSSA Hall of Fame was obtained through personal communication (Boyle, 2014). Information on the 1939 National Skeet Championship at the PRGC was gathered from the club histories cited above, a review of San Francisco newspapers, and information in articles in *Skeet Shooting News*, the official publication of the NSSA, and the book *Trap and Skeet Shooting* by Jimmy Robinson, who was considered the preeminent sportswriter on trap and skeet shooting during that era.

[1] Denise Bradley contacted PRGC President Patrick Gilligan to ask his assistance in arranging an oral interview with long-time member Ray Brooks, Jr. on the history of the club (Gilligan, 2014); however, at the time of the submission of this report, no additional information had been received on if and when that interview could be arranged.

A full list of the references is provided in the bibliography.

D. Evaluation Methodology

The PRGC was evaluated under the National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR), for its potential historical significance as a cultural landscape. Additionally, the NRHP Criteria guide the evaluation of significance for San Francisco's list of locally designated City Landmarks and Historic Districts which are designated under San Francisco Planning Code Article 10 (SFPD, 2013:6).

The California Office of Historic Preservation's *Technical Assistance Series #6: California Register and National Register: A Comparison (for purposes of determining eligibility for the California Register)* and *Technical Assistance Series #7: How to Nominate a Resource to the California Register of Historical Resources (Revised 2001)* were consulted in relation to the CRHR criteria. The CRHR does not provide specific guidance for describing cultural landscapes. However, the CRHR was consciously designed on the model of the NRHP (the two programs are extremely similar, although there areas in which these programs differ), and guidance provided in NRHP and National Park Service (NPS) publications were consulted in preparing the evaluation for the PRGC. *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* provided general guidance on the NRHP, and *National Register Bulletin 30: How to Evaluate and Document Rural Historic Landscapes* provided additional guidance on the evaluation of cultural landscape features. *A Guide to Cultural Landscape Reports: Contents, Process, and Techniques* was consulted on the procedures related to research and documentation for cultural landscapes; and *The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for the Treatment of Cultural Landscapes* was consulted related to definitions of cultural landscapes and cultural landscape features.

As described in NRHP bulletins and NPS publications on cultural landscapes, both the processes that helped to form the landscape and its individual components are critical to the understanding of a cultural landscape. The key processes to the formation of a cultural landscape include land uses and activities, patterns of spatial organization, responses to the natural environment, and cultural traditions. The individual components of a cultural landscape include groupings of features within a larger landscape, circulation-related features, the various types of boundary demarcations, vegetation features, buildings and structures, archaeological resources, and small-scale elements (NPS, 1999: 3-6). The description and evaluation of the PRGC site incorporates these cultural landscape characteristics and features.

III. REGULATORY CONTEXT

The evaluations of the built environment features within the Project footprint were conducted in compliance with the California Environmental Quality Act (CEQA). Provided below are the federal, state, and local regulatory context for the evaluation of historic resources, including cultural landscapes.

A. Federal Regulations

The National Historic Preservation Act (NHPA) of 1966, as amended, administers the NRHP, which sets forth evaluation criteria described in 36 CFR Part 60.4. The following criteria are designed to guide the states, federal agencies, and the Secretary of the Interior in evaluating potential entries for the NRHP. The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects that:

A. Are associated with events that have made significant contribution to the broad patterns of our history; or

B. Are associated with the lives of persons significant in our past; or

C. Embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master or that possess high artistic values or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. Have yielded, or may be likely to yield, information important in prehistory or history.

The question of integrity is another factor that must be addressed when determining the eligibility of a resource for listing in the NRHP. The Secretary of the Interior describes integrity as "the ability of a property to convey its significance." A property must retain certain intact physical features in order to convey its significance under one or more of the NRHP criteria. Integrity is judged on seven aspects; location, design, setting, workmanship, materials, feeling, and association.

If a particular resource meets one or more of these criteria and retains sufficient integrity to convey its historical significance, it is considered as an eligible "historic property" for listing in the NRHP. Additionally, unless exceptionally significant, a property must be at least 50 years old to be eligible for listing.

B. State Regulations

The State of California implements the NHPA of 1966, as amended, through its statewide comprehensive cultural resource surveys and preservation programs. The California Office of Historic Preservation (OHP), as an office of the California Department of Parks and Recreation (DPR), implements the policies of the NHPA on a statewide level. The OHP also maintains the California Historical Resources Inventory. The SHPO is an appointed official who implements historic preservation programs within the state's jurisdictions.

California Register of Historical Resources

The CRHR is "an authoritative listing and guide to be used by state and local agencies, private groups, and citizens in identifying the existing historical resources of the state and

to indicate which resources deserve to be protected, to the extent prudent and feasible, from substantial adverse change" (Public Resources Code [PRC] Section 5024.1[a]). The criteria for eligibility to the CRHR are based on NRHP criteria (PRC Section 5024.1[b]). Certain resources are determined by the statute to be automatically included in the CRHR, including California properties formally determined eligible for or listed in the NRHP.

To be eligible for the CRHR a historical resource must be significant at the local, state, and/or federal level under one or more of the following criteria:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

2. Is associated with the lives of persons important in our past;

3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or

4. Has yielded, or may be likely to yield, information important in prehistory or history (PRC Section 5024.1[c]).

For a resource to be eligible for the CRHR, it must also retain enough integrity to be recognizable as a historical resource and to convey its significance. A resource that does not retain sufficient integrity to meet the NRHP criteria may still be eligible for listing in the CRHR.

California Environmental Quality Act

CEQA, as codified in PRC Sections 21000 et seq., is the principal statute governing the environmental review of projects in the state involving discretionary actions by public agencies. CEQA requires lead agencies to determine if a proposed project would have a significant effect on important historical resources, including archaeological resources. CEQA Guidelines section 15064.5 [a] and [b] define a historical resource as: (1) a resource in the CRHR; (2) a resource included in a local register of historical resources, as defined in PRC Section 5020.1(k) or identified as significant in a historical resource survey meeting the requirements of PRC Section 5024.1(g); or (3) any object, building, structure, site, area, place, record, or manuscript that a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California, provided the lead agency's determination is supported by substantial evidence in light of the whole record.

C. Local Regulations of the San Francisco Planning Department

San Francisco Historic Preservation Commission and Planning Code Articles 10 and 11

Article 10 of the San Francisco Planning Code describes procedures regarding the preservation of sites and areas of special character or special historic, architectural, or aesthetic interest or value, such as officially designated city landmarks and buildings included within locally designated historic districts. Article 11 of the Planning Code designated six downtown conservation districts.

Created in 2008, the Historic Preservation Commission is a seven-member body that makes recommendations directly to the Board of Supervisors, bypassing the Planning Commission, on the designation of landmark buildings, historic districts, and significant buildings. The Historic Preservation Commission replaces and retains most of the responsibilities of the Landmarks Preservation Advisory Board (Landmarks Board). The Landmarks Board was a nine-member body, appointed by the mayor, which served as an advisory board to the Planning Commission and the Planning Department. The Landmarks Board was established in 1967 with the adoption of Article 10 of the Planning Code. The work of the Landmarks Board, the Planning Department, and the Planning Commission has resulted in an increase of public awareness about the need to protect the City and County of San Francisco's (CCSF's) architectural, historical, and cultural heritage.

The Historic Preservation Commission makes recommendations to the Board of Supervisors on building permit applications that involve construction, alteration, or demolition of landmark sites and resources located within historic districts. The Historic Preservation Commission may also review and comment on projects affecting historical resources that are subject to environmental review under the CEQA. The Historic Preservation Commission also approves Certificates of Appropriateness for Landmarks and properties within Article 10 Historic Districts.

IV. HISTORIC CONTEXTS

Historic contexts regarding (1) the development of recreation in San Francisco and at Lake Merced, (2) the role of the WPA in the development of recreation in San Francisco and at the PRGC site, (3) the recreational shooting activities at the PRGC within the context of sport hunting and its association with the wildlife conservation movement of the early 20th century, and (4) the history of trap and skeet in San Francisco and the Bay Area are provided below to provide a basis for evaluating the significance of the PRGC site as a cultural landscape.

A. Development of Recreation around Lake Merced

The first European contact with Lake Merced came during the Spanish expedition led by Don Fernando Rivera and Father Francisco Palou who came to the area in 1774 searching for sites to establish a mission as part of Spain's expansion into Alta California. They are believed to have camped just north of where present-day Lake Merced Boulevard

intersects with the San Francisco-San Mateo County line. On his return in 1775, Father Palou named the lake *Laguna de Nuestra Senora de la Merced* or The Lake of Our Lady of Mercy; the name was subsequently shortened in local usage to Lake Merced. From 1776 to 1835, the land around the lake was part of the Mission San Francisco de Asis (Mission Dolores) holdings and was used for grazing the mission's livestock herd (SFPUC, 2011:99; ESA, 2011:38).

The control of the lands in San Francisco transferred to Mexico in 1821 following the founding of the Republic of Mexico, and in 1834, the government began the process of secularizing the California missions and granting large tracts of land to individuals. In 1835, Jose Antonio Galindo was granted 2,200 acres of land that included Lake Merced. Two years later Galindo sold the land to Don Francisco de Haro for 100 cattle and $25.00 in goods. De Haro, who was the first mayor of San Francisco, built a house at the southern end of the lake and lived here part-time until he died in 1849 (SFPUC, 2011:99; ESA, 2011:38). During this same period, settlers squatted around the northern end of the lake and developed farms (to improve the land as part of their claims under the Homestead Act). Their presence altered the land use around Lake Merced from livestock grazing to cropland; the farmers raised grains for hay, potatoes, onions, and miscellaneous vegetables. "The agricultural production continued, primarily to the north of Lake Merced, until approximately 1920 when development eclipsed the farmland as the predominant land use" (SFPUC, 2011:99).

During the latter half of the 19th century, San Franciscans considered Lake Merced as rural and remote. They would venture out on the weekends to go to the beach via Ocean House Road (today's Ocean Avenue), and it was a popular area to pick wildflowers or to go hunting. The relative isolation of the area also made it a favorite spot for a variety of other recreation including roadhouses (the Ingleside Inn, the Ocean House, the Oceanside House, the Trocadero Inn, and the Lake House, located on the north shore of Lake Merced), a number of boxing camps, shooting ranges, bars located along Ocean House Road, and racetracks (the Ocean Course Racetrack, located just north of Sloat Boulevard, and the Ingleside Racetrack, located east of Junipera Serra Boulevard) (LaBounty, 2003:4-6; SFPUC, 2011:100). Of these facilities, only the Trocadero Inn, located in the Sigmund Stern Recreational Grove, remains extant.

The Spring Valley Water Company (SVWC), incorporated in 1858, formed a monopoly over the city's water supply, and in 1868, the company bought the water rights to Lake Merced, one of the few sources of freshwater in the city, for $150,000. In 1877, the company began purchasing the land within the watershed around the lake. By the turn of the 20th century, the SVWC owned the area from the San Francisco-San Mateo County line to Sloat Boulevard and from Junipera Serra Boulevard to the ocean (approximately 2,000 acres). Following the devastating 1906 Earthquake and Fire, San Franciscans voted in 1908 to approve the construction of the Hetch Hetchy dam in the Sierra Nevada to gain public control of its water supply. Subsequently the company began to sell off its holdings around Lake Merced which opened the door for a new era of recreational land uses around the lake (ESA, 2011:38-39; SFPUC, 2011:30 and 100).

Three golf courses opened in the surrounding area between 1915 and 1925—the San Francisco Club southeast of the lake in 1915, the Olympic Club which purchased the financially troubled Lakeside Golf Course, west of lake, in 1918, and Harding Park situated between the North and South lakes in 1925. The PRGC leased the land for their new club site on the lake's western shoreline in 1934, only four years after the city had purchased the lake from SVWC in 1930. Around in 1931, the PRGC was involved with early efforts to stock the lake with black bass and later hosted the first "Carp Derby" on the lake in 1940. In 1938-1939, the SFPUC awarded a fishing concession to Tom Cusick who leased about 50 rows boats and constructed a boat house and clubhouse; the current boathouse was built in 1958 (SFPUC, 1934: 7; SFPUC, 1939:23; Healy, 1939:43; Springer, 1949:Parts Three and Six; SFPUC, 2013: 30-31).

The WPA constructed a boulevard around the lake in the late 1930s which greatly improved access to the lake and the various recreational opportunities there. John Muir Boulevard, as it was named, not only improved access to the lake but also provided "a landscaped boulevard of rare value for recreation and scenic beauty skirting the shores of Lake Merced" (Healy, 1939:43). This project altered the topography of the land within the road's alignment and next to the lake, and added equestrian paths, retaining walls (constructed of various materials including rock, rubble, and logs), rock gutters, rock steps and coping, sewer, sloping, and landscaping around the lake's perimeter (Healy, 1939:43).

Today, the lake is used for a variety of land and water based recreational pursuits including golfing at the three courses, recreational target shooting (at the PRGC), trail-based recreation, picnicking, camping at Camp Ida Smith (operated by the Girl Scouts), competitive boating (sculling and dragon boating), leisure boating, wind-surfing, and fishing (ESA, 2011:38-39; SFPUC, 2011:20-33 and 100-101).

B. Role of the WPA in Recreation Development in San Francisco

The site preparation work undertaken by the WPA at the PRGC as part of the preparations for the 1939 National Skeet Championships (discussed in more detail below) was one of many improvements to San Francisco's park and recreational facilities that were made possible by this federally-funded, Depression era, works program. The WPA was established on May 6, 1935 by Executive Order 7034, at the beginning of Franklin Roosevelt's "Second New Deal" (as his second term came to be known). An independent agency funded directly by Congress, the WPA assumed the dominant role in the federal government's work relief activities after its establishment. Through a central administration in Washington, D.C., and supported by various regional offices, state administrations, and district offices, the agency financed up to 80 percent of the cost of projects using local materials and local labor, thereby adding money to the local economy and providing extended employment to unskilled and skilled laborers (Cutler, 1985:7). As was the case in other cities, a major component of WPA work in San Francisco was directed at improving parks and recreational facilities, and "park and playground construction consumed more of their time than any other avocation with the single exception of road building" (Martensen, 1979:75).

WPA park-related projects in the San Francisco included work at Balboa, Bay View, Buena Vista, Golden Gate, Harding, Inspiration Point, McLaren, Mount Davidson, Sharps, Stern Grove, and Telegraph Hill parks. Major projects included the construction of Aquatic Park, the Marina seawall, Park Presidio through Golden Gate Park, and exhibits for the Zoological Gardens (Mooser, 1938). Recreation-related projects aimed to fulfill the slogan "Making Play & Sports Available to All Citizens" that accompanied photographs in *San Francisco Improved*, a summary report of WPA projects in San Francisco between 1935 and 1939 (Healy, 1939:n.p.) and resulted in new recreation centers, clubhouses (including the Model Yacht Clubhouse and Anglers' Lodge in Golden Gate Park and the clubhouses at the Lincoln Park and Harding golf courses), 16 new playgrounds, the refurbishing of 15 existing playgrounds, and the addition of restrooms (convenience stations) and basketball and tennis courts to playgrounds throughout the city. In total, over $15 million in WPA funding was spent on park and recreation projects from 1935 through 1939 (Mooser, 1938; Healy, 1939:35-38; Martensen, 1979:75; Delehanty, 1992:383; NPS, 2004).

The work undertaken by the WPA at the PRGC to prepare the site for the National Championships (in skeet) held there on August 8-12, 1939 was one of a variety of sports-related projects funded by the WPA. (Healy stated, in *San Francisco Improved*, that "[t]his project shows the variety of sports that are encouraged to promote the health and enjoyment of the people" [Healy, 1939:65]). The high visibility of the National Championships and the fact that it would take place in the summer of 1939 during the Golden Gate International Exposition (GGIE) may have been contributing factors to the funding for this project. Mindful of the thousands of people that would visit San Francisco and the publicity that would accompany the GGIE, William Mooser Jr. (San Francisco WPA Branch Manager) noted his progress report that "San Francisco, desirous of living up to its reputation of the 'city that knows how' is, therefore, planning projects and civic improvements with that deadline date [of the GGIE] constantly in mind" (Mooser, 1938:8).

Although, the National Championships were a high profile event for the city, the work done by the WPA at the site was crucial to the club's ability to host the national event. In his club history, long-time club member and past club president Joe Springer wrote: "The grading of the fields and the parking area were the big problems. This, we had the assurance from the city, would be done, and it was, but with many headaches, as it was a W.P.A. job and couldn't be rushed. The eight fields were erected, but the shooters began arriving before the last shovel full of dirt was finished on the parking area" (Springer, 1949:Part Five). According to the short summary in a 1939 report prepared by Clyde E. Healy (the city's coordinator for WPA projects), the WPA project "cleared the site and prepared it for skeet shooting" (Healy, 1939:65). The summary table in Healy's report showed that the federal government funded the labor ($1,404), and the city paid for the materials ($775).

C. Sport Shooting and its Association with the Wildlife Conservation Movement of the Late 19th and Early 20th Centuries

The loss of habitat and the decline of game species became highly visible during the last half of the 19th century and occurred within the context of a national preoccupation with the loss of the natural resources. In California, the period during and immediately following the Gold Rush brought about rapid development that resulted in readily visible changes to many of the state's natural resources. Hydraulic mining which clogged streams and rivers with great amounts of sediment, clear cutting of forests to provide for the increased demand for lumber and for firewood as a result of the massive immigration after the discovery of gold in 1849, and the reclamation of marshlands all visibly altered wildlife habitats. Game birds that once had been widely distributed throughout the state came to be "crowded into the few ponds and marshes that were not reclaimed" (Grinnell et al., 1918:10). Other practices, including the sale of game on the open market, the use of the automatic shotgun, dumping of waste oil into estuaries, and the destruction of upland game birds habitat due to grazing also contributed to this loss (Grinnell et al., 1918:9-16).

During the latter decades of the 19th century and early years of the 20th century, hunting increasingly came to be confined—not just in California but throughout the country—to a system of large private game preserves. Several examples, cited in Justin Herman's article "Hunting Democracy," included the control by private clubs of the marshlands of the Columbia and Williamette rivers in Washington and Oregon and "virtually all duck hunting grounds in the vicinities of Denver and Los Angeles" (Herman, 2005:26). M. Hall McAllister, in a 1930 article for the *California Fish and Game* journal, stated that the organization of duck clubs in northern California began when the "Southern Pacific Railroad built across the Suisun marsh in 1878-79" and "brought this wonderful sanctum of ducks and geese within a few hours of San Francisco and Oakland" (Hall, 1930:283); the entire 5,000 acre marsh was owned by The Chamberlain Estate and was leased to two market hunters (Hall, 1930:283). "In San Francisco three hunting clubs owned or leased a combined 116,000 acre of game preserves in 1904" (Herman, 2005:26). The membership in each of these early clubs was limited to a few wealthy individuals. For example the early clubs, organized in the 1880s and 1890s, mentioned in McAllister's article had only three to ten members (Hall, 1930:284). The costs associated with this type of club—the transportation by railroad or private boat to the club sites,[2] the upkeep of a clubhouse where the members stayed, the salary of a game keeper who managed the land and who patrolled the grounds to keep non-members out, and the maintenance of habitats (constructing levees, baiting the ponds, etc.)—were born by the affluent members (Grinnell et al., 1918:24). The rapid growth of sportsmen's clubs and associations during the latter decades of the 19th century was founded not only on camaraderie and a love of hunting (and fishing) but also upon a desire to provide a way to preserve and manage wildlife and their habitat which were increasingly viewed as endangered. National publications, such as the *American Sportsman*, *Field and Stream*, and *Forest and Stream*,

[2] McAllister noted that the Cordelia Shooting Club, organized with ten members in 1880, included a "contract with the well-known Captain Charles Chittenden to hire his yacht, the yawl *Lolita*, which afterward was superseded by the yacht *White Wings*, and later by a large and commodious house ark" (Hall, 1930:284).

were established in the early 1870s and gave these sportsmen a means of communicating with each other and helped to foster a group identity. These publications also helped to promote a defined code of conduct and attitude around hunting ethics and habitat protection (Reiger, 2001:3).

This first era of wildlife conservation, described by John Reiger in his book *American Sportsmen and the Origins of Conservation* (2001) as being from the 1880s through about 1900, was driven by the private efforts of American sport hunters, who were generally from the elite or upper classes. These individuals sought to facilitate conservation of disappearing habitat and game through the management of private reserves and led efforts to change game laws (Herman, 2001:237-238). Their activities and their influence on public opinion laid the ground work for a shift during the early 20th century to the responsibility of managing wildlife habitat and game species being undertaken by the public sector. The years of the presidency of Theodore Roosevelt (1901-1909) resulted in the expansion of federal programs for resource. Justin Herman, in his writings on the social and political meanings of hunting, presented Theodore Roosevelt and "his fellow Progressives" as not only regulating business and breaking up trusts but also campaigning for game laws and public preserves and thereby democratizing sport hunting during the early 20th century (Herman, 2005:29, 30). "In creating bag limits, game seasons, and game wardens, conservationists abolished pot hunting [individuals who hunted for personal subsistence] and market hunting [individuals who sold game for profit]. By the early 20th century, all hunters, with rare exceptions, were sport hunters" (Herman, 2001:271).

In California, the state began to enact some form of fish and game regulations during the Gold Rush. The state passed its first law—which regulated the right to take and plant oysters—in 1851. Then a year later, the legislature enacted a law that protected elk, antelope, deer, quail, mallard, and wood ducks for six months of each year; however this regulation applied to only 12 counties and its enforcement was left to local authorities and was not uniformly applied (DFG, 1999). It was not until 1870, that the Board of Fish Commissioners (the forerunner of the State's Fish and Game Commission) was established, with a board of three commissioners, to oversee the state's efforts around the restoration and preservation of fish in California waters (DFG, 1999). From the 1890s through about 1900, hunting became more tightly managed and regulated.[3] After the turn of the century, the administration of fish and game laws was strengthened and expanded, and although not implemented until 1909, an amendment to the state constitution from 1901 provided the means to divide the state in fish and game districts to further the state-wide approach to resource management (Grinnell et al., 1918:55; DFG, 1999).[4] By the

[3] During this period regulations were enacted that protected the nests and eggs of game bird, restricted gun size, prohibited night hunting and the sale of game, established bag limits, created the requirement for hunting licenses, etc. Regulations were also enacted to protect individual species (Grinnell et al., 1918:55-61; DFG, 1999).

[4] John Reiger, in his book *American Sportsmen and the Origins of Conservation*, noted that early conservation efforts focused on three areas—wildlife, forests or timberland, and state and national parks (Reiger 2001:3-4). In California, there were parallel movements, that accompanied the establishment of wildlife conservation, to establish state parks and to protect scenic areas, to deal with the loss of timberlands (the widespread planting of eucalyptus trees are a part of this context), and to preserve historic sites.

late 1910s, the creation of the "public game refuge" had begun to address the "problem of the private [owned by one person] and club game preserve, best illustrated at the present time by the familiar 'duck club.' For a long time the duck preserve has been an object of contention among sportsmen, the outsider maintaining that the preserve curtail his liberties by usurping all the available shooting grounds and hence the birds . . ." (Grinnell et al., 1918:23).

Sport hunting enjoyed widespread popularity throughout the country up through World War II. The same outdoor magazines, which in the late 19th century had been aimed at the affluent class, began to "appeal to ever-wider readerships" (Herman 2005:30), and the price of participating in the sport came within the reach of most Americans. "In 1920 rifles and shotguns were produced at half their pre-World War I cost" (Herman 2001: 271.). The number of hunting licenses sold in America doubled between 1910 and 1920. Inexpensive cars, which "made it possible for men of modest means to seek out distant hunting grounds," shorter work weeks, more holidays, and paid vacations (all of which were part of evolving labor practices in the first four decades of the 20th century) all contributed to the widespread popularity of sports hunting. "By 1945, fully one-quarter of American men were sports hunters" (Herman 2001:271).

Trap and skeet shooting clubs developed within the context of this larger conservation movement. Although trap shooting predates the conservation movement, its 19th century evolution from hunting practice into a formal game and the early history of America's trapshooting clubs occurred within the context of the first era of conservation (summarized above). In the early 1900s, trap shooting's popularity was widespread, and Daniel Justin Herman, in his book *Hunting and the American Imagination*, stated that there were 200,000 people participating in some form of formal organization of the sport through 3,000 clubs in 1914 (Herman 2001:227). Skeet which was created in the 1920s has a more direct tie to the second phase of the conservation movement when the responsibility of managing habitat, and thereby providing places and opportunities to hunt, was taken into the public realm. Skeet had spread by the late 1920s to the Bay Area; the Bay Sportsmen's Club (at Fort Funston in San Francisco) and the PRGC (initially on the Napa River) were both formed in the late 1920s and included skeet as one of their activities. Statistics on the sport are hard to obtain, but in 1939, the president of the NSSA an estimated 100,000 people were shooting competitively on fields located at 2,000 gun clubs and 300 golf clubs (Powell, 8-6-1939:4H); this number did not include the number of individuals who used sport more casually for recreation or to hone shooting skills for hunting season.

The hunting clubs that formed in the 1920s and 1930s tended to identify themselves with the wildlife conservation movement and used the term "sportsmen" to describe themselves; this term had direct links to the conservation movement, although it has now become more generic in its meaning (Herman 2005:30). Joe Springer's history of the PRGC, written in 1949, stated that this club "was born as a conservation organization" (Springer, 1949:Part One). The Marin Rod and Gun Club, organized in 1926 and still in existence, stated that the "club was formed for the purpose of conservation, preservation and propagation of fish and game" (MRGC). In addition to their association with the conservation movement, these early 20th century gun clubs illustrate the democratization

of hunting that occurred during that period. While clubs continued to exist that maintained private land for hunting, the clubs that formed during the 1920s and 1930s had small land holdings where they may have had a club house (but no onsite game keeper) and possibly a boat launch or a trap or skeet field. Some of the clubs initially had no facilities. For example, the Richmond Rod and Gun Club formed in 1932 did not build any facilities at its site until 1952 (Frenkel, 2014). The Walnut Creek Sportsman's Club formed in 1939 had a clubhouse, in town, but it owned no land until it combined with three other clubs (the Concord Sportsmen's Club, the Bay Point Rod and Gun Club, and Diablo Rod and Gun Club) to form the United Sportsmen, Inc. in 1960 and purchased 75 acres (Gobbell, 2011; Gobbell, 2014). All these clubs utilized public lands and reserves, a product of the 20th century conservation movement, for their hunting activities (Gobbell, 2014; Burke, 2014). Furthermore, most of the clubs formed during this period did not have the exclusiveness of membership, like their predecessors. These clubs, which included members who were working and middle class (Alkalay, n.d.; Gobbell, 2011), had lower operating costs, a greater number of members, and more modestly priced dues when compared to the exclusive and wealthy membership of the private preserves of the late 19th century.

Just as the rise in popularity of sports hunting reflected aspects of American culture in early 20th century, so did its decline after World War II (Herman, 2001:274). The war interrupted sports hunting as well as trap and skeet activities due to the rationing of ammunition and the scarcity of shotgun shells and clay targets. Herman stated, in the article "Hunting and Democracy," that sports hunting probably peaked in the 1940s and 1950s (Herman, 2005: 30). Jan Dizard, in his book *Mortal Danger: Hunters and Hunting in Contemporary America*, noted that the sale of hunting licenses peaked in the late 1950s, and that although the popularity of most outdoor activities continued to be "robust" in the decades after World War II, "participation in hunting stagnated in the 1970s and, by the 1980s, began a slow but steady decline" (Dizard, 2003:42). Herman cited cited several factors that contributed to what he termed the "depopularization of hunting" that occurred after the post-war period; these included the camera (although initially carried by hunters to record kills soon became an alternative to the gun), the popular movie culture of "Walt Disney and his progeny" who projected "anthropomorphic images of animals to millions," the rise in the popularity of team sports (that were "far more representative of today's corporate culture than hunting with its emphasis on self-reliance"), and the rise of other outdoor sports (such as rock climbing, kayaking, skiing, and hiking) which "have replaced hunting as ways for middle class and elite Americans to test their mettle against the forces of nature" (Herman, 2001:272- 273).

D. Development of Trap and Skeet Shooting in San Francisco

Target Shooting Matches

Target shooting matches in America—the forerunners of trap and skeet competitions—developed within the context of the country's colonial era hunting culture. Foster Rhea Dulles pointed out, in his book *The History of Recreation: America Learns to Play* (1965), that after the development of stable communities hunting and fishing came to be

enjoyed as sport not just as a means to survive (Dulles 1965:24, 55). This almost universal popularity of hunting throughout the country in the late 18th and early 19th centuries (Herman 2001:54) and the premium that colonial Americans placed on marksmanship contributed to the development of organized target shooting matches. Dulles pointed out that “pride in marksmanship made shooting matches of all kinds even more popular [in the frontier] than they been in the colonies” and that these matches “followed the frontier westward, bequeathing to the more settled communities in the East rifle clubs and trapshooting” (Dulles 1965:71). Set rules for procedures that were “carefully agreed upon” and which included the selection of an “impartial board of judges” developed, and the custom of shooting at a live mark was replaced with shooting at a target (Dulles 1965:71-72; Herman 2001:54-55).

Trap and sheet shooting, the two types of shotgun games located at PRGC, developed within this tradition of target shooting. The sports are similar in that both involve shooting flying clay targets with shotguns. However they developed at different times, and the shooting fields related to each sport have different physical layouts. American Trap uses one machine (the trap) to propel the targets which are all thrown in an outgoing direction; the trap oscillates back and forth throwing out the targets at angles that are unknown to the shooter until they emerge from the house. Skeet uses two machines located at the left (high house) and right (low house) of a semicircle; the machinery in these two houses throws the target in fixed patterns at different angles that are meant to replicate real birds in flight. Both activities started as a way for individuals to practice skills related to hunting and then evolved into sports with codified rules that are practiced for both recreation and competition. Versions of both trap and skeet are included as shooting sports in the Olympic summer games (Migdalski, 1997:13-15; Claytargetsonline.com, 2013). Brief histories of both sports are described below; a description of their associated physical layout requirements is provided in section VI. Description.

Trap

Trap is the oldest of the shotgun games and was established in England by the mid-18th century (ATA, 2013).The sport was first practiced in the United States early in the 19th century and was popular by mid-century in a number of areas, notably in Cincinnati, Ohio and the New York City area (ClayTargetsOnline, 2013). Trap was intended to replicate the experience and utilize the skills of shooting birds in the field, and according to a history of the sport in the *Gun Digest Book of Trap & Skeet Shooting*, "[e]arly trap shooters used live pigeons for targets. Birds were held in a box or “trap” until the shooter 'called for the bird.' An assistant would then pull a string to open the trap’s lid " (Sapp, 2009:17). The use of live birds for sport peaked in the American by mid-century. States began to pass legislation that outlawed competitions using live birds, and there was a growing move to develop methods of putting non-live targets into flight. In 1866, Charles Portlock of Boston improved a "sling devise", in use in England, that launched glass balls. Around 1880, George Ligowsky of Cincinnati developed a flat, disc-shaped clay target. Although, these clay targets were hard and difficult to break, they were preferable to the glass ball targets. In 1881, Ligowsky introduced an improved trap machine for launching his clay targets. An Englishman named McClaskey (none of the references

provided his first name) refined the composition of target to include river silt and pitch which became the standard used. (This type of target is also used in skeet.) With the reliability of standard targets and reliable trap machines, interest in the sport accelerated in the 1890s. By this time, the standard arrangement of the game, where a squad of five shooters rotated through five stations while shooting at one trap, had become the standard format. The first national trap championship in the United States took place in New Orleans in 1885. Then in 1890, the Interstate Trapshooting Association was formed to govern the sport; its name was changed in 1919 to the American Trapshooting Association and in 1923 to the Amateur Trapshooting Association (ATA). In 1924, a permanent home was built for the association in Vandalia, Ohio, and the annual Grand American Tournament was held there each year until 2005 when it was moved to Sparta, Illinois to the World Shooting & Recreational Complex (Migdalski, 1997: 4-6; Sapp, 2009: 17; ATA, 2013).

The date when trap shooting first arrived in northern California is not clear. However it seems likely that the sport was present in the late 19th century. The Martinez Gun Club has been in existence since 1883, and in San Francisco, there were "shooting ranges" located along Ocean House Road (today's Ocean Avenue) in the 19th century (LaBounty, 2003:4). The California State Shoot was first held in 1912. The PRGC had a single trap at their original Cuttings Wharf property on the Napa River by 1929. After the club moved to the Lake Merced site in 1934, a trap field is visible in a number of historical photographs in the PRGC collection taken between 1934 and 1937 (before the original fields were abandoned after they were flooded when the lake rose) and on an aerial taken in 1938 (after the fields were moved to higher ground) (see Historic Images 4 and 7). The PRGC was generally known as a skeet shooting group in the 1930s and 1940s. Then in the 1950s, the club added new regulation trap fields and began to regularly host competitive trap shooting events including those associated with the ATA and the Pacific International Trapshooting Association (PITA), an association of clubs in the western United States and west coast providences of Canada that was founded in 1931 (PITA, 2013). This interest in trap occurred after the active trap shooting members from the Fort Mason Rod and Gun Club, with a field and a clubhouse at Fort Funston, joined the PRGC after their clubhouse burned in 1948 (its foundations remain at Fort Funston). The PRGC then became, and continues to be, the only facility in the city to offer trap shooting. Beginning in the late 1940s and continuing through the mid-1960s, the club expanded its trap facilities and built three trap fields, added the machinery to shoot trap to all six skeet fields, and added the "Trap House," a building originally used for registration purposes (Alkalay, n.d.:D; GoogleEarth, 1938; CDSG, 2013; CGSTA, 2013; Martinez Rod and Gun Club, 2013; Martini, 2013; PRGC, 2013; Williford, 2014).

Skeet

Skeet was invented in 1926 by Charles Davies of Andover, Massachusetts who was interested in devising a trap system that would more closely resemble the flight pattern of real birds (than was provided by trapshooting). With the assistance of his son Henry and Henry's friend William Foster, he experimented with various plans before coming up with a field laid out in a circle (with a 25 yard radius) with 12 shooting stations designated around its circumference—similar to the positions of each hour on a clock

face—with a trap located at station 12 which propelled targets toward station 6. Participants moved around the circle firing two shots from each station. In 1923, they reduced the radius of the circle to 20 yards, changed the layout of the field to a semi-circle which took less room, and added a second trap (the high house), opposite the first one (the low house), that propelled the target from a higher location. Foster who was the editor for the *National Sportsman* and *Hunting and Fishing* magazines formulated a set of rules to govern this new shooting game. He then published these in the February 1926 issues of the two magazines along with the announcement of a national contest to name the new game. Mrs. Gertrude Hulbutt of Dayton, Montana won the $100 prize with her entry of "skeet" which was an old Scandinavian word meaning "shoot." According to Tom Migdalski's history of the sport, in *The Complete Book of Shotgunning Games*, the national publicity given to the new shooting game by Foster in his magazines, its ability to simulate wild bird shooting without the limitations of closed hunting seasons, and the social aspects of clubs and clubhouses that accompanied skeet, all contributed to the rapid spread of the sport throughout the country. The National Skeet Shooting Association was formed soon afterwards and its first National Championship was held in 1935 in Cleveland, Ohio. The national championship rotated annually around the county, with the 1939 championship held at the PRGC in San Francisco. This championship event was not held during World War II, and skeet shooting (and other target shooting games) was drastically curtailed for the duration of the war due to the limited availability of ammunition and targets. Migdalski commented in his history that skeet actually received a boost during the war: "The military recognized the value of skeet in training personnel to hit moving targets. Consequently, thousands of men were introduced to the shotgun and the game of skeet" (Migdalski, 1997:18), and after the war continued to shoot skeet. The National Skeet Shooting Association was reorganized and incorporated in 1946, and the National Championship was reinstated at Indianapolis in 1946. Now known as the World Championship, it is held annually in San Antonio, Texas at the association's National Shooting Complex (Croft, 1990:99-100; Migdalski, 1997:15-19; Sapp, 2009:59; NSSA-NSCA, 2013; Burke, 2014).

More details about the history of the arrival of skeet to northern California are available than is the case with trapshooting. In the late 1920s, Jules Cuenin, the Rod and Gun editor at the *San Francisco Examiner*, approached local sportsman Lloyd Kahn about finding a place to build a skeet field for this "new sport" which at that point "had reached no further West than Chicago" (Kahn, 1987). They were able to persuade the Army to give them permission to "build a field in a barren area of Fort Funston" (Kahn, 1987). This field became the first in San Francisco and was associated with the Bay Sportsmen's Club, "the pioneer Northern California Skeet Shoot Club" (Alkalay, n.d.:A). Around 1930 or 1931, this group merged with the PRGC, who had built a skeet field at their Cuttings Wharf site in 1929; the combined groups used the PRGC name. Soon after this merger, they were able to persuade the Army to let them move the field to a site "on the highway" which made access easier, and the earlier field was abandoned (Kahn, 1987). The growing popularity of skeet and the demands on its Fort Funston field were such that the PRGC began to look for a new site where they could expand. They found a suitable site just east of the Fort Funston field on the western shore of Lake Merced on land owned by the SFPUC where they constructed two new fields. In 1938, the club

constructed four new fields at a higher elevation on the Lake Merced site, after the 1934 fields were flooded, which became, and continue to be, the only skeet fields in San Francisco. Beginning in the late 1940s and continuing through the mid-1960s, the club in conjunction with the expansion of its trap facilities added two new skeet fields to the site. This expansion coincided with the increased interest in skeet that occurred when returning veterans, who had been introduced to skeet as part of World War II training practices, took up the sport (Burke, 2014).

Local Clubs from the Pre-World War II Era

Local sportsmen's and hunting clubs formed in the Bay Area during the 1920s and 1930s within the context of the increased popularity of sport hunting and the increased access to public game preserves that were fostered by the wildlife conservation movement during the early 20th century. These organizations tended to identify themselves with the wildlife conservation movement. As noted in the preceding context on this movement, these early 20th century clubs all utilized public lands and reserves, included members who were working and middle class, and had greater numbers of members and more modestly priced dues when compared to the exclusive and wealthy membership of the private preserves of the late 19th century. Skeet and trap shooting were often part of their club activities since these provided members with a way to improve skills and a framework for a shared social experience within this context. Although it is difficult to obtain a list of clubs that formed during this era, based on information in newspaper articles (that listed the locals of clubs) and the recollections of individuals, most communities had a sportsmen's club. Additionally, many Bay Area military installations also had skeet or trap facilities. Not all clubs had target shooting facilities, and those that did tended to have only one or two fields. The presence of four skeet fields (and often one trap field and a duck tower), a clubhouse, a caretaker's house, and a rifle range building gave the PRGC one of the more extensive pre-World War II facilities. These facilities and the enthusiasm of their active membership provided the club with the means to host larger events (both for competitive and for recreational shooters). Many smaller clubs disappeared during the post-World War II era.[5] They often only leased their land and lost these leases as development surrounded them, those that continued to survive moved or consolidated with other clubs, and most of what are considered to be "older" clubs today actually date from the 1950s (Burke, 2014; Boyle, 2014; San Francisco Chronicle, 1939; Cuenin, 1939).

The PRGC appears to have the oldest skeet and trap facility in the Bay Area and retains its original pre-World War II grounds configuration, skeet field structures, and club buildings. Other clubs that remain in operation from this pre-World War II era do not have skeet or trap facilities (for example, the Marin Rod and Gun Club [established 1926]) and the Stockton Rod and Gun Club [established 1937]), have moved to newer facilities and are no longer located at their original sites (for example, the Martinez Gun Club [established 1883] moved to its current site in 1961), or developed their facilities

[5] For example, clubs from this era that are no longer in existence included ones in Novato, Palo Alto, Petaluma, Redwood City, Sonoma, and Tracy (Cuenin, 1939; Burke, 2014; Boyle, 2014; Marazzani, 2014).

after those at the PRGC. In this latter group, the Richmond Rod and Gun Club, which formed in 1932, did not buy its property and begin development on its facilities until 1952 (Frenkel, 2014; Sargentini, 2014). In 1960, four smaller clubs (Bay Point, Diablo Rod, Walnut Creek, and Concord) which did not have shooting ranges, joined together in 1960 to form the United Sportsmen Inc. and purchase a 75-acre site (Gobbell 2011 and 2014). The Stockton Skeet and Trap Club, which holds major tournaments and is considered one of the premier sites to shoot competitively, was not formed until the mid-1950s (Burke, 2014; Boyle, 2014).

V. HISTORY OF PRGC AND SITE EVOLUTION

Following the discussion of PRGC's establishment and early development, this section provides the history of PRGC organized by the club's periods of development at Lake Merced. The period 1934-1941 encompasses PRGC's move to Lake Merced and the development of the property when the arrangement of the features within the site was established and when its major buildings and four of its skeet fields were constructed. During this 1934-1941 period, the club spearheaded the establishment of sports fishing at Lake Merced and helped to establish skeet shooting in the Bay Area. Its facilities provided a regular venue for the range of social experiences and activities associated with sportsmen's clubs during this pre-World War II era. This initial period of development ended in 1941 when the United States entered World War II. From 1942-1945, most of the club's regular activities were curtailed due to the war; this was a general wartime experience for sportsmen's clubs throughout the country and was not unique to the PRGC. After the end of World War II, the various club and shooting activities returned to the PRGC property, and the club began an extended period of growth and expansion between 1946 and the early 1960s that resulted in the addition of new skeet and trap fields, the addition of one new building (the Trap House), and the expansion of another (the Shell House). The period from the mid-1960s through the early 2000s included minor alterations to the property but resulted in no major additions of buildings or field facilities.

A. Establishment of the Club

The PRGC was established in early 1928 with an initial membership limited to 50 by a group of San Francisco sportsmen and was incorporated on June 6, 1929. Based on the information in the club's "Early History", prepared by its first president Joe Springer for publication in the club's newsletter in 1949, the club was formed as a conservation organization with membership initially focused on sports fishing. In additional to recreational fishing, club members participated in regional and national sports fishing events. In competitive surf casting in the early 1930s, member Primo Livenais held the record for an individual cast and the club's team broke the world record for a team score. The club was actively involved in "in the campaign to take striped bass off the commercial market," and was also instrumental in testing and planting sport fish in Lake Merced in the 1930s. An article in the *San Francisco Chronicle* described the first opening day on Lake Merced for sport fishing, on July 1, 1939, as a culmination of seven years of efforts "fathered" by Joe Springer, the president of the club from 1928 through 1932 (Springer, 1949: Parts One and Three; Alkalay, n.d.:A; Powell, 7-3-1939:3H).

Initially, the club leased land at Cuttings Wharf on the Napa River where they built a clubhouse that provided accommodations for members to spend the weekend while they hunted or fished and a site for social gatherings. The clubhouse included a bunkroom that would sleep about 20, a large dining room that was able to accommodate about 50 people, a kitchen, and shower and toilet facilities. The official opening of this new clubhouse was a "grand three day affair" over the weekend of February 22-23, 1929. The club's first president Joe Springer described the festivities as "staring off with a big dinner Saturday night, followed by boat races on Sunday, fishing for prizes, trap shooting (we had a single trap) and many other activities" (Springer, 1949:Part One). The club expanded its shooting activities in 1930 by adding a single skeet field at the Cuttings Wharf site. Although skeet was only four years old as an organized sport at that time, it was rapidly growing in popularity, and new fields, like this one, were popping up throughout the country (Springer, 1949: Part One; Migdalski, 1997:15).

B. The Move to San Francisco and Pre-World War II Development of Lake Merced Site

The club's involvement with skeet increased and its geographical focus began to shift to San Francisco around 1930-1931 when the Bay Sportsmen's Club, the "pioneer Northern California Skeet Shoot Club," merged with the PRGC (Alkalay, n.d.:A). Because the PRGC was the larger of the two organizations and had a meeting room, the combined groups decided to use the PRGC name (Kahn, 1987). This association added a new contingency of skeet shooting enthusiasts to the club—three of whom would later serve as president for the PRGC (Alkalay, n.d.:A]—and the PRGC took over the Bay Sportsmen's Club single skeet field at Fort Funston. Springer described this facility as "a rather crude affair" with no storage facilities so that it was necessary to cart the targets, ammunition, and batteries to and from the field each shooting day. Soon after the merger, the club was able to persuade the Army to let them move the field to a site "on the highway" [Skyline Boulevard] which made access easier (Kahn, 1987) (see Historic Image 1). The club became increasingly involved in skeet after it acquired this field at Fort Funston. Its five-member team went to Nevada City in May 1931 for the Northern California Skeet Championship Shoot and to Los Angeles in July to compete for the state team championship.[6] Also during 1931, the PRGC hosted a "charity shoot" in December "for the benefit of the San Francisco News Neediest Families Fund" (Springer, 1949:

[6] Two of the members of this 1931 team—Jules Cuenin and Don Westwater—are members of the CSSA's Hall of Fame. Cuenin, a sportswriter for the *San Francisco Examiner* and one of the club's original members, was inducted into the Hall of Fame based primarily on his efforts to promote skeet during its early years through his sports writing. However, he also ranked among the country's elite shooters during the 1930s and was a Second Team All-American in 1930, 1932, 1933, and 1934. During that era, members of the All American teams were selected by Jimmy Robinson, editor of *Sports Afield* who was considered the preeminent sportswriter on the game during this era, based on their wins in shooting competitions in comparison with other shooters from all over the country (Burke, 2014). Westwater was inducted into the Hall of Fame based on his shooting abilities. His prime years of competition were interrupted by World War II, but he continued to shoot competitively into the 1950s and was ranked as a Second Team All American in 1955 when he was in competing against much younger individuals (Burke, 2014).

Part Three), which was the first in an ongoing club tradition of hosting shooting events to raise money for local organizations (Springer, 1949:Parts One, Two, and Three).

The club's membership limit was doubled in 1931 to 100, and by 1933, the growing popularity of skeet and the demands on its Fort Funston field were such that members began to look for a new site where they could expand. They found a suitable site just east of the Fort Funston field on the western shore of Lake Merced on land owned by the SFPUC. This site provided some fairly level terrain immediately next to the shoreline. The level terrain helped to minimize the amount of grading that was required to build level skeet fields for the club's shooting enthusiasts, as well as providing easier lake-side access for their fishing contingency. San Francisco Mayor Angelo Rossi helped to smooth the way for a lease, after some initial local opposition raised by golfers and horseback riders to the development of the facility at this site, and the club entered into its initial lease agreement with the SFPUC in 1934 (Springer, 1949:Part Three). The SFPUC's annual report for fiscal year 1933-34 cited the lease with the PRGC as one of two steps taken by the commission "toward improvement of the recreational facilities of the people of San Francisco" during that fiscal year (SFPUC 1934:7).[7] The report noted that "with the arrival of Hetch Hetchy water, the water produced by Lake Merced will be required only in an emergency" so the commission "leased an area in the neighboring tract to the Pacific Road and Gun Club for use as a skeet shooting field. The club was also permitted to plant black bass in the lake, it being expected that fishing will be later enjoyed there by our people" (SFPUC 1934:7).[8]

The club's members built two skeet fields and an entrance road, which provided access to the site from the east, and dedicated the new facility on June 9 and 10, 1934 (see Historic Images 2 and 3). The construction of these facilities began the PRGC's initial period of development at Lake Merced that continued until the United States entered World War II in 1941. In recognition of his assistance in securing the site, Mayor Rossi fired the first shot at the dedication ceremony; however "a [club] member behind the high house actually fired the shot that broke the target" (Springer 1949: Part Three). Other features which are visible on aerial and historical photographs from this era included a trap field located to the west of the eastern skeet field, a large unpaved parking area, and a small wooden building (the "Lunch Room"), a stone barbeque, and picnic tables in the southeastern corner (see Historic Image 4). An internal unpaved road linked the two skeet fields. A large stand of trees, made up of mostly eucalyptus trees, that pre-dated the club's use of the site stretched across the site and provided a boundary along the south side. Club members planted a row of evergreen trees to delineate the boundary at the southeastern corner. The PRGC continued to prosper and voted in November 1936 to double its membership to 200. A new clubhouse was opened on July 25, 1937, and at that time, the club "gave up the clubhouse on the Napa River" (Springer, 1949: Part 4) and became exclusively identified with its Lake Merced site (see Historic Image 5). A

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[7] The other step that the report noted was the leasing of a portion of the Amazon reservoir site for the development of a new playground for the southern section of the city (SFPUC, 1934:7).

[8] According to Springer's history the stocking continued on a regular basis: "Many shipments of bass were planted in the lake from time to time under the supervision of the black bass committee of this club so that the public might enjoy a little fishing" (Springer, 1949:Part Four).

caretaker's house was also added around this same time, although an exact date of construction has not been established. Then in late 1937, the lake rose several feet and flooded out the fields (see Historic Image 6). The club was forced to relocate its facilities to higher ground about 50 feet to the west. The club cut down most of the large stand of eucalyptus trees in order to clear the site for the new fields, although a small band of the trees were left standing in the vicinity of the clubhouse. By April 10, 1938, they had constructed four new skeet fields, which continue to exist today as Fields 4, 5, 6, and 7. By the time these new fields were built, the alignment for John Muir Boulevard was in place and provided easy access to the site. The original entrance road was abandoned, and a new entrance (with a rustic wooden gateway and sign) was established at John Muir Boulevard across from the new fields (the location of the present-day entrance). A fence (originally rustic in appearance to match that of the new gateway and sign) was added that delineate the boundary between the skeet field site and the road (see Historic Images 7 to 9). An indoor Rifle Range building was added in March 1939 just east of Field 7; the club's first rifle team had been formed in 1934 (Pacific Aerial Surveys, 1935; Google Earth, 1938; Springer, 1949: Part Four; PRGC, 2013).

C. Events Held at the Club in the 1930s

After the opening of the new facilities at the Lake Merced site in 1934, the club began to host regional and state skeet championships. During the 1930s, when travel was more limited than it is today, these regional and state events provided local shooters the opportunity compete and helped to promote the game (Burke, 2014). A list of competitive tournaments hosted by the club in the 1930s and up through the country's entry into World War II include the Northern California Skeet Championships (1934, 1939, and 1942), the Western Open Championships (1934, 1935, 1937, and 1941), and the California State Championships (1934, 1935, 1936, and 1938) (Springer, 1949:Parts Three to Six). The club hosted hunter safety classes and continued its practice of holding benefit shoots to raise money for various causes including the Shriners, the Catholic Youth Organization (CYO),[9] and Ducks Unlimited. L. N. Alkalay, club president in 1940, considered the club's efforts to raise funds for the establishment of a Ducks Unlimited Project in Canada known as Lake San Francisco to be its "greatest conservation project." Alkalay claimed that this led to "many other sportsmen's groups throughout the United States sponsoring similar projects in their names" using this "procedural format established originally by the Pacific Rod and Gun Club (Alkalay, n.d.:C). The club

[9] A write up in the *San Francisco Call* for the fifth annual CYO Charity Shoot, held on April 27, 1941, provides a sense of these types of events held at the club during this era. The event was expected to include "hundreds of scattergunners" and participants with a range of experiences ("experts, strictly game hunters and rank novices"). There was an educational component ("Not only will the fine points of the skeet game be explained to novices by class A or professional shooters but the experts will actually accompany newcomers during their rounds of shooting to assist in every way possible and make them at home with a gun on a skeet field") and a "clergy shoot" ("One of the most interesting events of the day will undoubtedly be a skeet contest for members of the clergy"). Trophies were donated by local businessmen (the Beale brothers of the Mission Automobile Parts and Marine Supplies Company) and lunch was provided for sale (as part of the fundraising) by club members—a barbeque steak (for 75 cents) or for the person who was not a "heavy luncher" there were "sandwiches, coffee, and whatnot" (Dearing, 1941).

hosted events that celebrated regional events and history. In 1937, they held the Golden Gate Bridge Fiesta Skeet and Trap shoot to celebrate the opening of the bridge. The 1939 National Championship (described below) was one of the sporting events held during the GGIE.

D. 1939 National Skeet Championships

The PRGC's prominence within the skeet world of the 1930s was firmly established when it was awarded the fifth National Skeet Championships to be held at the club on August 8-12, 1939. Previous championships had been held in Cleveland (1935), St. Louis (1936), Detroit (1937), and Tulsa (1938). The decision to hold the event in San Francisco increased the cost of travel for many participants, but was important because it was the first time that the national championships were held in a west coast location, which indicates how the game had spread in the decade and a half after its invention (Skeet Shooting News, 1939: 1). *Skeet Shooting News*, the official publication of the NSSA, emphasized that the championships provided the participants and attendees, from all parts of the country, Hawaii, and some foreign counties, a chance to complete, meet each other, and to leave with "a fuller understanding and appreciation of skeet as a country-wide sport rather than something unique to their own particular locality" (Skeet Shooting News, 1938:7). The San Francisco event, which became the "biggest shooting event ever held to date in the west" (Springer, 1949:Part Five) helped to reinforce the popularity of the sport in Northern California (Burke, 2014).

According to Springer's account of the event in his history, the club worked for three years to secure the event from the National Skeet Shooting Association. L. N. Alkalay, vice chairman of the club's executive committee for the event, traveled throughout the country to skeet clubs to promote the National Championships in San Francisco (Burke, 2014).[10] The club received local assistance from the San Francisco Tourist and Convention Bureau who helped pay for club member Hugh Richardson's "trip to Tulsa to complete arrangements and to gain a favorable vote from the National Association" (Springer, 1949: Part Five). The championships coincided with the GGIE, the World's Fair held at Treasure Island in the summer of 1939, which celebrated the opening of the Golden Gate and Bay bridges. According to L. N. Alkalay's club history, the National Skeet Championships was considered one of the "gala and official" events associated with the exposition (Alkalay, n.d.:B).[11]

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[10] Alkalay is one of three PRGC members, along with Jules Cuenin and Don Westwater, who are members of the CSSA Hall of Fame. Alkalay was vice chairman of the club's executive committee for the National Championship and was president of the club in 1940. He became president of the Northern California Skeet Shooting Association (NCSSA) and editor of its publication "The Skeeter in 1942 and again in 1948. He is credited with being instrumental the reorganization of the NCSSA in 1947 which contributed to the renewed interest in skeet after World War II. He also served on the board of directors for the reorganized national organization (NSSA) following the war (Burke, 2014).

[11] Two other sporting events held in conjunction with the GGIE included the International Lawn Bowling Tournament held September 4-16, 1939 on greens in San Francisco, Oakland, and Berkeley and the national surf casting championship, which was won by the PRGC team (Cuenin, 8-4-1939: 26; San Francisco Chronicle, 9-5-1939:3-H; Springer, 1949:Part Five)

The city assigned part of its WPA funding to assist the club in preparing the site for the tournament (refer to the historic context on the WPA for more information on the role of the WPA in Depression-era recreation construction). The area to the south of the four fields was still sloped and covered in brush at this point. The WPA work force cleared this site and graded it for the large parking lot that was needed for the national championships events. They also graded the field area (Healy, 1939: 65; Springer, 1949: Part Five). In addition to the four fields, laid out in 1938, which were already in place, four temporary fields were added for the event. Having eight fields and a parking area were two of the commitments the club had to make to the NSSA in order to host the event (Skeet Shooting News, 1938; Cuenin, 1939:21; Springer, 1949:Part Five). No description was provided in any of the sources reviewed for this report as to where these fields were located. However, Historic Image 10, shows two fields located northwest of Field 4 in the area occupied by present-day Fields 1 to 3. Given the geography of the site, the two other fields were likely added to the open area at the southern end of the site, today occupied by Fields 8 and 9. No evidence of these fields remained on the site in 1948 when Historic Image 12 was taken.

The success of the event enhanced the PRGC's reputation within the skeet world. Almost 200 shooters participated from 27 different states (Skeet Shooting News, 1939:1). A report on the event in *Skeet Shooting News* stated that this had been the "most nearly perfect shoot, considering all aspects in the history of the national competition." The account credited the location, equipment, and management of the tournament as factors contributing to its success. The article stated that the "[e]quipment and layout at the Pacific Rod and Gun Club was the finest ever placed at the disposal of the national championship competitors. The many permanent buildings of the club added greatly to the comfort of the shooters and those responsible for managing and cashiering the meet" (*Skeet Shooting News*, 1939:2). Jimmy Robinson, trapshooting and skeet editor for the national sports magazine *Sports Afield* was publicity director for the event. Newsreel companies, photographers, and the local newspapers, which gave front sports page coverage to the event, provided what was declared to be the "best press coverage it had ever enjoyed" (*Skeet Shooting News*, 1939:2). The closing banquet at the Fairmont Hotel was attended by 350 "shooters, friend, and officials" where awards and trophies were presented by Mayor Angelo Rossi and NSSA president Henry Ahlin. It was the first of the national championships "to be concluded entirely 'in the black' as a complete financial success" (Alkalay, n.d.:B).

After the event, the club's fourth building was added in late 1939 or early 1940 just west of Fields 4 and 5. This building, known as the Shell House, was constructed from lumber recycled from the wooden platforms that had been erected during the championships by the "Ammunition Companies to display their wares and entertain their friends . . ." (Springer, 1949:Part Five) (see Historic Image 10).

E. World War II

As was the case throughout the country, the shortage of shells and targets during World War II limited shooting activities at the club. Following the United States' entry into World War II in December 1941, activities changed at the PRGC. Initially the club

planned to continue in a “conservative way” to hold shoots on the grounds and to “entertain visitors who can provide their own ammunition, an ample stock of targets still being on hand (PRGC Digital Archive: Newspaper clipping ca. 1941-42). By the end of 1942, wartime rationing altered the activities further. An article in the *San Francisco Examiner* announced that “due to dim-outs and gas rationing the club is compelled to temporarily seek a more central location for its meetings” and so they moved the meetings to the band room at the Islam [Shrine] Temple at 650 Geary Street (Betten, 1942:17). Shooting was limited to every other Sunday and competitive events were suspended, except for the 1942 California Skeet Championships that occurred before shooting was largely curtailed due to the limited availability of shells and targets (Springer, 1949:Part Six). Instead of the regular club shooting activities, the site was used in a number of other ways for the duration of the war from 1942-1945, several of which aided or supported the war effort. During 1942, the PRGC provided shotguns, targets and ammunition, and shooting instruction to train thousands of military recruits at the club (Alkalay, n.d.:C)—"shooting seven days a week and eight hours a day” (Springer, 1949:Part Six). Additionally, in conjunction with a local Islam Temple, barbeques for 500 servicemen were held at the site in October 1942 and 1943, and in 1943 a vaudeville show was held for the Coast Guard at the clubhouse.[12] As a way to fill the void left by the lack of shooting opportunities, the “Rough Grouch Horseshoe Club” was formed, several horseshoe pits were installed on the grounds, and weekly games were held until the regular shooting schedule could be resumed following the war (Springer, 1949:Part Seven). Springer’s history does not provide any information on the location of the horseshoe pits, and no evidence of these features remains today.

F. The Post World War II Development of the Site

After the end of World War II, shooting activities returned to the PRGC site, and the club began an extended period of growth and expansion that occurred between 1946 and the early 1960s. The club voted in 1948 to increase membership to 225, and in 1949, they had reached this level and had a “sizeable waiting list” for membership (Springer, 1949:Part Seven). Club membership during this period included a cross section of the city’s population from “day laborers to high placed financiers” (Alkalay, n.d.:2).[13] On June 12, 1949, the club celebrated its 15th anniversary at the Lake Merced site and opened the new lunch room that had recently been added to the west end of the Shell House (Springer, 1949:Part Eight). Then during the late 1940s, 1950s, and early 1960s, the PRGC constructed additional fields to meet the demand for shooting facilities.

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[12] The club purchased skeet traps for the Fourth Air Force for the entire Pacific Coast. They also shipped a “large quantity” of fishing tackle overseas to servicemen in conjunction with the San Francisco League of Service Men (Springer, 1949:Parts Six and Seven), and San Francisco became the “largest center for collecting tackle and equipment and putting it in shape for the leisure and emergency use of fighting forces overseas” (San Francisco News, 7-24-1943: 7).

[13] Based on a review of the club newsletter, *The Pacific Breeze*, the club was open to the public, but members were charged a discounted field use rate. However, when the club was first opened to public for routine use, or if this was always the case, was not found.

This expansion was driven by several factors, some of which were related to broader trends in American society and others which were more specific to skeet and to the PRGC. Jan Dizard, in his book *Mortal Stakes: Hunters and Hunting in Contemporary America*, noted that the popularity of many outdoor activities increased after the war. The extended period of prosperity that followed the war brought increased wages, a measure of job security for much of the nation's workforce, and paid vacations for more people which meant that "Americans in rapidly expanding numbers had both the money and the leisure time to pursue hobbies of all sorts; visits to state and national parks soared, the ranks of bird-watchers grew, and . . . fishing and hunting grew in popularity, with hunting, as judged by the license sales, peaking in the late 1950s" (Dizard, 2003: 42). Some of the growth at the PRGC was tied to this broad interest in outdoor recreation that occurred within the context of the post-war prosperity. Additionally, the expansion of the club's skeet facilities occurred within the context of an increased interest the game that was the result of returning veterans, who had been introduced to skeet as part of World War II training practices, taking up the sport (Migdalski, 1997:18; Burke, 2014). Some of the club's expansion can also be attributed to gaining new members who were active trap shooters when members of the Fort Mason Rod and Gun Club joined the PRGC when their clubhouse at Fort Funston burned in 1948 (Alkalay, n.d.:D; Martini, 2013; Williford, 2014).

Although the club had a trap field on site in the 1930s (see Historic Images 4 and 7), until the influx of the trap shooters from the Fort Mason club in the late 1940s, the PRGC had been primarily a skeet shooting group.[14] With the addition and interest of these new members, the club expanded its trap facilities and began to host "regular registered trap shooting programs" (Alkalay, n.d.:D).[15] Springer writing in 1949, in his club history, stated the new trap field layout (constructed between 1949 and the early 1950s) would "when finished make ours one of the best" (Springer, 1949:Part Eight). An informal trap field complex is visible at the far west end of the site on a 1948 aerial photograph. By 1950, one of the improved trap fields (Field 3) was complete, and the parking lot (which had previously ended in the vicinity of the Shell House) had been extended westward to its current location. By 1955, two more trap field (Fields 1 and 2) were in place. The Trap House, originally used as for trap registration, was added just west of the new trap field complex between 1960 and 1961 (PRGC, Information attached to past presidents' photographs [Hanley/1960 and Del Nevo/1961] in Clubhouse; Pacific Aerial Surveys, 1948, 1950, 1955, and 1958; Cartwright Aerial Surveys, 1965).[16] The Trap House was the

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[14] Alkalay is stating the focus of the club's competitive activities centered around skeet, not that there were no trap facilities on site prior to 1948. Interviews with members of other clubs, conducted during the research of this report, confirmed that it is typical for clubs to generally be recognized for one sport or hold competitions for one sport even when they have facilities for others.

[15] Tom Migdalski explained, in his history of the two activities in *The Complete Book of Shotgunning Games*, that "serious trap and skeet shooter generally stay with one game . . . The problem of becoming competent in both events is the time factor. To be a good shot requires practice. Field and personal time, as well as financial wherewithal, often make it necessary that a serious shooter choose to concentrate on one game" (Migdalski, 1997:14).

[16] The Trap House was originally referred to as "Hanley Hall" in honor of club president Harold Hanley "in appreciation of his personal efforts and generosity toward its construction during his term" (PRGC, Information attached to past presidents photographs [Hanley/1960] in Clubhouse).

last major building constructed to support PRGC operational or social activities. See Historic Images 12 to 16 for an overview of these site developments.

The club also expanded its skeet facilities during the 1950s, and in 1953, two new skeet fields (Fields 8 and 9) were added to the east end of the site. These new trap and skeet fields utilized concrete instead of dirt or boardwalk which had previously been used for the path system within each field. The wooden boardwalks for the semi-circular skeet station layout in the four 1938 skeet fields (Fields 4 to 7) were also replaced with concrete around this same time. In 1957, concrete pavement stamped with trap yardage markers was added to the interiors of Fields 4 and 5 allowing them to be used for both skeet and trap; this same type of pavement was added to Fields 6 and 7 between 1965 and 1969. In 1958, Dr. L. N. Alkalay built a steel-frame duck tower in an unspecified location; the structure added west of Field 6 between 1958 and 1965 (that continues to exist today) may be this feature. This was not the first duck tower on the site; an earlier one appears in a late 1930s photograph in the area north of the present-day Rifle Range building (see Historic Image 5) (PRGC, Information attached to past presidents' photographs [Alkalay/1940; Connelly/1953; Appleton/1957] in Clubhouse; Pacific Aerial Surveys, 1948, 1950, 1955, 1958, and 1969; Cartwright Aerial Surveys, 1965). See Historic Images 12 to 17 for an overview of these site developments.

From the mid-1960s through the early 2000s, PRGC went through modest changes to its buildings and grounds. Around 1965, a modern restroom building added to the northwestern edge of the parking lot. Recent additions to the site include a three-bay garage constructed near the entrance around 2000 (GoogleEarth), new shooting stands and equipment sheds to Field 6 to allow it to be used for the Five-Stand game (GoogleEarth, 2004 and 2005). Beginning in the late 1980s or early 1990s, the planting strip located along the western edge of the Fields 4 to 7 was no longer maintained. This area was originally planted with grass and later with ornamental shrubs (see Historical Image 11 for a view from the 1960s) as a way to create a transitional area between the fields and the parking lot. There were gaps in the planting strip at each field that provided a clearly defined entrance into each field. At some point after this area stopped being maintained, a chain-link fence was installed along the edge of the field and sidewalk (that also runs the length of these fields) (Pacific Aerial Surveys, 1948, 1950, 1955, 1958, 1969, 1979, 1985, and 1995). In 2011, the machinery on Field 7 was recalibrated to shoot Olympic/International skeet to provide a convenient practice field for Ali Chiang, a club member and a member of the U.S. Women's National Team member who is vying for the alternate position on the 2016 U.S. Olympic skeet team. However, the use of this field for that version of skeet required no changes to the physical features of Field 7 (Gentry, 2012:58; Gilligan, 2013).

G. Post World War II Events and Site Usage

The club also resumed hosting competitive tournaments after World War II including the Western Open Championship (1946 and 1949) and the California State Championship (1946 and 1947) (Springer, 1949:Parts Seven and Eight) and continued its practice (begun in 1931) of hosting regular "fun shoots" and annual "benefit shoots" for a number of local organizations including the Shiners, Ducks Unlimited, and the Catholic Youth

Organization Benefit. These events involved community members with a wide range of skills (not just the competitive shooters who attended the championship events) and were often large affairs; for example the Ducks Unlimited shoot in 1946, which had drawn almost 400 entries in 1937, involved over 600 shooters. In 1948, the Portola Festival Skeet and Trap Shoots—complete with costumed riders on horseback and others dressed as "Don Gaspar, his aids, the queen and her ladies in waiting"—celebrating the city's Spanish era roots was held at the site (Springer, 1949:Part Seven). Also, as illustrated by the list of activities provided by Springer at the end of his club history, the site was actively used by a range of local organizations including the Boy and Cub Scouts, other sportsmen's clubs, Legion posts, Shrine organizations, and city departments for barbecues, picnics, meetings, and other functions. In the post-World War II years, the club remained a well-known skeet shooting destination. Life-long member and All-American skeet shooter Ray Brooks Jr. described the late 1940s and the 1950s as the "glory years" at the PRGC when the site was a destination for guest celebrities, many in the entertainment industry, who came to shoot skeet (Brooks, 2013). Throughout the remaining decades of the 20th century, the club's trap and skeet fields and its rifle range continued to be actively used by members as well as the general public (Boyle, 2014). A review of the club's newsletter, the *Pacific Breeze*, during the 1960s through the early 1990s showed that regularly scheduled shooting events in addition to the normal hours of operation, hunting safety classes, the use of the site by youth organizations, and social events were typical activities.

Beginning in 1993, the use of lead shot was discontinued at the club (today only non-toxic shot is allowed) (SFPUC 2011:27-28), and although this change did not alter the physical layout of the site, it did result in the loss of approximately 150 of the club's 450 members (in 1995) (San Francisco Examiner, 1995: A-26). Many of these members left for a variety of reasons related to this change. The steel shot was believed to be damaging to the shotguns that some of the members owned. Steel and bismuth shot were more expensive than the lead. Additionally, practicing with steel shot, which is both harder and lighter than lead shot and so behaves differently, is not practical for individuals who shoot competitively (Boyle, 2014). The change to non-toxic shot has meant that the club no longer hosts competitive regional or state championship events since these are held with lead shot (Gilligan, 2013). Membership rebounded after this initial decline, and today the club has approximately 400 members (PRGC, 2013).[17]

The club's involvement in fishing at Lake Merced declined as the quality of the lake's water declined and restocking of the fish became more irregular (Gilligan, 2013). Additionally, access to the lake became more limited following the closure of Lake Merced boathouse which ceased renting boats, and as the condition of its boat launch areas and fishing piers declined (SFPUC, 2011:23; LMYFP, 2013). The club has recently

[17] The Richmond Rod and Gun Club, whose trap and skeet fields are located adjacent to San Francisco Bay, experienced a similar pattern when they, too, stopped using lead shot. They lost about 75 percent of their membership and then slowly added new members. Today the club has about 3,000 members, but the majority of its events are related to rifles and pistols rather than shotguns (Frenkel, 2014; Sargentini, 2014).

partnered with the Golden Gate Angling and Casting Club and others on a youth fishing program at the lake (Gilligan, 2013).

VI. DESCRIPTION

A. Location, Land Use, and Spatial Organization

The PRGC is located on the narrow strip of land approximately 10 acres in size that is situated between the shoreline of the South Lake of Lake Merced and John Muir Drive, just east of the intersection with Skyline Boulevard.

The primary land use at the PRGC site is outdoor target shooting. Features associated with this land use include its three trap fields, the six skeet fields, a large parking lot, and buildings that support its operational and social functions including the Clubhouse, the Caretaker's House, the Shell House, the Trap House, the Barbeque Shed, a garage, and metal storage containers. The site also contains a Rifle Range building which provides indoor shooting range, and a public restroom building. With the exception of the barbeque shed, the restrooms, the metal storage containers, and three-car garage that are support buildings and structures not directly associated with shooting activities, all of the field facilities and buildings at PRGC were built between 1937 and 1961.

This arrangement of features—the site's spatial organization—has been shaped by the needs of this primary land use and by the long and narrow shape of the site situated between the lake and a public road. The shape of the site, the need to set the shooting activities back from the road, and the need to provide a safety zone for the falling targets (a shotfall zone)[18] resulted in the linear arrangement of the skeet and trap fields along the edge of the site next to the lake. The large parking lot and an internal road occupy the middle portion of the site and, in addition to their utilitarian circulation functions, provide the needed spatial setback for the shooting activities from John Muir Drive. The locations available for buildings and larger structures (including a metal storage shed, the Clubhouse, the Caretaker's House, a garage, and a public restroom) are limited by these functional needs to the edge of the site next to John Muir Drive, along the edges of the parking lot (the Shell House, Trap House, and restrooms), and on small area between Field 7 and Field 8 (the Rifle Range building and the Barbeque Shed).

B. Topographic Modifications and Boundaries

The PRGC site is relatively flat but slopes slightly down from its south side next to John Muir Drive toward the lake and from the entrance down toward the east end of the property. (Cardinal directions are used in describing the site; south refers to the area next to John Muir Drive, north is used to describe the shoreline, east and west are used respectively to describe the two ends of site.). The shoreline drops off steeply at the north end and northwest portion of the site, but, according to the characterization of the site in the *Lake Merced Watershed Report*, the remaining shoreline interface is "generally much more gradual than is typical for shoreline conditions around the lake" (SFPUC, 2011:14).

[18] The portion of the shotfall area that extends out into Lake Merced is outside of the lease area for the PRGC and outside of the boundary of the PRGC cultural landscape.

The topographic modifications to the site are related to its use and function as an outdoor target shooting range and club. These include the large level terrace for the parking lot and trap and skeet range (Fields 1 to 7) which occupies the majority of the area on the western portion of the site, the smaller terrace where Fields 8 and 9 are located on the east end of the site, and a bank that extends along the south side of the site that provides the transition between the elevation along John Muir Drive and the lower elevation of the site. Minor topographic modifications include the leveling of the area that accommodates the footprint of Clubhouse and Caretakers House which are located immediately to the north of the south-side bank. Refer to Photos 3, 31, 22, 29, and 35 for representative images of these topographic features.

The shoreline defines the site's geographic or physical boundary on its northwest corner and its north side. Chain-link fences define the boundary at the site's southwest corner, along the top of the bank along the south side (next to John Muir Drive), and at its east end. The fence at this location is overgrown with vegetation.[19]

C. Circulation Features

The entrance to the PRGC is from John Muir Drive, located approximately two-thirds down the site's south side, and is framed by a metal pole gateway from which hangs a large sign. The club's logo is on the right side of the sign and the left side reads "Pacific Clay Targets / Trap, Skeet, and Sporting Clays / A Public Recreation Facility." A chain-link gate secures the entrance under the gateway. Refer to Photo 1 for a representative view of this sign.

A large parking lot extends from the entrance toward the western end of the site and occupies the broad expanse between John Muir Boulevard and the field complex. It covers approximately two acres and provides the primary parking area for the site. The portion of the lot east of the Shell House is paved with asphalt and the portion behind (south) and west of this building is gravel. Refer to Photos 2 and 3 for representative images of the parking lot.

A concrete sidewalk runs along the north edge of the parking lot for the length of the 1938 skeet field complex (Fields 4 to 7). At its west end by Field 4, the sidewalk curves and intersects with an asphalt path located along the west side of the trap field complex (Fields 1 to 3). The portion of concrete walk from the Shell House westward is wider than the portion east of the Shell House. Refer to Photo 10 for a representative view of this sidewalk.

An internal road extends from the entrance toward the site's east end; its east end is roughly aligned with station 4 of Field 9. This road provides both pedestrian and vehicular access to the caretaker's house, clubhouse, Fields 8 and 9, storage containers, and trash dumpster. Refer to Photo 35 for a representative image of this road.

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[19] The portion of the shotfall area (the safety zone for the falling targets) that extends out into Lake Merced is outside of the lease area for the PRGC and outside of the boundary of the PRGC cultural landscape

D. Buildings and Structures

Buildings on the Western End of the Site (Shell House, Trap House, and Restroom Building)

Two club buildings—the Shell House (ca. 1939 and expanded in 1949) and the Trap Building (ca. 1960) —that house functions related to the operation of the PRGC facility are located within the parking lot on the western end of the site. Additionally, there is a small ancillary structure, a public restroom (ca. 1965), located approximately three-quarters of the way down the southern edge of the parking lot.

The Shell House is located on the northern edge of the parking lot across from Fields 4 and 5 with the front of the building facing north toward the skeet fields. This building contains an office, a storage area and concessions bar, and a lunch room. It is where club members check in and purchase shells and targets. The building is a wood-frame, single story structure with a rectangular footprint and low pitch gable roof. The exterior of the building is covered with textured stucco, and the roof extends over a raised porch on the northern façade. The porch is accessed via a series of concrete steps and leads to a pair of sliding glass doors framed by a pair of large picture windows. The eastern façade includes a double hung window patched with plywood, a metal door accessed by concrete steps and topped with an overhang and metal sign reading "Field House," and a wood frame, fixed pane picture window. The building has an addition on the western side, with a wooden ramp leading up to a solid wood door and large, wood frame, fixed picture window on the western façade and a large horizontal sliding glass window on the northern facade. The roof of the 1949 addition is slightly higher than the main structure, but echoes the gentle pitch of the roof, as well as its textured stucco cladding. The addition also has a shed style kitchen addition on the western end of its southern façade, with paneled wooden doors and fixed pane windows on the east and west ends. Refer to Photos 5 and 6 for views of the Shell House.

The ca. 1960 Trap House is located along the northern edge of the parking lot across from the trap field complex (Fields 1 to 3). The building's front faces north toward the trap field complex. Today, the building is primarily used as a classroom for hunter safety classes conducted by the PRGC (Gilligan, 2013). It is a wood-frame, single story structure with a rectangular footprint and side gable roof. The building sits on a concrete foundation that is higher on the northern façade in order to compensate for the ground slope leading towards Lake Merced. The exterior of the building is covered with plywood sheets and board and batten wooden siding under the gables. A full length recessed porch is located along the northern façade, and exposed eaves are present along the porch overhang. The porch fenestration includes metal double doors flanked by two metal frame casement windows. A secondary entrance is located on the eastern façade, along with two metal frame casement windows. Additional casement windows are located on the western and southern facades. Refer to Photos 8 and 9 for views of the Trap House.

The public restroom building is a small, rectangular-plan, wood-frame structure with a hip roof clad in asphalt shingles, wood siding, and a door at either end for the men's and women's restrooms. Refer to Photos 3 and 4 for images of this structure.

Buildings and Structures on the Eastern End of the Site (Caretaker's House, Clubhouse, Rifle Range Building, Barbeque Shed, Garage, and Metal Storage Containers)

Three club buildings—the Caretaker's House (ca. 1937), the Clubhouse (1937), and the Rifle Range Building (1939)—that house functions related to the operations of the PRGC facility and several small ancillary structures are located on the eastern end of the site.

The Caretaker's House is located in the narrow strip of land between the site's internal road and the bank of trees along the south side of the property, next to John Muir Drive. Although long used as the residence of the onsite caretaker, this building is currently unoccupied. It is a wood-frame, single story structure with a rectangular footprint and gable roof. It has Composite shingles cover the roof, and there are exposed eaves on the south façade. The exterior walls of the Caretaker's House are clad with horizontal wooden siding. Gable ends have fish scale shingles on the east side and vertical wood siding on the west side. The original wood frame, double hung windows are present on the south north, and west facades. An enclosed primary entrance is located on the west side, and a secondary entrance is located on the eastern façade, accessed by wooden stairs, on a shed style addition. Refer to Photos 33 and 36 for images of the Caretaker's House.

The Clubhouse, which has been used continuously for club meetings and social events since its construction in 1937, is located just east of the Caretaker's House. It is a wood-frame, raised single story structure with a rectangular footprint and cross gable roof. Composite shingles cover the roof, and there are exposed eaves on the north façade above the porch overhang. The exterior walls are covered with horizontal wood siding. A covered wooden wheelchair ramp leading up to an enclosed porch is situated on the north façade, and wooden beams on concrete blocks support the ramp and porch. The northern fenestration includes a wood door with an inset textured glass window; adjacent to a large fixed picture window; a smaller, jalousie window; and two casement windows with textured glass. On the eastern façade is a projecting porch with wood railings, fixed modern vinyl windows, and a small, wood framed addition on the south façade clad in T-111 siding. The addition appears to be used for storage, has no windows or exterior doors, and is covered by thin, vertical wooden siding. A smaller, secondary entrance is located on the western façade, and three small, shed style additions are located on the southwest corner of the building. The area under the raised building also appears to be used for storage, and is accessed via two flush wood doors on either side of the cinderblock fireplace/chimney on the eastern end of the northern façade. Refer to Photos 33 and 36 for images of the Clubhouse.

The Rifle Range building is located across from the entrance to the property in line with the row of skeet fields, with Fields 4 to 7 to the west and Fields 8 and 9 to the east. It has been used continuously since 1939 for indoor rifle range target practice. It is a wood-frame, raised single story structure with a rectangular footprint and gable roof with composite shingles. The exterior walls are covered with horizontal wood siding, similar to the nearby Clubhouse and Caretaker's House. There are exposed eaves on the northern-most building segment, and a string of wood frame, double hung, four-pane

windows are located on the north, south, and west façades. The ground-level primary entrance is located on the southern façade, and the northern end is raised above the downward slope towards Lake Merced. The entrance fenestration includes a flush wooden door, paired fixed windows below the gable, and a wood frame, double hung, four-pane window. There are secondary entrances on both the eastern and western façade. There is a full length ground level addition on the northern façade with a shed style roof, exposed eaves, a flush wooden door, and a pair of picture windows. Refer to Photo 31 for an image of the Rifle Range building.

There are a number of small ancillary structures located on the eastern end of the site. The Barbeque Shed, a small, one-room structure with a shed roof and exterior plywood walls, is located immediately east of the Rifle Range building and within a stand of eucalyptus trees; it appears to have been constructed ca. 1970. A modern, three-bay garage is located near the entrance to the site, and three, modern, metal storage containers are located southeast of the Clubhouse. Refer to Photos 32, 34, and 35 for images of the garage, Barbeque Shed, and storage containers, respectively.

Trap Fields[20]

The trap field complex (Fields 1, 2, and 3) at the northwest corner of the site consists of three fields each of which is laid out in a formation that is standard to the American version of trap. They were constructed between 1950 and 1955. Each field includes a square trap house which is partially buried in the ground at the north end of the field. This structure contains the machinery (the trap) that oscillates and launches the targets. Refer to Photos 23 to 30 for images of the trap field complex and its features, described below.

There are five shooting positions, spaced three yards apart, arranged in a slightly curved line located 16 yards behind (south) of the trap house, on a concrete path. Concrete lanes run perpendicular back (south) from each station on the front curved path. Metal tags embedded in these concrete lanes provide yardage markers that measure the distance in yards from the trap house (from 17 to 27 yards). These yardage markers provide the "handicap" locations for the system used to allow individuals of varying skill ranges to compete against each other in competitive matches. For example, a more skilled individual shoots from one of the higher yardage markers, and a less skilled individual shoots from one of the lower yardage markers. Two additional curved concrete paths, parallel to and south of the front one, complete the path system in each trap field.

Other features that are common to each trap field are the scorer's stand, which consists of a metal frame with plywood over the top and on one side creating a box or enclosure for the scorer to sit, and a small box mounted on a post that houses the token boxes and wiring used to activate the trap.

[20] Several secondary sources provided information on the standard arrangement and construction of the trap fields (Migdalski, 1997: 7; Sapp, 2009, 17-18); additionally, club president Patrick Gilligan provided information on the names and functions of features within the field complex (Gilligan, 2013).

Skeet Fields[21]

To the west of the Rifle Range building are the four skeet fields that were built by PRGC in 1938 after the two original fields (1934) were flooded; these fields are numbered from west to east as Fields 4, 5, 6, and 7. Two additional skeet fields (Fields 8 and 9), which were built in 1953, are located to the east of the Rifle Range building. Each of these six fields is laid out in a formation that is standard to the American version of skeet, and the general description that is common to each field is provided below with any individual differences noted. Refer to Photos 17 to 22 and Photos 37 to 41 for images of the skeet field complex and its features, described below.

Concrete Semi-Circular Station Path: Each skeet field includes a concrete path in the form of a semi-circle that links the eight shooting stations. Shooting stations 1 to 7 are spaced equidistantly around the semi-circle; station 1 is located immediately in front of the high house (described in the next paragraph) on the left side of the semi-circle, with the following stations (2 to 7) located 26 feet-8 inches to the right of the previous one, ending with station 7 that is immediately in front of the low house (described in the next paragraph) on the right side of the field. Station 8 is located at the center of the straight baseline path midway between the high and low houses. Stations 2 to 6 are located on a concrete pad attached to the inner portion of the semi-circle. A yellow square is painted on the concrete to define the stations positions; however on Fields 8 and 9, the outline of the square has also been routed into the concrete. Refer to Photos 38 and 39 for representative images of the semi-circular path and station layout.

High and Low Houses: The two structures that house the machinery that launches the targets are known as the high house and the low house due to the comparative height of the launch from each. High houses launch the target 10 feet above the ground with a slightly upward angle. Low houses launch the target three feet above the ground with a more acute upward angle. The high and low houses are located at opposite ends of the field; the high house on the left side of the field directly behind station 1 and the low house on the right side directly behind station 7. These wood frame tower structures are square in plan with a flat roof, and are painted green with white trim. Each house has a small opening through which the target is launched; on the east side for the high house and on the west side on the low house. A door that provides access to the interior of the house allows loading and maintenance on the trap machinery; each high house has wooden steps that provide access to this entrance door. With the exception of the houses on Field 4 (which are entirely clad in wood siding), the exteriors of each house is clad in a combination of wood siding at the top and smooth stucco siding on the bottom. Due to the limited space at the east end of the site, Fields 8 and 9 share a combination high-low house. This structure has an opening for the low launch on its west side for Field 8, and one for the high launch on its east side for Field 9. Refer to Photos 12, 13, 37, 38, and 40 for images of the high and low houses.

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[21] Several secondary sources provided information on the standard arrangement and construction of the skeet fields (Nichols, 1939/1947:12; 15; Sapp, 2009:59-60 and 79); additionally, club president Patrick Gilligan provided information on the names and functions of features within the field complex (Gilligan, 2013).

Target Crossing or Center Point Post: Located at each skeet field is a short post positioned 10 feet north of the station 8 which denotes the target crossing point; the trap machinery from both the high house and low house are calibrated to send the target in a path directly over this post. Refer to Photo 17 for an image of one of the target crossing posts.

Equipment Shed/Control House: Located at skeet fields 4-7 are equipment sheds or control houses. These small structures are square in plan with a pyramid-shaped roof; a door on the back (south side) provides access to the interior; and a window on the front (north side) provides a view of the field; a token box (used to activate the trap) has been added to one side of each structure. Fields 8 and 9 (built about 15 years after Fields 4 to 7) lack control houses; here the token box is simply mounted on a short post. These current structures either replaced or are modifications of the original control sheds that appear in historical photographs from 1938-38(see Historic Images 8 and 10). Although the exact date this change occurred is not known (they are shown in Historic Image 11 taken in the 1960s), they are located in the same location and have the same function within the context of the operation of the skeet fields as the earlier structures. The original structures were taller (similar in height to the High House and with a shed roof) so that the trap puller who was seated in the upper portion of the structure could "see out over the heads of the shooter, to keep score on dead and lost targets" (Nichols, 1939/1947: 12). Refer to Photo 14 for a typical image of one of the equipment sheds/control houses.

Safety Fences: Wooden safety fences are located between the fields and along the west end of Field 4. The east end of Field 7, the west end of Field 8, and the east end of Field 9 each lack fences. Safety fences are typical features where skeet fields are laid out in a row ("down the line") as is the case at PRGC. In addition to physically and visually separating the fields, the design features of the fences were intended—in an era before shooters wore ear protection—to dampen some of the sound between fields. The fences have boards attached to opposite sides of wood posts; the position of the boards on one side alternates or is staggered with the ones on the other side. According a skeet instruction book first published in 1939, when protective fences were first added to skeet fields "they were simply made in the form of flat board fences. The reverberating sound between two such board fences was most annoying . . . However some smart acoustics engineer solved this problem a year or so ago by making this protective fence of 'baffle' type. That is, the boards are nailed on both sides of the 2 x 4 frame – and the boards are staggered in their placement. The board on one side covering the space left open on the other side" (Nichols 1947: 15). Refer to Photos 11 and 40 for representative images of the safety fences.

Duck Tower: A ca. 1958 duck tower, consisting of a trap machine atop a metal-frame support structure, is located behind station 4 on Field 6. The 4-sided tower is approximately 40 feet tall and about 10 feet square at the base. A storage shed that provides access to the base of the trap machinery (for loading the targets) is located within the footprint of the base of the tower structure. Refer to Photos 10 and 18 for images of the duck tower.

Modifications for Trap Shooting: A portion of the interiors of Fields 4 to 7 are paved with concrete to provide lanes and yardage markers for trap shooting; the yardage markers are stamped into the concrete. This concrete paving and the trap houses located north of each field, similar in appearance and construction to those located at Fields 1 to 3, were added between the mid 1950s to the late 1960s as a way to expand the trap shooting facilities. Currently, Fields 4 to 7 are currently only used for skeet (Gilligan, 2013); however the trap machinery remains inside each trap house. Refer to Photos 15 and 16 for images of this modification to the interior of the skeet fields.

Modifications for Five Stand Game: Field 6 has been modified slightly to accommodate the 'Five Stand' game. Five wood-frame shooting stands are aligned in a row across the west end of the field. Two equipment sheds (square plan, with shed roof, painted green), which are used to store the additional trap machinery needed for the Five-Stand game, have been added to the field; one is behind (northwest) stations 2 and 3 and the other is behind (southwest) stations 5 and 6. A third equipment shed is located in the sloped area next to the lake, approximately 100 feet north of station 8. Based on a review of aerial photographs on GoogleEarth, these features were added within the past ten years. Refer to Photo 18 for an overview image of Field 6 that shows the location of the five-stand frames and one of the equipment sheds and to Photo 19 for the equipment shed located north of the field.

Modifications for Olympic/International Skeet: Two landing posts used to calibrate the target machinery for Field 7, which adapted for Olympic/International skeet in 2011 (Gentry Magazine, 2012:58), are located in the slope area north of the Rifle Range building. The Olympic or International version of skeet is shot on the same field as the American version but the order and speed of the targets are different. Refer to Photos 20 for an image of one of the two landing posts.

Small Scale Features

There are a number of small scale features related to the trap and skeet shooting activities located throughout the PRGC site; these include a fire hose located on the east end of the site (Photo 42); a pattern board used to practice shooting at a paper target located east of Field 9 (Photo 43); shotgun racks constructed of wood and painted green located next to benches, to the high houses on the skeet fields, and at the Shell House and Trap House (Photo 44); benches with wood slats and concrete, metal, or plastic bases located west of each field where individuals waiting to shoot and spectators sit (Photo 45); and signage providing directional and safety information (Photo 46).

The asphalt paved area between Shell House and the skeet fields 4-7 contains picnic tables, a flagpole, and a water fountain. The flagpole is a metal pole with a concrete base that was erected in 1953 to honor the club's first president Joe Springer. A dedication plaque is attached to the flagpole's base.[22] The metal water fountain near the entrance to

[22] The plaque reads: "Dedicated to Joseph Springer / Pacific Rod and Gun Club / President 1928-1932 / One of the Founders of Our Club / A Real American / True Friend of Sportsmen / Champion of Conservation / April 5, 1953."

Fields 4 and 5 is in the same location as a porcelain fountain dedicated in 1942 to honor member Bud French who died around 1939 (Springer, 1949: Part 5); it is not known when the current metal fountain was installed. Additionally, a large wooden sign commemorating the Merced Rancho is located just west of the Shell House's south end.[23] Refer to Photos 5, 6, and 7 for images of these small-scale features adjacent to the Shell House.

Each of the seven skeet fields (Fields 4 to 9) is dedicated to a member, and a small monument with a dedication plaque is located just north of station 8 on each field (Photos 46 and 47).

Vegetation Features

The areas around the fields and within the non-paved areas within each field are grass. The sloped area north of Fields 1 to 7 located between the edge of the field and the shoreline vegetation communities is dominated by ice plant. Refer to Photos 17, 18, and 21 for representative images of these vegetation features.

A planting strip with grass runs along the western edge of the 1938 skeet fields (Fields 4 to 7); from the 1940s until around the 1970s, this area was planted with ornamental shrubs as a way to create a decorative transitional area between the fields and the parking lot. See Historical Image 11 for a view from the 1960s. Refer to Photo 10 for an image of the planting strip as it looks today.

Trees on the site include some that were located on there in 1934 when the club arrived and some that were planted in relationship to the club's use of the site. A small group of trees (six eucalyptus and one Monterey cypress) in the area between the Rifle Range building and Field 8 and several large eucalyptus trees along the southern edge of the site in the vicinity of the Caretakers House and Clubhouse are what remains of a larger stand of trees that predate the club's usage of the site (see Historic Images 2 and 3). A short row of four Monterey pine trees east of the Clubhouse are the remains of a longer row that was planted in the mid-1930s to define edge of the site next to John Muir Drive (see Historic Images 3, 5, and 7). Two Monterey cypress were planted by the club to frame the entrance to the Rifle Range Building. Today, the tree on the west side of the entrance door remains in place, but the one on its east side has been cut and only a stump. Refer to Photos 31, 34, 35 for images of these trees.

Vegetation around the perimeter of the site includes shoreline vegetation (various species classified in the *SFPUC Watershed report* as wetland, willow riparian scrub, native and non-native scrub, and herbaceous [SFPUC, 2011: 85]), various native and non-native species scrub at its east end, ice plant that has been invaded with a variety of native and non-native scrub plants along the bank that stretches along the southern edge of the site

[23] The sign reads: "On September 23, 1835 Don Jose Jesus Castro Governor of California granted the Merced Ranch of 2200 acres to Jose Galindo. This was the first grant of land in San Francisco. On May 12, 1837 Galindo sold it to Francisco de Haro and Francisco Guerro for 100 cows and $25."

(next to John Muir Drive). Refer to Photos 3 and 22 for representative images of this vegetation.

VII. EVALUATION

A. Summary of Federal, State, and Local Significance

The following provides an evaluation of the significance of the PRGC site as a cultural landscape based on NRHP and CRHR Criteria A/1-D/4. Additionally, the NRHP Criteria guide the evaluation of significance for San Francisco's list of locally designated City Landmarks and Historic Districts which are designated under San Francisco Planning Code Article 10 (San Francisco Planning Department, 2013:6). A discussion of integrity is also provided below.

NRHP/CRHR Criterion A/1

The PRGC site is associated with broad patterns of history related to recreation, including associations with the development of recreation in San Francisco and at Lake Merced, with the expansion of recreation in San Francisco by the WPA during the Depression, and with the development of sportsmen's clubs and skeet within the context of the early 20th century wildlife conservation movement. Each of these is described below.

Association with Recreation around Lake Merced

The development of the PRGC site is part of a broad pattern of history associated with the development of recreation in San Francisco. More specifically, the PRGC site is associated with the pattern of expansion of recreation around Lake Merced that occurred during the 1910s-1930s after the SVWC began selling its land within the lake's watershed and after the SFPUC purchased the lake in 1930. Three golf courses (San Francisco Club in 1915, the Olympic Club in 1918, and Harding Park in 1925) were developed adjacent to the lake during this period. The PRGC was granted a lease by the SFPUC for outdoor target shooting activities in 1934 and constructed two skeet fields at its present-day site on the shore of lake in that year. The SFPUC also expanded fishing and boating activities associated with the lake during this period. The initiating stocking of the lake with sports fish (black bass) occurred in the early 1930s, and the first boat concession was granted in 1938. However, the PRGC site does not appear to possess individual significance under NRHP/CRHR Criterion A/1 for this association. It was one of several recreational facilities that developed on and around the lake during this period. Additionally, there is nothing inherent in its physical features that necessarily expresses or illustrates this association. In summary, the PRGC site does not appear to be individually significant under NRHP/CRHR Criterion A/1 for its association with the expansion of recreation around Lake Merced that occurred during the 1910s-1930s.

Association with Expansion of Recreation in San Francisco by WPA

The development of the PRGC site is part of the broad pattern of history associated with the expansion of San Francisco's recreational facilities during the Depression through the funding and work provided by the WPA. Between 1935 and 1939, over $15 million in

WPA funding was spent on park and recreation projects in the city. This work resulted in the construction of a wide range of facilities including clubhouses, recreation centers, public restroom facilities, and playgrounds and expanded the types of recreational opportunities that were available in the city. The WPA was responsible for clearing the part of the site and grading the parking lot and skeet field area around Fields 4 to 7 at the PRGC in 1939 in preparation for the National Skeet Championships that were held at there in August of that year. However, PRGC site does not appear to possess individual significance under NRHP/CRHR Criterion A/1 for its association with the WPA or the expansion of San Francisco's recreational facilities during the Depression. It was one of many recreational facilities in San Francisco constructed at least in part with WPA funding and labor. Additionally the work done at the PRGC site in 1939 by the WPA involved clearing the site of brush and other vegetation and grading, and there is nothing inherent in the site's physical features that necessarily expresses or illustrates its association with the WPA. In summary, the PRGC site does not appear to possess individual significance under NRHP/CRHR Criterion A/1 for its association with the WPA and the expansion of San Francisco's recreational facilities during the Depression through the funding and work provided by the this agency.

Association with the Development of Sportsmen's Clubs and Skeet within the Context of the Early 20th Century Wildlife Conservation Movement

The PRGC appears eligible for listing on the NRHP and CRHR at the local level of significance under Criterion A/1 for its association with the broad pattern of history related to the increased popularity of sport hunting and with the interrelated development of skeet—during the period it evolved from a type of shooting practice into a competitive sport—that occurred during the decades preceding World War II within the context of the early 20th century wildlife conservation movement. The PRGC is important as an example of the type of sportsmen's gun club that formed in the 1920s and 1930s within the context of the democratization of hunting, illustrating the social experience connected with the conservation movement. Additionally, the PRGC is important as the oldest extant skeet facility in the Bay Area and as the only sportsmen's club in the Bay Area to retain its original pre-World War II grounds configuration, skeet field structures, and club buildings. Other clubs that remain in operation from this pre-World War II era do not have skeet fields or have moved to newer facilities and are no longer located at their pre-World War II sites. The period of significance for the PRGC's significance under Criterion A/1 appears to begin in 1934 when the club moved to the Lake Merced site and to end in 1941 with the United States' entry into World War II, which ended the club's initial period of development. Although the activities of the club remained unchanged after World War II, its post-war expansion period (1946-early 1960s) was more directly linked with other contexts, including the broad interest in outdoor recreation that occurred within the context of the nation's post-World War II prosperity and an increased interest in skeet that was a by-product of World War II training practices, than to the early 20th century conservation movement.

Wildlife conservation during the 1880s through about 1900 was driven by the private efforts of American sport hunters, who were generally from the elite or upper classes. These individuals sought to facilitate the conservation of disappearing habitat and game

through the management of private reserves and led efforts to change game laws. Their activities and their influence on public opinion laid the ground work for a shift during the early 20th century to the responsibility of wildlife habitat and game species management being undertaken by the public sector. Theodore Roosevelt and his fellow Progressives are credited with campaigning for game laws and public preserves and thereby democratizing sports hunting during the early 20th century.

Sport hunting's popularity, which rose during the pre-World War II era, was facilitated by the increased access to public game reserves and the public protection of game species that resulted from this early 20th century movement. Broader changes in society, including the inclusion of sport hunting within popular culture, improved transportation provided by inexpensive cars, and more leisure time (as a result of evolving labor practices), also contributed to the widespread popularity of sports hunting during this period. World War II interrupted sports hunting due to the rationing of ammunition, and its popularity, built upon the pre-war establishment period, probably peaked in the 1940s and 1950s (Herman, 2005: 30) due to changes in societal attitudes and the rise of other recreational activities and outdoor sports after the war.

The formation of clubs like the PRGC provided a framework for a shared social experience within the context of sports hunting and its relationship to the wildlife conservation movement. Clubs like the PRGC which formed in the 1920s and 1930s tended to identify themselves with the wildlife conservation movement and used the term "sportsmen" to describe themselves. The clubs, whose members were sports hunters, supported wildlife conservation efforts. The PRGC established in 1928 by a group of San Francisco sportsmen was "born as a conservation organization" (Springer, 1949: Part One). During this pre-World War II era the club was instrumental in the passage of the 1931 state legislation to take striped bass off the commercial market and it led efforts to test and plant sport fish in Lake Merced in the 1930s which culminated with the first opening day on Lake Merced for sport fishing on July 1, 1939. The club also raised funds, through an annual shooting event, for the establishment of a Ducks Unlimited Project in Canada known as Lake San Francisco. Former club president L. N. Alkalay who led the Ducks Unlimited efforts claimed that this led to "many other sportsmen's groups throughout the United States sponsoring similar projects in their names" using this "procedural format established originally by the Pacific Rod and Gun Club (Alkalay, n.d.:C).

These clubs also expressed the democratization of hunting that occurred during the pre-World War II era. They utilized public lands and reserves, they included members who were working and middle class, and they had greater numbers of members and more modestly priced dues when compared to the exclusive and wealthy membership of the private preserves of the late 19th century. Many like the PRGC had skeet and trap facilities which provided members and the public a way to improve their sport hunting skills or to engage with this popular activity. Skeet, with which the PRGC most strongly identified prior to World War II, was developed in the 1920s by Massachusetts-based sports hunters, within the context of the increased popularity of sport hunting and its increased accessibility to a broad range of the population. Skeet occurs on a specific field arrangement that can be laid out within a relatively small land area and at a relatively low

cost. As such, skeet provided a readily accessible means for hunters in urban and semi-urban locations to improve their shooting skills.

During this pre-World War II era, the PRGC was at the forefront of the development of skeet in the Bay Area, demonstrated by the lists of activities described the history presented in this report. Its prominence within the skeet shooting context is further demonstrated by the 1939 National Skeet Championships which were held at the club on August 8-12, 1939. This was an annual, nationwide event that brought together hundreds of the best sport shooters in the country and was considered the premier skeet shooting event. The 1939 National Championships at the PRGC are important because this was the first time this event was held on the west coast and indicates how the widely spread the game had become in the decade and a half after its invention. The location of the championships at the PRGC also reflected the club's level of participation within the skeet shooting establishment and the quality of its facilities during this era.

NRHP/CRHR Criterion B/2

The research conducted for this Cultural Landscape Evaluation Report did not reveal any associations with important individuals who made specific contributions to history, and the PRGC does not appear to possess individual significance under NRHP/CRHR Criterion B/2 (Persons) for its associations with important persons.[24]

NRHP/CRHR Criterion C/3

The PRGC site does not appear to possess individual significance under NRHP/CRHR Criterion C/3 for associations related to design or construction. The five skeet fields and three trap fields each individually meet the standard design or construction regulations for their respective sports and retain their essential individual features or components. However; each field is an individual common example of a skeet or trap field that lacks significance related to design or construction. Collectively, the target shooting range at the PRGC represents a vernacular example of the arrangement of skeet and trap fields

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[24] A letter from attorney David P. Cincotta (Jeffer Mangels Butler & Mitchell LLP) to Vince Courtney (President, San Francisco Public Utilities Commission), dated March 24, 2014, stated that "[n]otable as part of the history of PRGC is the only Olympian in the United States history who has medaled in five consecutive Olympics—the Trap and Skeet Shooter, Kim Rhode" (p. 2). However, the PR&GC does not appear to have significance in association with Kim Rhode under NRHP/CRHR Criterion B/2.

Rhode does not appear to have a direct connection to the PRGC; nor does the club appear to best represent her contributions to the sports of trap and skeet. Rhode lives in El Monte, California in southern California and trains there seven days a week (Harris et al., 2012; Pilon, 2012; ADI, 2014). According to the guidance in *National Register Bulletin 15,* significance under Criterion B requires that a property be owned or used by the person of significance and that it best represent this person's historic contributions (NPS, 2002:15).

Additionally, it is not possible at this time to fully assess Rhode's significance to trap and skeet since she is still actively competing in trap and skeet (ADI, 2014). Rhode (born in 1979) has stated that she plans to compete in the Rio de Janeiro Olympics in 2016 and beyond (Pilon, 2012; Harris et al., 2012). Properties associated with living persons are usually not eligible for inclusion. The guidance in *National Register Bulletin 15* directs that sufficient time must have elapsed to assess both the person's field of endeavor and his/her contribution to that field. Additionally, the person's active participation in the endeavor must be finished for this historic perspective to emerge (NPS, 2002:16).

adapted to the geographic limits of this site (a strip of land situated between the Lake Merced and a public road), does not appear to have been designed or built by a master designer, and lacks significance related to design or construction. The buildings on the site (the Clubhouse, the Caretaker's House, the Rifle Range building, the Shell House, and the Trap House) remain in their original locations and are important for the operational and social functions of the clubs; however they are all are common examples of vernacular buildings and lack significance related to design or construction.

NRHP/CRHR Criterion D/4

NRHP/CRHR Criterion D/4 commonly applies to properties that contain or are likely to contain information bearing on an important archaeological research question. The identification of archaeological resources was outside of the scope of this report. However, based on the information that was gathered during this report, it appears unlikely that the PRGC has the potential to yield archaeological information important in prehistory or history and so does not appear to be individually significant under NRHP/CRHR Criterion D/4.

B. Integrity

Integrity is the ability of a property to convey its significance. The evaluation of integrity is grounded in an understanding of a property's physical features and how they relate to its significance. Integrity is composed of seven components or aspects—location, design, materials, workmanship, setting, feeling, and association (NPS, 2002:44).

The PRGC cultural landscape appears to exhibit all seven aspects of integrity in relationship to its individual significance under NRHP/CRHR Criterion A/1 in association the development of sportsmen's clubs and skeet within the context of the early 20th century wildlife conservation movement. The arrangement of the site, the four 1938 skeet fields, and the buildings of the PRGC from the 1934-1941 era are still extant and are used as they were originally intended. Since 1941, the changes that have occurred have been within locations that had previously been used for skeet and trap activities during the 1934-1941 era, did not alter the facilities from that era, and were compatible with the continued use of the site as a sportsmen's club and outdoor target shooting range. These changes included the expansion of the skeet and trap fields (Fields 1, 2, 3, 8, and 9), the addition of a duck tower, the addition of a building related to the trap operations (the Trap House), the replacement of minor equipment related to these activities, and the addition of small utilitarian or support structures (the Barbeque Shed, the public restroom, a garage, and storage containers). There have been minor alterations to some of the original buildings (the Clubhouse, the Caretaker's House, the Rifle Range building, and the Shell House) from the 1934-1941 era, such as changes to the windows and doors, as well as some accessibility improvements. A discussion of the PRGC cultural landscape in relationship to the individual aspects of integrity is provided below.

Location

Location is the place where the historic property was constructed or the place where the historic event occurred. Often the relationship between the property and its location is

important in understanding why the property was created or why something happened (NPS, 2002:44).

The PRGC has been located on a narrow strip of land (approximately 10 acres in size) that is situated between the shoreline of the South Lake of Lake Merced and John Muir Drive, just east of the intersection with Skyline Boulevard, since 1934 and retains its integrity of location.

Design

In a vernacular landscape, the evaluation of integrity is closely tied to land use and how the form, plan, and spatial organization of a property are affected by the conscious and unconscious decisions over time about where areas of land use, roadways, buildings and structures, and vegetation are located (NPS, 2002:44; NPS, 1999:22).

The design (or the arrangement of the site features) of the PRGC cultural landscape evolved over the course the period of significance (1934-1941) in relationship to the primary land use as an outdoor target shooting range and within the constraints of the long and narrow shape of the site, which is situated between the lake and a public road. The shape of the site, the need to set the shooting activities back from the road, and the need to provide a safety zone for the falling targets (a shotfall zone)[25] resulted in the linear arrangement of the skeet and trap fields along the edge of the site next to the lake. This land next to the lake was graded to create a level terrace for the fields. The Rifle Range Building, which housed an indoor shooting range, was also located in this band of land along the lakeside edge of the site. The broad, gently sloped interior portion of the site was used for internal circulation (a parking lot and an internal road) and also provided the needed separation between John Muir Drive and the shooting activities along the lake. Buildings related to the operations and social functions of the club were relegated to the edge of the site adjacent to John Muir Drive (the Clubhouse and the Caretaker's House) or the southern edge of the fields (the Shell House).

The primary features from the period of significance (1934-1941) that contribute to the design of the PRCG cultural landscape and that remain in place include Fields 4 to 7 (constructed in 1938), the topographic modifications that created the broad terrace for the construction of these fields, the Clubhouse (1937), the Caretaker's House (ca. 1937), the Rifle Range building (1939), and the Shell House (ca. 1939).

There have been a number of changes in materials, additions of new structures, or additions or replacement of small scale features to the field area since the end of the period of significance.

- The material for the path system on the four 1938 fields (Fields 4 to 7) was changed from dirt or wooden boards to concrete in the 1950s and 1960s.

[25] The portion of the shotfall area that extends out into Lake Merced is outside of the lease area for the PRGC and outside of the boundary of the PRGC cultural landscape

- Concrete, stamped with trap yardage markers, was added to the interiors of Fields 4 to 7 during the 1950s and 1960s. A trap house was added north of station 8 in each of these fields during the same period. These modifications allowed the fields to be used for trap shooting.

- The original control houses located behind station 4 on Fields 4 to 7 were modified or replaced (ca. 1940s-1960s) with the current structures which serve the same function as the original ones.

- The High and Low houses on Field 4 have been reclad or reconstructed in vertically-oriented wood siding.

- A duck tower was added behind station 4 on Field 6 around 1958; the club had a duck tower during the period of significance but at a different location on the site.

- Three new trap fields (Fields 1 to 3) were added to the western end of the field area between 1948 and 1955. Two new skeet fields (Fields 8 and 9) were added to the eastern end of the field area in 1953. Both additions occurred in areas where earlier but now nonexistent trap or skeet fields were present during the period of significance; temporary skeet fields were located in both of these locations during the 1939 National Championships, and a trap field was located in the vicinity of Field 8 in the 1930s-1940s.

- The Trap House, originally used to register trap shooters, was added at the new trap field complex around 1960.

- Small-scale features were added that (1) likely replaced similar features (i.e., (benches, shotgun racks, center point posts, and rifle pattern board), (2) related to new target shooting activities (i.e., five-stand equipment on Field 6, additional control structures for five-stand game on Field 6, and target posts related to Olympic Skeet), or (3) are tangentially related to site activities (i.e. token boxes, signage, the fire hose, memorial markers, etc.).

As noted above these changes are compatible with the historic use of the site as an outdoor target shooting range. Additionally, the four 1938 fields (Fields 4 to 7) retain their character-defining features (a level terrace with a linear arrangement of fields, the semi-circular path system for the skeet field, the high and low houses, and the safety fences).

Changes to the club buildings after the end of the period of significance include the following:

- Visible, exterior alterations to the Club House include replacement vinyl frame picture windows on the south and east elevations, the addition of a wood frame wheelchair ramp and shed roof overhang on the east elevation, a cinderblock fireplace/chimney on the east elevation, and a small, wood-frame addition at the southwest corner clad in T-111 siding. Despite these changes, the building retains a moderate-to-high level of integrity.

- The only visible, exterior alterations to the Caretaker's Cottage is a small, wood-frame, shed-roofed addition on the south elevation. This addition appears to have provided a secondary entrance/exit to the building, as well as an expanded bathroom. This addition was clad in horizontal wood siding and has a roof pitch similar in design to the rest of the cottage. Despite this change, the building retains a high level of integrity.
- The only visible, exterior alterations to the Rifle Range building is a small, wood frame, shed-roofed addition clad in plywood siding on the west elevation. This addition appears to be a storage shed. Despite this change, the building retains a high level of integrity.
- A lunch room was added to the west end of the Shell House in 1949. This compatible addition has a low-pitch gable roof with exposed eaves and textured stucco cladding similar in design to the original Shell House. Other visible, exterior alterations to the Shell House include a replacement aluminum frame sliding glass door, a newer wood frame deck and railing with a shed roof overhang on the west elevation. A small, plywood-clad shed addition on the east elevation serves as a storage closet.

Secondary features that were present on site during the period of significance but that do not contribute to the design or function of the site as an outdoor target shooting range or to its function as a sportsmen's club include (1) the parking lot on the western end of the site, (2) the internal road on the eastern end of the site, (3) the small stand of trees (six eucalyptus and one Monterey cypress) in the area between the Rifle Range building and Field 8 (the remains of a larger stand of trees that predate the club's usage of the site trees), (4) several large eucalyptus trees along the southern edge of the site in the vicinity of the Caretaker's House and Clubhouse (the remains of a larger stand of trees that predate the club's usage of the site trees), (5) four Monterey pine trees (the remains of a longer row that was planted in the mid-1930s to define edge of the site next to John Muir Drive), and (6) a large Monterey cypress tree located on the west side of the primary entrance to the Rifle Range building. In the case of the trees listed above, their presence reflects the common usage of these species (eucalyptus, Monterey cypress, and Monterey pine) in San Francisco during the first half of the 20th century rather than a specific relationship to the functioning of the site as an outdoor shooting range.

Secondary features that have been added since the end of the period of significance include (1) the current sign (unknown date), (2) the restroom building (ca. 1965), (3) the barbeque shed (ca. 1970), (4) the three-bay garage (ca. 2000), and (5) the metal storage containers (date unknown).

In summary, the PRGC appears to retain its integrity of design; it retains its four 1938 fields (Fields 4 to 7); each of these fields retains its character-defining features (a level terrace with a semi-circular path system, high and low houses, and safety fences); it retains the club buildings from the period of significance (the Club House, the Caretaker's House, the Rifle Range building, and the Shell House); the alterations, as

described above, are generally compatible with use of the site as an outdoor target shooting range.

Materials and Workmanship

Materials are the physical elements that were combined during a particular period of time and in a particular pattern or configuration to form a historic property. The choice and combination of materials reveal the preferences of those who created the property and indicate the availability of particular types of materials and technologies. Workmanship is strongly linked to materials and provides evidence of the technology or aesthetic principles of a historic period, and reveals individual, local, regional, or national applications of both technological practices and aesthetic principles (NPS, 2002:45).

Wood and its associated workmanship were characteristic of the PRGC cultural landscape during its period of significance. Wood was used for the framing and siding materials for the club buildings (the Clubhouse, the Caretaker's House, the Rifle Range building, and the Shell House). Wood boards and posts were used for some of the character-defining features of Fields 4 to 7 (the safety fences, the high and low houses, the steps associated with the high houses, the original equipment sheds [no longer extant], and the boarding for the semi-circular path system [no longer extant]). The original rustic fencing, next to John Muir Drive, and the original rustic entrance sign [both non-extant) were constructed from tree limbs and trunks. The predominance of wood in the club buildings and in the components of the skeet fields provides a strong visual link and contributes to the feelings associated with the club's pre-World War II origins. Additionally, wood was used for features that were added after World War II. Some of this post-war construction utilized wood materials and workmanship that was similar to that used in the pre-war era (for example, the trap houses on Fields 1-7, the high and low houses and safety fences for Fields 8 and 9, and various small-scale features such as shotgun racks and benches). However, in some cases the post-war construction used plywood or prefabricated wood siding that differs in appearance and workmanship from the pre-World War II features (for example, the plywood siding used on the replacement control/equipment sheds on Fields 4 to 7, the plywood siding used on the Trap House, the prefabricated siding used in remodeling of the high and low houses on Field 4, and the plywood in various small-scale features such as the portable trap scorer's stands, equipment boxes, and signage).

The current duck tower dates from around 1958 has a tall metal frame support structure. Another duck tower, with a similar metal support structure, was present on the site during the period of significance, so the materials and workmanship associated with this structure appear to be compatible with the appearance of the site during the period of significance.

Non-contributing materials and their related workmanship (i.e., ones have been added after the end of the period of significance) include the following:

- Concrete in the semi-circular path system and the interiors of the 1938 fields (Fields 4 to 7), in the path systems for the trap and skeet fields added after the end

of the period of significance (Fields 1, 2, 3, 8 and 9), and in the sidewalk between the parking lot and Fields 4 to 7;

- Metal found in the chain-link fencing, in the entrance sign, in the some of the benches, trash cans, etc., in the portable trap scorer's stands, equipment boxes, and stands at the three trap fields (the metal in the yardage markers on the trap field is a very minor addition), and in the replacement aluminum frame sliding glass door for the Shell House;
- Asphalt paving in the parking lot and along the internal road; and
- Plastic used in some of the benches and in the replacement vinyl frame picture windows in the Club House.

The vegetation materials on the site or around its perimeter do not contribute to its design as an outdoor target shooting range and are considered to be non-contributing materials. The large trees (described under the integrity of design) that were present during the period of significance are examples of species (eucalyptus, Monterey cypress, and Monterey pine) that were commonly planted in San Francisco during the first half of the 20th century; their presence at the PRGC site reflects this common usage rather than a specific relationship to the functioning of the site as an outdoor shooting range. Similarly, the grass located on or next to the fields does not contribute directly to the design of the site as an outdoor shooting range; its use was probably both practical (to keep sandy soil in place) and ornamental; however, it is not a requirement for a skeet or trap field.

In summary, although there have been losses to the materials/workmanship from the period of significance and the addition of new ones, the PRGC cultural landscape still retains its integrity of materials and workmanship through the predominant presence of wood in the character-defining features of the fields and club buildings.

Setting and Feeling

Setting is the physical environment of a historic property and refers to the character of the place or location in which the property played its historical role. Setting involves how, not just where, the property is situated and its relationship to surrounding features and open space. Guidance in National Register Bulletin 15 directs that setting should be examined both within the exact boundaries of the property and between the property and its surroundings (NPS, 2002:45). Feeling is a property's expression of the aesthetic or historic sense of a particular period of time. It results from the presence of physical features that, taken together, convey the PRGC cultural landscape's historic character (NPS, 2002:45).

During the period of significance (1934-1941) the setting for PRGC cultural landscape and the feelings associated it were of an outdoor target shooting range set within a largely undeveloped portion of the city along the shoreline of Lake Merced to the north and undeveloped property with a large stand of trees to the south. Today, the internal setting and feelings associated with the outdoor target shooting range remain. The lake-side setting and feeling associated with this setting remain unaltered, including the shooting

activities set back from John Muir Drive by the open area that serves as the property's parking lot. The continued presence of wood materials for key components in the skeet fields and in the club buildings provides a strong visual link and contributes to the feelings and setting associated with the club's pre-World War II origins.

The addition of the multi-story Lakeside Apartments on the south side of the property represents an intrusion into the setting around the PRGC site and lessens the feelings of being in an undeveloped part of the city. However, given that the primary views for people using the fields are directed toward the lake (which remains unaltered), the PRGC cultural landscape continues to retain its integrity of setting and feeling.

Association

Association is the direct link between an important historic event or person and a historic property. A property retains association if it is the place where the event or activity occurred and is sufficiently intact to convey that relationship to an observer. Like feeling, association requires the presence of physical features that convey a property's historic character (NPS, 2002:45).

The PRGC cultural landscape was associated with skeet and trap shooting activities during its period of significance (1934-1941). Today, it retains the key physical features that were present during its period of significance, listed above under Design, and continues to be strongly identified and associated with these activities and with the PRGC. In summary, the PRGC cultural landscape retains its integrity of association.

C. Evaluation Summary

The PRGC appears eligible for listing on the NRHP and CRHR at the local level of significance under Criterion A/1 for its association with the broad pattern of history related to the increased popularity of sport hunting and with the interrelated development of skeet—during the period it evolved from a type of shooting practice into a competitive sport—that occurred during the decades preceding World War II within the context of the early 20th century wildlife conservation movement. The PRGC is important as an example of the type of sportsmen's gun club that formed in the 1920s and 1930s within the context of the democratization of hunting, illustrating the social experience connected with the conservation movement. Additionally, the PRGC is important as the oldest extant skeet facility in the Bay Area and as the only sportsmen's club in the Bay Area to retain its original pre-World War II grounds configuration, skeet field structures, and club buildings. Other clubs that remain in operation from this pre-World War II era do not have skeet fields or have moved to newer facilities and are no longer located at their pre-World War II sites. The period of significance for the PRGC's significance under Criterion A/1 appears to begin in 1934 when the club moved to the Lake Merced site and to end in 1941 with the United States' entry into World War II, which ended the club's initial period of development. Although the activities of the club remained unchanged after World War II, its post-war expansion period (1946-early 1960s) was more directly linked with other contexts, including the broad interest in outdoor recreation that occurred within the context of the nation's post-World War II prosperity and an increased

interest in skeet that was a by-product of World War II training practices, than to the early 20th century conservation movement.

The arrangement of the site, the four skeet fields, and the buildings of the PRGC from the 1934-1941 era are still extant and are used as they were originally intended. Since 1941, the changes that have occurred to the occurred within locations that had previously been used for skeet and trap activities during the 1934-1941 era, did not alter the facilities from that era, and were compatible with the continued use of the site as a sportsmen's club and outdoor target shooting range. These changes included the expansion of the skeet and trap fields (Fields 1, 2, 3, 8, and 9), the addition of a duck tower, the addition of a building related to the trap operations (the Trap House), the replacement of minor equipment related to these activities, and the addition of small utilitarian or support structures (the Barbeque Shed, the public restroom, a garage, and storage containers). There have been minor alterations to some of the original buildings (the Clubhouse, the Caretaker's House, the Rifle Range building, and the Shell House) from the 1934-1941 era, such as changes to the windows and doors, as well as some accessibility improvements.

D. Contributing and Non-Contributing Features

The features that were added to the PRGC property during its period of significance (1934-1941) and which relate to its significance under NRHP/CRHR Criterion A/1, for its association with the broad pattern of history related to the increased popularity of sport hunting and the development of skeet within the context of the early 20th century wildlife conservation movement, were identified as contributing features to the PRGC cultural landscape.

Those features that (1) may have been present during the period of significance but were not associated with the pre-World War II design or function of the site as an outdoor target shooting range/sportsmen's club (for example, vegetation) or (2) were added to the property after the end of its period of significance in 1941 (although in some cases these are compatible with its pre-World War II design or function as an outdoor target shooting range/sportsmen's club) were identified as non-contributing features.

Contributing Features

The contributing features for the PRGC cultural landscape related to its significance under NRHP/CRHR Criterion A/1 for the period between 1934 and 1941 include the following:

- Fields 4 to 7 (1938) and their character-defining features:
    - a level terrace,
    - the linear arrangement of the fields,
    - the semi-circular path system of the skeet field (the form and dimensions, not the concrete materials),

- the high houses (wood frame tower structure, square in plan with a flat roof, clad in a combination of wood siding at the top and smooth stucco siding on the bottom, door that provides access to the interior to allow loading and maintenance on the trap machinery, wood steps that provide access to this entrance door, and a window on the east side that provides an opening through which the targets are launched),[26]

- the low houses (wood frame tower structure, square in plan with a flat roof, clad in a combination of wood siding at the top and smooth stucco siding on the bottom, door that provides access to the interior to allow loading and maintenance on the trap machinery, and a window on the west side that provides an opening through which the targets are launched),[27] and

- the safety fences(wood boards attached to opposite sides of the wood posts so that the position of the boards on one side alternates or is staggered with the ones on the other side);

- The buildings that house the operational and social functions of the club:

  - The Clubhouse (1937) and its character-defining features (wood-framed, raised single story structure with a rectangular footprint and cross gable roof, exposed eaves, and horizontal wood siding),

  - The Caretaker's House (ca. 1937) and its character-defining features (wood-framed, single story structure with a rectangular footprint and gable roof, exposed eaves, horizontal wooden siding, gable ends with fish scale shingles [east side] and thin vertical wooden siding [west side], and original wood frame, double hung windows on the south, north, and west facades, and fixed wood shutters and entry shed on north facade),

  - The Rifle Range building (1939) and its character-defining features (wood-framed, raised single story structure with a rectangular footprint and gable roof, exposed eaves, horizontal wood siding, wood frame, double hung, four-pane windows on the north, south, and west facades); and

  - The Shell House (ca. 1939, expanded in 1949) and its character-defining features (wood-frame, single story structure with a rectangular footprint and low pitch gable roof with exposed eaves, textured stucco cladding, raised porch, and a large, wood frame, fixed pane picture window on the western façade).

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[26] The high house on Field 4 has been remodeled since the end of the period of significance and is entirely clad in wood siding.

[27] The low house on Field 4 has been remodeled since the end of the period of significance and is entirely clad in wood siding

Non-Contributing Features

Non-contributing features include the following:

- Fields 1 to 3, their associated features, and the Trap House;
- Alterations to Fields 4 to 7 including the equipment shed behind station 4, the concrete paving, the target crossing point post positioned 10 feet north of station 8, and the trap houses (aligned with station 8) in the sloped area next to the lake;
- Modifications on Field 6 for the five-stand game (the five stand racks, equipment shed behind stations 2 and 3, the equipment shed behind stations 5 and 6, the equipment shed in the sloped area next to the lake);
- Duck Tower;
- Fields 8 and 9, used for skeet, and their associated features;
- The two landing posts used to calibrate the Olympic Skeet target machinery for Field 7 on the sloped area north of the field and the Rifle Range building; and
- The internal automobile circulations features (parking lot on the western end of the site and the internal road on the eastern end of the site) and concrete sidewalk between Fields 4 to 7 and the parking lot;
- Small structures including the Barbeque Shed, the public restroom, the three-bay garage, and the storage containers;
- Vegetation features; and
- Small scale features including the entrance sign, the flag pole and water fountain between the Shell House and the fields, site furnishings (benches, trash cans, picnic tables, lights, etc.), shotgun racks, token boxes, center point posts, trap portable scorer's stands, memorial field markers, the rifle pattern board, the fire hose, chain-link fencing, and the interpretive sign commemorating Rancho Merced (located adjacent to the Shell House).

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APPENDIX

Historical Images 1-17

Figure 1: Location of Cultural Landscape Features

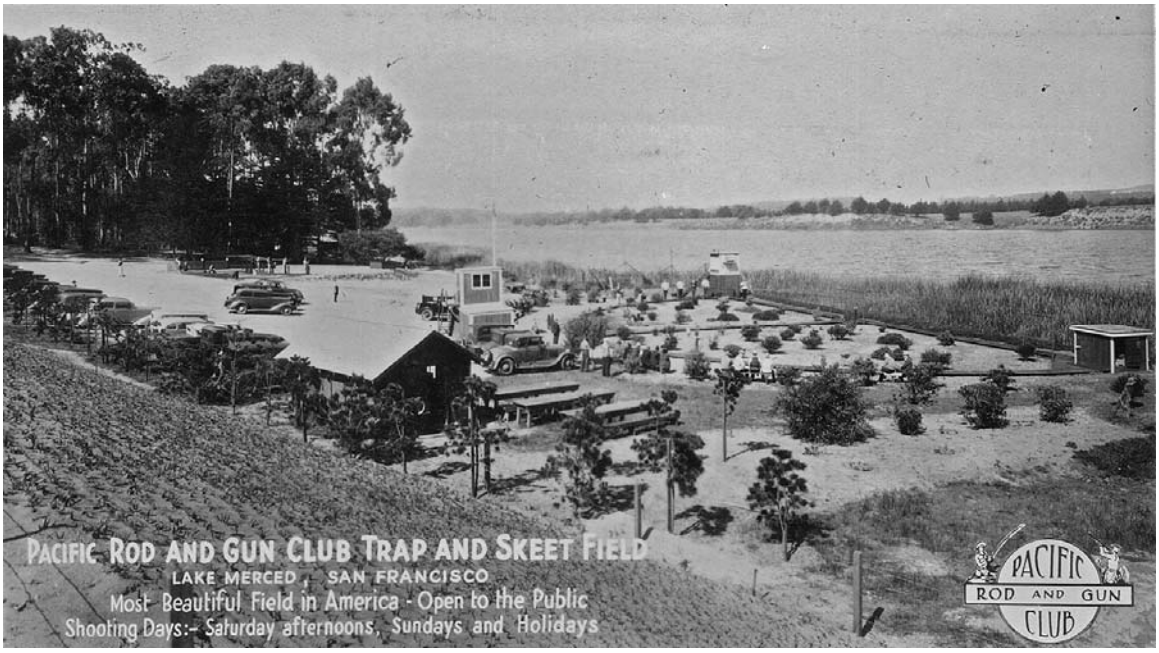
Figure 2: Location of Photographs

Photos 1-47

Historic Image 1. Undated photograph (ca. 1931-1934) of the skeet field located at Fort Funston that the PR&GC took over when it joined with the Bay Sportmen's Club in 1931.
Source: PR&GC Collection.

Historic Image 2. Aerial view of two original fields (ca. 1934). Note original entrance road prior to grading for John Muir Drive. Source: PR&GC Collection.

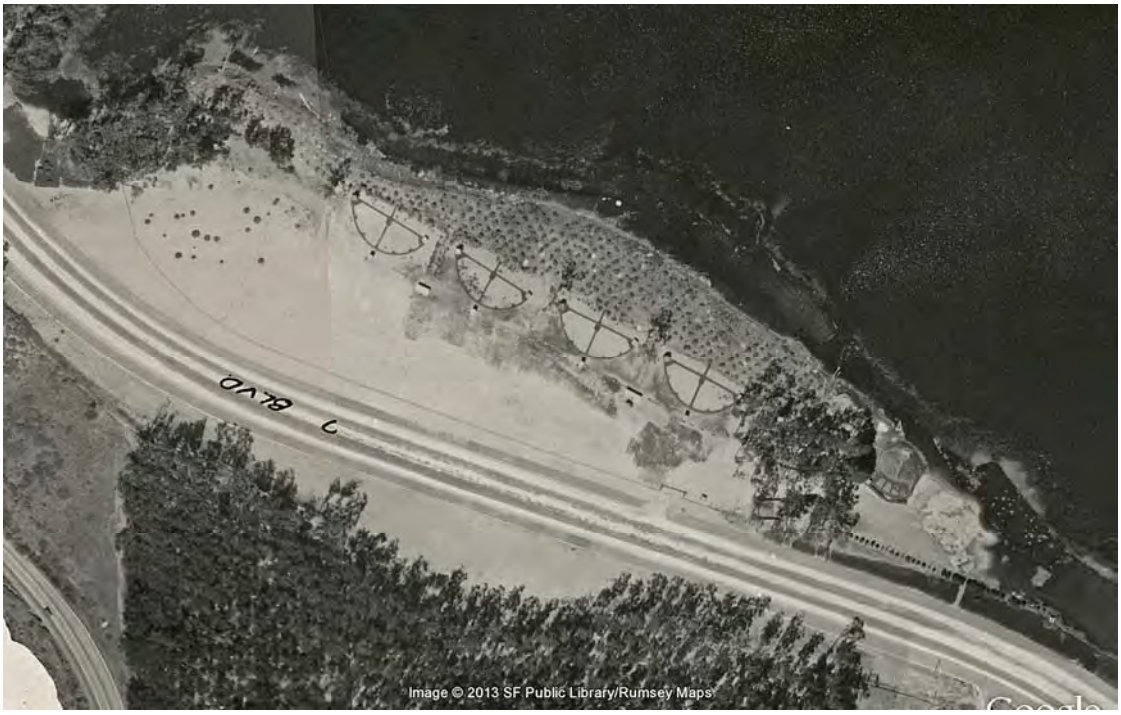
Historic Image 3. Aerial view in 1935 of the two original fields. Source: Pacific Aerial Surveys.



Historic Image 4. Eastern of the two original skeet fields (ca. 1934-1937). Note the presence of an early trap field behind (northwest) of the skeet field, the "Lunch Room" building and picnic facilities in the southeastern corner of the site, and the row of pine trees planted along the western edges of the site. Source: PR&GC Collection.

Historic Image 5. Eastern portion of site in the late 1930s after Clubhouse was added. Note the row of pine trees along western edge of property and an early duck tower visible through the stand of trees (see arrow). Source: PR&GC Collection.

Historic Image 6. View in 1937 showing one of original fields flooded after the lake rose. Source: PR&GC Collection.

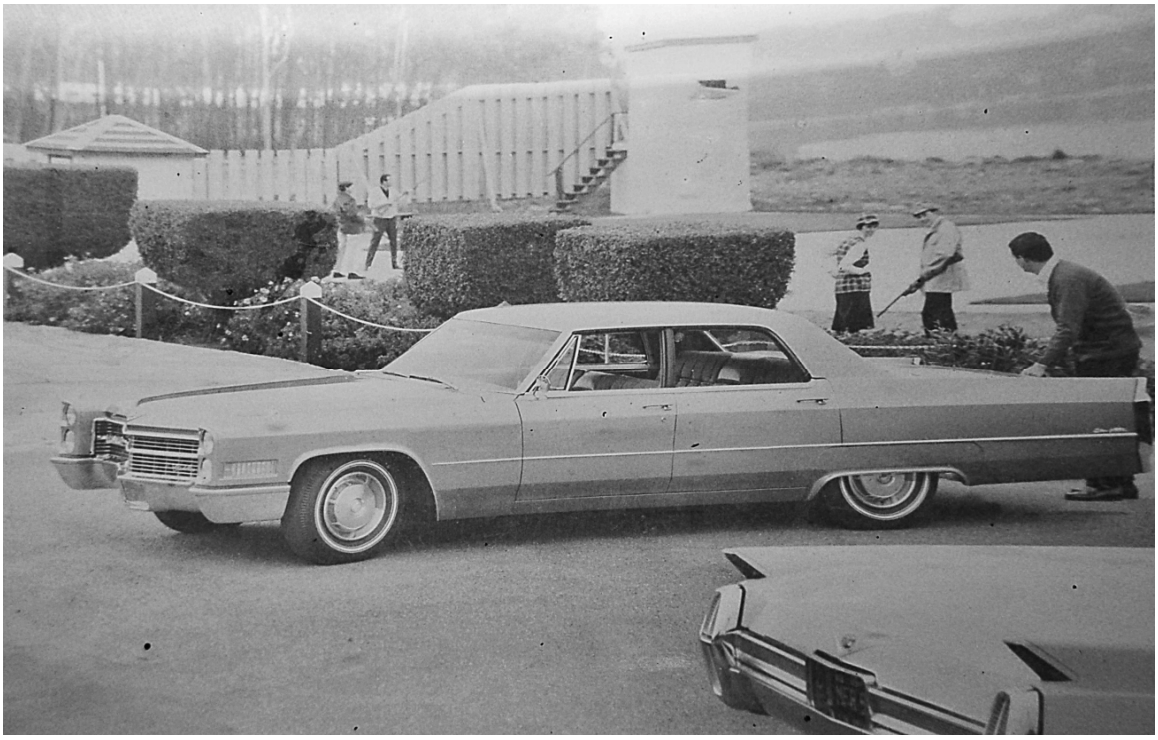


Historic Image 7. Aerial view in 1938 after western end of site cleared and the addition of new skeet fields (Fields 4 to 7) built by club members following abandonment of two original fields in 1937. Also note the presence of a trap field in the vicinity of present day Field 8. Source: GoogleEarth.

Historic Image 8. Western end of site after the addition of the new skeet fields (Fields 4 to 7) built by club members following flooding and abandonment of original fields in 1937. Photo likely dates from 1938 or 1939 prior to site work done by WPA in 1939 (to prepare the site for the National Skeet Championships held there on 8-12 August 1939) and before the addition of the Rifle Range Building. Also note the presence of a duck tower (see arrow). Source: PR&GC Collection.

Historic Image 9. Entrance sign to site (ca. late 1930s). Source: PR&GC Collection.

Historic Image 10. Overview of western portion of site and skeet fields (fields 4 to 7) after parking lot graded and sidewalk and planting strip added to western edge of field complex. Photo taken during a major tournament, probably the 1939 National Skeet Championship.
Source: PR&GC Collections.



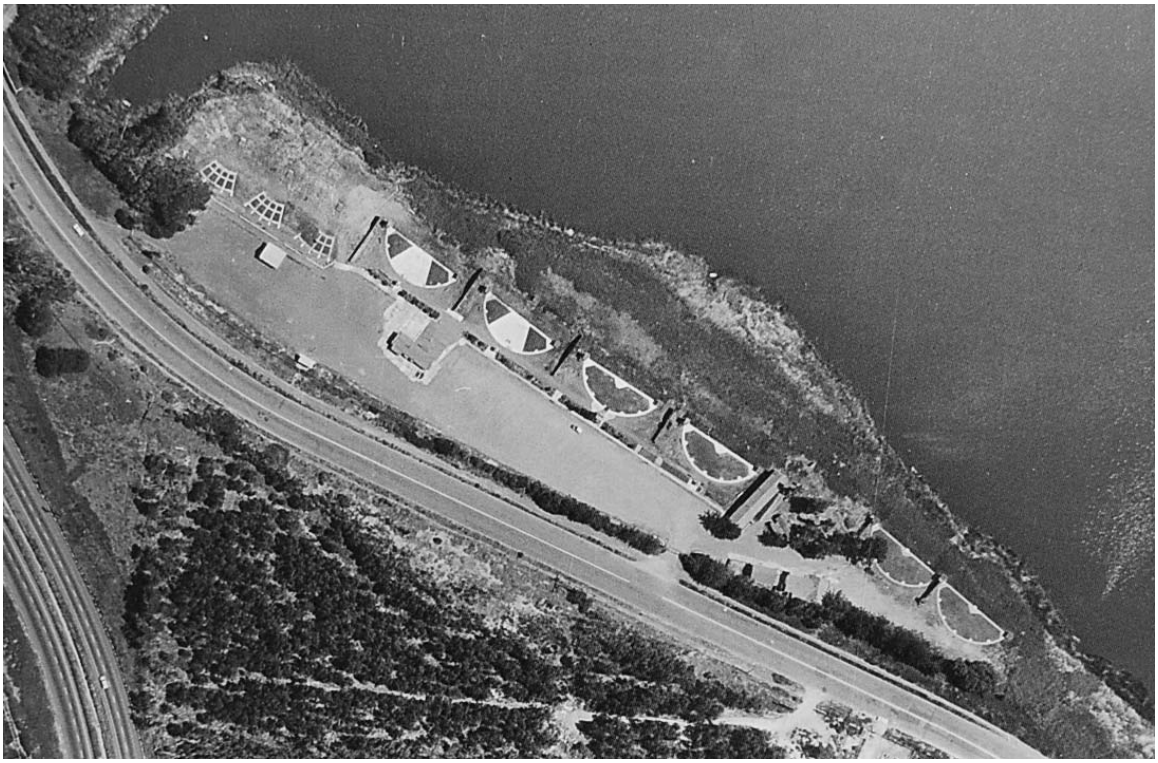
Historic Image 11. Skeet fields ca. 1960s. Source: PR&GC Collection.

Historic Image 12. Aerial view in 1948. Changes since 1938 aerial (Historic Image 7) include addition of Rifle Range and Shell house. Source: Pacific Aerial Surveys.

Historic Image 13. Aerial view in 1950. Changes since 1948 aerial (Historic Image 12) include grading and expansion of parking lot to western edge of site and addition of first trap field (Field 3). Source: Pacific Aerial Surveys.

Historic Image 14. Aerial view in 1955. Changes since 1950 aerial (Historic Image 13) include completion of trap field complex (Fields 1 to 3), addition of concrete skeet station path around Fields 4 to 7 on western end of site, and construction of skeet fields (Fields 8 and 9) at eastern end of site. Source: Pacific Aerial Surveys.

Historic Image 15. Aerial view in 1958. Changes since 1955 aerial (Historic Image 14) include addition of concrete trap yardage marker pavement to the interior of Fields 4 and 5 that allowed these fields to be used for both skeet and trap. Source: Pacific Aerial Surveys.



Historic Image 16. Aerial view in 1965. Changes since 1958 aerial (Historic Image 15) include addition Trap House and Restroom. Source: Cartwright Aerial Surveys Image, UC Berkeley Earth Sciences Map Room Collection.

Historic Image 17. Aerial view in 1969. Changes since 1965 aerial (Historic Image 16) include addition of concrete trap yardage marker pavement to the interior of Fields 6 and 7. Source: Pacific Aerial Surveys.

Figure 1: Location of Cultural Landscape Features (Source of Base Map: GoogleEarth)

Figure 2: Location of Photoraphs (Source of Base Map: GoogleEarth)

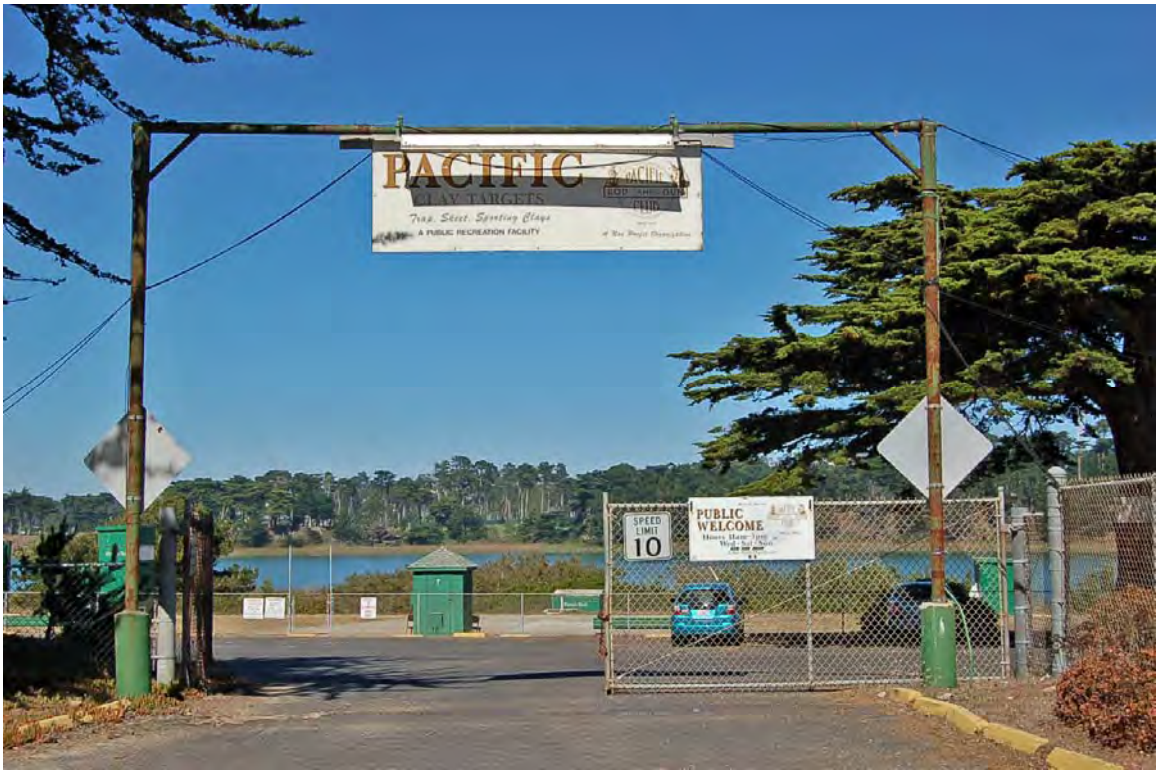


Photo 1. Entrance to Pacific Rod and Gun Club (D. Bradley, September 2013).

Photo 2. Parking lot; view toward skeet fields (D. Bradley, September 2013).

Photo 3. Parking lot showing the bank that extends along edge of lot; view toward John Muir Drive (D. Bradley, September 2013).

Photo 4. Restroom Building (ca. 1958-1965); view to SE (D. Bradley, September 2013).

Photo 5. Shell House (ca. 1939-1948) and sign commemorating Merced Rancho (to left); view to N (D. Bradley, September 2013).

Photo 6. Shell House, Springer memorial flag pole, picnic tables; view to S (D. Bradley, September 2013).

(a)


(b)


(c)

Photo 7. (a) Memorial plaque at the base of Springer memorial flag pole; (b) water fountain in front of Shell House; (c) picnic tables (D. Bradley, September 2013).

Photo 8. Trap House; view to N toward trap fields (D. Bradley, September 2013).

Photo 9. Trap House; view to S with trap fields in foreground (D. Bradley, September 2013).

Photo 10. Overview of skeet field complex; also showing sidewalk and remains of planting strip that run along the outer edge of field complex; view to NW (D. Bradley, September 2013).

Photo 11. Fence that separates Fields 6 and 7 (typical example of feature also found on Fields 4 to 7); view to NE (D. Bradley, September 2013).

Photo 12. High House on Field 7 (typical example of feature found on Fields 4 to 7); view to N (D. Bradley, September 2013).

Photo 13. Low House on Field 7 (typical example of feature found on Fields 4 to 7 and 9); view to NE (D. Bradley, September 2013).

Photo 14. Skeet equipment shed on Field 7 (typical example of feature found on Fields 4 to 7); view to S (D. Bradley, September 2013).

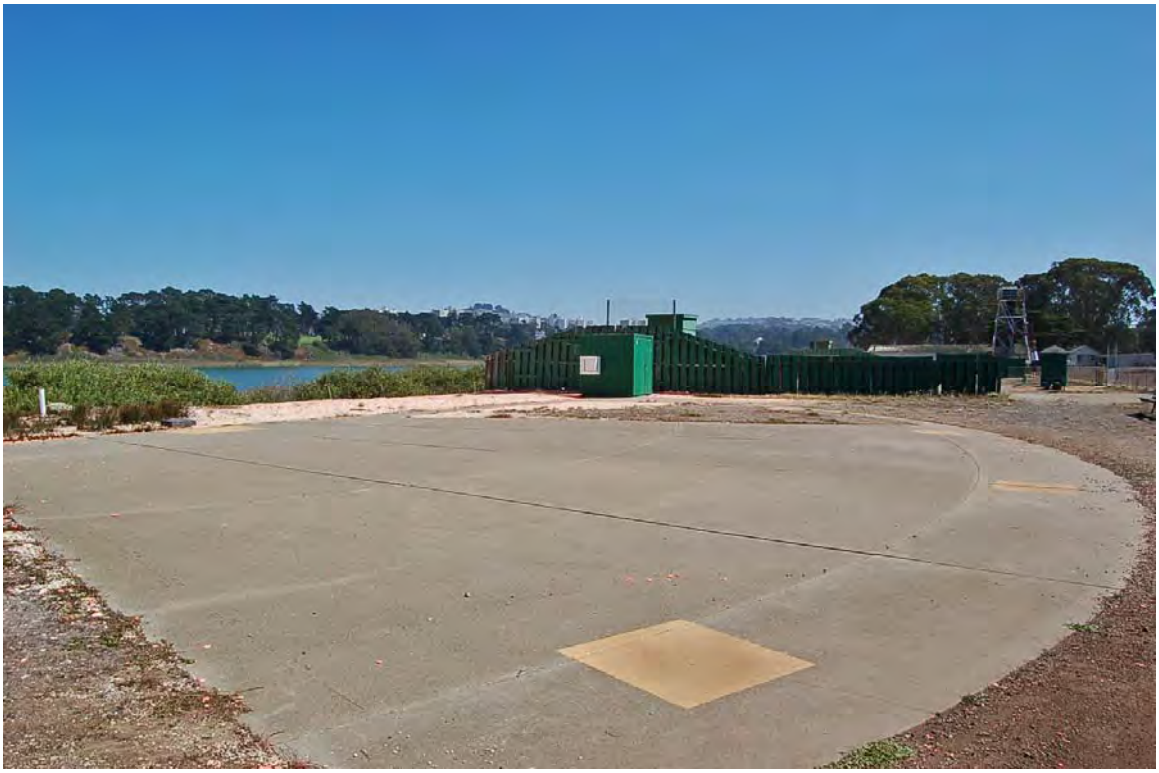


Photo 15. Paved area in the interior of skeet field that provides trap yardage markers (typical example of feature found on Fields 4 to 7 that allowed field to be used for trap as well as skeet) (D. Bradley, September 2013).

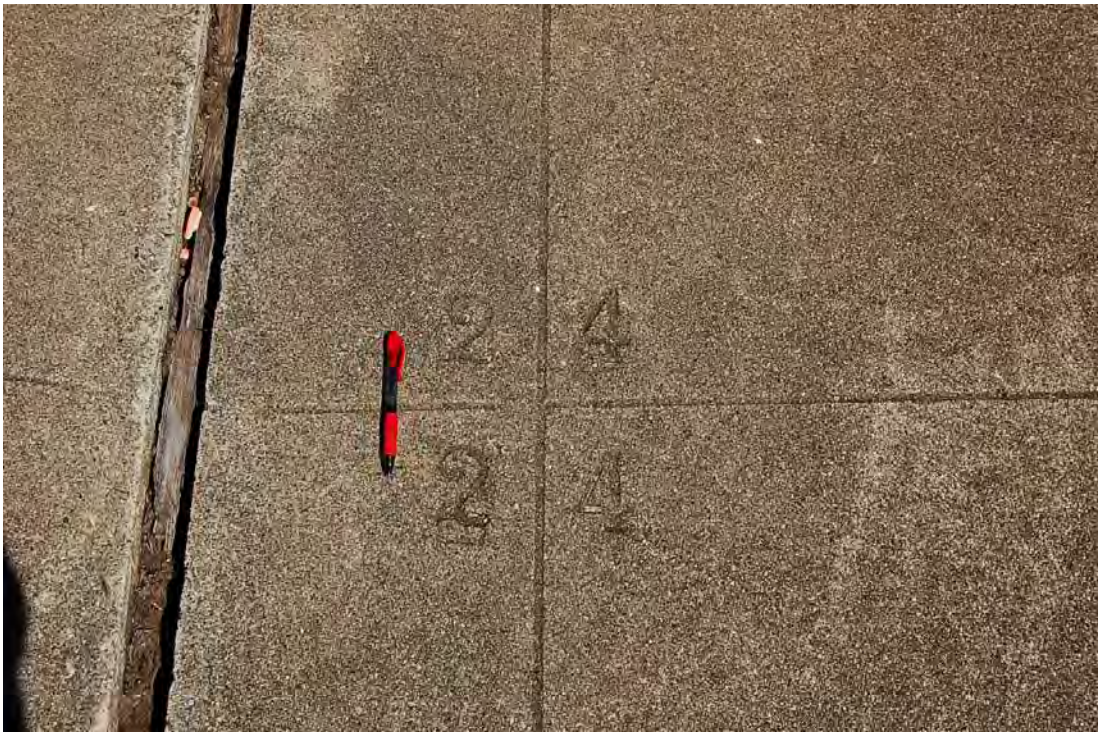


Photo 16. Detail of stamped distances for trap yardage markers found on the interior paved areas in Fields 4 to 7 (D. Bradley, September 2013).

Photo 17. Center point pole (used to calibrate skeet machinery) on Field 7 (typical example of feature found on Fields 4 to 7, 8, and 9). Note memorial plaque (foreground) (typical example of feature found on Fields 4 to 7, 8, and 9). Trap house (painted with "Olympic Skeet) behind center point pole is no longer used now that Field 7 is dedicated solely to skeet (typical example of feature found north of Fields 4 to 7) (D. Bradley, September 2013).

Photo 18. Duck Tower, Five Stand frames, and a Fire Stand equipment shed on Field 6; view to W (D. Bradley, September 2013)

Photo 19. Shed (for equipment used in Five Stand game) in outfield area north of Field 6; view to NE (D. Bradley, September 2013)

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Photo 21. Overview of skeet field complex and outfield area sloping down to Lake Merced; view to W (Fields 7, 6, 5, and 4) (D. Bradley, September 2013).

Photo 22. Skeet field complex showing topographic modifications (level fields and slope toward lake) and vegetation along shoreline; view to SE (Fields 4 to 7) (D. Bradley, September 2013).

Photo 23. Overview of trap field complex; view to NW (Fields 3, 2, and 1) (D. Bradley, September 2013).

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Photo 27. Equipment box in trap field complex (typical to Fields 1, 2, and 3) (D. Bradley, September 2013).

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Photo 31. Rifle Range building; entrance flanked on west side by a Monterey cypress (stump of corresponding tree remains on east side of entrance); view to NE (D. Bradley, September 2013).

Photo 32. Garage; view to SE (D. Bradley, September 2013).

Photo 33. Club House (left) and Caretakers house (right); view to S (D. Bradley, September 2013).

Photo 34. Stand of eucalyptus, BBQ shed, storage shed, and Rifle Range building: view to NW (D. Bradley, September 2013).

Photo 35. Overview of east end of site; Fields 8 and 9 (left) and storage container (right); view to SE (D. Bradley, September 2013).

Photo 36. Storage container; note trunks of remaining section of row of Monterey pine trees; view to W (D. Bradley, September 2013).

Photo 37. Overview of Field 8; view to E (toward Field 9) (D. Bradley, September 2013).

Photo 38. Overview of Field 9 showing typical layout of skeet field; view to E (D. Bradley, September 2013).

Photo 39. Detail of incised station layout on concrete path (typical to Fields 8 and 9) (D. Bradley, September 2013).

Photo 40. Fence dividing Fields 8 and 9 and combination High/Low House; view to NW (D. Bradley, September 2013).

Photo 41. Token box typical to Fields 8 and 9 (D. Bradley, September 2013).

Photo 42. Fire hose (D. Bradley, September 2013).

Photo 43. Pattern board located at east end of site; view to NE (D. Bradley, September 2013).

Photo 44. Typical examples of shotgun racks found throughout the site (D. Bradley, September 2013).

Photo 45. Typical examples of the various types of benches associated with skeet and trap fields (D. Bradley, September 2013).

(a)

(b)

(c)


(d)

Photo 46. (a) Typical example of signage; (b) Typical example of signage; (c) Herve memorial marker (n.d.) on Field 4; (d) Westwater memorial marker (n.d.) on Field 5 (D. Bradley, September 2013).

(a)

(b)

(c)

(d)

Photo 47. (a) Lotz memorial marker (1977) on Field 6; (b) Shappel memorial marker (n.d.) on Field 7; (c) Bulloch memorial marker (1992) on Field 8; (d) Schenley memorial marker (1955) on Field 9 (D. Bradley, September 2013).

Addendum
Cultural Landscape Evaluation Report
520 John Muir Drive/Lake Merced West Project
San Francisco, CA
Case No. 2019-014146ENV

Submitted
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APPENDIX

I. INTRODUCTION

A. Project

The San Francisco Recreation and Parks Department (Rec and Park) proposes to implement the Lake Merced West Project (the project) to create a recreational facility on approximately 11 acres located at 520 John Muir Drive, on the southwest side of Lake Merced in southwestern San Francisco. The City and County of San Francisco (city) owns the property, which was previously managed by the San Francisco Public Utilities Commission (SFPUC) under a lease to the Pacific Rod and Gun Club (PRGC). Rec and Park now manages recreation at Lake Merced, and has undertaken a Memorandum of Understanding with the SFPUC to manage recreation at Lake Merced West, and is working with Lake Merced Recreation, LLC, to develop the project site and operate the recreational facility.

B. Cultural Landscape Evaluation Report for the PRGC Upland Soil Remedial Action Project

Between May 2015 and April 2016, the SFPUC implemented the PRGC Upland Soil Remedial Action Project (Remedial Action Project) to clean up soil contamination at the project site. The contamination was the result of the former use of lead shot and clay targets made with asphaltic materials at the PRGC's skeet and trap shooting ranges.

As part of the California Environmental Quality Act (CEQA) process for the Remedial Action Project, a Cultural Landscape Evaluation Report (CLER) was prepared in 2014 to provide an evaluation of the project site under federal, state, and local criteria for its potential significance as a cultural landscape.[1]

The CLER concluded that the PRGC site appears eligible for listing on the National Register of Historic Properties (NRHP) and California Register of Historical Resources (CRHR) at the local level of significance under Criterion A/1 for its association with the broad pattern of history related to the increased popularity of sport hunting and with the interrelated development of skeet—during the period it evolved from a type of shooting practice into a competitive sport—that occurred during the decades preceding World War II within the context of the early 20th century wildlife conservation movement.[2]

The period of significance for the PRGC site's significance under Criterion A/1 begins in 1934 when the club moved to the Lake Merced site and ends in 1941 with the United States' entry into World War II, which ended the club's initial period of development.[3]

[1] Denise Bradley Cultural Landscapes, *Pacific Rod and Gun Club . . . Cultural Landscape Evaluation Report*. Appendix A in Final Mitigated Negative Declaration, Pacific Rod and Gun Club Upland Soil Remedial Action Project, Planning Department Case Number 2013.1220E, 23 October 2014.
[2] Ibid., 39.
[3] Ibid., 39.

C. Addendum to the CLER

This report provides an addendum to the CLER and includes:

- An updated description and analysis of the cultural landscape features at the project site now that the Remedial Action Project is complete and
- An update to the CLER evaluation of the significance of the project site as a cultural landscape under the federal, state, and local criteria.

A map showing the location of key cultural landscape features at the project site before remediation (Figure 1), a map showing the location of key cultural landscape features at the project site after remediation (Figure 2), a map showing the location of existing conditions photographs (Figure 3), and photographs of the existing conditions are provided in the Appendix.

II. METHODS

A. Personnel

This addendum to the CLER was prepared by Denise Bradley, the principal author of the CLER. Ms. Bradley (Master of Landscape Architecture, Louisiana State University) has over 25 years of experience as a landscape historian in California and meets the National Park Service's qualifications standards for Historical Landscape Architect.

B. Field Methods

Denise Bradley conducted an intensive survey of the cultural landscape at the project site on October 15, 2019. Field notes and photographs were taken to aid in the preparation of the updated description and the evaluation of the site.

C. Research Methods

The CLER provided the history of the project site and the relevant historic contexts within which to evaluate its historical significance. No additional research was undertaken for this CLER addendum. However, aerial photographs (2014-2018) of the project site were reviewed to aid in updating the description of existing conditions.

III. DESCRIPTION

A summary of the cultural landscape features from the CLER and an updated description based on the current conditions is provided below. Changes that occurred in conjunction with the Remedial Action Project are also summarized. Refer to **Figure 1** for location of the cultural landscape features before remediation, to **Figure 2** for the location of cultural landscape features after remediation, to **Figure 3** for the location of photographs that show the site after remediation, and **Photos 1 to 30** for representative images of the cultural landscape features showing the site after remediation.

A. Location, Land Use, and Spatial Organization

The location of the project site has not changed since the CLER. It continues to be located on the narrow strip of land approximately 11 acres in size between the shoreline of the South Lake of Lake Merced and John Muir Drive, just east of the intersection with Skyline Boulevard.

The CLER identified outdoor target shooting as being the primary land use at the project site. The PRGC no longer occupies the facilities at the site, and the buildings and outdoor target shooting facilities are currently not in use.

The CLER noted that the spatial organization

> *. . . has been shaped by the needs of this primary land use* [outdoor target shooting] *and by the long and narrow shape of the site situated between the lake and a public road. The shape of the site, the need to set the shooting activities back from the road, and the need to provide a safety zone for the falling targets (a shotfall zone)*[4] *resulted in the linear arrangement of the skeet and trap fields along the edge of the site next to the lake. The large parking lot and an internal road occupy the middle portion of the site and, in addition to their utilitarian circulation functions, provide the needed spatial setback for the shooting activities from John Muir Drive. The locations available for buildings and larger structures (including a metal storage shed, the Clubhouse, the Caretaker's House, a garage, and a public restroom) are limited by these functional needs to the edge of the site next to John Muir Drive, along the edges of the parking lot (the Shell House, Trap House, and restrooms), and on small area between* [Skeet] *Field 7 and* [Skeet] *Field 8 (the Rifle Range building and the Barbeque Shed).*[5]

The site features that remain continue to convey this spatial organization.

[4] The portion of the shotfall area that extends out into Lake Merced was outside of the lease area for the PRGC and outside of the boundary of the PRGC cultural landscape.
[5] CLER, 29.

B. Topographic Modifications and Boundaries

The project site is relatively flat but slopes slightly down from its south side next to John Muir Drive toward the lake and from the entrance down toward the east end of the property. (Cardinal directions are used in describing the site; south refers to the area next to John Muir Drive, north is used to describe the shoreline, east and west are used respectively to describe the two ends of site.).

The CLER identified that topographic modifications to the site were related to its use and function as an outdoor target shooting range and club. These modifications included the large level terrace for the parking lot and the trap and skeet range (Trap Fields 1 to 3 and Skeet Fields 4 to 7) which occupied the majority of the area on the western portion of the site, the smaller terrace where Skeet Fields 8 and 9 were located on the east end of the site, and a bank that extended along the south side of the site, which provided the transition between the elevation along John Muir Drive and the lower elevation of the site. Additionally, the land north of the trap and skeet fields slopes downward toward the lake.[6]

The CLER identified the shoreline as defining the site's geographic or physical boundary on its northwest corner and its north side. Chain-link fences defined the boundary at the project site's southwest corner, along the top of the bank along the south side (next to the sidewalk adjacent to John Muir Drive), and at its east end.[7]

After the completion of the Remedial Action Project, these topographic characteristics and boundaries are still evident. Refer to **Photos 2, 8, 21, 22, 27, and 28** for representative images of the topographic features.

C. Circulation Features

The entrance to the project site continues to be from John Muir Drive, approximately two-thirds down the site's south side. The entrance is framed by a metal pole gateway. Refer to **Photo 1** for a representative view of this entrance.

In 2014, a large parking lot extended from the entrance toward the western end of the site and occupied the broad expanse between John Muir Boulevard and the field complex as shown on Figure 1; it covered approximately two acres. The parking lot was identified as a non-contributing feature in the CLER.[8] The current parking lot occupies that same general location, in relation to the entrance, but occupies a smaller footprint. Refer to **Photo 2** a representative image of the current parking lot.

As part of the Remedial Action Project, the following features were removed: a concrete sidewalk that ran along the north edge of the parking lot for the length of the 1938 skeet field complex (Skeet Fields 4 to 7); an asphalt path located along the west side of the trap field complex (Trap Fields 1 to 3); and an internal road that extended from the entrance

[6] Ibid., 30.
[7] Ibid., 30.
[8] Ibid., 30 and 51.

toward the site's east end. All of the circulation features were identified as non-contributing in the CLER.[9]

D. Buildings and Structures

1. Buildings and Structures on the Western End of the Site

a. Buildings

The CLER identified three buildings—the Shell House (ca. 1939 and expanded in 1949), the Trap Building (ca. 1960), and a public restroom (ca. 1965)—on the western end of the site.[10] These three buildings remain in their original location and are unaltered with exception of plywood which has been added to cover their window and door openings. Two new temporary buildings—a trailer and portable bathroom—are currently located on the parking lot. Refer to **Photos 3 to 8** for images of the Shell House, Trap House, and public restroom.

b. Trap Fields 1 to 3

In 2014, a trap field complex (Trap Fields 1, 2, and 3) at the northwest corner of the site consisted of three fields constructed between 1950 and 1955; this complex was identified as non-contributing in the CLER.[11] The trap fields were removed as part of the Remedial Action Project. Refer to **Photo 8** for a current view of the former location of these trap fields.

c. Skeet Fields 4 to 7

In 2014, four skeet fields (1938)—identified from west to east as Skeet Fields 4, 5, 6, and 7—were located on the western portion of the site.[12] These fields were removed during the Remedial Action Project and then rebuilt in their original locations and configurations.

The key ancillary features—security fences, high houses, and low houses—were removed and stored during the Remedial Action Project. These features have been returned to their original locations. Changes to these ancillary features include the following:

- A door provides access to the interior of each high house to allow loading and maintenance of the trap machinery. In 2014, each high house had wooden steps that provided access to this entrance door. Currently, the steps are missing on each high house.

- A portion of the safety fence between Skeet Fields 5 and 6 has collapsed and is currently lying on the ground.

[9] ibid., 51.
[10] Ibid., 31.
[11] Ibid., 33 and 51.
[12] Ibid., 34.

Refer to **Photos 9 to 22** for images of the skeet fields and their ancillary features.

Additionally, the non-contributing modifications for trap shooting on Skeet Fields 4 to 7—which consisted of concrete added to the interior of each skeet field to provide trap shooting lanes and stamped yardage markers in the concrete—were removed during the Remedial Action Project. The concrete paths, minus the stamped yardage markers, were redone when Skeet Fields 4 to 7 were rebuilt after the Remedial Action Project.

Other non-contributing structures and objects related to the operation of the skeet fields were removed as part of the Remedial Action Project and not replaced. These include the target crossing or center point post at each field, the equipment shed/control house at each field, a duck tower to the southwest of Skeet Field 6, modifications for the "Five Stand" game to Skeet Field 6 (five wood-frame shooting stands and three small equipment sheds), and two landing posts used to calibrate target machinery at Skeet Field 7 for Olympic Skeet.[13]

2. Buildings and Structures on the Eastern End of the Site

a. Buildings

The CLER identified several buildings that were located on the eastern end of the site. Three club buildings—the Caretaker's House (ca. 1937), the Clubhouse (1937), and the Rifle Range Building (1939)—that housed functions related to the operations of the PRGC facility remain in their original locations and are unaltered, with exception of plywood which has been added to cover their window and door openings. Additionally, a modern three-bay garage and the Barbeque Shed (ca. 1970) remain in their original locations; these two structures were identified as non-contributing in the CLER.[14] Refer to **Photos 23 to 30** for images of these buildings.

b. Structures

In 2014, three modern metal storage containers, were located southeast of the Clubhouse. These containers were removed as part of the Remedial Action Project.

c. Skeet Fields 8 and 9

In 2014, Skeet Fields 8 and 9 (1953) were located on the eastern portion of the site; these two fields were identified as non-contributing in the CLER.[15] These two fields were removed as part of the Remedial Action Project and were not rebuilt. This portion of the site is now covered with a mix of meadow and coastal shrub herbaceous plants which were planted after the end of the Remedial Action Project. Refer to **Photos 27** and **28** for two views of this area.

[13] Ibid., 51.
[14] Ibid., 51.
[15] Ibid., 51.

E. Small Scale Features

The CLER identified miscellaneous small-scale features related to the trap and skeet shooting activities. These features included a fire hose at the east end of the site; a pattern board east of Skeet Field 9; shotgun racks constructed of wood; benches (of a variety of styles and materials); signage providing directional and safety information; picnic tables, a flagpole and dedication monument at its base, and a water fountain in front (north) of the Shell House; a large wooden sign just west of the Shell House's commemorating the Merced Rancho; and small dedication monuments just north of station 8 at Skeet Fields 4 to 9.[16]

All of these small-scale features, which were identified as non-contributing in the CLER,[17] were removed as part of the Remedial Action Project.

F. Vegetation Features

The CLER identified areas around the fields and within the non-paved portion of each field as being planted with grass. The sloped portion of the site north of Fields 1 to 7—between the north edges of the fields and the shoreline vegetation communities—was dominated by ice plant.[18] The grass and shoreline vegetation, both of which were identified as non-contributing in the CLER,[19] were removed as part of the Remedial Action Project. After the Remedial Action Project was completed, these areas were seeded with a mix of meadow and coastal shrub herbaceous plants.[20]

The CLER identified the following trees: (1) small group of trees (six eucalyptus and one Monterey cypress) in the area between the Rifle Range building and Skeet Field 8 (i.e., in the vicinity of the Barbeque Shed); (2) several large eucalyptus trees along the southern edge of the site in the vicinity of the Caretaker's House and Clubhouse; (3) a short row of four Monterey pine trees east of the Clubhouse; and (4) a Monterey cypress on the west side of the entrance door to the Rifle Range Building.[21] All of these trees were identified as non-contributing in the CLER.[22] Most of these trees were removed as part of the Remedial Action Project; however, the following trees remain extant: two eucalyptus in the vicinity of the Barbeque Shed; the large eucalyptus trees south of the Caretaker's House and Clubhouse; and the Monterey cypress on the west side of the entrance door to the Rifle Range Building.

The CLER identified shoreline vegetation along the north (shoreline) edge of the site. All vegetation at the site, including that along the shoreline, was identified as non-contributing in the CLER.[23] After the Remedial Action Project was completed, the

[16] Ibid., 36-37.
[17] Ibid., 51.
[18] Ibid., 37.
[19] Ibid., 51.
[20] SFPUC 2015.
[21] CLER, 37.
[22] Ibid., 51.
[23] Ibid.

shoreline area was seeded with a mix of dune, erosion control, and upland herbaceous plants.[24]

The CLER identified a mix of native and non-native herbaceous and scrub species at the east end and along the bank that stretches along the southern edge of the site (next to John Muir Drive).[25] This vegetation, which was identified as non-contributing in the CLER,[26] was removed as part of the Remedial Action Project. After the Remedial Action Project was completed, the bank along the south side of the site was replanted with a mix of trees (Catalina ironwood [*Lyonothamnus floribundus*] and coast live oak [*Quercus agrifolia]*) and shrubs (coffeeberry [*Rhamnus californica*] and ceanothus [*Ceanothus* 'Ray Hartman"]) and was seeded with mix of coastal herbaceous plants.[27]

[24] SFPUC 2015.
[25] Ibid., 37.
[26] Ibid., 51.
[27] Ibid.

IV. EVALUATION

A. Summary of Federal, State, and Local Significance

The CLER provided an evaluation of the significance of the project site as a cultural landscape based on NRHP and CRHR Criteria A/1-D/4. Additionally, the NRHP Criteria guided the evaluation of significance for San Francisco's list of locally designated City Landmarks and Historic Districts which are designated under San Francisco Planning Code Article 10 (San Francisco Planning Department, 2013:6). A discussion of integrity was also provided.

The evaluation from the CLER and an update of the significance of the project site is provided below.

1. NRHP/CRHR Criterion A/1

a. Association with Recreation around Lake Merced

The CLER concluded that the project site does not appear to possess individual significance under NRHP/CRHR Criterion A/1 for this association with recreation around Lake Merced.

> *It* [the project site] *was one of several recreational facilities that developed on and around the lake during this period. Additionally, there is nothing inherent in its physical features that necessarily expresses or illustrates this association. In summary, the PRGC site does not appear to be individually significant under NRHP/CRHR Criterion A/1 for its association with the expansion of recreation around Lake Merced that occurred during the 1910s-1930s.*[28]

Today, the project site continues to lack individual significance under NRHP/CRHR Criterion A/1 for this association with recreation around Lake Merced.

b. Association with Expansion of Recreation in San Francisco by Work Projects Administration (WPA)

The CLER concluded that the project site does not appear to possess individual significance under NRHP/CRHR Criterion A/1 for its association with the WPA or with the expansion of San Francisco's recreational facilities during the Depression.

> *It* [project site] *was one of many recreational facilities in San Francisco constructed at least in part with WPA funding and labor. Additionally the work done at the PRGC site in 1939 by the WPA involved clearing the site of brush and other vegetation and grading, and there is nothing inherent in the site's physical features that necessarily expresses or illustrates its association with the WPA. In summary, the PRGC site does not appear to*

[28] CLER, 38.

> *possess individual significance under NRHP/CRHR Criterion A/1 for its association with the WPA and the expansion of San Francisco's recreational facilities during the Depression through the funding and work provided by the this agency.*[29]

Today, the project site continues to lack individual significance under NRHP/ CRHR Criterion A/1 for this association with the WPA and with the expansion of San Francisco's recreational facilities during the Depression.

c. Association with the Development of Sportsmen's Clubs and Skeet within the Context of the Early 20th Century Wildlife Conservation Movement

The CLER concluded the following:

> *The PRGC appears eligible for listing on the NRHP and CRHR at the local level of significance under Criterion A/1 for its association with the broad pattern of history related to the increased popularity of sport hunting and with the interrelated development of skeet—during the period it evolved from a type of shooting practice into a competitive sport—that occurred during the decades preceding World War II within the context of the early 20th century wildlife conservation movement. The PRGC is important as an example of the type of sportsmen's gun club that formed in the 1920s and 1930s within the context of the democratization of hunting, illustrating the social experience connected with the conservation movement. Additionally, the PRGC is important as the oldest extant skeet facility in the Bay Area and as the only sportsmen's club in the Bay Area to retain its original pre-World War II grounds configuration, skeet field structures, and club buildings. Other clubs that remain in operation from this pre-World War II era do not have skeet fields or have moved to newer facilities and are no longer located at their pre-World War II sites. The period of significance for the PRGC's significance under Criterion A/1 appears to begin in 1934 when the club moved to the Lake Merced site and to end in 1941 with the United States' entry into World War II, which ended the club's initial period of development. Although the activities of the club remained unchanged after World War II, its post-war expansion period (1946-early 1960s) was more directly linked with other contexts, including the broad interest in outdoor recreation that occurred within the context of the nation's post-World War II prosperity and an increased interest in skeet that was a by-product of World War II training practices, than to the early 20th century conservation movement.*[30]

Today, the project site continues to be eligible for listing on the NRHP and CRHR at the local level of significance under Criterion A/1 for its association with the broad pattern of history related to the increased popularity of sport hunting and with the interrelated

[29] Ibid., 38.
[30] Ibid., 39.

development of skeet—during the period it evolved from a type of shooting practice into a competitive sport—that occurred during the decades preceding World War II within the context of the early 20th century wildlife conservation movement.

2. NRHP/CRHR Criterion B/2

The research conducted in the CLER did not reveal any associations with important individuals who made specific contributions to history, and the CLER concluded that the project site does not appear to possess individual significance under NRHP/CRHR Criterion B/2 (Persons) for its associations with important persons.[31]

Today, the project site continues to lack individual significance under NRHP/ CRHR Criterion B/2 (Persons) for its associations with important persons.

3. NRHP/CRHR Criterion C/3

The CLER concluded that project site does not appear to possess individual significance under NRHP/CRHR Criterion C/3 for associations related to design or construction. The CLER explained this conclusion as follows:

> *The five skeet fields and three trap fields each individually meet the standard design or construction regulations for their respective sports and retain their essential individual features or components. However; each field is an individual common example of a skeet or trap field that lacks significance related to design or construction. Collectively, the target shooting range at the PRGC represents a vernacular example of the arrangement of skeet and trap fields adapted to the geographic limits of this site (a strip of land situated between the Lake Merced and a public road), does not appear to have been designed or built by a master designer, and lacks significance related to design or construction. The buildings on the site (the Clubhouse, the Caretaker's House, the Rifle Range building, the Shell House, and the Trap House) remain in their original locations and are important for the operational and social functions of the clubs; however they are all common examples of vernacular buildings and lack significance related to design or construction.*[32]

Today, the project site continues to lack individual significance under NRHP/ CRHR Criterion C/3 for associations related to design or construction.

[31] Ibid., 41.
[32] Ibid., 41-42.

4. NRHP/CRHR Criterion D/4

The CLER stated that the project site does not appear to be individually significant under NRHP/CRHR Criterion D/4.

> *NRHP/CRHR Criterion D/4 commonly applies to properties that contain or are likely to contain information bearing on an important archaeological research question. The identification of archaeological resources was outside of the scope of this report. However, based on the information that was gathered during this report, it appears unlikely that the PRGC has the potential to yield archaeological information important in prehistory or history and so does not appear to be individually significant under NRHP/CRHR Criterion D/4.*[33]

Today, the project site still appears unlikely to have the potential to yield archaeological information important in prehistory or history and continues to lack individual significance under NRHP/ CRHR Criterion D/4.

B. Integrity

The CLER concluded that project site retained its integrity under NRHP/CRHR Criterion A/1.

> *The PRGC cultural landscape appears to exhibit all seven aspects of integrity in relationship to its individual significance under NRHP/CRHR Criterion A/1 in association the development of sportsmen's clubs and skeet within the context of the early 20th century wildlife conservation movement. The arrangement of the site, the four 1938 skeet fields, and the buildings of the PRGC from the 1934-1941 era are still extant and are used as they were originally intended. Since 1941, the changes that have occurred have been within locations that had previously been used for skeet and trap activities during the 1934-1941 era, did not alter the facilities from that era, and were compatible with the continued use of the site as a sportsmen's club and outdoor target shooting range. These changes included the expansion of the skeet* fields ([Skeet Fields] *8 and 9) and trap fields* ([Trap] *Fields 1, 2, and 3), the addition of a duck tower, the addition of a building related to the trap operations (the Trap House), the replacement of minor equipment related to these activities, and the addition of small utilitarian or support structures (the Barbeque Shed, the public restroom, a garage, and storage containers). There have been minor alterations to some of the original buildings (the Clubhouse, the Caretaker's House, the Rifle Range building, and the Shell House) from the 1934-1941 era, such as changes to the windows and doors, as well as some accessibility improvements.*[34]

[33] Ibid., 42.
[34] Ibid., 42.

Today, the project site continues to retain its integrity. A summary of the individual aspects of integrity from the CLER and an update to each aspect of integrity are provided below. Changes associated with the Remedial Action Project which have impacted integrity are also provided.

1. Location

The CLER stated that the project site retained its integrity of location.

> *The PRGC has been located on a narrow strip of land (approximately 10 acres in size) that is situated between the shoreline of the South Lake of Lake Merced and John Muir Drive, just east of the intersection with Skyline Boulevard, since 1934 and retains its integrity of location.*[35]

Today the project site continues to occupy the same location and to retain its integrity of location.

2. Design

The CLER stated that the project site retained its integrity of design under NRHP/CRHR Criterion A/1.

> *In summary, the PRGC appears to retain its integrity of design; it retains its four 1938 fields* ([Skeet] *Fields 4 to 7); each of these fields retains its character-defining features (a level terrace with a semi-circular path system, high and low houses, and safety fences); it retains the club buildings from the period of significance (the Club House, the Caretaker's House, the Rifle Range building, and the Shell House); the alterations . . . are generally compatible with* [the] *use of the site as an outdoor target shooting range.*[36]

Today the project site continues to retain the key aspects of design described in the CLER and to retain its integrity of location.

3. Materials and Workmanship

The CLER stated that the project site retained its integrity of materials and workmanship under NRHP/CRHR Criterion A/1. The CLER identified wood materials and their associated workmanship as being characteristic of the PRGC cultural landscape during its period of significance.

> *Wood was used for the framing and siding materials for the club buildings (the Clubhouse, the Caretaker's House, the Rifle Range building, and the Shell House). Wood boards and posts were used for some of the character-defining features of* [Skeet] *Fields 4 to 7 (the safety fences, the high and low houses, the steps associated with the high houses) . . . The*

[35] Ibid., 43.
[36] Ibid., 45-46.

> *predominance of wood in the club buildings and in the components of the skeet fields provides a strong visual link and contributes to the feelings associated with the club's pre-World War II origins. . . . Although there have been losses to the materials/workmanship from the period of significance and the addition of new ones, the PRGC cultural landscape still retains its integrity of materials and workmanship through the predominant presence of wood in the character-defining features of the* [skeet] *fields and club buildings*.[37]

With the exception of the wood steps associated with the high houses, which were not returned to the site after the Remedial Action Project, the project site continues to retain the examples of wood for the safety fences, high and low houses, and club buildings, as described in the CLER. The project site continues to retain its integrity of materials and workmanship.

4. Setting and Feeling

The CLER stated that the project site retained its integrity of setting and feeling under NRHP/CRHR Criterion A/1.

> *During the period of significance (1934-1941) the setting for* [the] *PRGC cultural landscape and the feelings associated* [with] *it were of an outdoor target shooting range set within a largely undeveloped portion of the city along the shoreline of Lake Merced to the north and undeveloped property with a large stand of trees to the south. Today, the internal setting and feelings associated with the outdoor target shooting range remain. The lake-side setting and feeling associated with this setting remain unaltered, including the shooting activities set back from John Muir Drive by the open area that serves as the property's parking lot. The continued presence of wood materials for key components in the skeet fields and in the club buildings provides a strong visual link and contributes to the feelings and setting associated with the club's pre-World War II origins.*
>
> *The addition of the multi-story Lakeside Apartments on the south side of the property represents an intrusion into the setting around the PRGC site and lessens the feelings of being in an undeveloped part of the city. However, given that the primary views for people using the fields are directed toward the lake (which remains unaltered), the PRGC cultural landscape continues to retain its integrity of setting and feeling.*[38]

Today, the aspects of setting and feeling described in the CLER are still observable, and the project site retains its integrity of setting and feeling.

[37] Ibid., 46-47.
[38] Ibid., 47-48.

5. Association

The CLER stated that the project site retained its integrity of association under NRHP/CRHR Criterion A/1.

> *The PRGC cultural landscape was associated with skeet and trap shooting activities during its period of significance (1934-1941). Today, it retains the key physical features that were present during its period of significance, listed above under Design, and continues to be strongly identified and associated with these activities and with the PRGC. In summary, the PRGC cultural landscape retains its integrity of association.*[39]

The project site is no longer actively used for target shooting, and the PRGC no longer uses the site. However, the project site continues to retain the key cultural landscape features and characteristics that were associated with its significance under NRHP/CRHR Criterion A/1 during the period of significance and so retains its integrity of association.

D. Contributing and Non-Contributing Features

1. Contributing Features

The CLER defined the contributing features for the project site as follows:

> *The features that were added to the PRGC property during its period of significance (1934-1941) and which relate to its significance under NRHP/CRHR Criterion A/1, for its association with the broad pattern of history related to the increased popularity of sport hunting and the development of skeet within the context of the early 20th century wildlife conservation movement.*[40]

The CLER identified the following as contributing features for the PRGC cultural landscape related to its significance under NRHP/CRHR Criterion A/1 for the period between 1934 and 1941:

- Skeet Fields 4 to 7 (constructed in 1938) and their character-defining features:
    - A **level terrace** for the fields;
    - The **linear arrangement** of the fields;
    - The **semi-circular path system** of each skeet field and its character-defining features (the form and dimensions, not the concrete materials);

[39] Ibid., 48.
[40] Ibid., 49.

- The **High House** at each skeet field and its character-defining features (wood frame tower structure, square in plan with a flat roof, clad in a combination of wood siding at the top and smooth stucco siding on the bottom, door that provides access to the interior to allow loading and maintenance on the trap machinery, wood steps that provide access to this entrance door, and a window on the east side that provides an opening through which the targets are launched for each skeet field);[41]

- The **Low House** for each skeet field and its character-defining features (wood frame tower structure, square in plan with a flat roof, clad in a combination of wood siding at the top and smooth stucco siding on the bottom, door that provides access to the interior to allow loading and maintenance on the trap machinery, and a window on the west side that provides an opening through which the targets are launched);[42] and

- The **Safety Fences** and their character-defining features (wood boards attached to opposite sides of the wood posts so that the position of the boards on one side alternates or is staggered with the ones on the other side).

- The buildings that house the operational and social functions of the club:

  - The **Clubhouse** (1937) and its character-defining features (wood-framed, raised single story structure with a rectangular footprint and cross gable roof, exposed eaves, and horizontal wood siding);

  - The **Caretaker's House** (ca. 1937) and its character-defining features (wood-framed, single story structure with a rectangular footprint and gable roof, exposed eaves, horizontal wooden siding, gable ends with fish scale shingles [east side] and thin vertical wooden siding [west side], and original wood frame, double hung windows on the south, north, and west facades, and fixed wood shutters and entry shed on north facade);

  - The **Rifle Range Building** (1939) and its character-defining features (wood-framed, raised single story structure with a rectangular footprint and gable roof, exposed eaves, horizontal wood siding, wood frame, double hung, four-pane windows on the north, south, and west facades); and

[41] The CLER explained that "the external siding on the high house on [Skeet] Field 4 has been remodeled since the end of the period of significance and the structure is now entirely clad in wood siding" (p. 50). However, the high house remains in its original location, retains all of its other character-defining features, and so continues to retain its integrity.

[42] The CLER explained that "the external siding on the low house on [Skeet] Field 4 has been remodeled since the end of the period of significance and the structure is now entirely clad in wood siding" (p. 50). However, the low house remains in its original location, retains all of its other character-defining features, and so continues to retain its integrity.

- The **Shell House** (ca. 1939, expanded in 1949) and its character-defining features (wood-frame, single story structure with a rectangular footprint and low pitch gable roof with exposed eaves, textured stucco cladding, raised porch, and a large, wood frame, fixed pane picture window on the western façade).[43]

Today, these contributing features listed in the CLER remain on the project site.

2. Non-Contributing Features

The CLER identified non-contributing features for the project site as those features that (1) may have been present during the period of significance but were not associated with the pre-World War II design or function of the site as an outdoor target shooting range/sportsmen's club (for example, parking lot and vegetation) or (2) were added to the property after the end of its period of significance in 1941.[44] The CLER listed the following non-contributing features:

- Trap Fields 1 to 3, their associated features, and the Trap House;
- Alterations to Skeet Fields 4 to 7 including the equipment shed behind station 4, the concrete paving, the target crossing point post positioned 10 feet north of station 8, and the trap houses (aligned with station 8) in the sloped area next to the lake;
- Modifications on Skeet Field 6 for the five-stand game (the five stand racks, equipment shed behind stations 2 and 3, the equipment shed behind stations 5 and 6, the equipment shed in the sloped area next to the lake);
- Duck Tower;
- Skeet Fields 8 and 9, used for skeet, and their associated features;
- The two landing posts used to calibrate the Olympic Skeet target machinery for Skeet Field 7 on the sloped area north of the field and the Rifle Range building; and
- The internal automobile circulations features (parking lot on the western end of the site and the internal road on the eastern end of the site) and concrete sidewalk between Skeet Fields 4 to 7 and the parking lot;
- Small structures including the Barbeque Shed, the public restroom, the three-bay garage, and the storage containers;
- Vegetation features; and

[43] Ibid., 49-50.
[44] Ibid., 49.

- Small scale features including the entrance sign, the flag pole and water fountain between the Shell House and the fields, site furnishings (benches, trash cans, picnic tables, lights, etc.), shotgun racks, token boxes, center point posts, trap portable scorer's stands, memorial field markers, the rifle pattern board, the fire hose, chain-link fencing, and the interpretive sign commemorating Rancho Merced (located adjacent to the Shell House).[45]

With the exception of the Trap House, the Barbeque Shed, the three-bay garage, the restroom building, and some large trees and vegetation, all of the non-contributing features were removed as part of the Remedial Action Project.

[45] Ibid., 51-52.

V. SUMMARY

After the completion of the Remedial Action Project the following actions were undertaken at the project site:

- Skeet Fields 4 to 7 were rebuilt in their original locations, and they retain their character-defining features including a level terrace for the fields, the linear arrangement of the fields, and the semi-circular path system of each skeet field.

- The original high and low houses for each field were returned to their original locations. The only change has been of the loss of the wood steps associated with each high house; these steps were not returned to the site after the Remedial Action Project.

- The original safety fences for each were returned to their original locations. The only change has been the collapse of a portion of the safety fence between Skeet Fields 5 and 6; a section of this fence is currently lying on the ground.

- The buildings—Clubhouse (1937), Caretaker's House (ca. 1937), Rifle Range Building (1939), and Shell House (ca. 1939, expanded in 1949)—remain in their original locations. They are unaltered, with exception of plywood which has been added to cover their window and door openings.

As a result of these actions, the project site continues to exhibit all seven aspects of integrity in relationship to its individual significance under NRHP/CRHR Criterion A/1 in association the development of sportsmen's clubs and skeet within the context of the early 20th century wildlife conservation movement. The contributing features identified in the CLER all remain in place. The arrangement of the site, the four 1938 skeet fields, and the PRGC buildings from the 1934-1941 era are still extant and continue to exhibit the character-defining features identified in the CLER.

In summary, the project site at 520 John Muir Drive—the former PRGC site—continues to be eligible for listing on the NRHP and CRHR at the local level of significance under Criterion A/1 for its association with the broad pattern of history related to the increased popularity of sport hunting and with the interrelated development of skeet—during the period it evolved from a type of shooting practice into a competitive sport—that occurred during the decades preceding World War II within the context of the early 20th century wildlife conservation movement. The period of significance under Criterion A/1 continues to begin in 1934 when the PRGC moved to the Lake Merced site and ends in 1941 with the United States' entry into World War II, which ended the PRGC's initial period of development.

VI. BIBLIOGRAPHY

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Google Earth. Aerial photographs (assembled from various sources) that include the Pacific Rod & Gun Club. 2014-2019.

SFPUC Infrastructure Division. *Site Remediation at 520 John Muir Drive, Planting Plan 1*. January 2015.

APPENDIX

Figure 1: Location of Cultural Landscape Features Before Remediation

Figure 2: Location of Cultural Landscape Features After Remediation

Figure 3: Location of Photographs Showing Site After Remediation

Photos 1 to 30

Figure 1: Location of Cultural Landscape Features Before Remediation (Source of Base Map: GoogleEarth 4-2013)

Key to Location of Features

Contributing Feature
Non-Contributing Feature

1 Former Location of Trap Field 1
2 Former Location of Trap Field 2
3 Former Location of Trap Field 3
4 Skeet Field 4
5 Skeet Field 5
6 Skeet Field 6
7 Skeet Field 7
8 Former Location of Skeet Field 8
9 Former Location of Skeet Field 9
10 Trap House
11 Restroom Building
12 Shell House
13 Parking Lot
14 Entrance
15 Garage
16 Caretaker's House
17 Clubhouse
18 Rifle Range Building
19 Barbeque Shed
20 Eucaluptus Trees

Figure 2: Location of Cultural Landscape Features After Remediation
(Source of Base Photo: GoogleEarth 3-2018)

Figure 3: Location of Photographs Showing Site After Remediation
(Source of Base Photo: GoogleEarth 3-2018)

Photo 1. Entrance (non-contributing feature); facing north; 15 October 2019.

Photo 2. Parking lot (non-contributing feature) and temporary construction trailer; facing northwest; 15 October 2019.

Photo 3. Shell House (contributing building); facing northwest; 15 October 2019.

Photo 4. Shell House (contributing building); facing southeast; 15 October 2019.

Photo 5. Trap House (non-contributing building); facing northwest; 15 October 2019.

Photo 6. Trap House (non-contributing building); land in foreground was former site of non-contributing trap fields; facing southeast; 15 October 2019.

Photo 7. Restroom (non-contributing building); facing southeast; 15 October 2019.

Photo 8. Overview of Skeet Fields 4 to 7 (contributing features); facing east; 15 October 2019.

Photo 9. Safety fence (contributing feature) on west side of Skeet Field 4; facing east; 15 October 2019.

Photo 10. High House (contributing feature) for Skeet Field 4; facing northwest; 15 October 2019.

Photo 11. Low House (contributing feature) for Skeet Field 4; facing northeast; 15 October 2019.

Photo 12. High House (contributing feature) for Skeet Field 5; facing northeast;
15 October 2019.

Photo 13. Low House (contributing feature) for Skeet Field 5; facing northwest; 15 October 2019.

Photo 14. Safety fence (contributing feature) between Skeet Fields 5 and 6; facing southeast; 15 October 2019.

Photo 15. High House (contributing feature) for Skeet Field 6; facing northeast; 15 October 2019.

Photo 16. Low House (contributing feature) for Skeet Field 6; facing southeast; 15 October 2019.

Photo 17. Safety fence (contributing feature) between Skeet Fields 6 and 7; facing northwest; 15 October 2019.

Photo 18. High House (contributing feature) for Skeet Field 7; facing northwest; 15 October 2019.

Photo 19. Low House (contributing feature) for Skeet Field 7; facing northeast; 15 October 2019.

Photo 20. Overview of Skeet Field 7 (contributing feature) as typical example of field; facing west/northwest; 15 October 2019.

Photo 21. Overview of Skeet Fields 4 to 7 (contributing features) showing linear arrangement (contributing spatial organization characteristic) and level terrace (contributing topographic characteristic); facing west/northwest; 15 October 2019.

Photo 22. Linear arrangement of Skeet Fields 4 to 7 (far left) and topographic character of outfield area which slopes down to Lake Merced; facing west/northwest; 15 October 2019.

Photo 23. Rifle Range Building (contributing building); facing northeast; 15 October 2019.

Photo 24. Garage (non-contributing building); facing southeast; 15 October 2019.

Photo 25. Clubhouse (contributing building) on left and Caretaker's House (contributing building) on right; facing south; 15 October 2019.

Photo 26. Caretaker's House (contributing building); facing southeast; 15 October 2019.

Photo 27. Overview of former location of Skeet Fields 8 and 9 (non-contributing features); facing east; 15 October 2019.

Photo 28. East end of site showing (A) Clubhouse (contributing building) and (B) former location of Skeet Fields 8 and 9 (non-contributing features); facing west; 15 October 2019.

Photo 29. Barbeque Shed (non-contributing feature) with Rifle Range Building (contributing building) in background; facing west; 15 October 2019.

Photo 30. Barbeque Shed (non-contributing feature) on right with Rifle Range Building (contributing building) in background; facing northwest; 15 October 2019.

APPENDIX E
TRANSPORTATION ANALYSIS MEMORANDUM

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San Francisco Planning

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Date: October 18, 2021
To: Lake Merced West Project, Planning Department File No. 2019-014146ENV
From: Ryan Shum, Transportation Planner
Re: Transportation Analysis Memo

Purpose

This memo presents transportation impact analysis in support of the Lake Merced West project environmental analysis. Topics covered in this memo include travel demand and modal split, peak hour freight and passenger loading demand, and vehicle miles traveled (VMT) and induced automobile travel. Other transportation topics were screened out of further analysis, and a discussion of that determination is discussed herein. This memo was prepared in accordance with the San Francisco Planning Department's San Francisco Transportation Impact Analysis Guidelines.[1]

Project Description

The proposed Lake Merced West project would redevelop approximately 11 acres on the southwest side of Lake Merced, which is property of the San Francisco Public Utilities Commission. The project site is the location of the old Pacific Rod and Gun Club and currently developed with four skeet fields, five main buildings, three smaller buildings, and a paved parking area.

The proposed project is the construction and operation of the Lake Merced West recreation center, which would offer a wide array of recreational activities open to the public, such as trail use, picnicking, paddleboarding, kayaking, fishing, fitness activities, a ropes course, bird watching, space for outdoor exercise, skateboarding, multi-use courts for basketball and other activities, as well as restaurant dining, and indoor space for gatherings such as community meetings and birthday parties. The facility would include areas that could be used flexibly for a wide variety of uses such as picnics and larger gatherings; as well as areas designated for programmed activities.

The existing buildings on the project site would be demolished. A new community building and restaurant would be built near the center of the site. A new boathouse building is also proposed at the southeastern end of the site. Upon completion of construction, the project site would include the following buildings and uses:

- Community Building (3,500 sf) – community group meetings, birthday parties, recreational activities, and administrative offices
- Restaurant (5,000 sf) and associated outdoor dining area – Restaurant capacity for 150 people inside and 70 people outside on the patio

[1] San Francisco Planning Department. *Transportation Impact Analysis Guidelines for Environmental Review*. February 2019 (updated October 2019). Available at: https://sfplanning.org/project/transportation-impact-analysis-guidelines-environmental-review-update#impact-analysis-guidelines

- Boathouse (3,000 sf) – boat storage and rental kiosk, administrative office, public restrooms
- Restrooms and Storage (1,000 sf)
- SFPUC Arborist Office (3,800 sf) and Yard – one office and 4-6 work stations, locker room, four employee parking spaces, covered parking for trucks and equipment including three trucks, a bucket truck, a wood chipper, a stump grinder, a mini skid steer loader, and one dump trailer.

Public access to the site would be permitted during operating hours. The recreation facility would operate during daylight hours, and the restaurant would be open through dinner. The restaurant could accommodate a total of about 220 people, including its patio. The main site gate would be closed when the restaurant closes, restricting access to the site during non-operating hours. The restaurant would require regular freight deliveries, averaging two deliveries each week.

The public parking area (about 27,100 sf) would have approximately 80 stalls, including Americans with Disabilities Act-compliant stalls, a small parking and loading areas near the ropes course and boat house. Four parking spaces for SFPUC arborist staff would be within the arborist facility. A two-lane vehicle entry and exit driveway (approximately 30 feet wide) to the main parking area would be provided from John Muir Drive, to the west of the existing driveway; the existing driveway on John Muir Drive would be removed. A second driveway of the same size would be constructed to the east of the main entry and provide access to the loading/drop-off zone and five vehicular parking spaces near the boat launch and arborist facility. Three pedestrian entries would be also added – see Figure 2-3 Project Site Plan of the Environmental Impact Report. Bicycle racks would be located at various locations across the site to accommodate 30 bicycles. If bicycle parking demand increases, additional bicycle racks could be installed in other areas of the site.

Project operation would employ an estimated 15-20 full time equivalent employees. These staff would be employed by a concessionaire and would be drawn from the local and regional work force. No changes to city agency staffing levels are anticipated during project operations and maintenance; site oversight and maintenance would be performed by existing city employees.

The SFPUC arborist team, approximately 6 existing employees, would operate an office at the project site and store equipment and vehicles at the yard. Typically, the arborist office and yard would operate between 6:30 a.m. to 3:00 p.m. Monday through Friday. As discussed above, a separate entrance driveway from John Muir Boulevard would provide access to the arborist office and yard. Arborists would be dispatched from the facility to perform work at sites across the city.

In addition to regular programming and site uses, up to 12 events with approximately 500 visitors per event could be held each year. These events would be coordinated with the Recreation and Park Department and other city agencies, such as the San Francisco Municipal Transportation Agency (SFMTA), as needed. No street closures are anticipated for these special events. In the event that a street closure is proposed, the proposal will be reviewed by the SFMTA and the Interdepartmental Staff Committee on Traffic and Transportation (ISCOTT). ISCOTT review would ensure that the proposed event would not hinder public transit operations in the area, and that adequate roadway safety measures are implemented, if needed. If an event cannot meet the aforementioned requirements, the street closure permit will be denied.

Transportation Setting

The project site is bounded by Lake Merced to the north and east, and John Muir Drive to the west and south. John Muir Drive provides the primary transportation access point to the site. The project site is the former site of the Pacific Rod and Gun Club and consists of four skeet fields, a paved area for vehicles, and abandoned structures; the project site is currently being used for construction staging and equipment storage by the SFPUC's Sewer System Improvement Project and arborist team. The south side of John Muir Drive across from the project site contains residential uses. There are currently no passenger or freight loading zones on John Muir Drive in the project vicinity.

John Muir Drive in the project vicinity is a two-lane roadway (one lane in each direction) with a class II bikeway[2] in each direction. Near the project site, there is also street parking on both sides of John Muir Drive and a pedestrian sidewalk on both sides of the roadway. The project site is served by the 57-Park Merced Muni bus route, which has four bus stops in the project vicinity (two stops on each side of the road serving the inbound and outbound directions respectively). Under normal operations, the 57-Park Merced arrives approximately every 20 minutes.[3] At the time of writing (April 2021), Muni is operating a core service plan in response to COVID-19 emergency conditions. As a result, the 57-Park Merced route has temporarily been suspended.

Travel Demand

Lake Merced is a popular recreational area for nearby city residents and members of the public. The project site is currently closed and unused; however, the surrounding Lake Merced recreational area is open and well-used. The project proposes to redevelop this unused portion of Lake Merced with a wide array of recreational activities open to the public, such as trail use, picnicking, paddleboarding, kayaking, fishing, fitness activities, a ropes course, bird watching, space for outdoor exercise, skateboarding, multi-use courts for basketball and other activities, as well as restaurant dining, and indoor space for gatherings such as community meetings and birthday parties. With project implementation, Lake Merced would attract users from a wider geographic area of the city. In this sense, the proposed project represents greater utilization of an existing use. Accordingly, the following travel demand analysis estimates the number of new trips that would result from new users of the site.

Weekday Trip Generation

Net new weekday trips for the proposed project were estimated using the weekday trip generation rate derived from the *Institute of Transportation Engineers (ITE), 9th Edition Trip Generation*. This trip generation rate is consistent with the type and uses expected of the proposed project and is consistent with the rate used for other recreational open space projects in San Francisco. Based on a daily trip rate of 24.3, the proposed open space recreational uses would generate approximately 268 net new daily person trips, with 70 of those trips occurring during the PM peak hour. The proposed restaurant use on-site would conservatively generate approximately 1,000 daily person trips, with 135 of those trips occurring during the peak PM hour. In total, the proposed project would generate approximately 205 net new PM peak hour person trips. However, the project's trip generation will be constrained in part by the number of parking

[2] Class II bicycle lanes are located on-street but separated from vehicle traffic.
[3] At the time of publication, the 57-ParkMerced route is suspended due to the city-wide shelter-in-place. However, it is expected that the route would resume regular service once shelter-in-place is lifted.

spaces available in the proposed project, as further described in the Weekend Trip Generation section below. Table 1 below shows the number of net new weekday daily person trips that would be anticipated from the proposed project.

Table 1: Weekday Daily Person Trips

Land Use	Project Size	Daily Trip Rate[1]	Daily Person Trips	PM Peak Hour Trips[2,3,4]
Open Space	11 acres	24.3 trips per acre	268	70
Restaurant	5,000 sf	200 trips per ksf	1,000	135
Total			*1,268*	*205*

[1] Fehr & Peers. *Indian Basin Development – Transportation Impact Study*. August 2017.
[2] PM peak hour trips for open space uses is assumed to be 25.9% of total daily trips
[3] PM peak hour trips for restaurant uses is assumed to be 13.5% of total daily trips
[4] Fehr & Peers. *Indian Basin Development – Transportation Impact Study*.
[5] ksf = thousand square feet

Weekend Trip Generation

Weekend trips are generally more spread throughout the day in comparison to weekday trips, which are more concentrated during the AM and PM peak periods. As previously discussed, the proposed project would attract new users to the site and accordingly generate new trips to the site. These new trips would contribute to existing trips from existing recreational users of Lake Merced.

To estimate the total number of net new weekend trips, the Planning Department (department) based the methodology on the proposed uses of the site, availability of parking, and limited transit access in the project vicinity, and conservatively assumed that the majority of new users would drive to the site.[4] In other words, automobile vehicle trips would constitute the majority of net new person trips to the site, as further explained in the "Modal Split" section below. Thus, to estimate the number of net new weekend vehicle trips, the department conservatively assumed that the proposed project would generate one trip per on-site parking space with an average parking space turnover rate of two hours (i.e., each vehicle would be parked for two hours). Assuming typical daylight operating hours of 8:00 AM to 6:00 PM and given that there are approximately 80 parking spaces in the proposed parking lot, the proposed project is estimated to generate approximately 800 vehicle trips throughout the day on a typical weekend day (400 inbound trips and 400 outbound trips).

The number of total net new daily weekend trips was estimated using the modal split of a representative recreational use, based on the total number of net new weekend vehicle trips per day.[5] In other words, the methodology applied the representational modal split to the 800 estimated net new vehicle trips to extrapolate the number of net new trips by walking, bicycling, and transit (see Table 3). In total, the

[4] Weekend trip generation rates for open space uses are not available in the ITE trip generation rates.
[5] CHS Consulting Group. *Ocean Beach Climate Change Adaptation Project – Traffic Operations Analysis*. Table 10. March 12, 2021

proposed project would generate approximately 963 net new daily weekend person trips across various ways people travel. The modal split of the proposed project is further described below.

Special Events

Annually, the proposed project may host up to 12 events with approximately 500 visitors. Based on the anticipated number of visitors and previously described modal split for the project, these special events would generate approximately 1,000 trips (one inbound and one outbound trip per attendee) consisting of: 830 private vehicle trips, 80 TNC/taxi trips, 70 transit trips, and 20 walking trips. The same modal split for weekdays and weekends was applied to special events to provide a conservative estimate of vehicle trips associated with special events.

Ways People Travel (Modal Split)

The project-generated person-trips were assigned to different ways people travel to determine the number of automobile, transit, walking, biking, and other trips. Note that these trips represent new trips made by new users that would be accessing the project site. Existing users of the Lake Merced area would also continue to access the area, as well as the project site; however, for a conservative analysis these trips are not captured in the trip numbers below. Weekday and weekend trips by mode are shown in Table 2 and Table 3 below respectively. Given the recreational uses proposed for the project site, the department expects that people would travel to the project site the same way on weekdays and weekends and thus the same modal split was applied to both weekday and weekend trips.

As shown in Table 2, approximately 1,052 private vehicle trips, 102 transportation network company (TNC) or taxi trips, 89 public transit, and 25 walking trips would occur on a typical weekday.

As shown in Table 3, approximately 800 private vehicle trips, 77 TNC or taxi trips, 67 public transit, and 19 walking trips would occur on a typical Saturday or Sunday.

The number of new users who would bike to the project site is estimated to be a negligible amount. New users are more likely to travel to the site using automobiles, TNCs/taxis, public transit, or by walking and people who currently bike to Lake Merced would likely continue to bike.

Table 2 – Weekday Modal Split

Mode Choice	Total Net New Trips (Open Space)		Total Net New Trips (Restaurant)		Percentage of Trips[4]
	Daily Trips	Estimated PM Peak Trips[1,3]	Daily Trips	Estimated PM Peak Trips[2,3]	
Automobile	222	58	830	112	83%
TNC / Taxi	22	6	80	11	8%
Muni Bus / Rail	19	5	70	9	7%
Walking	5	1	20	3	2%
Bicycle	0	0	0	0	0%
Other	0	0	0	0	0%
Total	268	70	1,000	135	100%

[1] PM Peak trips for open space uses are estimated to comprise of 25.9% of total daily trips

[2] PM peak hour trips for restaurant uses is assumed to be 13.5% of total daily trips

[3] Fehr & Peers. *India Basin Development – Transportation Impact Study*. August 2017.

[4] CHS Consulting Group. *Ocean Beach Climate Change Adaptation Project – Traffic Operations Analysis*. Table 10. March 12, 2021.

Table 3 – Weekend Modal Split

Mode Choice	Total Net New Trips	Percentage of Trips[1]
Automobile	800	83%
TNC / Taxi	77	8%
Muni Bus / Rail	67	7%
Walking	19	2%
Bicycle	0	0%
Other	0	0%
Total	963	100%

[1] CHS Consulting Group. *Ocean Beach Climate Change Adaptation Project – Traffic Operations Analysis*. Table 10. March 12, 2021. *South Ocean Beach Coast Protection Project – Existing Area Traffic Operations Evaluation (Draft)*. July 26, 2019.

Table 4 presents the ways people would be expected to travel to the project site during special events.

Table 4 – Special Events Modal Split

Mode Choice	Total Net New Trips	Percentage of Trips[1]
Automobile	830	83%
TNC / Taxi	80	8%
Muni Bus / Rail	70	7%
Walking	20	2%

Bicycle	0	0%
Other	0	0%
Total	1,000	100%

[1] CHS Consulting Group. *Ocean Beach Climate Change Adaptation Project – Traffic Operations Analysis*. Table 10. March 12, 2021.

Passenger and Freight Loading Demand

Table 5 – Passenger Loading Demand

Period of Analysis	Passenger Loading Demand[1]	Peak 15 Minute Spaces of Loading Demand[2]	Rounded 15 minutes of PM Peak Hour Spaces of Loading Demand
Weekday (PM Peak Hour)	26	0.87	1
Weekend (Daily)	67	2.2	3
Special Events	80	2.66	3

[1] The passenger loading analysis assumes all TNC/Taxi trips would require use of passenger loading spaces.

[2] The methodology of calculating peak 15-minute loading demand is provided on page F-12 of the San Francisco Transportation Impact Analysis Guidelines.

Transportation Impact Analysis

Significance Criteria

The proposed project's transportation-related impacts were analyzed per the following significance criteria:

Construction

Construction of the project would have a significant effect on the environment if it requires a substantial extended duration or intense activity that could create potentially hazardous conditions for people walking, bicycling, driving, or riding public transit; or interfere with emergency access or accessibility for people walking or bicycling; or substantially delay public transit.

Operation

Operation of the project would have a significant effect if it would:

- Create potentially hazardous conditions for people walking, bicycling, or driving or public transit operations.
- Interfere with accessibility of people walking or bicycling to and from the project site, and adjoining areas, or result in inadequate emergency access.
- Substantially delay public transit.

- Cause substantial additional VMT or substantially induce additional automobile travel by increasing physical roadway capacity in congested areas (i.e., by adding new mixed-flow travel lanes) or by adding new roadways to the network.
- Result in a loading deficit and the secondary effects would create potentially hazardous conditions for people walking, bicycling, or driving; or substantially delay public transit.
- Result in a substantial vehicular parking deficit and the secondary effects would create potentially hazardous conditions for people walking, bicycling, or driving; or interfere with accessibility for people walking or bicycling or inadequate access for emergency vehicles; or substantially delay public transit.

Scoped Out Topics

Detailed analysis of construction (existing plus project), emergency access, bicycle and walking accessibility, public transit impacts were not required for the proposed project. The following section summarizes the approach and the findings by topic.

Construction

Construction of the proposed project would occur in four phases:

- Phase 1 – Building and Structure Demolition;
- Phase 2 – Final Soil Remediation;
- Phase 3 – New Building Construction; and
- Phase 4 – Shoreline Recreational Facilities Construction.

Phase 1 would generate approximate 2,200 cubic yards of debris, 280 one-way haul truck trips, and last approximately 6 to 8 months. Phase 2 would generate approximately 3,000 cubic yards of debris and excavated contaminated soil, 380 one-way haul truck trips, and last approximately 20 days. Phase 3 would generate approximately 7,000 cubic yards of soil and import building materials, approximately 3,000 haul truck trips, and last approximately 18 to 24 months. Phase 4 would generate approximately 300 cubic yards of excavated sediment and import building materials for the boathouse and dock (80 one-way haul trips), and last about 6 months. Each phase would have a maximum of 30 truck trips per day. In total, the project would move less than 20,000 cubic yards of materials, which is less than the construction screening criterion for project construction impacts. Furthermore, the project site does not include any transportation facilities that would require relocation or closure during construction. For these reasons, the transportation-related construction impacts of the proposed project would be less than significant.

Emergency Access

The proposed project would continue to provide adequate emergency access to the project site and does not include any changes to John Muir Street that could affect emergency vehicle access to the surrounding area. Therefore, existing plus project and cumulative emergency access impacts would be less than significant.

Bicycle and Walking Accessibility

The proposed project would not make changes to the existing sidewalks or bicycle lane on John Muir Drive. The proposed project would not include design features that would impede access to the project site or adjoining areas for people walking or bicycling. Therefore, existing plus project and cumulative bicycle and walking accessibility impacts would be less than significant.

Public Transit

Although the proposed project would increase the number of vehicle trips traveling to and from the project site, the project would not increase vehicle trips during the PM peak period to the extent that nearby public transit could be affected. This is because the proposed project would generate fewer than 300 vehicle trips during the PM peak hour, which per the department's guidelines indicates it would not result in substantial public transit delay. The project also does not propose any changes to John Muir Drive and would not affect existing bus facilities on John Muir Drive. Therefore, existing plus project and cumulative public transit impacts would be less than significant.

Vehicular Parking

In accordance with CEQA section 21099, aesthetics and vehicular parking shall not be considered in determining if a project has the potential to result in significant environmental effects if the project meets the screening eligibility criteria under CEQA section 21099(d)(1). The department evaluated the project's eligibility under CEQA section 21099(d)(1) and determined the project does not meet the screening eligibility criteria, and therefore an aesthetics analysis and secondary parking analysis may be required.

The San Francisco Transportation Impact Analysis Guidelines for Environmental Review establishes screening criteria to determine whether a project could result in secondary impacts due a substantial vehicular parking deficit. If a project is located within the department's map-based screening area, [6] then a substantial vehicular parking deficit would not occur and a vehicular parking analysis is not required. The project site is located in TAZ 401. Retail is presented as a proxy for the proposed project's recreational uses for map-based screening. [7] For TAZ 401, existing daily VMT per capita is 26 percent below the regional average daily VMT per capita and projected 2040 daily VMT per capita is 15 percent below the 2040 regional average daily VMT per capita. Because the project is within a map-based screening area, a secondary parking analysis is not required.

For these reasons, it was determined that the proposed project would result in a less than significant project-level and cumulative impacts associated with vehicular parking and a more detailed parking analysis is not required (see attachment).[8]

Existing Plus Project Conditions

[6] Map-based screening is used to determine if a project site is located within a transportation analysis zone that exhibits low levels of VMT.

[7] Trips associated with recreational uses typically function similarly to retail. Therefore, these types of land uses are treated as retail for screening and analysis.

[8] San Francisco Planning Department. *Eligibility Checklist: CEQA Section 21099 Modernization of Transportation Analysis – Lake Merced West Project.* October 18, 2021.

Freight and Passenger Loading

As shown above, the proposed project would generate approximately 102 daily weekday TNC/taxi trips, 26 of which would occur during the PM peak hour. In addition, the project would generate approximately 77 weekend TNC/taxi trips. The proposed project includes two off-street passenger loading areas in the parking lot, one at the western ends by the rope course, and one at the eastern end by the boathouse. The analysis assumes that all TNC and taxi trips to and from the project site would be passenger loading trips. As shown in Table 5, during any given minute of the peak hour throughout the average peak period of passenger loading activity the proposed project would generate a passenger loading demand for one passenger loading space during the weekday and three spaces during the weekend. Based on the number of anticipated TNC and taxi trips during any given minute of the peak 15 minutes of the average peak period of passenger loading activity and the number of vehicles that the off-street loading zones would be able to accommodate, the proposed project would accommodate its passenger loading demand during the weekday but result in a deficit of one passenger loading space on the weekend. However, any passenger loading demand that is not accommodated by the two designated loading areas on the weekend is not anticipated to result in secondary impacts. There is adequate space for vehicles to use the vehicular parking area to quickly pick up and drop of passengers within the primary parking lot (i.e., not on John Muir Drive) without queuing on the driveway and obstructing the sidewalk or bicycle facilities. For the same reasons, passenger loading activity is not anticipated to occur in travel lanes. Therefore, passenger loading activity would not result in hazardous conditions for people walking, bicycling, or driving, or substantial transit delay, and passenger loading impacts would be less that significant.

Freight loading for the restaurant would be located on the eastern end of the main parking area. The proposed restaurant is anticipated to require an average of two deliveries per week. Other facilities would require intermittent truck deliveries on an as needed basis. Open space and recreational uses typically do not generate substantial freight loading demand. Due to the low commercial loading demand of the proposed project, the designated loading area would be able to accommodate project freight deliveries. For these reasons, the project would result in a less than significant loading impact.

Potentially Hazardous Conditions, Accessibility, Substantial Public Transit Delay, and Freight and Passenger Loading During Special Events

In addition to regular programming and site uses, up to 12 events with approximately 500 visitors per event could be held each year. Based on the anticipated number of visitors and previously described modal split for the project, these special events would generate approximately 1,000 trips consisting of: 830 vehicle trips, 80 TNC and taxi trips, 70 transit trips, and 20 walking trips. During special events, the approximately 80 TNC and taxi trips would generate a peak 15-minute period loading demand of approximately 3 spaces (see Table 5). However, as previously discussed, the project's trip generation will be constrained in part by the number of parking spaces available in the proposed project, as further described in the Weekend Trip Generation section below.

Since special events are limited to 500 attendees and all loading activities would occur in the parking lot, there would not be a significant impact on vehicle traffic flow on John Muir Drive. Events that may require partial or full street closure of John Muir Drive would be subject to the SFMTA ISCOTT process. ISCOTT review would ensure that the proposed event would not significantly impact public transit operations in the area, that adequate access is provided to the project site, and that adequate roadway safety measures

are implemented, if needed. If an event cannot meet the aforementioned requirements, the street closure permit will be denied. Site access would therefore not be substantially affected. Thus, special events would not impede emergency vehicle access in the project area, nor significantly delay transit, nor cause substantial vehicle queues to the extent that the project could cause hazardous conditions for bikers and pedestrians.

With regards to commercial loading during special events, freight loading would occur outside of event operating hours and would not conflict with the peak passenger loading hours. Portions of the proposed parking lot may also be appropriated for event-related freight loading during special events. The proposed project would therefore have a less than significant loading impact during special events.

Due to the infrequent nature of these events (up to 12 per year), these special events would not result in significant site accessibility or public transit delay impacts, nor create potentially hazardous conditions from unmet passenger and freight loading demand on the site.

Vehicle Miles Traveled and Induced Automobile Travel

A project would have a significant transportation impact on the environment if it would cause substantial additional vehicle miles travelled (VMT) or substantially induce automobile travel. To help determine whether a project would result in substantial VMT, the Department uses the map-based screening tool. If a project is located within a Transportation Analysis Zone that exhibits low levels of VMT, then it is presumed that VMT impacts would be less than significant and a detailed VMT analysis is not required. According to the map-based screening tool and using retail as a proxy for recreational land uses and for the restaurant use, the project site is determined to be in an area where the project would not result in significant VMT impacts.[9] The project's potential to induce automobile travel is discussed below.

The intent of SB 743 is to provide "alternative criteria to 'promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses."[10] The proposed project meets this intent by improving the Lake Merced recreational area and increasing the amount of open space available in the city. Furthermore, as described in the Scoped-Out Topics section, the proposed project would not exceed the screening criteria for a detailed parking analysis.

Cumulative Conditions

Cumulative impacts occur when a project in the vicinity of the proposed project combines to result in greater impacts than either project individually. Within the Lake Merced project area, there are several future development projects that could combine with the proposed project to result in cumulative impacts:

The Ocean Beach Long-Term Improvements Project

The Ocean Beach Long-Term Improvements Project is a climate change adaptation and sea level resiliency project to improve the portion of Ocean Beach from Sloat Boulevard to Fort Funston known as South

[9] The State Office of Planning and Research has not established significance criteria for determining VMT impacts of recreational land uses. However, consistent with state-level guidance, the department through the Transportation Impact Analysis Guidelines establishes retail uses as a proxy for recreational land uses.
[10] Governor's Office of Planning and Research. "Transportation Impacts (SB 743)." Accessed June 1, 2020. Available at: < http://opr.ca.gov/ceqa/updates/sb-743/>

Ocean Beach. The project would address shoreline erosion, severe coastal storm and wave hazards, and sea level rise which threaten city infrastructure, coastal access and recreational facilities, and public safety. Major project components include: (1) permanent closure of the Great Highway between Sloat and Skyline boulevards, and reconfiguration of affected intersections and San Francisco Zoo entrances; (2) removal of pavement, rock and sandbag revetments, rubble, and debris, and recontouring and revegetation of the beach and bluff; (3) construction of a new service road and multi-use trail, beach access stairways, parking, and restroom(s); (4) construction of a buried wall; and (5) long-term beach nourishment.

Park Merced

The Park Merced project is a long-term project that will be developed in several phases over the course of three decades. The project would increase residential density, provide a neighborhood core with new commercial and retail services, modify transit service and facilities, and improve utilities within the development site. A new pre-kindergarten through 5th grade (Pre-K to 5) school and day care facility, a fitness center, and new open space uses, including athletic fields, walking and biking paths, an approximately 2-acre organic farm, and community gardens, would also be provided.

Signalization of State Route 35 (Skyline Boulevard) and Great Highway Intersection

Caltrans proposes the installation of a traffic signal at the intersection of Skyline Boulevard and the Great Highway. Upon completion of the project, anticipated in 2022, the intersection will be signal-controlled instead of stop-controlled.

Great Highway Closure between Sloat Boulevard and Lincoln Way

SFRPD and SFMTA propose a two-year (2022-2024) pilot study of a road closure of the Great Highway between Sloat Boulevard and Lincoln Way to evaluate its effects on the transportation system prior to a long-term proposal for the roadway. The pilot road closure configuration has not yet been determined or approved.

Reconfiguration of the Sloat Boulevard and State Route 35 (Skyline Boulevard) Intersection

SFMTA proposes to reconfigure the intersection with either a traffic signal or a roundabout to improve safety for all road users, increase visibility of pedestrians, and improve or maintain transit and vehicle circulation at the intersection. This project is currently on hold pending the results of the Great Highway pilot study described above.

Cumulative Plus Project Impacts

Construction

Project construction may overlap with the construction of other projects in the area, such as the Ocean Beach Long-Term Improvements Project. During the overlap period, nearby cumulative projects may increase the number of construction worker vehicles and construction trucks in the vicinity, who may use the same construction access routes to regional facilities and may result in temporary travel lane closures. Affected roadways may include the closed portion of the Great Highway (Ocean Beach Long-Term Improvements Project) and portions of Skyline Boulevard.

As with the proposed project, any project construction on public streets would be required to comply with Blue Book regulations. Construction activities would be coordinated with city departments such as the SFMTA and Public Works, as needed, for any temporary sidewalk, bicycle route, and travel lane closures to develop a traffic control plan. The traffic control plan would address construction-related vehicle routing, traffic control, and pedestrian and bicyclist movements adjacent to the project's construction area for the duration of any construction overlap with cumulative projects. Compliance with Blue Book regulations would help maintain the accessibility and safety of public streets for vehicles, bicyclists, and people walking and ensure construction does not adversely affect transit vehicle operations or result in substantial transit delay.

Given the limited number of projects in the immediate vicinity of the project area that would overlap with the proposed Lake Merced West Project construction, implementation of traffic control plan requirements contained within the SFMTA blue book that would be applicable to all cumulative projects, construction of the project in combination with cumulative projects would result in less-than-significant cumulative construction-related transportation impacts.

Potentially Hazardous Conditions, Accessibility, Substantial Public Transit Delay, and Freight and Passenger Loading

The permanent closure of the Great Highway between Sloat and Skyline boulevards would increase the number of vehicles travelling on both Sloat Boulevard and Skyline Boulevard due to diverted traffic in the north- and southbound directions. Implementation of the Park Merced project would also increase the number of vehicle trips in the surrounding area. Under cumulative conditions, both the Ocean Beach Long-Term Improvements project and Park Merced project would generate vehicle trips that would combine with vehicle trips from the proposed project on Skyline Boulevard, Sloat Boulevard, John Muir Drive, and Lake Merced Boulevard.

However, the Caltrans and Park Merced projects also include improvements to transportation and transit facilities in the surrounding area. As previously discussed, the proposed Caltrans project would install a traffic signal at the nearby intersection of Skyline Boulevard and the Great Highway to improve vehicular traffic flow and pedestrian safety. The Park Merced Transportation Plan also includes goals to reduce the need for private vehicle trips, enhance the attractiveness of alternative modes of transportation, internalize discretionary trips, and minimize increases in peak hour vehicle trips outside of the project area. A potential closure of the Great Highway between Sloat Boulevard and Lincoln Way would reduce the number of vehicles traveling on Sloat and Skyline boulevards, as vehicles would be redistributed to other roadways such as Sunset Boulevard and Nineteenth Avenue. The long-term configuration of the Great Highway, Skyline Boulevard, and Sloat Boulevard may change based on the results of the pilot study.

However, while cumulative projects would increase vehicle trips in the surrounding area, they would not combine with project-generated vehicle trips to the extent that they would impede emergency access at the project site or result in substantial transit delay. Delivery drivers typically look for convenient locations to park and make their deliveries. People arriving at or leaving a building or other destination typically do so as close to the entrance as possible. Freight and passenger loading would continue to occur in the parking lot in an off-street area; cumulative conditions would not affect on-site freight and passenger loading operations. None of the cumulative projects would make changes to the public right-of-way in the immediate vicinity of the Lake Merced project site. For these reasons, accessibility to the site would not be

affected under cumulative conditions, nor would pedestrian and bicycle access. Therefore, the proposed project in combination with cumulative projects would result in less than significant cumulative impacts to accessibility, public transit delay, freight and passenger loading, and hazardous conditions.

Potentially Hazardous Conditions, Accessibility, Substantial Public Transit Delay, and Freight and Passenger Loading During Special Events

Up to 12 special events per year, with approximately 500 attendees per event, could be held at the project site. As previously discussed, the project's loading demand during special events would be accommodated within the project site, and loading activities would not generate secondary impacts on John Muir Drive to create potentially hazardous conditions and accessibility impacts. Implementation of cumulative projects in the project area would not alter roadway conditions on John Muir Drive such that there could be potential cumulative impacts related to hazardous conditions, accessibility, public transit delay, or loading. Furthermore, special events on the project site would only occur up to 12 times per year. Therefore, the proposed project would result in a less than significant cumulative freight and passenger loading impact, accessibility impact, emergency access impact, transit delay impact, and would not result in hazardous bicycle and pedestrian conditions during special events.

Vehicle Miles Traveled and Induced Automobile Travel

VMT by its nature is largely a cumulative impact. As described above, the project would not exceed the project-level quantitative thresholds of significance for VMT. Furthermore, the project site is an area where projected year 2040 VMT per capita is more than 15 percent below the future regional average for recreational uses (using retail as a proxy). Therefore, the project, in combination with cumulative projects, would not result in a significant cumulative VMT impact.

Attachment

- SB 743 Checklist

San Francisco Planning

49 South Van Ness Avenue, Suite 1400
San Francisco, CA 94103
628.652.7600
www.sfplanning.org

ELIGIBILITY CHECKLIST: CEQA SECTION 21099 MODERNIZATION OF TRANSPORTATION ANALYSIS

Date of Preparation:	October 18, 2021
Record No.:	**2019-014146ENV, Lake Merced West Project**
Zoning:	P – Public
	OS Height and Bulk District
Block/Lot:	7283/004
Lot Size:	88,686 square feet (2.04 acres)
Project Sponsor:	Recreation and Parks Department, Chris Townes, Chris.Townes@sfgov.org
Staff Contact:	Ryan Shum, ryan.shum@sfgov.org

This checklist is in response to California Environmental Quality Act (CEQA) section 21099 – Modernization of Transportation Analysis for Transit-Oriented Infill Projects and Planning Commission Resolution 19579. CEQA Section 21099 allows for a determination that aesthetic and vehicular parking effects of a project need not be considered significant environmental effects. Planning Commission Resolution 19579 replaces automobile delay with vehicle miles traveled (VMT) analysis. This checklist provides screening criteria for determining if aesthetics, detailed VMT, and/or vehicular parking analysis is required for a project.

Aesthetics and Vehicular Parking

In accordance with CEQA section 21099, aesthetics and vehicular parking shall not be considered in determining if a project has the potential to result in significant environmental effects if the project meets the three criteria within Table 1. The proposed project does not meet all of the criteria in Table 1.

In accordance with the *San Francisco Transportation Impact Analysis Guidelines for Environmental Review*, to determine whether a secondary vehicle parking analysis is required, the department evaluates whether the project would result in a substantial vehicular parking deficit; if a project does not result in a substantial vehicular parking deficit, then the department does not require a secondary vehicular parking analysis. Projects within a location criterion (Table 2a) or that contain characteristic criteria (2c and 2d) do not require secondary vehicular parking analysis. The proposed project satisfies these criteria and therefore does not require a secondary parking analysis.

Vehicle Miles Traveled

In addition, CEQA section 21099(b)(1) requires that the State Office of Planning and Research develop revisions to the CEQA Guidelines establishing criteria for determining the significance of transportation impacts of projects that "promote the reduction of greenhouse gas emissions, the development of multimodal

transportation networks, and a diversity of land uses." In January 2016, the Office of Planning and Research published for public review and comment a Revised Proposal on Updates to the CEQA Guidelines on Evaluating Transportation Impacts in CEQA recommending that transportation impacts for projects be measured using a vehicle miles traveled (VMT) metric. On March 3, 2016, based on compelling evidence in that document and on the department's independent review of the literature on VMT and its own public process, the San Francisco Planning Commission adopted the Office of Planning and Research's recommendation to use the VMT metric to evaluate the transportation impacts of projects. Since that resolution, the California Natural Resources Agency and the Office of Administrative Law went through a formal rulemaking process that finalized amendments to the CEQA Guidelines in December 2018.

In accordance with CEQA section 21099 and Planning Commission resolution 19579, the *San Francisco Transportation Impact Analysis Guidelines for Environmental Review* identify screening criteria to identify types, characteristics, and locations of projects and a list of transportation project types that would not result in significant transportation impacts under the VMT metric. As demonstrated by Table 2a, the proposed project described below meets one or more of the VMT screening criteria.

Project Description:

	Existing	Net Change	New Total	Notes
Project Description	The proposed Lake Merced West project would redevelop approximately 11 acres on the southwest side of Lake Merced. The proposed project is the construction and operation of the Lake Merced West recreation center, which would offer a wide array of recreational activities open to the public, such as trail use, picnicking, paddleboarding, kayaking, fishing, fitness activities, a ropes course, bird watching, space for outdoor exercise, skateboarding, multi-use courts for basketball and other activities, as well as restaurant dining, and indoor space for gatherings such as community meetings and birthday parties. The facility would include areas that could be used flexibly for a wide variety of uses such as picnics and larger gatherings; as well as areas designated for programmed activities. Upon completion of construction, the project site would include the following buildings and uses: community building (3,500 sf), restaurant (5,000 sf), boathouse (3,000 sf), restrooms and storage (1,000 sf), and SFPUC arborist office and yard (3,800 sf).			
On-Street Vehicle Parking (linear feet) & Street Name	No Change			
Off-Street Vehicle Parking Spaces (number per Land-Use)	0	+80	80	80
Off-Street Loading Spaces (number per Land-Use)	0	+3	3	3
On-Street *Passenger* Loading Space (linear feet of white color curb) & Street Name	No Change			
On-Street *Commercial* Loading Space (linear feet of yellow color curb) & Street Name	No Change			

Please include information on any relevant field notes, if applicable, and discussion of any notable transportation details with respect to the project, project site, and/or adjacent to the site, e.g., describe existing bus stop in front of the site, existing and/or proposed curb cut on a Transit Preferential Street, hospital / fire station / police station, on-street painted bike lane with no buffer between vehicular traffic, physically separated & protected bike lane, vehicular parking-protected bike lane, etc.

Table 1: Transit-Oriented Infill Project Eligibility Checklist

The project must meet all three criteria for aesthetics and vehicular parking to be excluded from CEQA review. See Attachment A for definitions of terms.

☐	Criterion 1-1. Does the project meet the definition of a residential, mixed-use residential, or *"employment center"* and
☒	Criterion 1-2. Is the proposed project located on an *"infill site"* and Yes, the project site is located within the urban boundaries of San Francisco and was previously developed with the Pacific Rod and Gun Club.
☐	Criterion 1-3. Is the proposed project site located within a *"transit priority area?"*

Table 2a: Secondary Parking Analysis & Vehicle Miles Traveled Analysis for Land Use Project – Screening Criterion

If a project meets this screening criterion, then a secondary parking and detailed VMT analysis is not required.[1] If a project does not meet this screening criterion, then refer to Tables 2b and 2d for additional screening criteria related to VMT and secondary parking analysis, respectively. See Attachment A for definitions of terms.

☒	Criterion 2a. Is the proposed project site located within the *"map-based screening"* area? Yes. The project site is located in TAZs 401, which exhibits VMT that is 26 and 15 percent below the respective existing and cumulative (2040) screening thresholds (Bay Area Regional Average Minus 15%) for retail uses, which is used as a proxy for park uses.

Table 2b: Vehicle Miles Traveled Analysis – Additional Screening Criteria

Identify whether a projects meets any of the additional screening criteria. See Attachment A for definitions of terms.

☐	Criterion 2b-1. Does the proposed project qualify as a "small project"? or No. The project would generate more than 100 trips per day.

1 For projects that propose multiple land use types (e.g., residential, office, retail, etc.), each land use type must qualify under the three screening criteria in Table 2a.

☐ Criterion 2b-2. Proximity to Transit Stations (must meet all four sub-criteria)

- Is the proposed project site located within one-half mile of an existing major transit stop or an existing stop along a high-quality transit corridor; and
- Would the proposed project result in a "floor area ratio" of greater than or equal to 0.75, and
- Would the project result in an amount of vehicular parking that is less than or equal to the amount allowed by the Planning Code without a conditional use authorization, and
- Is the proposed project consistent with the Sustainable Communities Strategy?[2]
- Yes. The project site is located in a priority development area as shown in Plan Bay Area, *Plan Bay Area 2050: Final Blueprint Growth Geographies,* https://mtc.maps.arcgis.com/apps/webappviewer/index.html?id=485e374221e84074b7e577ad381f6fce, accessed February 8, 2021.

Table 2c: Induce Automobile Travel Analysis

If a project contains transportation elements and fits within the general types of projects described below, then a secondary parking and detailed VMT analysis is not required. If a project does not meet this screening criterion, then refer to Table 2d for additional screening criteria as it relates to secondary parking analysis. See Attachment A for definitions and other terms.

☐ Criterion 2c-1. Does the proposed project qualify as an "active transportation, rightsizing (aka Road Diet) and Transit Project"? or

☐ Criterion 2c-2. Does the proposed project qualify as an "other minor transportation project"?

Table 2d: Secondary Parking Analysis – Additional Screening Criterion

If a project does not meet the criteria within Tables 2a and 2c, then complete this box. A transportation consultant may need to provide information to complete this table.

☐ Criterion 2d. Would the project result in a vehicular parking demand deficit (land use project or area plan project) or net parking loss (infrastructure project) of less than 600 spaces?

2 The department considers a project inconsistent with the Sustainable Communities Strategy if it is located outside of an area contemplated for development in the Sustainable Communities Strategy.

ATTACHMENT A
DEFINITIONS

Active transportation, rightsizing (a.k.a. road diet) and transit project means any of the following:

- Reduction in number of through lanes
- Infrastructure projects, including safety and accessibility improvements, for people walking or bicycling
- Installation or reconfiguration of traffic-calming devices
- Creation of new, or expansion of existing, transit service
- Creation of new, or conversion of existing, general purpose lanes (including vehicle ramps) to transit lanes
- Creation of new, or addition of roadway capacity on, local or collector streets, if the project also substantially improves conditions for people walking, bicycling, and, if applicable, riding transit (e.g., by improving neighborhood connectivity or improving safety)

Employment center project means a project located on property zoned for commercial use that results in a floor area ratio of no less than 0.75 and that is located within a transit priority area. If the underlying zoning for the project site allows for commercial use and the project meets the rest of the criteria in this definition, then the project may be considered an employment center.

Floor area ratio means the ratio of gross floor area that results from the project, excluding structured vehicular parking areas (per Planning Code section 102 definition of gross floor area), proposed as a result of the project divided by the net lot area.

Gross floor area is defined in Planning Code section 102.

High quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

Infill site means a lot located within an urban area that has been previously developed, or on a vacant site where at least 75 percent of the perimeter of the site adjoins, or is separated only by an improved public right-of-way from parcels that are developed with qualified urban uses.

Lot means all parcels utilized by the project.

Major transit stop is defined in CEQA Section 21064.3 as a site containing a rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

Map-based screening means the proposed project site is located within a transportation analysis zone that exhibits levels of VMT below the department's threshold of significance for land use projects.

Net lot area means the area of a lot, excluding publicly dedicated land and private streets that meet local standards, and other public use areas as determined by the local land use authority.

Other land use project means a land use other than residential, retail, and office. OPR has not provided proposed screening criteria or thresholds of significance for other types of land uses, other than those that meet the definition of a small project.

- Hotel, motel, student housing, single room occupancy unit, and group housing land uses should be treated as residential for screening and analysis.
- Child care facilities, K-12 schools, post-secondary institutional (non-student housing), medical, and production, distribution, and repair (PDR) land uses should be treated as office for screening and analysis.
- Grocery store, local-serving entertainment venue, religious institution, park, and athletic club land uses should be treated as retail for screening and analysis.
- Public service (e.g., police and fire station, public utilities) and do not generally generate VMT. Instead, these land uses are often built in response to development from other land uses (e.g., office and residential). Therefore, these land uses can be presumed to have less-than-significant impacts on VMT. However, this presumption would not apply if the project is sited in a location that would require employees or visitors to travel substantial distances and the project is not located within one-half mile of a major transit stop or does not meet the small project screening criterion.
- Event centers and regional-serving entertainment venues would most likely require a detailed VMT analysis. Therefore, no screening criterion is applicable.

Other minor transportation project means any of the following:

- Rehabilitation, maintenance, replacement, and repair projects designed to improve the condition of existing transportation assets (e.g., highways, roadways, bridges, culverts, tunnels, transit systems, and facilities for people bicycling or walking) and that do not add additional motor vehicle capacity
- Installation, removal, or reconfiguration of traffic lanes that are not for through-traffic, such as left, right, and U-turn pockets, or emergency breakdown lanes that are not used as through-lanes
- Conversion of existing general purpose lanes (including vehicle ramps) to managed lanes (e.g., high occupancy vehicle (HOV), high occupancy toll (HOT), or trucks) or transit lanes
- Grade separation to separate vehicles from rail, transit, people walking or bicycling, or to replace a lane to separate preferential vehicles (e.g., HOV, HOT, or trucks) from general vehicles

- Installation, removal, or reconfiguration of traffic control devices, including Transit Signal Priority (TSP) features
- Traffic metering systems
- Timing of signals to optimize flow of people walking, bicycling, and/or driving on local or collector streets
- Installation of a modern roundabout or traffic calming circle
- Adoption of or increase in tolls
- Conversion of streets from one-way to two-way operation with no net increase in number of traffic lanes
- Addition of transportation wayfinding signs
- Removal of off- or on-street vehicular parking space(s)
- Adoption, removal, or modification of on-street vehicular parking or loading restrictions (including meters, time limits, accessible spaces, and preferential/reserved parking permit programs)

Small project means that the project would not result in more than 100 vehicle trips per day.

Transit priority area means an area within one-half mile of a major transit stop that is existing or planned, if the planned stop is scheduled to be completed within the planning horizon included in a Transportation Improvement Program adopted pursuant to Section 450.216 or 450.322 of Title 23 of the Code of Federal Regulations.

Vehicle miles traveled measures the amount and distance that a project might cause people to drive and accounts for the number of passengers per vehicle.

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APPENDIX F
NOISE ANALYSIS SUPPORTING DOCUMENTATION

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F1 CONSTRUCTION NOISE MODELING OUTPUT

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/17/2021
Case Description: Phase 1 Demolition

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Lakewood Apartments	Residential	58.0	45.0	40.0

Description	Impact Device	Usage (%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Dozer	No	40		81.7	275.0	0.0
Front End Loader	No	40		79.1	275.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Dozer	66.9	62.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	64.3	60.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	66.9	64.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/17/2021
Case Description: Phase 2 Soil Remediation

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Lakewood Apartments	Residential	58.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Excavator	No	40		80.7	275.0	0.0
Front End Loader	No	40		79.1	275.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Equipment	Calculated (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Excavator	65.9	61.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Front End Loader	64.3	60.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	65.9	64.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/17/2021
Case Description: Phase 3 building construction

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Lakewood Apartments	Residential	58.0	45.0	40.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Gradall	No	40		83.4	275.0	0.0
Crane	No	16		80.6	275.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Night	Day	Calculated (dBA) Evening	Night	Day Evening	Night
Equipment		Lmax Leq	Lmax Leq	Lmax Leq	Lmax Leq
Gradall		68.6 64.6	N/A N/A	N/A N/A	N/A N/A
Crane		65.7 57.8	N/A N/A	N/A N/A	N/A N/A
	Total	68.6 65.4	N/A N/A	N/A N/A	N/A N/A

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 09/17/2021
Case Description: Phase 2 Installation of facilities

**** Receptor #1 ****

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Lakewood Apartments	Residential	58.0	45.0	45.0

Equipment

Description	Impact Device	Usage (%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Auger Drill Rig	No	20		84.4	275.0	0.0
Excavator	No	40		80.7	275.0	0.0

Results

Noise Limits (dBA)

Noise Limit Exceedance (dBA)

Calculated (dBA)				Day		Evening		Night	
Equipment	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Auger Drill Rig	69.6	62.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Excavator	65.9	61.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	69.6	65.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

F2 TRAFFIC NOISE MODELING OUTPUT

Existing

ROAD SEGMENT			TOTAL # VEHICLES	VEHICLE TYPE %						VEHICLE SPEED						NOISE LEVEL (dBA)			CALCULATED NOISE LEVEL 15 meters from roadway center)	Receptor Dist. from Roadway Center (m.)	Adjusted Noise Level (dBA)
Calveno Peak				Auto		MT		HT		Auto	k/h	MT	k/h	HT	k/h	Auto	MT	HT			
	from:	to:		%	Auto	%	MT	%	HT												
JM Drive	Skyline	Lake Merced	725	97	703.25	2	14.5	1	7.25	30	48	30	48	30	48	60.9	54.6	58.7	63.5	40	59.3
Sloat	Skyline	Sunset	3000	95	2850	3	90	2	60	35	56	35	56	35	56	68.9	63.6	68.5	72.3	40	68.1

Assumptions: PM peak hour traffic data from SFMTA and Caltrans

Existing + Project

ROAD SEGMENT			TOTAL # VEHICLES	VEHICLE TYPE %						VEHICLE SPEED						NOISE LEVEL (dBA)			CALCULATED NOISE LEVEL 15 meters from roadway center)	Receptor Dist. from Roadway Center (m.)	Adjusted Noise Level (dBA)
Calveno Peak				Auto		MT		HT		Auto	k/h	MT	k/h	HT	k/h	Auto	MT	HT			
	from:			%	Auto	%	MT	%	HT												
JM Drive	Skyline	Lake Merced	818.5	97	793.95	2	16.37	1	8.185	30	48	30	48	30	48	61.4	55.1	59.3	64.1	40	59.8
Sloat	Skyline	Sunset	3093.5	95	2938.8	3	92.81	2	61.87	35	56	35	56	35	56	69.0	63.7	68.7	72.5	40	68.2

Assumptions: PM peak hour traffic data from SFMTA and Caltrans + half of project peak hour

Existing + Project Event

ROAD SEGMENT			TOTAL # VEHICLES	VEHICLE TYPE %						VEHICLE SPEED						NOISE LEVEL (dBA)			CALCULATED NOISE LEVEL 15 meters from roadway center)	Receptor Dist. from Roadway Center (m.)	Adjusted Noise Level (dBA)
Calveno Peak				Auto		MT		HT		Auto	k/h	MT	k/h	HT	k/h	Auto	MT	HT			
	from:			%	Auto	%	MT	%	HT												
JM Drive	Skyline	Lake Merced	1563.5	97	1516.6	2	31.27	1	15.64	30	48	30	48	30	48	64.2	57.9	62.1	66.9	40	62.6
Sloat	Skyline	Sunset	3838.5	95	3646.6	3	115.2	2	76.77	35	56	35	56	35	56	69.9	64.6	69.6	73.4	40	69.1

Assumptions: PM peak hour traffic data from SFMTA and Caltrans + half of project peak hour

F3 NOISE MONITORING SUMMARIES AND OUTPUT

ESA 50 YEARS 1969-2019

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memorandum

date	April 24, 2020
to	Julie Moore, Project Manager, San Francisco EP
cc	Karen Lancelle, Project Manager, ESA
from	Chris Sanchez, Noise Analyst, ESA
subject	Lake Merced West Project – Noise Measurement Results

This memorandum presents the results from noise measurements collected in the vicinity of the Lake Merced West Project area, located at 520 John Muir Drive in San Francisco, California. To characterize the ambient noise levels in the vicinity of sensitive uses, ESA collected one long-term (LT) 96-hour noise measurement (see **Figure 1** for noise measurement location). The measurement was conducted using a laboratory-certified Larson Davis LxT Type 2 sound level meter calibrated immediately prior to initiation of the monitoring period. The long-term measurement included the hourly L_{eq} and L_{max} metric and the L_{90} metric for the duration of the monitoring period. [1] Additionally, hourly L_{eq} metrics of the long-term monitoring data were used to calculate the L_{dn} metric at this location. All measured and calculated metrics are shown below in **Table 1, Existing Noise Environment in the Project Site Vicinity**.

Noise measurement location LT-1 was identified, in collaboration with San Francisco Environmental Planning (SFEP) to characterize ambient daytime conditions in the vicinity of residential uses along John Muir Drive (Lakewood condominiums) that may be impacted by proposed on-site construction activities as well as operational noise generated by recreational activities on the Project site. This location of the receptor was selected because of its central location to the proposed multi-purpose field of the Project site. Additionally, it is located away from the golf course where noise from maintenance activities may elevate noise levels. Although State Route 35 (SR35) is located nearby, the monitoring location is shielded from the highway by substantial topographical separation. Traffic noise contributions from SR35 were not noticeable to the monitoring technician and did not contribute meaningfully to the monitored soundscape.

Because of the central location of the monitoring location in the front of the Lakewood condominiums, ESA received verbal authorization from the property manager prior to commencement of the monitoring process. The primary noise sources observed during deployment were vehicle traffic on John Muir Drive and vehicle ingress and egress into the Lakewood condominiums. Occasionally, the noise of firearms discharge was noticeable from the San Francisco Police Department pistol range at 700 John Muir Drive, approximately 250 feet to the

[1] L_{eq} is the steady state equivalent noise level over the monitoring period. L_{max} is the maximum noise level recorded during the monitoring period. L_{90} is the noise level exceeded 90 percent of the monitoring period. L_{dn} is the day-night noise level recorded over a 24-hour period with a 10 dBA "penalty" added to the hourly Leq recorded between 10:00 p.m. and 7:00 a.m.

northwest of the Project site. While firearm noise was noticeable to the technician it was observed to not meaningfully contribute to the short-term noise level value.

Weather during the monitoring effort was fair and unseasonably warm for February. There was no precipitation during the monitoring event. The measured sound levels and the sources of sound monitored are shown in **Table 1, Existing Noise Environment in the Project Site Vicinity**.

Monitoring occurred for 96 hours, from Friday, February 14th through Monday, February 17th, 2020. Monitored noise levels therefore capture both weekday and weekend days. All recorded levels were at or below the 60 dBA L_{dn} sound level that designates a "satisfactory" noise environment for residential uses established by the Land Use Compatibility Guidelines for Community Noise within the Environmental Protection Element of the San Francisco General Plan.[2]

TABLE 1
EXISTING NOISE ENVIRONMENT IN THE PROJECT SITE VICINITY

Location	Date and Time Period	Daytime[a] L_{eq} dB	Nighttime[b] L_{eq} dB	L_{90}	L_{dn}	Noise Sources
LT-1 Lakewood Apartments setback John Muir Drive Residential	2/14/20 Friday 24-hour measurement	59	51	43	60	Vehicle Traffic on John Muir Drive and driveway.
	2/15/20 Saturday 24-hour measurement	56	51	43	59	Vehicle Traffic on John Muir Drive and driveway.
	2/16/20 Sunday 24-hour measurement	57	50	43	58	Vehicle Traffic on John Muir Drive and driveway.
	2/17/20 Monday 24-hour measurement	58	51	43	59	Vehicle Traffic on John Muir Drive and driveway.

Notes:

a. Daytime hours are 7 a.m. to 10 p.m.

b. Nighttime hours are 10 p.m. to 7 a.m.

L_{eq}: The equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The L_{eq} is the constant sound level, which would contain the same acoustic energy as the varying sound level, during the same time period.

L_{90}: The noise level that is equaled or exceeded 90 percent of the specified time. The L_{90} is often considered the ambient background noise level averaged over the specified time.

L_{dn}: The Day/Night Average Sound Level is the 24-hour day and night A-weighed noise exposure level, which accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night. Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance from nighttime noise.

[2] City and County of San Francisco, San Francisco General Plan, http://www.sf-planning.org/ftp/General_Plan/index.htm, accessed October 2, 2017.

SOURCE: ESA, 2019; Google Earth, 2019

Lake Merced West

Figure 1
Recommended Noise Measurement Location

ESA

Attachment 1: Noise Monitor Output and Ldn Calculations

Calculated Ldn from long-term noise monitoring data

		TIME	dBA	Remove LOG	10 dBA Penalized Values	5 dBA Penalized Values
2/14/2020	Midnight	0 / 24	47.4	55531	555309	175604
	am 1:00	100	46.3	42210	422104	133481
	2:00	200	45.9	39271	392706	124184
	3:00	300	44.2	26510	265101	83832
	4:00	400	44.7	29390	293897	92938
	5:00	500	51.8	151345	1513450	478595
	6:00	600	55.7	374502	3745019	1184279
	7:00	700	57.9	610869	6108689	1931737
	8:00	800	56.6	461264	4612645	1458646
	9:00	900	61.9	1565222	15652222	4949667
	10:00	1000	60.9	1233548	12335478	3900821
	11:00	1100	57.5	563075	5630747	1780598
	12:00	1200	56.0	398127	3981273	1258989
	pm 1:00	1300	65.5	3547938	35479378	11219565
	2:00	1400	57.1	510366	5103663	1613920
	3:00	1500	57.3	540437	5404369	1709012
	4:00	1600	58.3	672786	6727861	2127536
	5:00	1700	56.9	487312	4873119	1541015
	6:00	1800	57.0	500076	5000760	1581379
	7:00	1900	58.5	703043	7030432	2223218
	8:00	2000	56.3	427001	4270011	1350296
	9:00	2100	53.6	228087	2280872	721275
	10:00	2200	53.2	209803	2098031	663456
	pm 11:00	2300	51.0	124764	1247645	394540

Leq Morning Peak Hour 7:00-10:00 a.m.

59 dBA

Leq Evening Peak Hour 4:00-8:00 p.m.

58 dBA

Leq Nighttime 10:00 pm-7:00 a.m. (not penalized)

51 dBA

Leq Daytime 7:00 am-10:00 p.m.

59 dBA

Leq 24-Hour

58 dBA

Ldn: 10 dBA penalty for noise between 10:00 p.m. and 7:00 a.m.

60 dBA

CNEL: 5 dBA penalty for noise between 7:00p.m. and 10:00 p.m.,

60 dBA **and 10 dBA penalty for noise between 10:00 p.m. and 7:00 a.m.**

CNEL - Ldn 0.52223797

Calculated Ldn from long-term noise monitoring data

		TIME	dBA	Remove LOG	10 dBA Penalized Values	5 dBA Penalized Values
2/15/2020	Midnight	0 / 24	52.0	156723	1567231	495602
	am 1:00	100	48.0	63372	633715	200398
	2:00	200	49.8	95420	954203	301746
	3:00	300	50.8	119833	1198329	378945
	4:00	400	48.6	72245	722452	228459
	5:00	500	45.9	38806	388064	122717
	6:00	600	49.4	87238	872381	275871
	7:00	700	53.5	222462	2224621	703487
	8:00	800	55.7	373170	3731702	1180068
	9:00	900	57.9	617344	6173437	1952212
	10:00	1000	57.2	523170	5231702	1654409
	11:00	1100	57.2	529317	5293172	1673848
	12:00	1200	57.0	506711	5067106	1602360
	pm 1:00	1300	55.4	343355	3433555	1085785
	2:00	1400	55.6	363756	3637559	1150297
	3:00	1500	57.1	516987	5169874	1634858
	4:00	1600	56.2	418528	4185275	1323500
	5:00	1700	57.1	516965	5169648	1634786
	6:00	1800	59.9	967638	9676382	3059941
	7:00	1900	54.7	295271	2952711	933729
	8:00	2000	53.8	240775	2407748	761397
	9:00	2100	54.0	250603	2506034	792478
	10:00	2200	53.7	231961	2319610	733525
	pm 11:00	2300	52.4	171862	1718621	543476

Leq Morning Peak Hour 7:00-10:00 a.m.

56 dBA

Leq Evening Peak Hour 4:00-8:00 p.m.

57 dBA

Leq Nighttime 10:00 pm-7:00 a.m. (not penalized)

51 dBA

Leq Daytime 7:00 am-10:00 p.m.

56 dBA

Leq 24-Hour

55 dBA

Ldn: 10 dBA penalty for noise between 10:00 p.m. and 7:00 a.m.

59 dBA

CNEL: 5 dBA penalty for noise between 7:00p.m. and 10:00 p.m., and 10 dBA penalty for noise between 10:00 p.m. and 7:00 a.m.

59 dBA

CNEL - Ldn	0.4127438

Calculated Ldn from long-term noise monitoring data

		TIME	dBA	Remove LOG	10 dBA Penalized Values	5 dBA Penalized Values
2/16/2020	Midnight	0 / 24	52.0	158560	1585601	501411
	am 1:00	100	50.0	99862	998619	315791
	2:00	200	48.5	69987	699868	221318
	3:00	300	46.2	42073	420726	133045
	4:00	400	47.9	61756	617561	195290
	5:00	500	47.3	53734	537339	169921
	6:00	600	49.8	95480	954799	301934
	7:00	700	53.0	199534	1995336	630981
	8:00	800	54.2	263347	2633468	832776
	9:00	900	56.1	402986	4029860	1274354
	10:00	1000	57.6	573672	5736725	1814112
	11:00	1100	59.2	829616	8296158	2623475
	12:00	1200	57.3	535395	5353946	1693066
	pm 1:00	1300	59.2	831052	8310516	2628016
	2:00	1400	58.2	667747	6677471	2111602
	3:00	1500	58.7	738734	7387339	2336082
	4:00	1600	58.3	680660	6806596	2152435
	5:00	1700	58.2	658755	6587551	2083167
	6:00	1800	57.0	502297	5022975	1588404
	7:00	1900	55.5	358247	3582465	1132875
	8:00	2000	55.9	388251	3882514	1227759
	9:00	2100	53.0	199258	1992576	630108
	10:00	2200	52.6	182775	1827747	577984
	pm 11:00	2300	49.5	89189	891889	282040

Leq Morning Peak Hour 7:00-10:00 a.m.

55 dBA

Leq Evening Peak Hour 4:00-8:00 p.m.

57 dBA

Leq Nighttime 10:00 pm-7:00 a.m. (not penalized)

50 dBA

Leq Daytime 7:00 am-10:00 p.m.

57 dBA

Leq 24-Hour

56 dBA

Ldn: 10 dBA penalty for noise between 10:00 p.m. and 7:00 a.m.

58 dBA

CNEL: 5 dBA penalty for noise between 7:00p.m. and 10:00 p.m.,

59 dBA **and 10 dBA penalty for noise between 10:00 p.m. and 7:00 a.m.**

CNEL - Ldn 0.51141288

Calculated Ldn from long-term noise monitoring data

			TIME	dBA	Remove LOG	10 dBA Penalized Values	5 dBA Penalized Values
2/17/2020	Midnight		0 / 24	46.6	46107	461066	145802
	am	1:00	100	45.5	35227	352267	111397
		2:00	200	47.8	60273	602733	190601
		3:00	300	49.4	87668	876676	277229
		4:00	400	47.2	52573	525725	166249
		5:00	500	52.9	194102	1941024	613806
		6:00	600	53.7	235524	2355239	744792
		7:00	700	55.3	340752	3407517	1077551
		8:00	800	56.1	403875	4038750	1277165
		9:00	900	60.8	1215749	12157492	3844537
		10:00	1000	59.8	948766	9487658	3000261
		11:00	1100	59.3	855372	8553719	2704924
		12:00	1200	58.6	723722	7237224	2288611
	pm	1:00	1300	57.4	551204	5512035	1743059
		2:00	1400	58.6	720810	7208103	2279402
		3:00	1500	57.5	558670	5586695	1766668
		4:00	1600	56.3	428105	4281047	1353786
		5:00	1700	57.3	542724	5427240	1716244
		6:00	1800	57.0	495725	4957252	1567621
		7:00	1900	56.2	420700	4207005	1330372
		8:00	2000	53.0	200801	2008006	634987
		9:00	2100	53.2	210202	2102016	664716
		10:00	2200	53.8	240779	2407787	761409
	pm	11:00	2300	50.5	110957	1109571	350877

Leq Morning Peak Hour 7:00-10:00 a.m.

58 dBA

Leq Evening Peak Hour 4:00-8:00 p.m.

57 dBA

Leq Nighttime 10:00 pm-7:00 a.m. (not penalized)

51 dBA

Leq Daytime 7:00 am-10:00 p.m.

58 dBA

Leq 24-Hour

56 dBA

Ldn: 10 dBA penalty for noise between 10:00 p.m. and 7:00 a.m.

59 dBA

CNEL: 5 dBA penalty for noise between 7:00p.m. and 10:00 p.m.,

59 dBA **and 10 dBA penalty for noise between 10:00 p.m. and 7:00 a.m.**

CNEL - Ldn 0.38789197

Summary

File Name on Meter	LxT_Data.058
File Name on PC	SLM_0004435_LxT_Data_058.00.ldbin
Serial Number	0004435
Model	SoundTrack LxT®
Firmware Version	2.302
User	C. Sanchez
Location	Lakewood Apartments
Job Description	Lake Merced West
Note	

Measurement

Description	
Start	2020-02-13 10:00:00
Stop	2020-02-18 08:26:57
Duration	118:26:57.500
Run Time	118:26:57.500
Pause	00:00:00.0
Pre Calibration	2020-02-13 07:40:36
Post Calibration	None
Calibration Deviation	---

Overall Settings

RMS Weight	A Weighting
Peak Weight	Z Weighting
Detector	Slow
Preamp	PRMLxT2B
Microphone Correction	Off
Integration Method	Linear
Overload	142.9 dB

	A	C	Z	
Under Range Peak	99.2	96.2	**101.2**	dB
Under Range Limit	**48.2**	46.2	54.2	dB
Noise Floor	35.0	35.7	43.3	dB

Results

LA_{eq}		56.8		dB
LAE		113.1		dB
EA		22.713		mPa²h
EA8		1.534		mPa²h
EA40		7.670		mPa²h
$LZ_{peak\ (max)}$	2020-02-18 08:26:39		116.2	dB
LAS_{max}	2020-02-15 18:06:04		89.1	dB
LAS_{min}	2020-02-14 02:23:40		33.3	dB
SEA		-99.9		dB
LAS > 85.0 dB (Exceedance Counts / Duration)		11	25.2	s
LAS > 115.0 dB (Exceedance Counts / Duration)		0	0.0	s
LZ_{peak} > 135.0 dB (Exceedance Counts / Duration)		0	0.0	s
LZ_{peak} > 137.0 dB (Exceedance Counts / Duration)		0	0.0	s
LZ_{peak} > 140.0 dB (Exceedance Counts / Duration)		0	0.0	s
LC_{eq}		67.4		dB
LA_{eq}		56.8		dB
LC_{eq} - LA_{eq}		10.6		dB
LAI_{eq}		59.7		dB
LA_{eq}		56.8		dB
LAI_{eq} - LA_{eq}		2.9		dB

Record #	Record Type	Date	Time	LAeq	LZpeak	LASmax	LASmin	OVLD	OBA OVLD	Marker
1	Run	2020-02-13	10:00:00							
2		2020-02-13	10:00:00	59.1	101.1	79.7	43.8	No	No	
3		2020-02-13	11:00:00	69.7	107.3	87.6	44.7	No	No	
4		2020-02-13	12:00:00	56.0	101.4	74.5	44.4	No	No	
5		2020-02-13	13:00:00	56.6	103.9	74.0	43.9	No	No	
6		2020-02-13	14:00:00	57.0	99.2	78.5	43.6	No	No	
7		2020-02-13	15:00:00	56.1	100.3	72.7	42.1	No	No	
8		2020-02-13	16:00:00	57.3	102.9	76.6	44.5	No	No	
9		2020-02-13	17:00:00	60.7	108.5	88.6	46.4	No	No	
10		2020-02-13	18:00:00	58.4	101.6	83.7	45.5	No	No	
11		2020-02-13	19:00:00	55.8	101.3	82.1	42.5	No	No	
12		2020-02-13	20:00:00	53.2	94.6	70.9	41.1	No	No	
13		2020-02-13	21:00:00	53.9	101.3	73.1	42.3	No	No	
14		2020-02-13	22:00:00	51.7	101.1	69.2	38.5	No	No	
15		2020-02-13	23:00:00	49.0	98.3	65.4	36.9	No	No	
16		2020-02-14	0:00:00	47.4	94.9	71.2	35.0	No	No	
17		2020-02-14	1:00:00	46.3	94.9	67.5	34.9	No	No	
18		2020-02-14	2:00:00	45.9	97.4	70.8	33.3	No	No	
19		2020-02-14	3:00:00	44.2	99.5	69.2	33.9	No	No	
20		2020-02-14	4:00:00	44.7	86.4	65.4	33.5	No	No	
21		2020-02-14	5:00:00	51.8	94.0	75.4	36.0	No	No	
22		2020-02-14	6:00:00	55.7	101.9	78.3	39.9	No	No	
23		2020-02-14	7:00:00	57.9	102.7	78.6	44.1	No	No	
24		2020-02-14	8:00:00	56.6	94.6	73.8	43.3	No	No	
25		2020-02-14	9:00:00	61.9	106.2	86.6	43.0	No	No	
26		2020-02-14	10:00:00	60.9	99.3	77.0	43.8	No	No	
27		2020-02-14	11:00:00	57.5	101.1	80.8	43.3	No	No	
28		2020-02-14	12:00:00	56.0	95.7	73.4	45.0	No	No	
29		2020-02-14	13:00:00	65.5	101.6	86.7	44.4	No	No	
30		2020-02-14	14:00:00	57.1	100.5	73.5	45.9	No	No	
31		2020-02-14	15:00:00	57.3	102.0	75.7	47.3	No	No	
32		2020-02-14	16:00:00	58.3	100.2	75.6	48.2	No	No	
33		2020-02-14	17:00:00	56.9	96.2	70.3	48.5	No	No	
34		2020-02-14	18:00:00	57.0	102.6	84.0	47.4	No	No	
35		2020-02-14	19:00:00	58.5	103.8	84.8	46.3	No	No	
36		2020-02-14	20:00:00	56.3	96.8	77.7	43.7	No	No	
37		2020-02-14	21:00:00	53.6	99.9	72.8	43.9	No	No	
38		2020-02-14	22:00:00	53.2	96.2	74.3	43.3	No	No	
39		2020-02-14	23:00:00	51.0	91.5	66.1	44.5	No	No	
40		2020-02-15	0:00:00	52.0	99.1	72.9	46.0	No	No	
41		2020-02-15	1:00:00	48.0	88.0	64.3	41.3	No	No	
42		2020-02-15	2:00:00	49.8	99.7	72.1	37.3	No	No	
43		2020-02-15	3:00:00	50.8	98.1	82.1	36.7	No	No	
44		2020-02-15	4:00:00	48.6	93.4	67.8	35.8	No	No	
45		2020-02-15	5:00:00	45.9	86.9	62.5	35.2	No	No	
46		2020-02-15	6:00:00	49.4	90.4	68.8	38.3	No	No	
47		2020-02-15	7:00:00	53.5	93.2	70.8	39.7	No	No	
48		2020-02-15	8:00:00	55.7	98.5	78.9	41.8	No	No	
49		2020-02-15	9:00:00	57.9	97.3	78.3	42.8	No	No	
50		2020-02-15	10:00:00	57.2	100.3	78.3	42.9	No	No	
51		2020-02-15	11:00:00	57.2	104.6	80.0	43.6	No	No	
52		2020-02-15	12:00:00	57.0	106.4	82.7	42.9	No	No	
53		2020-02-15	13:00:00	55.4	97.8	70.2	44.0	No	No	
54		2020-02-15	14:00:00	55.6	98.2	72.2	42.6	No	No	
55		2020-02-15	15:00:00	57.1	101.7	79.9	44.2	No	No	

56	2020-02-15	16:00:00	56.2	102.5	74.4	45.0	No	No
57	2020-02-15	17:00:00	57.1	107.6	84.4	45.0	No	No
58	2020-02-15	18:00:00	59.9	110.6	89.1	47.7	No	No
59	2020-02-15	19:00:00	54.7	97.3	72.5	46.5	No	No
60	2020-02-15	20:00:00	53.8	101.7	67.3	47.2	No	No
61	2020-02-15	21:00:00	54.0	107.5	73.4	46.9	No	No
62	2020-02-15	22:00:00	53.7	105.4	75.6	45.7	No	No
63	2020-02-15	23:00:00	52.4	104.8	69.4	44.6	No	No
64	2020-02-16	0:00:00	52.0	106.5	71.3	43.4	No	No
65	2020-02-16	1:00:00	50.0	107.3	75.3	42.9	No	No
66	2020-02-16	2:00:00	48.5	110.2	61.2	43.9	No	No
67	2020-02-16	3:00:00	46.2	106.2	60.0	41.6	No	No
68	2020-02-16	4:00:00	47.9	112.6	61.0	42.3	No	No
69	2020-02-16	5:00:00	47.3	111.4	63.6	42.2	No	No
70	2020-02-16	6:00:00	49.8	106.4	66.9	42.3	No	No
71	2020-02-16	7:00:00	53.0	98.4	74.0	44.1	No	No
72	2020-02-16	8:00:00	54.2	102.4	71.5	44.2	No	No
73	2020-02-16	9:00:00	56.1	104.5	72.3	47.0	No	No
74	2020-02-16	10:00:00	57.6	103.5	78.4	46.8	No	No
75	2020-02-16	11:00:00	59.2	105.7	85.0	47.9	No	No
76	2020-02-16	12:00:00	57.3	112.3	74.0	49.7	No	No
77	2020-02-16	13:00:00	59.2	114.0	85.1	50.2	No	No
78	2020-02-16	14:00:00	58.2	114.6	78.4	50.9	No	No
79	2020-02-16	15:00:00	58.7	115.2	76.4	51.5	No	No
80	2020-02-16	16:00:00	58.3	113.2	76.7	50.6	No	No
81	2020-02-16	17:00:00	58.2	113.8	81.4	49.6	No	No
82	2020-02-16	18:00:00	57.0	111.8	74.1	48.4	No	No
83	2020-02-16	19:00:00	55.5	106.9	75.3	46.5	No	No
84	2020-02-16	20:00:00	55.9	102.5	78.7	46.6	No	No
85	2020-02-16	21:00:00	53.0	94.7	68.8	44.9	No	No
86	2020-02-16	22:00:00	52.6	98.6	70.1	43.3	No	No
87	2020-02-16	23:00:00	49.5	93.8	64.2	42.9	No	No
88	2020-02-17	0:00:00	46.6	86.6	60.3	39.2	No	No
89	2020-02-17	1:00:00	45.5	89.2	68.6	39.1	No	No
90	2020-02-17	2:00:00	47.8	87.5	71.2	42.2	No	No
91	2020-02-17	3:00:00	49.4	100.8	73.5	42.1	No	No
92	2020-02-17	4:00:00	47.2	86.1	59.8	43.4	No	No
93	2020-02-17	5:00:00	52.9	94.7	75.4	45.1	No	No
94	2020-02-17	6:00:00	53.7	97.0	74.9	46.2	No	No
95	2020-02-17	7:00:00	55.3	96.7	69.9	49.0	No	No
96	2020-02-17	8:00:00	56.1	96.8	71.6	50.2	No	No
97	2020-02-17	9:00:00	60.8	102.1	83.4	49.1	No	No
98	2020-02-17	10:00:00	59.8	104.3	87.1	49.9	No	No
99	2020-02-17	11:00:00	59.3	113.3	82.2	50.7	No	No
100	2020-02-17	12:00:00	58.6	101.9	79.0	49.8	No	No
101	2020-02-17	13:00:00	57.4	100.2	74.8	48.3	No	No
102	2020-02-17	14:00:00	58.6	104.8	84.4	46.9	No	No
103	2020-02-17	15:00:00	57.5	98.7	77.3	47.3	No	No
104	2020-02-17	16:00:00	56.3	99.7	73.7	48.2	No	No
105	2020-02-17	17:00:00	57.3	100.5	75.8	49.5	No	No
106	2020-02-17	18:00:00	57.0	106.3	79.3	46.9	No	No
107	2020-02-17	19:00:00	56.2	103.8	82.4	46.9	No	No
108	2020-02-17	20:00:00	53.0	94.9	68.7	46.2	No	No
109	2020-02-17	21:00:00	53.2	96.2	69.9	46.3	No	No
110	2020-02-17	22:00:00	53.8	96.8	71.4	45.9	No	No
111	2020-02-17	23:00:00	50.5	101.2	69.0	43.0	No	No

112		2020-02-18	0:00:00	47.6	92.2	64.2	39.8	No	No
113		2020-02-18	1:00:00	47.3	98.3	69.5	39.4	No	No
114		2020-02-18	2:00:00	48.7	91.0	73.7	40.5	No	No
115		2020-02-18	3:00:00	50.3	96.2	76.0	39.0	No	No
116		2020-02-18	4:00:00	50.7	102.5	73.2	39.9	No	No
117		2020-02-18	5:00:00	52.4	92.6	75.5	42.1	No	No
118		2020-02-18	6:00:00	56.5	107.6	83.5	47.1	No	No
119		2020-02-18	7:00:00	57.0	96.9	72.3	47.9	No	No
120		2020-02-18	8:00:00	62.6	116.2	86.2	47.1	No	No
121	Stop	2020-02-18	8:26:57						

F4 STATIONARY SOURCE NOISE PROPAGATION CALCULATIONS FOR AMPLIFIED SOUND

Determination of point source noise at nearest receptor

Source: Amplified sound
Source Location: Lake Merced West Proposed Patio
Receptor: Lakewood Apartments
Distance of Receptor from Source: 260 feet

Permit noise limit: 80 dBA at 100 feet

Attenuation Calculation

Ni = No - 20(log Di/Do) (Caltrans, Technical Noise Supplement, 2013)

where:

Ni= attenuated noise level of interest
No= reference noise level
Di= distance to receptor
Do= reference distance

No=	80	dBA
Di=	260	ft
Do=	100	ft
Ni=	72	dBA

Exterior Noise level at Receptor = 72 dBA

Exterior to Interior Noise reduction with windows open = 15 dBA (USEPA, 1974)
Exterior to interior noise reduction with windows closed = 25 dBA (USEPA, 1974)

Interior Noise level at Receptor = 57 dBA With windows open
47 dBA with windows closed

APPENDIX G
AIR QUALITY SUPPORTING DOCUMENTATION

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Lake Merced West - San Francisco County, Annual

Lake Merced West

San Francisco County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	11.00	Acre	11.00	479,160.00	0
Quality Restaurant	5.00	1000sqft	0.00	5,000.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	4.6	**Precipitation Freq (Days)**	64
Climate Zone	5			**Operational Year**	2026
Utility Company	City and County of San Francisco				
CO2 Intensity (lb/MWhr)	76.28	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - All acreage captured under City Park land use

Construction Phase - Adjusted construction phases to match project description

Off-road Equipment -

Off-road Equipment - Building equipment from project description

Off-road Equipment - Demolition equipment from project description

Off-road Equipment -

Off-road Equipment - Remediation equipment from project description

Off-road Equipment - Remidiation equipment from project description

Trips and VMT - Haul truck trips per Project Description. Composite trip length to basin edge to SR 152. Vendor trips per PD.

Demolition -

Grading - 11 acre site. Not all site will be graded.

Vehicle Trips - Adjust Trip Rates to match Transportation Memo Trip Generation Special event trips added to Saturday. All trips allocated to park use.

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Consumer Products - SF-specific ROG factor

Energy Use - T24 rates adjusted to account for 2019 updates.

Water And Wastewater - All WWTP aerobic in SF

Construction Off-road Equipment Mitigation - Clean construction ordinance requires Levcel 3 VDEC on equipment greater than 25 hp.

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	20.00	63.00
tblConstructionPhase	NumDays	30.00	43.00
tblConstructionPhase	NumDays	300.00	520.00
tblConsumerProducts	ROG_EF	2.14E-05	1.51E-05
tblEnergyUse	T24E	2.67	2.64
tblEnergyUse	T24NG	39.90	35.63
tblLandUse	LotAcreage	0.11	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00

tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblTripsAndVMT	HaulingTripLength	20.00	36.00
tblTripsAndVMT	HaulingTripNumber	218.00	280.00
tblTripsAndVMT	HaulingTripNumber	0.00	3,180.00
tblTripsAndVMT	HaulingTripNumber	0.00	400.00
tblTripsAndVMT	VendorTripNumber	79.00	5.00
tblTripsAndVMT	VendorTripNumber	79.00	0.00
tblTripsAndVMT	WorkerTripNumber	5.00	15.00
tblTripsAndVMT	WorkerTripNumber	203.00	10.00
tblVehicleTrips	DV_TP	28.00	0.00
tblVehicleTrips	PB_TP	6.00	0.00
tblVehicleTrips	PR_TP	66.00	100.00
tblVehicleTrips	ST_TR	22.75	88.82
tblVehicleTrips	ST_TR	94.36	0.00
tblVehicleTrips	SU_TR	16.74	69.73
tblVehicleTrips	SU_TR	72.16	0.00
tblVehicleTrips	WD_TR	1.89	104.91
tblVehicleTrips	WD_TR	89.95	0.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0115	0.1289	0.1643	3.4000e-004	0.0316	4.8700e-003	0.0364	5.5000e-003	4.4800e-003	9.9800e-003	0.0000	32.0536	32.0536	7.8900e-003	0.0000	32.2509
2024	0.3891	3.7082	3.3094	8.1200e-003	0.2621	0.1492	0.4113	0.0670	0.1374	0.2043	0.0000	723.8952	723.8952	0.1988	0.0000	728.8663
2025	0.7050	6.4827	6.3004	0.0160	0.4700	0.2545	0.7246	0.1206	0.2344	0.3550	0.0000	1,422.7331	1,422.7331	0.3930	0.0000	1,432.5591
2026	0.3799	3.2463	3.2268	8.0200e-003	0.2584	0.1286	0.3870	0.0661	0.1184	0.1845	0.0000	714.5913	714.5913	0.1979	0.0000	719.5387
Maximum	**0.7050**	**6.4827**	**6.3004**	**0.0160**	**0.4700**	**0.2545**	**0.7246**	**0.1206**	**0.2344**	**0.3550**	**0.0000**	**1,422.7331**	**1,422.7331**	**0.3930**	**0.0000**	**1,432.5591**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive	Exhaust	PM10	Fugitive	Exhaust	PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	2.9300e-003	0.0252	0.1727	3.4000e-004	0.0316	-0.0005	0.0311	5.5000e-003	-0.0004	5.0900e-003	0.0000	32.0536	32.0536	7.8900e-003	0.0000	32.2509
2024	0.3198	2.9821	3.5912	8.1200e-003	0.2621	0.1118	0.3739	0.0670	0.1033	0.1703	0.0000	723.8945	723.8945	0.1988	0.0000	728.8656
2025	0.5834	5.2377	6.8646	0.0160	0.4700	0.1932	0.6632	0.1206	0.1786	0.2992	0.0000	1,422.7317	1,422.7317	0.3930	0.0000	1,432.5577
2026	0.3207	2.6404	3.5013	8.0200e-003	0.2584	0.0987	0.3571	0.0661	0.0913	0.1573	0.0000	714.5906	714.5906	0.1979	0.0000	719.5380
Maximum	**0.5834**	**5.2377**	**6.8646**	**0.0160**	**0.4700**	**0.1932**	**0.6632**	**0.1206**	**0.1786**	**0.2992**	**0.0000**	**1,422.7317**	**1,422.7317**	**0.3930**	**0.0000**	**1,432.5577**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	6-3-2024	9-2-2024	1.4172	1.1418
2	9-3-2024	12-2-2024	2.0189	1.6273
3	12-3-2024	3-2-2025	1.8458	1.4928
4	3-3-2025	6-2-2025	1.8090	1.4649
5	6-3-2025	9-2-2025	1.8073	1.4632
6	9-3-2025	12-2-2025	1.7913	1.4510
7	12-3-2025	3-2-2026	1.7706	1.4340
8	3-3-2026	6-2-2026	1.9427	1.5986
9	6-3-2026	9-2-2026	0.5097	0.4125
		Highest	2.0189	1.6273

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0209	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.9000e-004	2.9000e-004	0.0000	0.0000	3.0000e-004
Energy	4.4100e-003	0.0401	0.0337	2.4000e-004		3.0500e-003	3.0500e-003		3.0500e-003	3.0500e-003	0.0000	48.6733	48.6733	2.7400e-003	1.1900e-003	49.0978
Mobile	0.2344	0.9671	2.8122	0.0117	1.1715	0.0119	1.1834	0.3154	0.0111	0.3265	0.0000	1,080.8220	1,080.8220	0.0431	0.0000	1,081.9002
Waste						0.0000	0.0000		0.0000	0.0000	1.1185	0.0000	1.1185	0.0661	0.0000	2.7710
Water						0.0000	0.0000		0.0000	0.0000	0.5370	1.8830	2.4200	2.5600e-003	1.3200e-003	2.8762
Total	**0.2597**	**1.0072**	**2.8460**	**0.0120**	**1.1715**	**0.0150**	**1.1864**	**0.3154**	**0.0142**	**0.3295**	**1.6554**	**1,131.3786**	**1,133.0340**	**0.1145**	**2.5100e-003**	**1,136.6455**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0209	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.9000e-004	2.9000e-004	0.0000	0.0000	3.0000e-004
Energy	4.4100e-003	0.0401	0.0337	2.4000e-004		3.0500e-003	3.0500e-003		3.0500e-003	3.0500e-003	0.0000	48.6733	48.6733	2.7400e-003	1.1900e-003	49.0978
Mobile	0.2344	0.9671	2.8122	0.0117	1.1715	0.0119	1.1834	0.3154	0.0111	0.3265	0.0000	1,080.8220	1,080.8220	0.0431	0.0000	1,081.9002
Waste						0.0000	0.0000		0.0000	0.0000	1.1185	0.0000	1.1185	0.0661	0.0000	2.7710
Water						0.0000	0.0000		0.0000	0.0000	0.5370	1.8830	2.4200	2.5600e-003	1.3200e-003	2.8762
Total	**0.2597**	**1.0072**	**2.8460**	**0.0120**	**1.1715**	**0.0150**	**1.1864**	**0.3154**	**0.0142**	**0.3295**	**1.6554**	**1,131.3786**	**1,133.0340**	**0.1145**	**2.5100e-003**	**1,136.6455**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/1/2023	4/28/2023	5	63	
2	Remediation and Backfill	Grading	3/1/2023	4/28/2023	5	43	
3	Building Construction	Building Construction	7/1/2024	6/28/2026	5	520	
4	Paving	Paving	4/4/2026	5/1/2026	5	20	
5	Architectural Coating	Architectural Coating	5/3/2026	5/31/2026	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 7,500; Non-Residential Outdoor: 2,500; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	0	8.00	81	0.73
Demolition	Excavators	0	8.00	158	0.38
Demolition	Rubber Tired Dozers	0	8.00	247	0.40
Demolition	Scrapers	0	8.00	367	0.48
Demolition	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction	Aerial Lifts	2	8.00	63	0.31
Building Construction	Bore/Drill Rigs	1	2.00	221	0.50

Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Excavators	1	8.00	158	0.38
Building Construction	Excavators	2	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Forklifts	0	8.00	89	0.20
Building Construction	Generator Sets	0	8.00	84	0.74
Building Construction	Graders	2	8.00	187	0.41
Building Construction	Graders	0	8.00	187	0.41
Building Construction	Plate Compactors	2	8.00	8	0.43
Building Construction	Rubber Tired Dozers	2	8.00	247	0.40
Building Construction	Rubber Tired Dozers	0	8.00	247	0.40
Building Construction	Scrapers	2	8.00	367	0.48
Building Construction	Scrapers	0	8.00	367	0.48
Building Construction	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Building Construction	Welders	0	8.00	46	0.45
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	2	15.00	0.00	280.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	21	203.00	5.00	3,180.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	21	10.00	0.00	400.00	10.80	7.30	36.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	41.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Remediation and Backfill			0.00	0.00	10.80	7.30				

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0255	0.0000	0.0255	3.8600e-003	0.0000	3.8600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.5400e-**	**0.0968**	**0.1406**	**2.0000e-**	**0.0255**	**4.7800e-**	**0.0303**	**3.8600e-**	**4.3900e-**	**8.2500e-**	**0.0000**	**17.2359**	**17.2359**	**5.5700e-**	**0.0000**	**17.3753**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.7000e-004	0.0314	0.0152	1.1000e-004	2.3500e-003	6.0000e-005	2.4100e-003	6.4000e-004	6.0000e-005	7.0000e-004	0.0000	11.6503	11.6503	2.2600e-003	0.0000	11.7068
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0255	0.0000	0.0255	3.8600e-003	0.0000	3.8600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.6000e-004	-0.0069	0.1490	2.0000e-004		-0.0006	-0.0006		-0.0005	-0.0005	0.0000	17.2359	17.2359	5.5700e-003	0.0000	17.3752
Total	**9.6000e-004**	**-0.0069**	**0.1490**	**2.0000e-004**	**0.0255**	**-0.0006**	**0.0249**	**3.8600e-003**	**-0.0005**	**3.3600e-003**	**0.0000**	**17.2359**	**17.2359**	**5.5700e-003**	**0.0000**	**17.3752**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.7000e-004	0.0314	0.0152	1.1000e-004	2.3500e-003	6.0000e-005	2.4100e-003	6.4000e-004	6.0000e-005	7.0000e-004	0.0000	11.6503	11.6503	2.2600e-003	0.0000	11.7068
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

3.3 Remediation and Backfill - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total					**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

3.4 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3518	3.5572	3.0056	6.6700e-003		0.1481	0.1481		0.1364	0.1364	0.0000	584.3970	584.3970	0.1881	0.0000	589.0995
Total	**0.3518**	**3.5572**	**3.0056**	**6.6700e-003**		**0.1481**	**0.1481**		**0.1364**	**0.1364**	**0.0000**	**584.3970**	**584.3970**	**0.1881**	**0.0000**	**589.0995**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.6000e-003	0.1030	0.0547	3.7000e-004	0.0514	2.1000e-004	0.0516	0.0128	2.0000e-004	0.0131	0.0000	40.4139	40.4139	8.0400e-003	0.0000	40.6148
Vendor	7.3000e-004	0.0290	0.0108	8.0000e-005	3.6800e-003	4.0000e-005	3.7200e-003	1.0000e-003	4.0000e-005	1.0400e-003	0.0000	8.5978	8.5978	1.1500e-003	0.0000	8.6266
Total	**0.0373**	**0.1510**	**0.3038**	**1.4500e-003**	**0.2621**	**1.0600e-003**	**0.2631**	**0.0670**	**9.8000e-004**	**0.0679**	**0.0000**	**139.4982**	**139.4982**	**0.0108**	**0.0000**	**139.7668**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2826	2.8311	3.2873	6.6700e-003		0.1108	0.1108		0.1024	0.1024	0.0000	584.3963	584.3963	0.1881	0.0000	589.0988
Total	**0.2826**	**2.8311**	**3.2873**	**6.6700e-003**		**0.1108**	**0.1108**		**0.1024**	**0.1024**	**0.0000**	**584.3963**	**584.3963**	**0.1881**	**0.0000**	**589.0988**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.6000e-003	0.1030	0.0547	3.7000e-004	0.0514	2.1000e-004	0.0516	0.0128	2.0000e-004	0.0131	0.0000	40.4139	40.4139	8.0400e-003	0.0000	40.6148
Vendor	7.3000e-004	0.0290	0.0108	8.0000e-005	3.6800e-003	4.0000e-005	3.7200e-003	1.0000e-003	4.0000e-005	1.0400e-003	0.0000	8.5978	8.5978	1.1500e-003	0.0000	8.6266
Total	**0.0373**	**0.1510**	**0.3038**	**1.4500e-003**	**0.2621**	**1.0600e-003**	**0.2631**	**0.0670**	**9.8000e-004**	**0.0679**	**0.0000**	**139.4982**	**139.4982**	**0.0108**	**0.0000**	**139.7668**

3.4 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.6344	6.1976	5.7273	0.0132		0.2525	0.2525		0.2325	0.2325	0.0000	1,155.3373	1,155.3373	0.3719	0.0000	1,164.6339
Total	**0.6344**	**6.1976**	**5.7273**	**0.0132**		**0.2525**	**0.2525**		**0.2325**	**0.2325**	**0.0000**	**1,155.3373**	**1,155.3373**	**0.3719**	**0.0000**	**1,164.6339**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0600e-003	0.1948	0.1114	7.1000e-004	0.0534	4.0000e-004	0.0538	0.0136	3.8000e-004	0.0140	0.0000	78.9530	78.9530	0.0161	0.0000	79.3552
Vendor	1.3900e-003	0.0559	0.0214	1.6000e-004	7.2800e-003	8.0000e-005	7.3500e-003	1.9700e-003	7.0000e-005	2.0500e-003	0.0000	16.8446	16.8446	2.2800e-003	0.0000	16.9015
Total	**0.0706**	**0.2852**	**0.5732**	**2.7600e-003**	**0.4700**	**2.0700e-003**	**0.4721**	**0.1206**	**1.9100e-003**	**0.1225**	**0.0000**	**267.3958**	**267.3958**	**0.0212**	**0.0000**	**267.9251**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.5128	4.9525	6.2914	0.0132		0.1911	0.1911		0.1767	0.1767	0.0000	1,155.3359	1,155.3359	0.3719	0.0000	1,164.6325
Total	**0.5128**	**4.9525**	**6.2914**	**0.0132**		**0.1911**	**0.1911**		**0.1767**	**0.1767**	**0.0000**	**1,155.3359**	**1,155.3359**	**0.3719**	**0.0000**	**1,164.6325**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0600e-003	0.1948	0.1114	7.1000e-004	0.0534	4.0000e-004	0.0538	0.0136	3.8000e-004	0.0140	0.0000	78.9530	78.9530	0.0161	0.0000	79.3552
Vendor	1.3900e-003	0.0559	0.0214	1.6000e-004	7.2800e-003	8.0000e-005	7.3500e-003	1.9700e-003	7.0000e-005	2.0500e-003	0.0000	16.8446	16.8446	2.2800e-003	0.0000	16.9015
Total	**0.0706**	**0.2852**	**0.5732**	**2.7600e-003**	**0.4700**	**2.0700e-003**	**0.4721**	**0.1206**	**1.9100e-003**	**0.1225**	**0.0000**	**267.3958**	**267.3958**	**0.0212**	**0.0000**	**267.9251**

3.4 Building Construction - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3087	3.0157	2.7868	6.4200e-003		0.1229	0.1229		0.1131	0.1131	0.0000	562.1756	562.1756	0.1810	0.0000	566.6993
Total	**0.3087**	**3.0157**	**2.7868**	**6.4200e-003**		**0.1229**	**0.1229**		**0.1131**	**0.1131**	**0.0000**	**562.1756**	**562.1756**	**0.1810**	**0.0000**	**566.6993**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.4300e-003	0.0907	0.0559	3.4000e-004	0.0513	1.9000e-004	0.0515	0.0128	1.8000e-004	0.0130	0.0000	37.9773	37.9773	7.9200e-003	0.0000	38.1752
Vendor	6.6000e-004	0.0265	0.0105	8.0000e-005	3.5400e-003	4.0000e-005	3.5800e-003	9.6000e-004	3.0000e-005	9.9000e-004	0.0000	8.1245	8.1245	1.1100e-003	0.0000	8.1522
Worker	0.0300	0.0155	0.2013	8.9000e-004	0.1992	7.5000e-004	0.2000	0.0511	6.9000e-004	0.0518	0.0000	80.4122	80.4122	1.2500e-003	0.0000	80.4435

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2495	2.4098	3.0613	6.4200e-003		0.0930	0.0930		0.0860	0.0860	0.0000	562.1749	562.1749	0.1810	0.0000	566.6986
Total	**0.2495**	**2.4098**	**3.0613**	**6.4200e-003**		**0.0930**	**0.0930**		**0.0860**	**0.0860**	**0.0000**	**562.1749**	**562.1749**	**0.1810**	**0.0000**	**566.6986**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	2.4300e-003	0.0907	0.0559	3.4000e-004	0.0513	1.9000e-004	0.0515	0.0128	1.8000e-004	0.0130	0.0000	37.9773	37.9773	7.9200e-003	0.0000	38.1752
Vendor	6.6000e-004	0.0265	0.0105	8.0000e-005	3.5400e-003	4.0000e-005	3.5800e-003	9.6000e-004	3.0000e-005	9.9000e-004	0.0000	8.1245	8.1245	1.1100e-003	0.0000	8.1522
Worker	0.0300	0.0155	0.2013	8.9000e-004	0.1992	7.5000e-004	0.2000	0.0511	6.9000e-004	0.0518	0.0000	80.4122	80.4122	1.2500e-003	0.0000	80.4435
Total	**0.0330**	**0.1327**	**0.2677**	**1.3100e-003**	**0.2540**	**9.8000e-004**	**0.2550**	**0.0649**	**9.0000e-004**	**0.0658**	**0.0000**	**126.5139**	**126.5139**	**0.0103**	**0.0000**	**126.7709**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.1500e-003	0.0858	0.1458	2.3000e-004		4.1900e-003	4.1900e-003		3.8500e-003	3.8500e-003	0.0000	20.0193	20.0193	6.4700e-003	0.0000	20.1811
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.1500e-003**	**0.0858**	**0.1458**	**2.3000e-004**		**4.1900e-003**	**4.1900e-003**		**3.8500e-003**	**3.8500e-003**	**0.0000**	**20.0193**	**20.0193**	**6.4700e-003**	**0.0000**	**20.1811**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	1.7000e-004	2.2300e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.8918	0.8918	1.0000e-005	0.0000	0.8921
Total	**3.3000e-004**	**1.7000e-004**	**2.2300e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.8918**	**0.8918**	**1.0000e-005**	**0.0000**	**0.8921**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	9.1500e-003	0.0858	0.1458	2.3000e-004		4.1900e-003	4.1900e-003		3.8500e-003	3.8500e-003	0.0000	20.0192	20.0192	6.4700e-003	0.0000	20.1811
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**9.1500e-003**	**0.0858**	**0.1458**	**2.3000e-004**		**4.1900e-003**	**4.1900e-003**		**3.8500e-003**	**3.8500e-003**	**0.0000**	**20.0192**	**20.0192**	**6.4700e-003**	**0.0000**	**20.1811**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.3000e-004	1.7000e-004	2.2300e-003	1.0000e-005	1.1900e-003	1.0000e-005	1.1900e-003	3.2000e-004	1.0000e-005	3.2000e-004	0.0000	0.8918	0.8918	1.0000e-005	0.0000	0.8921
Total	**3.3000e-004**	**1.7000e-004**	**2.2300e-003**	**1.0000e-005**	**1.1900e-003**	**1.0000e-005**	**1.1900e-003**	**3.2000e-004**	**1.0000e-005**	**3.2000e-004**	**0.0000**	**0.8918**	**0.8918**	**1.0000e-005**	**0.0000**	**0.8921**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0261					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0115	0.0181	3.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5567
Total	**0.0278**	**0.0115**	**0.0181**	**3.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5567**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.1000e-004	4.7000e-004	6.1000e-003	3.0000e-005	3.2400e-003	2.0000e-005	3.2600e-003	8.6000e-004	2.0000e-005	8.8000e-004	0.0000	2.4375	2.4375	4.0000e-005	0.0000	2.4385
Total	**9.1000e-004**	**4.7000e-004**	**6.1000e-003**	**3.0000e-005**	**3.2400e-003**	**2.0000e-005**	**3.2600e-003**	**8.6000e-004**	**2.0000e-005**	**8.8000e-004**	**0.0000**	**2.4375**	**2.4375**	**4.0000e-005**	**0.0000**	**2.4385**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.0261					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7100e-003	0.0115	0.0181	3.0000e-005		5.2000e-004	5.2000e-004		5.2000e-004	5.2000e-004	0.0000	2.5533	2.5533	1.4000e-004	0.0000	2.5567
Total	**0.0278**	**0.0115**	**0.0181**	**3.0000e-005**		**5.2000e-004**	**5.2000e-004**		**5.2000e-004**	**5.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.4000e-004**	**0.0000**	**2.5567**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.1000e-004	4.7000e-004	6.1000e-003	3.0000e-005	3.2400e-003	2.0000e-005	3.2600e-003	8.6000e-004	2.0000e-005	8.8000e-004	0.0000	2.4375	2.4375	4.0000e-005	0.0000	2.4385
Total	**9.1000e-004**	**4.7000e-004**	**6.1000e-003**	**3.0000e-005**	**3.2400e-003**	**2.0000e-005**	**3.2600e-003**	**8.6000e-004**	**2.0000e-005**	**8.8000e-004**	**0.0000**	**2.4375**	**2.4375**	**4.0000e-005**	**0.0000**	**2.4385**

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2344	0.9671	2.8122	0.0117	1.1715	0.0119	1.1834	0.3154	0.0111	0.3265	0.0000	1,080.8220	1,080.8220	0.0431	0.0000	1,081.9002
Unmitigated	0.2344	0.9671	2.8122	0.0117	1.1715	0.0119	1.1834	0.3154	0.0111	0.3265	0.0000	1,080.8220	1,080.8220	0.0431	0.0000	1,081.9002

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	1,154.01	977.02	767.03	3,136,025	3,136,025
Quality Restaurant	0.00	0.00	0.00		
Total	1,154.01	977.02	767.03	3,136,025	3,136,025

4.3 Trip Type Information

Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549
Quality Restaurant	0.603873	0.037286	0.192865	0.090708	0.013128	0.005155	0.032618	0.009408	0.004276	0.003135	0.006045	0.000953	0.000549

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	5.0084	5.0084	1.9000e-003	3.9000e-004	5.1734
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	5.0084	5.0084	1.9000e-003	3.9000e-004	5.1734
NaturalGas Mitigated	4.4100e-003	0.0401	0.0337	2.4000e-004		3.0500e-003	3.0500e-003		3.0500e-003	3.0500e-003	0.0000	43.6649	43.6649	8.4000e-004	8.0000e-004	43.9244
NaturalGas Unmitigated	4.4100e-003	0.0401	0.0337	2.4000e-004		3.0500e-003	3.0500e-003		3.0500e-003	3.0500e-003	0.0000	43.6649	43.6649	8.4000e-004	8.0000e-004	43.9244

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	818250	4.4100e-003	0.0401	0.0337	2.4000e-004		3.0500e-003	3.0500e-003		3.0500e-003	3.0500e-003	0.0000	43.6649	43.6649	8.4000e-004	8.0000e-004	43.9244
Total		**4.4100e-003**	**0.0401**	**0.0337**	**2.4000e-004**		**3.0500e-003**	**3.0500e-003**		**3.0500e-003**	**3.0500e-003**	**0.0000**	**43.6649**	**43.6649**	**8.4000e-004**	**8.0000e-004**	**43.9244**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
City Park	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	818250	4.4100e-003	0.0401	0.0337	2.4000e-004		3.0500e-003	3.0500e-003		3.0500e-003	3.0500e-003	0.0000	43.6649	43.6649	8.4000e-004	8.0000e-004	43.9244
Total		**4.4100e-003**	**0.0401**	**0.0337**	**2.4000e-004**		**3.0500e-003**	**3.0500e-003**		**3.0500e-003**	**3.0500e-003**	**0.0000**	**43.6649**	**43.6649**	**8.4000e-004**	**8.0000e-004**	**43.9244**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	144750	5.0084	1.9000e-003	3.9000e-004	5.1734
Total		**5.0084**	**1.9000e-003**	**3.9000e-004**	**5.1734**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
City Park	0	0.0000	0.0000	0.0000	0.0000
Quality Restaurant	144750	5.0084	1.9000e-003	3.9000e-004	5.1734
Total		**5.0084**	**1.9000e-003**	**3.9000e-004**	**5.1734**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0209	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.9000e-004	2.9000e-004	0.0000	0.0000	3.0000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.6100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0183					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.9000e-004	2.9000e-004	0.0000	0.0000	3.0000e-004
Total	**0.0209**	**0.0000**	**1.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.9000e-004**	**2.9000e-004**	**0.0000**	**0.0000**	**3.0000e-004**

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	2.6100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0183					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.0000e-005	0.0000	1.5000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.9000e-004	2.9000e-004	0.0000	0.0000	3.0000e-004
Total	**0.0209**	**0.0000**	**1.5000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.9000e-004**	**2.9000e-004**	**0.0000**	**0.0000**	**3.0000e-004**

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	2.4200	2.5600e-003	1.3200e-003	2.8762
Unmitigated	2.4200	2.5600e-003	1.3200e-003	2.8762

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 13.1063	1.5872	6.0000e-004	1.2000e-004	1.6395
Quality Restaurant	1.51767 / 0.0968725	0.8328	1.9600e-003	1.1900e-003	1.2368
Total		**2.4200**	**2.5600e-003**	**1.3100e-003**	**2.8762**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 13.1063	1.5872	6.0000e-004	1.2000e-004	1.6395
Quality Restaurant	1.51767 / 0.0968725	0.8328	1.9600e-003	1.1900e-003	1.2368
Total		**2.4200**	**2.5600e-003**	**1.3100e-003**	**2.8762**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.95	0.1928	0.0114	0.0000	0.4778
Quality Restaurant	4.56	0.9256	0.0547	0.0000	2.2932
Total		**1.1185**	**0.0661**	**0.0000**	**2.7710**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.95	0.1928	0.0114	0.0000	0.4778
Quality Restaurant	4.56	0.9256	0.0547	0.0000	2.2932
Total		**1.1185**	**0.0661**	**0.0000**	**2.7710**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

Equipment Type	Number

11.0 Vegetation

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Calculation of Average Daily Operational Criteria Polluant Emissions

Days per year = 365

From CalEEMod Output	ROG	Nox	PM10	PM2.5
Annual Emissions (TPY) =	0.2597	1.0072	1.1864	0.3295
Area =	0.0209	0.0000	0.0000	0.0000
Energy =	4.4100e-003	0.0401	3.0500e-00	3.0500e-003
Mobil =	0.2344	0.9671	1.1834	0.3265

Average Daily =

Total Emissions (Lb per day) =	1.423013699	5.518904	6.500822	1.805479
Area =	0.114520548	0	0	0
Energy =	0.024164384	0.219726	0.016712	0.016712
Mobil =	1.284383562	5.299178	6.484384	1.789041

Calculation of Average Daily Construction Emissions

Construction Days =	583	
Total Emissions (Tons)		
		Average Daily Emissions (pounds/day)
Construction ROG =	1.4855	5.10
Construction NOx=	13.5661	46.54
Construction PM10=	0.53717	1.84
Construction PM2.5=	0.49468	1.70

Vehicle Trip Calculations - Lake Merced

Per SF Transportation Memo

		Daily Trips	
Weekday Modal Split =			
	Automobiles =	1052	
	TNC/Taxi =	102	
	Total =	1154	
	Allocate to City Park Land Use		11 acres
Weekday Trip Rate =		104.91	trips/acre

		Daily Trips	
Weekend Modal Split =			
	Automobiles =	700	
	TNC/Taxi =	67	
	Total =	767	
	Allocate to City Park Land Use		11 acres
Weekend Trip Rate =		69.73	trips/acre

		Daily Trips	
Special Event Modal Split =			
	Automobiles =	830	
	TNC/Taxi =	80	
	Total =	910	
Events per year =		12	
Additional Trips per year =		10920.00	
Allocate to Special Event trips to Saturday trip Rate			
Saturdays per year =		52	
Additional Trips to add to Saturday =			210

Revised Saturday Trip Rate to account for special events =	88.82

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APPENDIX H
BIOLOGICAL RESOURCES SUPPORTING DOCUMENTATION

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H1 BIOLOGICAL RESOURCES ASSESSMENT

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BIOLOGICAL RESOURCE ASSESSMENT
LAKE MERCED WEST
520 JOHN MUIR DRIVE, CITY OF SAN FRANCISCO
SAN FRANCISCO COUNTY, CALIFORNIA

PREPARED FOR:
San Francisco Environmental Planning

PREPARED BY:
Coast Ridge Ecology
1410 31st Avenue
San Francisco, CA 94122

July, 2020

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I. SUMMARY

This report provides a biological resource assessment for the approximately 11-acre Lake Merced West project site located at 520 John Muir Drive in southwest San Francisco, California. The project site is located along the southwest shoreline of South Lake (one of four lakes that make up Lake Merced). The project site is owned by the City and County of San Francisco, and was previously leased to the Pacific Rod and Gun Club through the San Francisco Public Utilities Commission (SFPUC).

The Pacific Rod and Gun Club built and operated skeet and trap shooting facilities at the site from 1934 to 2015. After the gun club vacated the site the SFPUC implemented the Pacific Rod and Gun Club Upland Soil Remediation Project which removed and replaced a total of 88,000 tons of soil up to 10 feet deep contaminated with lead shotgun pellets and other debris from the gun club activities. Beginning in 2016, the remediated site was re-vegetated with California native plants. Monitoring and maintenance of the revegetated areas is ongoing.

The San Francisco Recreation and Parks Department manages recreation at Lake Merced, and has undertaken a Memorandum of Understanding with the SFPUC to manage recreation at the Lake Merced West project site, should the Project be undertaken (San Francisco Planning Department, 2020). The proposed project includes the construction and operation of a multi-use recreation facility. This would include repairing, or demolishing and replacing, most of the buildings and structures on site, installing additional buildings and parking lots, and creating walking trails. New structures on site will include a dock and boat launch, fishing dock, bird observatory platform, restrooms, restaurant, fitness studio, boathouse, operational support building, a maintenance yard, and caretaker's house. Several multi-purpose fields including a challenge course and a skeet picnic area which will utilize some of the existing planted and developed areas. The walking trails will be located along the north side of the site along the lake edge.

The project site was surveyed for biological resources by Coast Ridge Ecology biologists in December, 2019. The California Department of Fish and Wildlife (CDFW) Natural Diversity Database (CNDDB) was consulted for known occurrences of sensitive plant, animal, and natural plant communities of concern found within the San Francisco South and six surrounding 7.5' U.S. Geological Survey (USGS) topographic quadrangles (CNDDB, 2019).

There are eight vegetation alliances on the project site: landscaped coast live oak woodland (*Quercus agrifolia* Woodland Alliance), tufted hairgrass meadow (*Deschampsia caespitosa* Herbaceous Alliance), eucalyptus (*Eucalyptus globulus*) semi-natural woodland stand, arroyo willow thicket (*Salix lasiolepis* Shrubland Alliance), soft rush marsh (*Juncus effusus* Herbaceous Alliance), Himalayan blackberry riparian scrub (*Rubus armeniacus* shrubland semi-natural alliance), swamp knotweed (*Persicaria amphibia* Provisional Herbaceous Alliance), and California bulrush marsh (*Schoenoplectus acutus var. occidentalis* Herbaceous Alliance). There is also a parking area that is developed on the project site and a landscaped strip outside of the fence line that runs along John Muir Drive.

None of these plant communities are considered rare in California. A jurisdictional delineation is required to define the areas on the site that are US and State jurisdictional wetlands and waters.

The project site provides suitable habitat for many animal species, particularly birds, and the value of the vegetation communities to wildlife will increase as the recently re-vegetated site matures. The site is also adjacent to the open water of Lake Merced, which also adds value to the site for wildlife.

Special Status Animal Species

Twelve animal species with special status were considered in this assessment for their potential to occur on the project site. The determination for potential occurrence of each species are provided below.

Species Name	**Status**	**Potential to Occur On Site**
Monarch butterfly (overwintering site)	Priority species for the Western Monarch Working Group	**Low**
California red-legged frog	Federally threatened	**Not Expected**
Western pond turtle	California species of special concern	**Moderate**
Bank swallow	California threatened species	**Moderate (foraging)**
California black rail	California threatened species	**Low**
Northern harrier	California species of special concern	**Moderate (foraging) Low (nesting)**
Salt marsh common yellowthroat	California species of special concern	**Present**
White-tailed kite	California fully protected species	**Moderate**
Yellow rail	California species of special concern	**Low**
Townsend's big-eared bat	California species of special concern and high priority species for the Western Bat Working Group (WBWG)	**Low**
Western red bat	California Species of Special Concern and high priority species for the WBWG	**Low**
Hoary bat	Moderate priority species for the WBWG	**Not Expected**

Nesting and foraging birds

Extensive foraging and nesting habitat for bird species protected under the Migratory Bird Treaty Act (MBTA) can be found on site. It is likely that several passerine and raptor species may nest within the project site.

Special Status Plants

Based upon the recently remediated soils and re-vegetated nature of the project site, no special status plant species are expected to occur within the project site.

II. PROJECT LOCATION AND STUDY AREA

The approximately 11-acre Lake Merced West (project) site is located at 520 John Muir Drive in southwest San Francisco, California (Figure 1). Lake Merced includes four lakes: North Lake, South Lake, East Lake, and Impound Lake. The study area is the project site, which is located along the southwest shoreline of South Lake ("the lake"). The project site is bordered by John Muir Drive, apartment complexes and the Olympic Club Golf Course on the southwest. To the northwest, there is a narrow cove of the lake, a large stand of blue gum eucalyptus trees and the San Francisco Police Department Pistol Range. Southeast of the site there is a dense arroyo willow thicket and a narrow ephemeral drainage channel that drains into the lake. Skyline Boulevard / Highway 35 and the Pacific Ocean are located 0.1 miles and 0.4 miles west of the site, respectively.

The City and County of San Francisco own the property, which was previously managed by the SFPUC under a lease to the Pacific Rod and Gun Club. The Pacific Rod and Gun Club built and operated skeet and trap shooting facilities at the site from 1934 to 2015. These activities resulted in lead shotgun pellets and other debris falling onto the site and the lake. After the gun club vacated the site, the SFPUC implemented the Pacific Rod and Gun Club Upland Soil Remedial Action Project (remediation project; SFPUC, 2014), which included extensive soil remediation under the oversight of the San Francisco Bay Regional Water Quality Control Board (RWQCB). Under the soil remediation project, 88,000 tons of contaminated soils up to 10 feet deep were excavated and removed from the upland areas of the site, then backfilled with clean fill, and historic features and native vegetation were restored. Revegetation of the site was first completed in February 2016 and monitoring and maintenance is ongoing (Environmental Science Associates (ESA), 2018a; ESA 2018b). The soil remediation project impacted wetlands jurisdictional to the state but did not impact wetlands and other waters of the United States, under federal jurisdiction under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. Following the soil remediation actions, the RWQCB approved the project site for unrestricted land uses, which stipulates that soil management protocols are to be followed during removal of buildings that were not removed or moved during the soil remediation project (RWQCB, 2019).

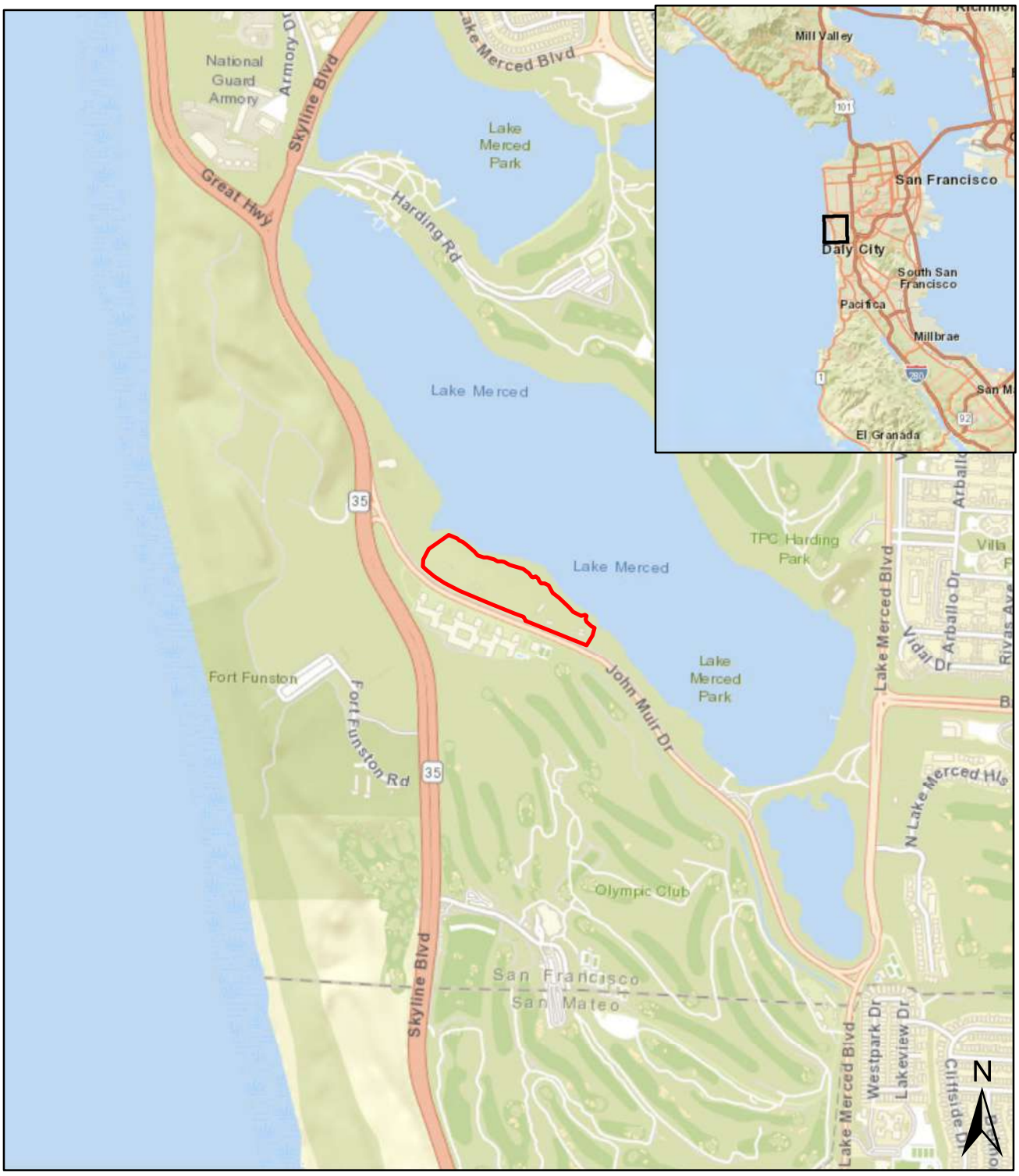

Figure 1: Project Location Map
Lake Merced, San Francisco, CA

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community

The San Francisco Recreation and Parks Department manages recreation at Lake Merced, and has a Memorandum of Understanding with the SFPUC to manage recreation at the Lake Merced West project site, should the Project be undertaken. According to the San Francisco General Plan (San Francisco Planning Department, 1996), the project site is within the Western Shoreline Plan Area (Plan Area). The Western Shoreline Area Plan is the city's Local Coastal Program, which implements the requirements of the California Coastal Act of 1976 and incorporates the policies of the Local Coastal Program. The Local Coastal Program is a policy and regulatory document required by the California Coastal Act that establishes land use, development, natural resource protection, coastal access, and public recreation policies for San Francisco's Coastal Zone. The project would include work within the Coastal Zone, including within the California Coastal Commission's retained jurisdiction and the city's certified Local Coastal Program jurisdiction. Lake Merced is a specific area within the Plan Area, with Objective 5 stating: "Preserve the recreational and natural habitat of Lake Merced." The sub-objectives include the intent to preserve recreational facilities, maintain recreational pathway around the lake, and protect the water quality of the lake (which serves as a standby non-potable water supply reservoir for the City and County of San Francisco).

III. PROJECT DESCRIPTION

The Project includes construction and operation of a multi-use recreation facility (San Francisco Planning Department, 2020). This would include repairing or demolishing and replacing most of the buildings and structures on site, and installing additional buildings, structures and parking lots, and creating walking trails. New structures on site will include a dock and boat launch, fishing dock, bird observatory platform, restrooms, restaurant, fitness studio, boathouse, operational support building, and a maintenance yard. Several multi-purpose fields including a challenge course and a picnic area will utilize some existing planted and developed areas within the flat portions of the site. The walking trails will be located along the sloped north side of the site and along the lake edge.

IV. METHODS

Coast Ridge Ecology biologists surveyed the project development footprint (project site) and the surrounding areas for biological resources and conducted an aquatic resources delineation for the project on several dates in December, 2019. Weather conditions at the time of the surveys ranged from partly cloudy to 100 percent cloud cover with temperatures in the high 50's to low 60's and winds between 0 and 5 miles per hour. The study area for this biological resources assessment consisted of the project development footprint within the project site boundary. All plant and animal species observed within this study area were documented and plant communities and habitats were assessed for their potential to support special status species. Plants were identified using The Jepson manual: vascular plants of California, second edition (Baldwin, et al., 2012) and Plants of the San Francisco Bay Region (Beidleman and Kozloff, 2003). No focused rare plant or wildlife species surveys were conducted.

The CDFW Natural Diversity Database (CNDDB) was consulted for known occurrences of sensitive plant, animal, and natural plant communities of concern found within the San Francisco South quadrangle and six surrounding 7.5' USGS topographic quadrangles

(CNDDB, 2019). Data from CNDDB, California Native Plant Society (CNPS) On-Line Inventory of Rare, Threatened, and Endangered Plants of California (CNPS, 2019), U.S. Fish and Wildlife IPaC website (USFWS, 2019b), knowledge of regional biota, and observations made during the field surveys were used to evaluate on-site habitat suitability for special status plant and wildlife species within the project site. In addition, other relevant literature and databases were reviewed including the Significant Natural Resources Management Plan (San Francisco Recreation and Parks Department, 2006), Pacific Rod and Gun Club Upland Soil Remediation Action Project Final Mitigated Negative Declaration (SFPUC, 2014), Pacific Rod and Gun Club Wetland Delineation (Coast Ridge Ecology, 2014), and the Pacific Rod and Gun Club Upland Soil Remediation Action Project Restoration As-Built Memorandum (ESA, 2016c). The soil remediation project preconstruction survey reports, construction monitoring reports, and final construction monitoring report were reviewed for special-status species occurrence, presence of nesting birds and roosting bats (ESA, 2015-2016). Recent Biological Resource Assessments prepared for nearby properties in the area were also reviewed, including San Francisco Westside Recycled Water Project Biological Assessment (ESA, 2016a), and Vista Grande Drainage Basin Improvement Project Draft EIR/EIS (ESA, 2016b).

V. SETTING

The areas of the project site that were impacted by the soil remediation project, including upland areas to the edge of the federal wetlands and other waters of the U.S. boundary, were revegetated with California native grassland, shrub and riparian plants through seeds, cuttings, and plantings beginning in February 2016. Monitoring and maintenance of the revegetated areas of the site are on-going. A chain link fence delineates the south boundary of the site that runs along John Muir Drive. A parking area covered with compacted gravel is inside the access gate, where a temporary trailer and equipment associated with local SFPUC projects are temporarily staged. There are several high-low houses comprised of concrete and wood exteriors, wooden fences, and four semi-circular skeet fields of compacted decomposed granite restored on site following soil remediation (shown as “Developed” on Figure 2; refer also to Figures B-1 and B-2 in Appendix B). The majority of the site is relatively flat, lying between approximately 10 to 13 meters above mean sea level, with the northeast edge sloping down to the water’s edge which lies at approximately 6 meters above mean sea level (USGS, 2020).

Soils

Three soil units were mapped as occurring within the project site by the National Resources Conservation Service (NRCS). These are Urban Land-Orthents, 5 to 50 percent slopes; Sirdrak Sand, 5 to 50 percent slopes, and Urban Land (refer to Appendix C). The upland soil remediation project removed up to ten feet of soils throughout the remediation boundary (with the exception of limited volumes of soils underlying buildings, which were considered locations where excavation was not feasible at the time), and replaced this material with clean fill (RWQCB, 2019); therefore, the soil units mapped within the project area occur below the depth of excavation five feet or beyond the limits of the `remediation boundary.

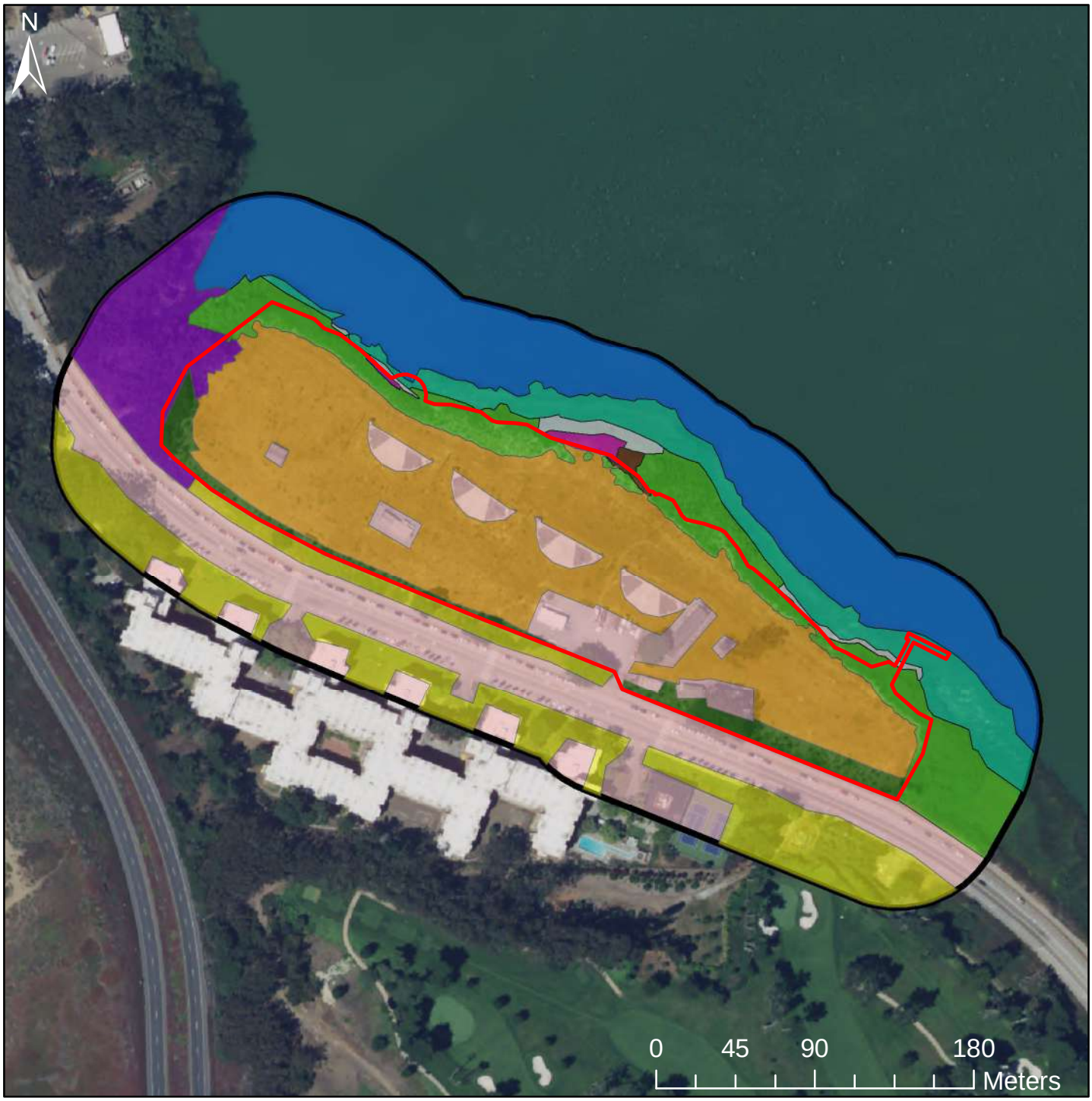

Figure 2: Vegetation Community Map

Lake Merced, San Francisco, CA

Imagery Source: NAIP

Legend

Project Boundary

200_ft_buffer

Upland Vegetation

- Coast live oak woodland
- Eucalyptus semi-natural woodland stand
- Landscaped
- Tufted hairgrass meadow
- Developed

Wetland Vegetation

- California bulrush marsh
- Himalayan blackberry riparian scrub
- Open Water
- Soft rush marsh
- Swamp knotweed
- Arroyo willow thicket

Sirdrak sands are found in dunes and are somewhat excessively drained and derived from aeolian sands. They are mapped on the northwestern edge of the site where the site slopes down to a small cove of Lake Merced.

Urban Land-Orthents are mapped on the northwestern half of the site along the shore of Lake Merced. This soil consists of 65% Urban land and 25% Orthents. The components of this unit are intricately intermingled and were not differentiated during the mapping process.

The Urban Land soil type occurs on the southwestern half of the project site. Urban land is defined by NRCS as areas where 85% or more of the ground surface is covered by asphalt, concrete, buildings, and other structures.

Hydrology
South Lake Merced borders the project site to the northeast. The majority of the project site is relatively flat, with a gentle to steep slope down to the lake edge on the northeastern side and a steep slope to the water on the northwestern edge. Water runs from upland portions of the site down into Lake Merced, and also drains off the east and west ends of the site into the lake. A small ephemeral drainage is located on the southeast boundary of the site, surrounded by arroyo willow riparian forest.

VI. PLANT COMMUNITIES AND HABITAT TYPES

Vegetation

As a part of the remediation activities in 2015, all existing plant communities and vegetation were removed from the former Pacific Rod and Gun Club site with the exception of several mature trees adjacent to buildings. Soils were replaced and revegetation/restoration began in April 2016, with additional planting and seeding occurring in 2017 and 2018. As of January 2020, the site continues to be irrigated during the dry season and vegetation within restoration areas along the north and south project site boundaries is still in the process of establishment (ESA 2016; ESA 2018). Revegetation did not occur in areas where soils were not remediated, such as wetlands jurisdictional to the Army Corps of Engineers[1] and the steep banks of the inlet of South Lake on the west side of the site.

Surveys were conducted in December, outside of the flowering and identifiable phase of some plants, making it difficult to definitively identify some plants to species. Most plants documented on site are either native species planted as part of the revegetation/restoration efforts or nonnative annual grasses, forbs and herbs (weeds) colonizing the soil fill areas and remediation boundary margins.

Vegetation was classified using *A Manual of California Vegetation* (Sawyer, et al., 2009). Vegetation is mapped on Figure 2, including eight plant communities within the project

[1] A permit to impact wetlands and waters of the (former) Pacific Rod and Gun Club site under jurisdiction to the U.S. Army Corps of Engineers was not pursued for the remediation project and therefore wetlands and waters north of the ordinary high water mark delineated for that project in 2014 were not disturbed.

site. The upland plant communities include landscaped coast live oak woodland (*Quercus agrifolia* Woodland Alliance), which is present along the fence line adjacent to John Muir Drive; Tufted hairgrass meadows (*Deschampsia caespitosa* Herbaceous Alliance), which covers the majority of the site including the upland, flat areas and the slope down to the riparian plant communities; and Eucalyptus semi-natural woodland stand, found along the northwestern edge of the project site. Riparian and wetland plant communities include Arroyo willow thickets (*Salix lasiolepis* Shrubland Alliance) which is dominant along the northern shoreline and upland transition areas; Soft rush marsh (*Juncus effusus* Herbaceous Alliance), Himalayan blackberry riparian scrub (*Rubus armeniacus* shrubland semi-natural alliance), swamp knotweed (*Persicaria amphibia* Provisional Herbaceous Alliance), and California bulrush marsh (*Schoenoplectus acutus var. occidentalis* Herbaceous Alliance). This combination of wetland plant communities forms a thick vegetated boundary along the north boundary and shoreline of the lake.

No rare plant communities were identified within the project site (Sawyer, et al. 2009). A list of all plant and animal species identified on site is provided in Appendix A.

Coast live oak woodland

Coast live oak woodland (*Quercus agrifolia* Woodland Alliance) covers 0.81 acres of the project site, located within a narrow strip inside the southern fence line that separates the project site from John Muir Drive and extending into the south west portion of the site (Figures 2 and B-4). The woodland is a landscaped collection of California native trees, shrubs, grasses and herbaceous plant species. The dominant trees include coast live oak (*Quercus agrifolia*) and Catalina ironwood (*Lyonothamnus floribundus*), with dominant shrubs including Ray Hartman wild lilac (*Ceanothus* var. *Ray Hartman*), lizard tail (*Eriophyllum staechadifolium*), California coffeeberry (*Frangula californica*). Black sage (*Salvia mellifera*), and California sage (*Artemisia californica*), with some arroyo willow (*Salix lasiolepis*). The understory consists of a developing tufted hairgrass (*Deschampsia caespitosa*) and Idaho fescue (*Festuca idahoensis*) with an herbaceous layer of yarrow (*Achillea millefolium*), deerweed (*Acmispon glaber* var. *glaber*), blue-eyed grass (*Sisyrinchium bellum*), sticky monkeyflower (*Diplacus aurantiacus*), and Northern willow herb (*Epilobium ciliatum*). Several Monterey cypress (*Hesperocyparis macrocarpa*) trees are present along the southern edge of the project site. Non-native weedy species identified within this community include iceplant (*Carpobrotus edulis*) and black mustard (*Brassica nigra*).

Tufted hairgrass meadow

Tufted hairgrass meadow (*Deschampsia caespitosa* Herbaceous Alliance) covers 7.30 acres of the project site, which is the majority of the upland area, both on the level areas around the existing structures and gravel parking area, and on the open remediation areas upslope of the riparian plant communities (Figures B-1, B-2 and B-6). There are distinct differences between the level area vegetation and the slope down to the lake, but the suites of plants are similar. Grasses are the dominant vegetation, with up to 100% cover in some areas, but there are shrubs throughout the meadow with an overall density of less than 10%.

The dominant grass throughout the meadow is tufted hairgrass, with California brome grass (*Bromus carinatus*) co-dominant in some areas. Idaho fescue is also prevalent throughout the meadow community, with blue wildrye (*Elymus glaucus*) present at a low density. The level areas of the meadow have patches of dense moss (Bryophyta) and California burclover (*Medicago polymorpha*). Herbaceous yarrow seedlings are very common throughout the meadow, both in the level areas and on the slope, and other common herbaceous plants include northern willow herb, Jersey cudweed (*Pseudognaphalium luteoalbum*) and blue-eyed grass.

The dominant shrubs on the level areas of the meadow include yellow bush lupine (*Lupinus arboreus*) and marsh gumplant (*Grindelia stricta* var. *angustifolia*), with gumplant shrubs being densest in the western meadow area. Lizard tail, Coyote brush (*Baccharis pilularis* ssp. *consaguinea*), sticky monkeyflower, and a few small deerweed (*Acmispon glaber* var. *glaber*) shrubs are also found in the western meadow area. There are also both planted and volunteer arroyo willows, and California wax myrtle (*Myrica californica*) growing within the grassland areas. Along the wetland edge, spreading rush (*Juncus patens*) plants are colonizing parts of the meadows. Non-native species are at low numbers on the site in general, but the most prevalent species identified in the meadows include rabbit's-foot grass (*Polypogon monspeliensis*), black mustard, black nightshade (*Solanum nigrum*), and occasional clumps of pampas grass (*Cortaderia selloana*).

Eucalyptus semi-natural woodland stand

Eucalyptus semi-natural woodland stand occurs on 0.13 acre of the western edge of the project site, primarily consisting of saplings from seed dropped from overhanging mature trees offsite to the west (Figures B-1 and B-2). The dominant species is blue gum Eucalyptus (*Eucalyptus globulus*), with an understory of non-native, low-growing iceplant, garden nasturtium (*Tropaeolum majus*), Himalayan blackberry (*Rubus armeniacus*), and Bermuda buttercup (*Oxalis pes-caprae*).

Arroyo willow thicket

Arroyo willow thickets (*Salix lasiolepis* Shrubland Alliance) planted as part of revegetation of the site in 2016 has expanded successfully and has coalesced with existing willow stands along the lake shoreline and covers 1.17 acres of the project site (Figures B-1 and B-5). Understory herbaceous plant species include northern willow herb (*Epilobium ciliatum*), Canada horseweed, and moss groundcover patches in some areas. Non-native species within the thickets include Himalayan blackberry, English ivy (*Hedera helix*), and bull thistle (*Cirsium vulgare*). California wax myrtle are present within the arroyo willow thicket and numerous small trees have sprouted along the edge of the thicket. Coyote brush shrubs are growing along the edge of the willow thicket on the eastern end.

Soft rush marsh

Areas of soft rush marsh (*Juncus effusus* Herbaceous Alliance) are found at the lake margin, covering 0.02 acre of the project site, with common bog rush (*Juncus effusus*) being the dominant species, and spreading rush (*J. patens*) interspersed throughout the stand (Figure B-6).

Himalayan blackberry riparian scrub

Two stands of Himalayan blackberry riparian scrub (*Rubus armeniacus* shrubland semi-natural alliance) cover 0.02 acre of the project site and are found within the riparian vegetation (Figure B-6). Himalayan blackberry is the dominant species, with native herbs including willow herb, Hooker's evening primrose (*Oenothera elata*), California blackberry (*Rubus ursinus*), poison hemlock (*Conium maculatum*), and poison oak (*Toxicodendron diversilobum*) present throughout. Iceplant is also common within the Himalayan blackberry riparian scrub.

Swamp knotweed patch

Swamp knotweed (*Persicaria amphibia Herbaceous Alliance*) is found in several small patches covering 0.01 acre on site, and in contiguous bands along the northern edge just outside of the project site along the lake (Figures B-5 and B-6). The dominant species is swamp knotweed, and other herbaceous plants within the area include Hooker's evening primrose, California blackberry, poison hemlock, and poison oak. Non-native weedy species in the area include Himalayan blackberry, Italian thistle (*Carduus pycnocephalus*), and iceplant.

California bulrush marsh

The California bulrush marsh (*Schoenoplectus acutus* var. *occidentalis* Herbaceous Alliance) is located in a dense monotypic stand of emergent vegetation located mostly outside the project boundary and within Lake Merced as it grows within shallow permanently flooded areas (Figures B-5 and B-6). It covers 0.05 acre within the project site.

Wetlands and Waters

To meet the federal definition of a wetland according to the U.S. Army Corps of Engineers (USACE), an area must demonstrate three critical characteristics: wetland vegetation, wetland hydrology, and wetland soils (Federal Interagency Committee for Wetland Delineation, 1989). Additionally, to fall under jurisdiction of the USACE, a wetland must have some evident hydrological connection to other wetlands and/or waters of the United States. The U.S. Fish and Wildlife Service definition of wetland is similar: at least periodically, the land must support predominantly hydrophytes; the substrate must be predominantly undrained hydric soil; or the substrate is non-soil that is saturated with water or covered by shallow water at some time during the growing season of the year (Cowardin, et al., 1979).

The National Wetlands Inventory shows Lake Merced South mapped as a lake in the Lacustrine System and the vegetated edges at the north and south ends of the project site mapped as freshwater emergent wetland. Most of the project site that lies along the lake edge are not mapped in the National Wetlands Inventory (USFWS, 2019a).

The California Coastal Act of 1976 specifies that wetlands are:

"Land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly

developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats" (CCR Title 14, Section 13577).

Although the State definition may require only a single parameter to establish the presence of wetlands, in practice, such decisions are based on a case-by-case interpretation of data that either support or disprove the presumption of whether wetlands are indicated by a single parameter.

Wildlife

Biological value for wildlife within the project site is extensive. The site harbors high quality native riparian and upland vegetation communities, relatively free of non-native and invasive species, which are valuable habitat for birds and small mammals that thrive among an environment dominated by native vegetation. Birds observed within the arroyo willow thickets during site visits include marsh wren (*Cistothorus palustris*), ruby-crowned kinglet (*Regulus calendula*), common yellowthroat (*Geothlypis trichas*), and Wilson's warbler (*Cardellina pusilla*). Birds observed within the tufted hairgrass meadows include California scrub-jay (*Aphelocoma californica*), American crow (*Corvus brachyrhynchos*), common raven (*C. corax*), black phoebe (*Sayornis nigricans*), western meadowlark (*Sturnella neglecta*), and non-native rock pigeon (*Columba livia*). Bushtit (*Psaltiparus minimus*), California towhee (*Melozone crissalis*), dark-eyed junco (*Junco hyemalis*), and white and golden-crowned sparrows (*Zonotricha leucophrys* and *Z. atricaphilla*) were observed in both the meadows and the coast live oak woodlands during site visits. The non-native eucalyptus grove to the northwest of the site is known to harbor nests of red-shouldered hawks (*Buteo lineatus*). Several red-shouldered hawks and red-tailed hawks (*B. jamaicensis*) were observed in the grove during surveys, and osprey (*Pandion haliaetus*) have been documented in the eucalyptus grove (Kobernus, 2019). A double crested cormorant rookery is documented from just north of the site along the lake shoreline (CNDDB, 2019). The project site location adjacent to Lake Merced South creates a valuable aquatic and terrestrial resource for breeding, wintering, and migratory birds.

Mammal scat of native brush rabbits (*Sylvilagus bachmani*) and non-native red fox (*Vulpes vulpes*) were observed in the coast live oak woodlands, tufted hairgrass meadows and arroyo willow thickets.

Bats are likely to forage insects over the property due to its proximity to a water source (Lake Merced), and could utilize existing buildings, structures, and trees on site for roosting. Cavity roosting bats such as Townsend's big eared bat (*Corynorhinus townsendii*) could potentially roost within the existing structures on site.

Wildlife Movement Corridors

Wildlife corridors are important for conservation of wildlife in the region. Linkages between habitat types can extend for miles between primary habitat areas and occur on a large scale throughout California. Habitat linkages facilitate movement between populations located in discrete areas and populations located within larger habitat areas.

Even where patches of pristine habitat are fragmented, as commonly occurs with riparian vegetation, wildlife movement between populations is facilitated through habitat linkages, migration corridors and movement corridors. Wildlife movement includes migration (i.e., usually one direction per season), inter-population movement (i.e., long-term genetic exchange) and small travel pathways (i.e., daily movement within an animal's home range).

The project site is primarily open space and allows movement within and through the upland and wetland communities along the lakeshore, likely facilitating small travel pathways for local wildlife. The site is fenced along John Muir Drive to prevent public access while the site is in transition. The chain link fence does not exclude small and moderate-sized animals from entering and using the site. The project will provide additional recreational opportunities for the community during daylight hours, such as hiking trails and small localized amenities (e.g. fishing dock/ boat launch) that will not create any anticipated barriers to wildlife movement within or through the site.

VII. SPECIAL STATUS PLANTS, ANIMALS, AND NATURAL COMMUNITIES

The CDFW CNDDB maintains records of reported occurrences of sensitive plant, animal and natural plant communities of concern. CNDDB records provide useful information about what species have been found in a given project area, and what species may be expected in similar habitat types. An area that has not been surveyed or visited may support sensitive species that have not been discovered and reported and in addition, may require site-specific surveys to rule out special status species occurrences. The U.S. Fish and Wildlife Service (USFWS), Sacramento, also maintains lists of listed species and other species of concern that may occur in or be affected by projects in a given USGS topographic quadrangle (USFWS, 2019b). The CNDDB records for the San Francisco South 7.5-minute topographic quadrangle and six surrounding quadrangles- San Francisco North, Point Bonita, Oakland West, Hunter's Point, Montara Mountain, and San Mateo- were reviewed for sensitive species occurrences at Lake Merced West, 520 John Muir Drive, San Francisco (CNDDB, 2019). Figures 3 and 4 show the location of the recorded CNDDB occurrences of special-status species within a three-mile radius of the project site. Table 1 includes special-status plant and animal species assessed for their likelihood to occur onsite, a description of their associated vegetation communities or habitat, and a conclusion classifying their potential for occurrence into the following classes:

Not expected: No suitable habitat is present to support the species and/or the site is outside the known range of the species and/or the species has been extirpated from the region;

Low potential: No suitable breeding habitat and/or the site is outside the known range of the species. Species is unlikely to be detected;

Moderate potential: There is some suitable breeding habitat to support the species within the project area or nearby, and site is within range of species;

High potential: Suitable breeding habitat located on site and the site is within known range of species; and;

Present: Species has been detected on site and habitat is present to support the species.

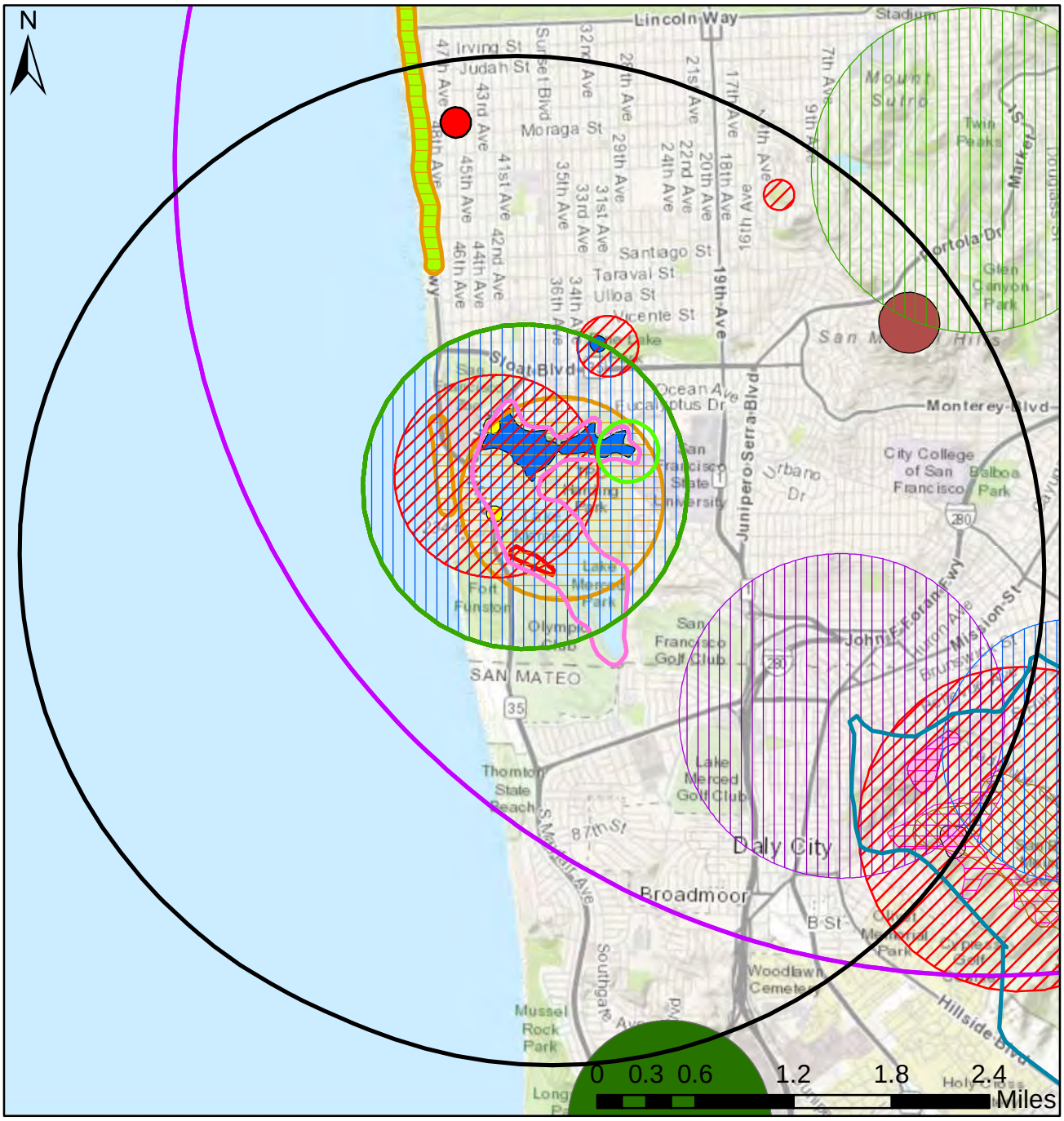

Figure 3: CNDDB Occurrence Map (Animals)

Lake Merced West, San Francisco, CA

Source: CNDDB, 2019

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Legend

- Project Boundary
- 3 Mile Buffer

CNDDB Occurrences

- American badger
- American peregrine falcon*
- Bay checkerspot butterfly
- California black rail
- California red-legged frog
- Mission blue butterfly
- North American porcupine
- Opler's longhorn moth
- San Bruno elfin butterfly
- San Francisco Bay Area leaf-cutter bee
- San Francisco gartersnake*
- Stage's dufourine bee
- Tomales isopod
- Townsend's big-eared bat
- bank swallow
- bumblebee scarab beetle
- callippe silverspot butterfly
- double-crested cormorant
- hardhead
- hoary bat
- obscure bumble bee
- saltmarsh common yellowthroat
- sandy beach tiger beetle
- tidewater goby
- western bumble bee
- western pond turtle

*Species with protected records not shown on map

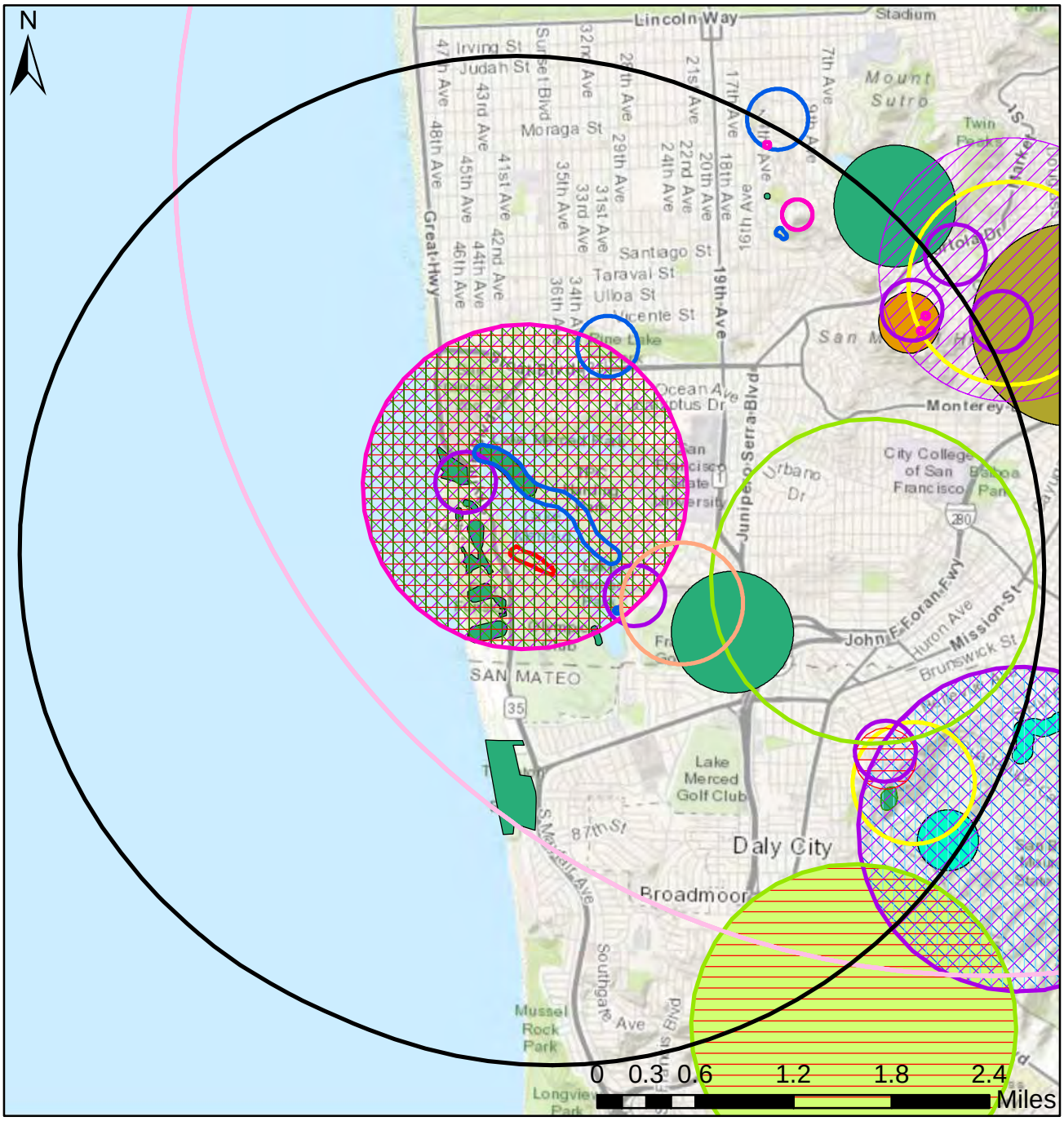

Figure 4: CNDDB Occurrence Map (Plants)

Lake Merced West, San Francisco, CA

Source: CNDDB, 2019

Service Layer Credits: Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

Legend

- Project Boundary
- 3 Mile Buffer

CNDDB Occurrences

- Franciscan manzanita
- Scouler's catchfly
- Franciscan thistle
- Kellogg's horkelia
- Point Reyes horkelia
- Presidio manzanita
- San Francisco Bay spineflower
- San Francisco campion
- San Francisco collinsia
- San Francisco gumplant
- San Francisco lessingia
- San Francisco owl's-clover
- beach layia
- bent-flowered fiddleneck
- blue coast gilia
- bristly sedge
- chaparral ragwort
- compact cobwebby thistle
- congested-headed hayfield tarplant
- dark-eyed gilia
- northern curly-leaved monardella
- robust spineflower
- rose leptosiphon
- round-headed Chinese-houses
- two-fork clover
- water star-grass

Special Status Plants

In addition to review of CNDDB and USFWS databases, information on special-status plant species was obtained from the CNPS On-line Inventory of Rare, Threatened, and Endangered Plants of California (CNPS, 2019). Within the San Francisco South quadrangle, there are many occurrences of special-status plants recorded within the CNPS Inventory of Rare and Endangered Plant Species. Most of these plants are associated with distinct or specialized habitat types, such as coastal prairie, chaparral, closed-cone coniferous forests, cismontane woodland, coastal wetlands, sandy or serpentine soils, and streams and lakes. Most of these supportive habitat types, soil associations or elevation requirements do not occur on the project site. Additionally, due to the recent soil remediation and revegetation of the site upslope of the lake shoreline, no rare plant species are expected to occur on the project site; therefore, special-status plants are not discussed further in this document.

Special-Status Animals

The following special-status animal species were determined to have potential for occurrence on site, based on habitat types present and/or recorded observations within three miles of the project boundary:

- monarch butterfly
- California red-legged frog
- Western pond turtle
- bank swallow
- California black rail
- northern harrier
- saltmarsh common yellowthroat
- white-tailed kite
- yellow rail
- Townsend's big-eared bat
- western red bat
- hoary bat

The likelihood for presence of these special-status species is based on documented proximity to the site or similar habitat utilization is provided in Table 1, and categorized as low, moderate, or high potential to occur. Each of these species are discussed in greater detail, below.

Monarch Butterfly (Danaus plexippus), overwintering

Monarch butterfly is not a state or federally listed species, however due to its unique life history and habitat requirements, documented wintering sites are given special consideration under the California Environmental Quality Act (CEQA) review process.[2]

Monarch butterfly winter roost sites extend along the western coast from Mendocino in northern California, south to Baja California, Mexico. Roost habitat consists of wind-protected tree groves, typically eucalyptus (*Eucalyptus globulus*), Monterey pine (*Pinus radiata*) and Monterey Cypress (*Cupressus macrocarpa*), with nectar and water sources nearby (CNDDB, 2019). Roost sites consist of congregations of several hundred to several

[2] The U.S. Fish and Wildlife Service is scheduled to determine whether the species warrants federal protection under the Federal Endangered Species Act by December 15, 2020.

thousand adult butterflies. Along the Central California coast, monarch butterflies typically roost between September and March (WAFWA, 2018).

Monarch butterfly overwintering roost sites have not been documented within 3 miles of the project site. The closest known roosting sites are within eucalyptus groves in Golden Gate Park, last documented in 1982 (CNDDB, 2019). Although few remaining mature eucalyptus trees occur within the project site, the tree density characteristic of wintering sites is not present. The mature stand of eucalyptus northwest of the site is more characteristic of winter roost sites; however, based upon the lack of previous observations of monarchs using these trees, there is a low potential for overwintering monarch butterfly to be present within the project vicinity.

California red-legged frog (Rana draytonii)

The California red-legged frog is a federally listed threatened species and a California species of special concern.

Red-legged frogs are known to occur in slow-flowing streams, and marshes with heavily vegetated shores for breeding as well as grasslands, riparian woodland, oak woodland, and coniferous forests. Seasonal bodies of water are frequently occupied by red-legged frogs, and in some areas, they may be critical for persistence. It is speculated that California red-legged frogs may lie dormant during dry periods of the year or during drought. California red-legged frogs are known to sometimes disperse widely during autumn, winter, and spring rains. Juveniles use the wet periods to expand outward from their pond of origin and adults may move between aquatic areas. Frogs disperse through many types of upland vegetation and use a broader range of habitats outside of breeding season. California red-legged frogs have been observed to move extensively and travel up to two miles or more between breeding ponds without apparent regard to topography, vegetation type, or riparian corridors (Bulger in litt.1998, *in* USFWS, 2002).

California red-legged frog was known to occur historically at Lake Merced, but the species is now considered extirpated from the lake based on a lack of recent sightings, protocol-level survey results since 2000, and the presence of predators and competitors, such as American bullfrog (*Lithobates catesbeianus*) and red-eared slider (*Trachemys scripta elegans*) (Jones and Stokes, 2007; SFPD, 2011). The closest extant occurrences to the project site are five records of California red-legged frog within Golden Gate Park (CNDDB, 2019), the closest of which is over 3 miles north of the project site. The project site is not located within designated Critical Habitat for the California red-legged (USFWS, 2016). This species is considered extirpated from Lake Merced; therefore, it is not expected onsite.

Western Pond Turtle (Actinemys marmorata)

The western pond turtle is a California species of special concern. Western pond turtle (*Actinemys marmorata*) is the only fresh-water turtle native to greater California and is distributed along much of the western coast from the Puget Sound in Washington south to the Baja Peninsula, Mexico (Storer, 1930). Overall, western pond turtles are habitat generalists, and have been observed in slow-moving rivers and streams (e.g. in oxbows), lakes, reservoirs, permanent and ephemeral wetlands, stock ponds, and sewage treatment

plants. They prefer aquatic habitat with refugia such as undercut banks and submerged vegetation (Holland, 1994), and require emergent basking sites such as mud banks, rocks, logs, and root wads to thermoregulate their body temperature (Holland, 1994; Bash, 1999). Pond turtles are omnivorous and feed on a variety of aquatic and terrestrial invertebrates, fish, amphibians and aquatic plants.

Western pond turtles regularly utilize upland terrestrial habitats, most often during the summer and winter, especially for oviposition (females), overwintering, seasonal terrestrial habitat use, and overland dispersal (Reese, 1996; Holland, 1994). Females have been reported ranging as far as 500 meters (1,640 feet) from a watercourse to find suitable nesting habitat (Reese and Welsh, 1997). Nest sites are most often situated on south or west-facing slopes, are sparsely vegetated with short grasses or forbs, and are scraped in sands or hard-packed, dry, silt or clay soils (Holland, 1994; Rathbun et al., 1992; Holte 1998; Reese and Welsh 1997). Western pond turtles exhibit high site fidelity, returning in sequential years to the same terrestrial site to nest or overwinter (Reese, 1996).

Western pond turtles are known from the North Lake of Lake Merced, last documented in 2000 (CNDDB, 2019), but have not been documented within the South Lake. Western pond turtles were not observed during focused surveys for the species throughout the duration of the remediation project in 2015.

The habitat within the South Lake is appropriate for western pond turtles, and with the documented presence of the species within the Lake Merced system, there is a moderate potential for western pond turtle to be present within the project site.

***Bank swallow (Riparia riparia*)**

The bank swallow (*Riparia riparia*) is a California Threatened species, and year-round resident in San Francisco. This species is a colonial nester, utilizing cliff faces and vertical banks along creeks, rivers, and sea cliffs to site and excavate cavity nests (Baicich and Harrison, 2005). A nesting colony is present at Fort Funston, within 0.5 miles due west of the project site (CNDDB, 2019). The project site does not provide vertical cliffs or banks suitable for this species to nest; however, bank swallows may forage insects over the meadow, wetlands, and open water shoreline of the project site. This species is classified as having moderate potential to occur onsite.

California black rail (Laterallus jamaicensis coturniculus)

The California black rail (*Laterallus jamaicensis coturniculus*) is a California Threatened species. California black rails are secretive, sparrow-sized birds that breed in tidal and freshwater marshes in San Francisco Bay (Baicich and Harrison, 2005). The species does not appear to migrate. There is one historic record of the species at Lake Merced from 1937 (CNDDB, 2019). The bulrush marsh vegetation along the shoreline of Lake Merced is appropriate habitat for the California black rail, but because of the lack of recent documented occurrences there is a low potential for the species to be present on the site.

Northern harrier (Circus cyaneus)

The northern harrier (*Circus cyaneus*) is a California species of special concern. Northern harriers nest in coastal salt and freshwater marsh habitats throughout California and forage

over a variety of grassland habitats (Baicich and Harrison, 2005). The tufted hairgrass vegetation and wetland areas may provide suitable foraging habitat for northern harrier which is why it is classified as having moderate potential to occur. Due to relatively small size of the site and its location within an extensive urban landscape, the site is unlikely to be utilized as nesting habitat for this species.

Salt Marsh Common Yellowthroat (Geothlypis trichas sinuosa)

The salt marsh common yellowthroat (*Geothlypis trichas sinuosa*) is a California species of special concern and are year-round residents in San Francisco County. This species utilizes dense vegetation in wetlands, marshes, estuaries, prairies and riparian areas for nesting and foraging (Baicich and Harrison, 2005). This species requires thick continuous cover down to the water surface for foraging and nests in willow, tall grasses and tule patches (CNDDB, 2019). The arroyo willow thicket and bulrush marsh vegetation are suitable nesting habitats for the salt marsh common yellowthroat and they have been documented at nesting Lake Merced in 1985 (CNDDB, 2019). This species was observed in the arroyo willow thicket on the project site during biological surveys and is commonly observed in similar habitats around Lake Merced (eBird, 2020) and therefore is classified as present.

White-tailed kite (Elanus leucurus)

White-tailed kite (*Elanus leucurus*) is a California fully-protected species. White-tailed kites inhabit rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodlands (Baicich and Harrison, 2005). They require dense-topped trees for nesting and perching adjacent open areas, such as grasslands, marsh, or farmlands, for foraging. Appropriate nesting habitat is present on the project site and in the adjacent eucalyptus grove and the site meadow may support white-tailed kite foraging. This species is classified as having moderate potential to occur onsite.

Yellow rail (Coturnicops noveborancensis)

Yellow rail is a California species of special concern. This species inhabits freshwater marshlands where nests are rarely found. When nests are located, they are in sedge marshes or wet meadows on the ground in drier portions or among plant tufts in several inches of water (Baicich and Harrison, 2005). Appropriate nesting vegetation is present on the project site, but due to the urbanized and recently re-vegetated nature of the site, as well as the lack of observations in the area, there is low potential for the species to be present on the project site (CNDDB, 2019; eBird, 2020).

Special-Status Bats

In the San Francisco Bay Area, bats can utilize open areas within abandoned buildings, beneath roof tiles, within tree hollows and dense tree foliage for roosting. Many bat species forage over open water and wetland habitats such as those found at Lake Merced. Bats can utilize roost sites year-round, however they are most sensitive to disturbance during their breeding season (April 15 to August 31st), and their winter torpor period (October 15 to March 1).

Three special-status bat species have been detected in the region. Townsend's big-eared bat, a California species of special concern and high priority species for the Western Bat

Working Group, was observed within Golden Gate Park in 1987 and Twin Peaks area of San Francisco in 2005 (CNDDB 2019). Western red bat, a California Species of Special Concern and high priority species for the Western Bat Working Group, was observed in the Strybing Arboretum, Golden Gate Park in 2000 (CNDDB 2019). Each of these species has low potential to occur on site due to the proximity of occurrence records to the site and presence of suitable habitat. Hoary bat, a moderate priority species for the Western Bat Working Group, was observed in Golden Gate Park in 1987 (CNDDB 2019); while suitable habitat for this species is present onsite, it is not expected due to the lack of recent records for this species in the project vicinity.

Common Bats ***(maternity roosts protected under California Fish and Game Code)***

During preconstruction surveys for the remediation project in 2015, the site was assessed for bat roosts, and suitable habitat was identified within the large trees and the empty buildings on the project site; most of which remain on site (CRE, 2015). A nighttime emergence survey was conducted on June 23, 2015. Although no special-status bats were detected, common Brazilian free tailed bats (*Tarida braziliensis*) were detected acoustically and observed foraging near two large Monterey Cyprus trees on the project site with potential to host bat roosts. These two trees were removed in 2015 following the emergence survey and under the supervision of a qualified biologist; no roosts or evidence thereof were found during tree removal and no bats were observed.

All buildings and structures on site were sealed in 2015 following the nighttime emergence surveys to prevent bat occupancy during the remediation project. Exterior panels around the base of some structures have since fallen off or have been removed. As common bats were detected during remediation project preconstruction surveys and the site has been largely inactive, it is expected that bats would again use the site for foraging and could roost in remaining large trees. Additionally, there is some potential that bats could have colonized the remaining structures where exclusion measures have failed. Bats and other non-game mammals are protected in California under the California Fish and Game Code Section 4150 and bat maternity roosts are protected under CEQA as wildlife nursery sites. Due to positive detection of common bat individuals onsite during the remediation project and the suitable habitat present within the project site, especially due to the inactivity onsite since the soil remediation, common bat species are classified as having a moderate potential to occur onsite and could establish maternity roosts in onsite buildings or remaining mature trees.

Other Nesting Birds (protected under the Migratory Bird Treaty Act)

In addition to the special-status bird species described above, extensive foraging and nesting habitat for a variety of bird species protected under the MBTA can be found on site within the native habitats of coast live oak woodland, tufted hairgrass meadow, and arroyo willow thicket. Common species observed on site that may nest within the project site or immediate vicinity include marsh wren, red-shouldered hawk, red-tailed hawk, black phoebe, and Anna's hummingbird (*Calypte anna*).

Figure 5: Site Plan Overlay

Lake Merced, San Francisco, CA

Legend

Project Boundary

Upland Vegetation

- Coast live oak woodland
- Eucalyptus semi-natural woodland stand
- Landscaped
- Tufted hairgrass meadow
- Developed

Wetland Vegetation

- California bulrush marsh
- Himalayan blackberry riparian scrub
- Open Water
- Soft rush marsh
- Swamp knotweed
- Arroyo willow thicket

VII. REGULATORY CONSIDERATIONS

Federal and state-listed species (endangered, threatened, and California fully-protected) receive various levels of legal protection under the federal and state endangered species acts and the California Fish and Wildlife Code. The federal Migratory Bird Treaty Act of 1918 and Section 3500 of the California Fish and Wildlife Code protect active nests of migratory and other birds, and provide criminal penalties for take of hawks, owls, and take or disturbance of all bird nests or eggs. Potential impacts to other special status or otherwise sensitive species must be disclosed and evaluated pursuant to the CEQA. Additional protections for species and habitats that are applicable to the project site are designated in the San Francisco General Plan, the Coastal Commission under the Local Coastal Program, and stormwater control requirements through the U.S. Environmental Protection Agency (USEPA).

Federal and State Endangered Species Acts

The United States Endangered Species Act (ESA) is administered by the USFWS. The California Endangered Species Act (CESA), the Native Plant Protection Act, and CEQA afford protection to species of concern included on State-maintained lists. The CDFW has statutory responsibility for the protection of State listed species and is a trustee agency under CEQA.

Both the Federal and State endangered species acts provide protection for listed species. In particular, the Federal act prohibits “take.” “Take” is defined by the ESA as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect a federally listed, endangered species of wildlife, or to attempt to engage in any such conduct." Take not specifically allowed by Federal permit under Section 10(a)(1)(B) of the ESA is subject to enforcement through civil or criminal proceedings under Section 9 of the ESA.

While "take" is easily understood in the sense of deliberately capturing or killing individual animals, Federal regulations also define take to include the incidental destruction of animals in the course of an otherwise lawful activity, such as habitat loss due to development. Under those rules the definition of take includes significant habitat modification or degradation that actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR Section 17.3).

Section 10(a) of the ESA permits the incidental take of an endangered or threatened species. Similarly, Section 2081 of the CDFW Code or use of the CESA allows the Department to enter into management agreements that make lawful activities which may otherwise result in habitat loss or take of individuals of a state listed species.

California red-legged frog, a federally threatened species, has a low potential for presence within the project site. Bank swallow and black rail are both California threatened species that have low potential for presence within the project site.

California Fully Protected Species

Under California Fish and Game Code Sections 3511, 4700, 5050 and 5515, 37 wildlife species are designated as fully protected in California. This provides additional protections

for species that are rare or at risk of extinction. Most of the species are also listed as threatened or endangered under CESA. Fully protected species may not be taken at any time and no permits any be issued for their take.

White-tailed kite, a California fully-protected species, has moderate potential for foraging and nesting within the project site.

Species of Special Concern

The California Department of Fish and Wildlife has designated certain animal species as "Species of Special Concern" due to concerns about declining population levels, limited ranges, and continuing threats that have made these species vulnerable to extinction. The goal of this designation is to bring attention to these species in the hope that their population decline will be halted through mitigation or project redesign to avoid impact. Species of special concern are protected only through environmental review of projects under CEQA. The California Department of Fish and Wildlife is a trustee agency and is solicited for its comments during the CEQA process.

The salt marsh common yellowthroat, a California species of special concern is present on the site. Other California species of special concern with potential to occur on the site include northern harrier, yellow rail, and western pond turtle.

Nesting Birds

Nesting birds, including raptors, are protected by the California Department of Fish and Game Code 3503, which reads, "It is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto." Passerines and non-passerine landbirds are further protected under the Federal Migratory Bird Treaty Act. As such, the CDFW typically recommends pre-construction surveys for potentially suitable nesting habitat that will be directly (actual removal of trees/vegetation) or indirectly (noise disturbance) impacted by construction-related activities.

Many passerine species were observed within the project site and in the eucalyptus grove to the north. Two raptor species, red-tailed hawk and red-shouldered hawk, were also observed in or near the project site boundaries, and osprey are known to forage and perch in the project vicinity. The biological surveys were conducted in December, which is outside the nesting bird season (generally February 1 to August 31), thus no breeding behavior or signs of nesting were observed.

California Rare Plant Rank

The CNPS, in collaboration with CDFW and botanical experts, maintains an Inventory of Rare and Endangered Plants which identifies plant species with a California Rare Plant Rank (CRPR) based on rarity. Plants within this inventory may meet the CEQA definition of rare or endangered and may also be protected by state and federal endangered species laws if they are listed by the state or federal government. CDFW often advises that plant species with an appropriate CRPR in the Inventory be properly analyzed by the lead agency during project review to ensure compliance with CEQA. The following identifies the definitions of the California Rare Plant Rankings (CRPR):

Rank 1A: Plants presumed extirpated in California and either rare or extinct elsewhere.

Rank 1B: Plants Rare, Threatened, or Endangered in California and elsewhere.

Rank 2A: Plants presumed extirpated in California, but more common elsewhere.

Rank 2B: Plants Rare, Threatened, or Endangered in California, but more common elsewhere.

Rank 3: Plants about which more information is needed - A Review List.

Rank 4: Plants of limited distribution - A Watch List.

No special-status plants were identified as having potential to occur within the project site due to the recent soil remediation and revegetation (Table 1).

California Coastal Act

The California Coastal Commission (CCC) has authority to regulate development that would conflict with provisions of the California Coastal Act within the California Coastal Zone. The coastal zone generally extends from three miles seaward to 1,000 yards inland of the mean high tide line, though in some significant coastal estuarine, habitat or recreational areas it may extend to the first major ridgeline (within five miles) paralleling the sea. Cities and counties in the coastal zone prepare Local Coastal Programs (LCP) to carry out policies of the act which are reviewed and approved by the CCC. The CCC manages protection of biological resources through a permitting process for all projects in the coastal zone. Once the CCC certifies a LCP, the local government gains authority to issue most coastal development permits (CDP). The CCC approved the city of San Francisco LCP Amendment, as an update of the 1986 Western Shoreline Area Plan, on May 10, 2018 (City and County of San Francisco Planning Department, 2018). As stated in Planning Code Section 330, San Francisco may require a Coastal Zone Permit for projects that involve demolition, new construction, alteration, change of use, change of occupancy, condominium conversion, and public improvement. Lake Merced lies within the Western Shoreline Area Plan and the local coastal zone. The stated objective (number 5) within the plan for Lake Merced is to “Preserve the recreational and natural habitat of Lake Merced.”. The lake and shoreline adjacent lands are under the retained jurisdiction of the CCC; therefore, the project will require a CDP and must demonstrate the project’s consistency with the stated plan objective for the lake.

Regulated Waters

Impacts to stream channels (bed and bank) are regulated by the California Department of Fish and Game Code Section 1600 et seq., and may require a Lake and Streambed Alteration Agreement. Impacts to wetlands and other waters may also fall under the jurisdiction of the Clean Water Act Section 404, River and Harbors Act Section 10, and the Porter-Cologne Water Quality Control Act. The USACE enforces permit provisions of the Clean Water Act regulating dredge and fill operations. The USACE also exerts jurisdiction over "waters of the U.S." which include territorial seas, tidal waters, and non-tidal waters in addition to wetlands and drainages that support wetland vegetation, exhibit ponding or scouring, show obvious signs of channeling, or have discernible banks and high water marks.

The State of California Regional Water Quality Control Boards are responsible for granting permits under the Porter-Cologne Water Quality Control Act. Projects that may impact wetlands in the state of California require a state Water Quality Certification, which is often combined with a permit under Section 401 of the federal Clean Water Act. In August 2019, The California State Water Resources Control Board (State Water Board) adopted a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures consist of four major elements: 1) a wetland definition; 2) a framework for determining if a feature that meets the wetland definition is a water of the state; 3) wetland delineation procedures; and 4) procedures for the submittal, review and approval of applications for Water Quality Certifications and Waste Discharge Requirements for dredge or fill activities. The new standards become effective in May 28, 2020 (State Water Board, 2019).

Stormwater Control Requirements

The Clean Water Act authorizes USEPA and states, which in some cases are delegated the authority by EPA, to regulate point and nonpoint sources that discharge pollutants into waters of the United States through the National Pollutant Discharge Elimination System (NPDES) permit program. The federal statutes and regulations require discharges to surface waters comprised of storm water associated with construction activity to obtain coverage under an NPDES permit.

Stormwater discharges associated with project construction activities are regulated under a General Construction Permit as required by the State Water Resources Control Board, which serves as an NPDES permit in compliance with the federal Clean Water Act. Development and Implementation of a Stormwater Pollution Prevention Plan (SWPPP) is required for projects in which construction will disturb more than one acre of soil and includes periodic monitoring and inspections, retention of monitoring records, reporting of incidences of noncompliance, and submittal of annual compliance reports. A Construction General Permit would need to be developed by a Qualified SWPPP Developer and the plan will be implemented would be implemented under the oversight of a Qualified SWPPP Practitioner.

City and County of San Francisco General Plan

The San Francisco General Plan was designed as a guide towards protecting, preserving, and enhancing the economic, social, cultural and esthetic values that establish the unique character of the City. The City and County of San Francisco General Plan was adopted in June 1996 and amended through the Board of Supervisors. The Environmental Protection Element of the General Plan highlights conservation and environmental protection guidelines for the City. The most pertinent elements of the Environmental Protection section of the General Plan are included below:

Objective 1: Achieve a proper balance among the conservation, utilization, and development of San Francisco’s natural resources.

- Policy 1.1: Conserve and protect the natural resources of San Francisco.

- Policy 1.2: Improve the quality of natural resources.
- Policy 1.3: Restore and replenish the supply of natural resources.
- Policy 1.4: Assure that all new development meets strict environmental quality standards and recognizes human needs.

Objective 8: Ensure the protection of plant and animal life in the city.

- Policy 8.1: Cooperate with and otherwise support the California Department of Fish and Game and its animal protection programs.
- Policy 8.2: Protect the habitats of known plant and animal species that require a relatively natural environment.
- Policy 8.3: Protect rare and endangered species.

VIII. RECOMMENDATIONS

The project would need to comply with regulations outlined in Section VII, above. In addition, the following recommendations are provided to minimize potential impacts from the project on special-status or otherwise protected species which might be present onsite or otherwise be adversely affected during construction.

Wetlands and Waters

An aquatic resources delineation should be performed to define the areas on site that are jurisdictional wetlands and waters of the U.S. and state. Compensatory mitigation will be required for project impacts to jurisdictional waters.

Nesting Birds

If the project begins construction within the nesting bird season (February 1 – August 31), it is recommended that a survey for nesting birds (including raptors and salt marsh common yellowthroat) is conducted within the project site and a 200-foot buffer around project boundary. The survey should be conducted within one week prior to any ground disturbance, vegetation or structure removal associated with the project to minimize impacts to these species. If active bird nests are detected, suitable no-work buffer zones may need to be established to ensure nesting birds are not impacted.

Roosting Bats

Surveys for roosting bats is recommended within the project site and a 200-foot buffer around project boundary. The survey should be conducted, if possible, in the early spring (March 1 to April 15) or the fall (September 1 to October 15). This is to avoid the bat maternity season and winter torpor months, when bats are most sensitive. If bats are not detected, then tree removal and/or installation of bat exclusion on the structures should be conducted within one week of the survey. If roosting bats are detected, suitable buffer zones may need to be established based on species and roost type (e.g., maternity roost or bachelor roost) and according to CDFW requirements to ensure protected bats and their roosts are not impacted.

Western pond turtle

Surveys for western pond turtle are recommended within the project site and a 200-foot buffer around project boundary, north of John Muir Drive. The survey would be conducted within 48 hours prior to any ground disturbance, vegetation, or structure removal associated with the project. If western pond turtles are detected, suitable buffer zones may need to be established based on CDFW requirements to ensure turtles are not impacted.

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Table 1. Special Status Plant and Animal Species

The following species were considered for their potential to occur within the project site at Lake Merced West, 520 John Muir Drive, San Francisco. "Potential to occur on site" is a classification to reflect the likelihood of a species to be present. The classes include:

Not expected: No suitable habitat is present to support the species and/or the site is outside the known range of the species and/or the species has been extirpated from the region;

Low potential: No suitable breeding habitat and/or the site is outside the known range of the species. Species is unlikely to be detected;

Moderate potential: There is some suitable breeding habitat to support the species within the project area or nearby, and site is within range of species;

High potential: Suitable breeding habitat located on site and the site is within known range of species; and;

Present: Species has been detected on site and habitat is present to support the species.

Table 1. Special Status Plant and Animal Species.

Species Name	Status	Habitat[3]	Potential to Occur On Site
PLANTS			
Adobe sanicle *Sanicula maritima*	CNPS 1B.1 G2, S2 Sensitive	Meadows and seeps, valley and foothill grassland, chaparral and coastal prairie. Moist clay or ultramafic soils. Elevation: 15-215 meters Blooming period: Feb.-May	**Not expected** No moist clay or ultramafic soils present on the site.
Alkali milk-vetch *Astragalus tener* var. *tener*	CNPS 1B.2 G2, S2	Alkali playa, valley and foothill grassland, vernal pools. Elevation: 0-168 meters Blooming period: Mar.-June	**Not expected** No suitable habitat present on site.
Arcuate bush-mallow *Malacothamnus arcuatus*	CNPS 1B.2 G2, S2	Chaparral, cismontane woodland. Gravelly alluvium. Elevation: 15 - 355 meters Blooming period: Apr.-Sept.	**Not expected** No suitable habitat present on site.
Beach layia *Layia camosa*	FE, SE CNPS 1B.1 G2, S2	Coastal dunes, coastal scrub. Elevation: 0-30 meters Blooming period: Mar.-July	**Not expected** Due to recent re-vegetation

[3] Habitat requirements summarized from species accounts and descriptions of reported localities (Zeiner, et al., 1990; Thomson et al., 2016; CNDDB, 2018; CNPS, 2018; USFWS, 2012; USFWS ECOS, 2020).

Species Name	Status	Habitat[3]	Potential to Occur On Site
Bent-flowered fiddleneck *Amsinckia lunaris*	CNPS 1B.2 G3, S3 Sensitive	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. Elevation: 3 - 795 meters Blooming period: Mar.–June	**Not expected** Due to recent re-vegetation.
Blue coast (field) gilia *Gilia capitata* ssp. *chamissonis*	CNPS 1B.1 S2	Coastal dunes, coastal scrub. Elevation: 3-200 meters Blooming period: Apr.-July	**Not expected** Due to recent re-vegetation. Known from northeast corner of Impound Lake, Lake Merced 2006 (CNDDB 2019)
Bristly sedge *Carex comosa*	CNPS 2B.1 S2	Marshes, swamps, coastal prairie, valley and foothill grassland. Lake margins. Elevation: 5-1620 meters Blooming period: May-Sept.	**Not expected** Last documented occurrence in San Francisco in 1866.
Broad-lobed leptosiphon *Leptosiphon latisectus*	CNPS 4.3 G4, S4	Broadleaf upland forest, cismontain woodland. Elevation: 170-1500 meters Blooming period: Apr.-June	**Not expected** No suitable habitat on site.
California seablite *Suaeda californica*	FE CNPS 1B.1 G1, S1	Margins of coastal salt marshes, swamps. Elevation: 0-5 meters Blooming period: July-Oct.	**Not expected** No suitable habitat present on site.
Chaparral ragwort *Senecio aphanactis*	CNPS 2B.2 G3, S2	Chaparral, cismontane woodland, coastal scrub Elevation: 15 - 800 meters Blooming period: Jan-Apr. (May)	**Not expected** Due to recent re-vegetation
Choris' popcornflower *Plagiobothrys chorisianus* var. *chorisianus*	CNPS 1B.2 G3, S1	Chaparral, coastal prairie, coastal scrub, mesic. Elevation: 15 - 705 meters. Blooming period: Mar.–June	**Not expected** Due to recent re-vegetation
Coast iris *Iris longipetala*	CNPS 4.2 G3, S3	Coastal prairie, lower montane coniferous forest, meadows and seeps. Elevation: 0-600 meters Blooming time: Mar.-May	**Not expected** Due to recent re-vegetation
Coast rock cress *Arabis blepharophylla*	CNPS 4.3 G4, S4	Rocky broadleaved upland forest, coastal bluff scrub, coastal prairie, coastal scrub. Elevation: 3-111 meters Blooming time: Feb.- May	**Not expected** Due to recent re-vegetation

Species Name	Status	Habitat[3]	Potential to Occur On Site
Compact cobwebby thistle *Cirsium occidentale* var. *compactum*	CNPS 1B.2 S2	Chaparral, coastal dunes, coastal prairie, coastal scrub, grassland. On dunes or clay. Elevation: 5-245 meters Blooming period: Apr.-June	**Not expected** Due to recent re-vegetation
Congested-headed (hayfield) tarplant *Hemizonia congesta* ssp. *congesta*	CNPS 1B.2 G5T2, S2	Valley and foothill grassland. Elevation: 5-500 meters Blooming period: Apr.-Nov.	**Not expected** Due to recent re-vegetation
Crystal Springs lessingia *Lessingia arachnoidea*	CNPS 1B.2 G2, S2	Cismontane woodland, Coastal scrub, valley and foothill grassland, Strong affinity to serpentine soil. Elevation: 60 - 200 meters. Blooming period: July- Oct.	**Not expected** No suitable habitat present on site.
Dark-eyed (manyleaf) gilia *Gilia millefoliata*	CNPS 1B.2 G2, S2 Sensitive	Coastal dunes. Elevation: 1-160 meters Blooming period: Apr.-July	**Not expected** No sand dunes present on site.
Diablo helianthella *Helianthella castanea*	CNPS 1B.2 G2, S2 Sensitive	Broadleafed uplant forest, chaparral, cismontain woodland, coastal scrub, riparian woodland, grassland. Elevation: 45-1070 meters Blooming period: Mar.-June	**Not expected** Due to recent re-vegetation
Dolores (San Francisco) campion *Silene verecunda* ssp. *verecunda*	CNPS 1B.2 G5T1, S1	Chaparral, coastal bluff scrub, coastal prairie, coastal scrub, valley and foothill grassland. Often on mudstone or shale, sandy soils, ultramafic. Elevation: 30 - 645 meters. Blooming period: Mar. - Aug.	**Not expected** Due to recent re-vegetation
Fragrant fritillary *Fritillaria liliacea*	CNPS 1B.2 G2, S2 Sensitive	Coastal scrub, cismontane woodland, coastal prairie, valley and foothill grassland, clay or serpentine. Elevation: 3 - 410 meters. Blooming period: Feb.-Apr.	**Not expected** No suitable habitat on site
Franciscan manzanita *Arctostaphylos franciscana*	FE CNPS 1B.1 G1, S1	Serpentine outcrops in chaparral. Elevation: 30-215 meters Blooming period: Feb.-Apr.	**Not expected** No serpentine soil present on site. Site is outside the designated critical habitat for this species.

Species Name	Status	Habitat[3]	Potential to Occur On Site
Franciscan thistle *Cirsium andrewsii*	CNPS 1B.2 G3, S3	Coastal scrub, broad-leafed upland forest, coastal bluff scrub, coastal prairie, ultramafic. Elevation: 0 - 150 meters Blooming period: Mar.-July	**Not expected** Due to recent re-vegetation
Goldfields *Lasthenia glabrata ssp. coulteri*	CNPS 1B.1 G4T2, S2	Marshes and swamps, playas, vernal pools. Elevation: 1-1220 meters Blooming time: Feb.-June	**Not expected** Due to recent re-vegetation
Harlequin lotus *Hosackia gracilis*	CNPS 4.2 G3G4, S3	Wetlands, roadsides. Broadleafed upland forest, coastal bluff scrub, closed-cone coniferous forest, cismontane woodland, coastal prairie, coastal scrub, meadows and seeps, marshes and swamps, north coast coniferous forest, valley and foothill grassland. Elevation: 0-700 meters Blooming time: Mar.- July	**Not expected** Due to recent re-vegetation
Hickman's popcorn flower *Plagiobothrys chorisianus* var. *hickmanii*	CNPS 4.2 G3T3Q, S3	Closed-cone coniferous forest, chaparral, coastal scrub, marshes and swamps, vernal pools. Elevation: 15-185 meters Blooming time: Apr.-June	**Not expected** Due to recent re-vegetation
Island mallow *Lavatera assurgentiflora* ssp. *assurgentiflora*	CNPS 1B.1 G1T1, S1	Sandy or rocky coastal bluff scrub and coastal scrub. Elevation: 15-245 meters Blooming time: Mar.-Nov.	**Not expected** Due to recent re-vegetation
Kernville poppy *Eschscholzia procera*	CNPS 3 G1, S1	Cismontane woodland (sandy floodplain) Elevation: 810-1025 meters Blooming time: June-July	**Not expected** No suitable habitat on site
Kellogg's horkelia *Horkelia cuneata* var. *sericea*	CNPS 1B.1 Sensitive	Closed-cone coniferous forest, chaparral, coastal dunes, coastal scrub. Sandy or gravelly openings. Elevation: 5-430 meters Blooming period: Apr.–Sept.	**Not expected** Due to recent re-vegetation. Historic locations east of Lake Merced from 1950 (CNDDB 2019)
Konocti manazanita *Arctostaphylos manzanita* ssp. *elegans*	CNPS 1B.3 G5T3, S3	Volcanic chaparral, cismontane woodland, lower montane coniferous forest. Elevation: 395-1615 meters Blooming period: (Jan)Mar-May (July)	**Not expected** Due to recent re-vegetation

Species Name	Status	Habitat[3]	Potential to Occur On Site
Large-flowered leptosiphon *Leptosiphon grandiflorus*	CNPS 4.2 G3, S3	Coastal bluff scrub, closed-cone coniferous forest, cismontane woodland. Coastal dunes, prairie, and scrub, valley and foothill grassland. Elevation: 5-1,220 meters Blooming period: Apr.-Aug.	**Not expected** Due to recent re-vegetation
Marin western flax *Hesperolinon congestum*	FT, CT CNPS 1B.1 G1, S1	In serpentine barrens and in serpentine grassland and chaparral. Elevation: 5 - 370 meters. Blooming period: Apr.-July.	**Not expected** No serpentine soil present on site.
Marsh horsetail *Equisetum palustre*	CNPS 3 G5, S1S3	Marshes and swamps. Elevation: 45-1000 meters	**Not expected** Not observed within 5 miles of site.
Mexican mosquito fern *Azolla microphylla*	CNPS 4.2 G5, S4	Marshes and swamps (ponds, slow water) Elevation: 30-100 meters Blooming period: August	**Not expected** Not observed within 5 miles of site.
Michael's rein orchid *Piperia elongate* ssp. *michaelii*	CNPS 4.2 G3, S3	Coastal bluff scrub, closed-cone coniferous forest, chaparral, cismontane woodland, coastal scrub, lower montane coniferous forest. Elevation: 3-915 meters Blooming period: Apr.-Aug.	**Not expected** Due to recent re-vegetation
Montara manzanita *Arctostaphylos montaraensis*	CNPS 1B.2 G1, S1	Chaparral, coastal scrub. Elevation: 150-500 meters. Blooming period: Jan.-Mar.	**Not expected** No suitable habitat on site.
Northern curly-leaved monardella *Monardella sinuata* ssp. *nigrescens*	CNPS 1B.2 G3, S2	Coastal dunes, sandy soils in coastal scrub, chaparral, lower montane coniferous forest. Elevation: 0-300 meters Blooming period: (Apr.) May-July (Aug.-Sept.)	**Not expected** Due to recent re-vegetation. Historic location "around Lake Merced" in 1933; presumed extirpated (CNDDB 2019)
Ocean bluff milk vetch *Astragalus nuttalli* var. *nuttallii*	CNPS 4.2 G4T4, S4	Coastal bluff scrub, coastal dunes. Elevation: 3-120 meters Blooming period: Jan.-Nov.	**Not expected** Not observed within 5 miles of site.
Pacific manzanita *Arctostaphylos pacifica*	SE CNPS 1B.1 G1, S1	Coastal scrub, chaparral. Elevation: Blooming period: Feb.-Apr.	**Not expected** Due to recent re-vegetation

Species Name	Status	Habitat[3]	Potential to Occur On Site
Palmer's frankenia *Frankenia palmeri*	CNPS 2B.1 G3?, S1	Coastal dunes, marshes and swamps (coastal salt), playas. Elevation: Blooming period: May-July	**Not expected** Due to recent re-vegetation
Pappose tarplant *Centromadia parryi* ssp. *parryi*	CNPS 1B.2 G3, S2, Sensitive	Chaparral, coastal prairie, marsh and swamp, meadow and seep, valley and foothill grassland (vernally mesic), often alkaline substrates. Elevation: 2 - 420 meters. Blooming period: May-Nov.	**Not expected** Due to recent re-vegetation
Perennial goldfields *Lasthenia californica ssp. macrantha*	CNPS 1B.2	Coastal bluff scrub, coastal dunes, coastal scrub. Elevation: 5-520 meters Blooming period: Jan.-Nov.	**Not expected** Due to recent re-vegetation
Point Reyes horkelia *Horkelia marinensis*	CNPS 1B.2 G2, S2	Sandy coastal dunes, coastal prairie, coastal scrub Elevation: 5 - 775 meters Blooming period: May-Sept.	**Not expected** Due to recent re-vegetation
Presidio manzanita *Arctostaphylos montana* ssp. *ravenii*	FE, SE CNPS 1B.1 G3, S1	Chaparral, coastal prairie, coastal scrub. Open, rocky serpentine slopes. Elevation: 20-215 meters Blooming period: Feb.-Mar.	**Not expected** No serpentine soil present on site.
Purdy's fritillary *Fritillaria purdyi*	CNPS 4.3	Chaparral, foothill woodland, yellow pine forest. Usually serpentinite. Elevation: 175-2255 meters Blooming period: Mar.-June	**Not expected** No suitable habitat present on site
Robust spineflower *Chorizanthe robusta* var. *robusta*	FE CNPS 1B.1 G2, S1 BLM: Sensitive	Sandy terraces and bluffs or loose sand in cismontane woodland, coastal dunes, coastal scrub, chaparral. Elevation: 9-245 meters Blooming period: Apr.-Sept.	**Not expected** Due to recent re-vegetation. Site is outside the designated critical habitat for this species.
Rose leptosiphon *Leptosiphon rosaceus*	CNPS 1B.1 G1, S1	Coastal bluff scrub. Elevation: 0 - 100 meters. Blooming period: Apr.-July	**Not expected** Due to recent re-vegetation
Round-headed Chinese-houses *Collinsia corymbosa*	CNPS 1B.2 G1, S1	Coastal dunes. Elevation: 0-30 meters Blooming period: Apr.-June	**Not expected** No suitable habitat observed on site. Historic location known from around Lake Merced (CNDDB 2019)

Species Name	Status	Habitat[3]	Potential to Occur On Site
Salton milk vetch *Astragalus crotalariae*	CNPS 4.3	Sonoran desert scrub (sandy or gravelly) Elevation: 60-250 meters Blooming period: Jan.-April	**Not expected** No suitable habitat present on site.
San Bruno Mountain manzanita *Arctostaphylos imbricata*	SE CNPS 1B.1 G1, S1	Sandstone outcrops in chaparral and coastal scrub. Elevation: 275-370 meters Blooming period: Feb.-May	**Not expected** No suitable habitat present on site.
San Francisco Bay spineflower *Chorizanthe cuspidata* var. *cuspidate*	CNPS 1B.2 G2, S1	Coastal bluff scrub, coastal dunes, coastal prairie, coastal scrub. Open sandy soil on terraces and slopes. Elevation: 3 - 215 meters. Blooming period: Apr.-July	**Not expected** Due to recent re-vegetation. Known from Fort Funston in 2002, around Impound Lake, Lake Merced in 2001 (CNDDB 2019)
San Francisco campion *Silene verecunda* ssp. *verecunda*	CNPS 1B.2 S1	Chaparral, coastal bluff scrub, coastal prairie, coastal scrub, valley and foothill grassland, Often on mudstone or shale, sandy soils, ultramafic. Elevation: 30 - 645 meters. Blooming period: Mar.-Aug.	**Not expected** Due to recent re-vegetation
San Francisco collinsia *Collinsia multicolor*	CNPS 1B.2 G2, S2	Closed cone coniferous forest, coastal scrub. On decomposed shale mixed with humus. Elevation: 30 - 250 meters. Blooming period: Mar.-May	**Not expected** No suitable soils present on site.
San Francisco gumplant *Grindelia hirsutula* var. *maritima*	CNPS 3.2 S1	Coastal bluff, coastal scrub, grasslands. Elevation: 15 - 400 meters. Blooming period: June-Sept.	**Not expected** Due to recent re-vegetation
San Francisco lessingia *Lessingia germanorum*	FE, SE, CNPS 1B.1, G1, S1	Coastal scrub on remnant dunes. Elevation: 3-150 meters Blooming period: (June) July-Nov.	**Not expected** No sand dunes present on site. Historic location on North Lake Merced in 1947 (CNDDB 2019)
San Francisco owl's-clover *Triphysaria floribunda*	CNPS 1B.2 G2?,S2?	Coastal prairie, coastal scrub valley and foothill grassland, often on serpentine. Elevation: 10 - 160 meters Blooming period: Apr.-June	**Not expected** No suitable habitat present on site. Historic location in "general vicinity of Lake Merced" from 1907 (CNDDB 2019)
San Francisco popcornflower *Plagiobothrys diffusus*	SE, CNPS 1B.1 G1, S1	Valley and foothill grassland, coastal prairie. Elevation: 45-360 meters Blooming period: Mar.-June	**Not expected** Due to recent re-vegetation

Species Name	Status	Habitat[3]	Potential to Occur On Site
San Francisco wallflower *Erysimum franciscanum*	CNPS 4.3 G3, S3	Often serpentine or granitic. Chaparral, coastal dunes, coastal scrub, valley and foothill grassland. Elevation: 0-550 meters Blooming period: Mar.-June	**Not expected** No suitable habitat on site
Santa Cruz manzanita *Arctostaphylos andersonii*	CNPS 1B.2 G2, S2	Openings and edges of broadleaved upland forest, chaparral, North Coast coniferous forest. Elevation: 60-760 meters Blooming period: Nov.-May	**Not expected** No suitable habitat on site
Scouler's catchfly (Simple campion) *Silene scouleri* ssp. *scouleri*	CNPS 2B.2 S2S3	Coastal bluff scrub, coastal prairie, valley and foothill grassland. Elevation: 5-315 meters Blooming period: (Mar.-May) June-Aug. (Sept.)	**Not expected** Due to recent re-vegetation
Seaside paintbrush *Castilleja latifolia*	CNPS 4.3 G4, S4	Sandy closed-cone coniferous forest, cismontane woodland openings, coastal dunes, coastal scrub. Elevation: 0-185 meters Blooming period: Feb.-Sep.	**Not expected** Due to recent re-vegetation
Short-leaved evax *Hesperevax sparsiflora* var. *brevifolia*	CNPS 1B.2 S2, Sensitive	Coastal bluff scrub, coastal dunes, sandy soils. Elevation: 0 - 640 meters. Blooming period: Mar.-June	**Not expected** Due to recent re-vegetation
Showy indian clover *Trifolium amoenum*	FE CNPS 1B.1 G1, S1	Coastal bluff scrub, valley and foothill grassland (sometimes serpentinite). Elevation: 5-415 meters Blooming period: Apr.-June	**Not expected** Due to recent re-vegetation
Streamside daisy *Erigeron bioletti*	CNPS 3 G3?, S3?	Rocky, mesic broadleaved upland forest, cismontain woodland, North Coast coniferous forest. Elevation: 30-1100 meters Blooming period: June-Oct.	**Not expected** No suitable habitat present on site.
Two-fork clover *Trifolium amoenum*	FE CNPS 1B.1 G1, S1	Valley and foothill grassland, coastal bluff scrub. Sunny, open sites and swales. Elevation: 5-310 meters Blooming period: Apr.-June	**Not expected** Due to recent re-vegetation
Water star-grass *Heteranthera dubia*	CNPS 2B.2 S2	Marshes and swamps. Alkaline still or slow-moving water. Elevation: 15-1,510 meters Blooming period: July-Oct.	**Not expected** Last recorded in San Francisco in 1879 (CNDDB 2019)

Species Name	Status	Habitat[3]	Potential to Occur On Site
White-rayed pentachaeta *Pentachaeta bellidiflora*	FE, CE CNPS 1B.1 G1, S1	Ultramafic grassland. Open dry rocky slopes and grassy areas. Often on soils derived from serpentine bedrock. Elevation: 35 - 620 meters. Blooming period: Mar-May	**Not expected** No suitable habitat present on site.
INVERTEBRATES			
Bay checkerspot butterfly *Euphydryas editha bayensis*	FT G5T1, S1 XERCES:CI	The bay checkerspot butterfly is a medium-sized butterfly in the Nymphalidae (brush-footed butterflies) family. The species is restricted to grasslands with serpentine soils in the San Francisco Bay area. *Plantago erecta* is the primary host plant, *Castilleja densiflorus* and *C. purpurescens* are secondary host plants. Nectar plants include *Layia platyglossa* and *Lasthenia californica*. The species is only known from the San Francisco Peninsula and the south San Francisco Bay Area.	**Not expected** No suitable habitat present on site. Site is outside the designated critical habitat for this species.
Bumblebee scarab beetle *Lichnanthe ursina*	G2, S2	Bumblebee scarab beetle inhabits coastal sand dunes from Sonoma county south to San Mateo county. Usually stays close to sand surface.	**Not expected** No suitable habitat present on site.
Callippe silverspot butterfly *Speyeria callippe callippe*	FE G5T1, S1 XERCES:CI	The Callippe silverspot inhabits hilltops in native grasslands in the vicinity of its larval host plant, Johnny-jump-up (*Viola pedunculata*). Adult nectar plants include nonnative species such as Italian thistle (*Carduus pycnocephalus*), pin-cushion plant (*Scabiosa purpurea*), and native species such as California buckeye (*Aesculus californica*). Callippe silverspots are relatively strong flyers that range as far as 0.75 miles between habitat patches (TRA 1982).	**Not expected** No host plants present on site.

Species Name	Status	Habitat[3]	Potential to Occur On Site
Mission blue butterfly *Plebejus icarioides missionensis*	FE G5T1, S1 XERCES:CI	The mission blue butterfly inhabits grasslands within the coastal fogbelt in southern Marin, San Francisco, and San Mateo counties in California that contain one or all three of its larvae foodplants (*Lupinus albifrons, L. formosus, and L. variicolor*). Nectar plants for this species are also an important habitat component for this species, and include a variety of native wildflowers and nonnative thistles. The mission blue butterfly is univoltine and has a flight period that extends from late March to mid-June.	**Not expected** No suitable habitat present on site.
Monarch Butterfly *Danaus plexippus* (overwintering)	G4T2T3, S2S3 Sensitive	Monarch butterflies require wind protected tree groves along the California coast for nectaring, migratory roosting, and wintering sites. Roosting sites are also located in isolated locations bordering San Francisco Bay. Blue gum Eucalyptus (*Eucalyptus globulus*) is commonly used by monarch butterflies as nectaring and roosting sites. Monterey pine (*Pinus radiata*) and Monterey cypress (*Cupressus macrocarpa*) groves may also provide roosting habitat for monarch butterflies.	**Low potential** Not known to overwinter within 3 miles of site.
Myrtle's silverspot butterfly *Zerene fritillary*	FE S1, Xerces: CI	Restricted to foggy, coastal dunes and hills of the Point Reyes Peninsula. Larvae feed on viola (*Viola adunca*).	**Not expected** Host plants not present.
Obscure bumble bee *Bombus caliginosus*	G4, S1S2	Coastal areas from Santa Barbara county to north to Washington state. Grassy coastal prairies and meadows. Nests underground and above ground in bird nests. Nectar and pollen plants include: *Ceanothus, Cirsium, Clarkia, Keckiella, Lathyrus, Lotus, Lupinus, Rhododendron, Rubus, Trifolium,* and *Vaccinium*	**Low potential** Due to recent re-vegetation.
Opler's longhorn moth *Adela oplerella*	FE G5T1, S1	From Marin County south on inner Coast Ranges to Santa Clara County. Serpentine grassland. Larvae feed on *Playstemon californicus.*	**Not expected** No suitable habitat present on site.

Species Name	Status	Habitat[3]	Potential to Occur On Site
Robust walker *Pomatiopsis binneyi*	G1, S1	Robust walker is a semi-aquatic snail that is found in perennial seeps and rivulets, shallow mudbanks and marsh seepages.	**Not expected** No suitable habitat present on site.
San Bruno elfin butterfly *Callophrys mossii bayensis*	FE G4T1, S1 XERCES:CI	The adult San Bruno elfin butterfly is restricted to primarily north-facing grasslands and rocky outcrops containing its larval host plant, Pacific stonecrop *(Sedum spathulifoilum*) in the fog belt in San Mateo County in California. Presence of suitable nectar plants such as *Lomatium sp*. and *Berberis pinnata* are important habitat components. The San Bruno elfin butterfly currently is known only from San Bruno Mountain, Milagra Ridge, Sweeney Ridge, Whiting Ridge, and Montara Mountain in San Mateo County, California. The flight period of the San Bruno elfin butterfly is limited to the early spring, from late February to mid-April.	**Not expected** Host plant not present, no suitable habitat present.
San Francisco fork-tailed damselfly *Ischnura gemina*	G2 S2	The San Francisco forktail damselfly is a small damselfly in the genus *Ischnura*. It occurs from Point Reyes (Limantour Pond, Pt. Reyes, Marin Co.) south to Santa Cruz (Santa Cruz Co.). Flight season for this species is between March and November. The SF damselfly prefers open wet drainages with relatively low growing plants for egg laying. Unlike other species, *I. gemina* seems largely confined to disturbed sites within urban areas. Without occasional clearing of vegetation, or a stable low growing emergent wetland vegetation, the species disappears over time (Pers. comm. J. Hafernik 2008).	**Low potential.** Due to recent re-vegetation.
San Francisco Bay Area leaf-cutter bee *Trachusa gummifera*	G1, S1	Leafcutter bees are slow fliers that carry pollen on the underside of their abdomen. They use leaf material to partition their nests between eggs; most will nest in holes in wood.	**Not expected** No suitable habitat present on site.

Species Name	Status	Habitat[3]	Potential to Occur On Site
Sandy beach tiger beetle *Cicindela hirticollis gravida*	G5T2, S2	Inhabit California coast from Agua Hedionda Lagoon, San Diego Co. to the mouth of Smith River. Found along shores of shallow lagoons and lower stream reaches.	**Not expected** Site not on Pacific Ocean beach.
Stage's dufourine bee *Dufourea stagei*	G1G2, S1	Ground-nesting bee known only from San Bruno Mountain. *Dufourea* bees are associated with native grassland species.	**Not expected** Not known within 3 miles of site.
Tomales isopod *Caecidotea tomalensis*	G2, S2S3	Freshwater ponds and streams with still or near-still water.	**Absent.** Collected in 1984 from the waters of Lake Merced, but SFSU information indicates this species is no longer present (Holzman, 2005).
Western bumble bee *Bombus occidentalis*	G2G3 S1 USFS:S XERCES:IM	Open grassy areas, urban parks and gardens, chaparral and shrub areas, and mountain meadows. Nests underground. Once common and widespread, species has declined precipitously from central CA to southern B.C., perhaps from disease.	**Low potential** Due to recent re-vegetation.
AMPHIBIANS AND REPTILES			
California giant salamander *Dicamptodon ensatus*	CSC	California giant salamander is a large salamander with large head and stout limbs (Thomson et al, 2016). They are predominantly terrestrial, found in wet coastal forests and only return to clear, cold permanent to semi-permanent streams to breed in fall and spring. Range is north and south of the San Francisco Bay area from Mendocino County south into the Santa Cruz Mountains, from 0-900 meters elevation.	**Not expected** No suitable habitat present on site.

Species Name	Status	Habitat[3]	Potential to Occur On Site
California red-legged frog *Rana draytonii*	FT, CSC G2G3, S2S3	A medium-sized frog that inhabits lowlands & foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation up to 1,500 meters in elevation (Stebbins 2003). Range extends from Redding to Baja California, Mexico with hybridization may be occurring with the northern red-legged frog from the Oregon border to Marin County. Breeding occurs between November and April in standing or slow-moving water at least 0.7 meters (2 ½ feet) in depth with emergent vegetation, such as cattails (*Typha* spp.), tules (*Scirpus* spp.) or overhanging willows (*Salix* spp.) (Hayes and Jennings 1988). Habitat for this species is located in several areas on the San Francisco Peninsula where suitable ponds, marshes, streams with adjacent uplands are present.	**Not expected** Closest known extant location is in Golden Gate Park, 3 miles to the north (CNDDB 2019). Historic record within Lake Merced; presumed extirpated. Heavy predator pressure might exclude them from this lake. Site is outside the designated critical habitat for this species.
California tiger salamander *Ambystoma californiense*	FT, CT G2G3 S2S3 WL	California tiger salamanders inhabit lowland grasslands, oak savannah, and mixed woodland habitats, and require vernal pools, seasonal ponds, or semi-permanent calm waters that pond water for a minimum of three to four months in duration for breeding and larval maturation, and adjacent upland habitat with small mammal burrows for aestivation.	**Not expected** Not known from vicinity. Closest known location greater than three miles away.
Foothill yellow-legged frog *Rana boylii*	SCT, CSC G3, S3 BLM Sensitive	A medium-sized frog that inhabits rocky, cascading streams in woodland, chaparral and coniferous forests from the Oregon border to San Luis Obispo County and the western foothills of the Sierra Nevada below 6000 feet. Frequents shallow, slow, gravelly streams and rivers with sunny banks.	**Not expected** Suitable habitat not present**.**
Green sea turtle *Chelonia mydas*	FT	Generally found in shallow ocean waters inside reefs, bays and inlets where they feed on marine grass and algae. Green sea turtles have a strong nesting site fidelity and often make long distance migrations between feeding grounds and nesting beaches.	**Not expected** No connection to the Pacific Ocean.

Species Name	Status	Habitat[3]	Potential to Occur On Site
San Francisco garter snake *Thamnophis sirtalis tetrataenia*	FE, SE G5, S2 CFP	A highly aquatic subspecies of the common garter snake endemic to the San Francisco Bay Area, San Francisco garter snakes are distributed along the western San Francisco Peninsula from the southern San Francisco County border south to Waddell Lagoon south of Año Nuevo and as far west as Crystal Springs Reservoir. The species often occurs near ponds, marshes, streams and other wetlands associated with cattails, bulrushes, and rushes. Mating occurs shortly after they leave their winter retreats in May and females give birth to live young between June and September. Species may hibernate in upland habitats near water in fossorial mammal burrows and other refuges, or remain active year-round weather permitting. Critical Habitat has not been designated for this species.	**Not expected** Heavy human presence and lack of prey items may exclude them. Closest known historic, now extirpated location over 3 miles south of site (Accord, 2020).
Western pond turtle *Actinemys marmorata*	CSC S3, Sensitive	A moderate sized freshwater turtle that inhabits permanent or nearly permanent bodies of water and low gradient slow moving streams below 6000 feet elevation. Range extends from Washington to the northern Bay Area counties along the Pacific slope drainages. Two recognized subspecies the northwestern pond turtle (*E. m. marmorata*) which ranges north of the American River and the southwestern pond turtle (*E. m. pallida*) which ranges from the coastal areas south of San Francisco. Subspecies interbreed within the gradation zone that defines the two subspecies.	**Moderate potential** Suitable habitat present. . Not observed on site during surveys and monitoring of remediation work in 2015.
FISH			
Coho salmon-central California coast ESU *Oncorhynchus kisutch* pop. 4	FE, SE AFS:E G4, S2	Restricted to coastal streams along coast. Requires beds of clean gravel for spawning and deep, well oxygenated pools for rearing. This species is not present in any streams that are tributaries to San Francisco Bay in the south or central Bay Area.	**Not expected** No connection to freshwater stream or ocean.

Species Name	Status	Habitat[3]	Potential to Occur On Site
Delta smelt *Hypomesus transpacificus*	FT, ST AFS- T G1 S1	Inhabits brackish water in the Sacramento-San Joaquin Delta. Known from Sacramento/San Joaquin Delta, Sacramento River as high as the confluence with the Feather River, Mokelumne River, Cache Slough, Montezuma Slough, San Pablo Bay, Suisun Bay, Suisun Marsh, Carquinez Strait, and Napa River and Marsh. Spawns in freshwater habitat from February to August in shallow water areas with submersed aquatic plants, suitable substrates and refugia. Important spawning habitat include Barker, Lindsey, Cache, Prospect, Georgiana, Beaver, Hog, and Sycamore sloughs and the Sacramento River in the Delta, and tributaries of northern Suisun Bay.	**Not expected** No suitable habitat due to low water level and elevated nutrient load. Site is outside the designated critical habitat for this species.
Hardhead *Mylopharodon conocephalus*	CSC G3, S3 Sensitive	Clear, deep pools with sand-gravel-boulder bottoms and slow water.	**Not expected** No suitable habitat due to low water level and elevated nutrient load. Documented in Lake Merced through 1989.
Longfin smelt *Spirinchus thaleichthys*	CT, CSC G5, S1	Longfin smelt are pelagic, estuarine fish which range from Monterey Bay northward to Hinchinbrook Island, Prince William Sound Alaska. In California, they have been commonly collected from San Francisco Bay, Eel River, Humboldt Bay and Klamath River. Presently, the only California collections made in the 1990s have been from the Klamath River and San Francisco Bay. This species is found throughout San Francisco Bay (CDFG 2009b). As they mature in the fall, adults migrate to brackish or freshwater in Suisun Bay, Montezuma Slough, and the lower reaches of the Sacramento and San Joaquin Rivers. Spawning probably takes place in freshwater. In April and May, juveniles are believed to migrate downstream to San Pablo Bay; juvenile longfin smelt are collected throughout the Bay during the late spring, summer and fall, and occasionally venture into the Gulf of the Farallons.	**Not expected** No connection to the ocean.

Species Name	Status	Habitat[3]	Potential to Occur On Site
Steelhead-central California coast DPS *Onchorhynchus mykiss irideus pop. 8*	FT, AFS: T G5T2T3Q, S2S3	Well oxygenated, moderate to fast flowing streams with woody debris, deep pools, riffles, and gravels.	**Not expected** No connection to freshwater stream or ocean.
Tidewater goby *Eucyclogobius newberryi*	FE G5, S3 CSC AFS:E	A small (4-5 cm total length) California endemic fish that inhabits brackish coastal lagoons, estuaries and marshes. Range extends from the Smith River in Del Norte County to Agua Hedionda Lagoon in San Diego County. Species is typically an annual species that lives for approximately 1 year. The species is restricted primarily to coastal lagoons and the brackish zone of larger estuaries. The species is typically found in water less than 1 meter (3.3 feet) deep and salinities of less than 12 parts per thousand.	**Not expected** No suitable habitat present. Last observed in Lake Merced in 1895. Site is outside the designated critical habitat for this species.
BIRDS			
Alameda song sparrow *Melospiza melodia pusillula*	BCC, CSC S2 MBTA CFGC	The Alameda song sparrow is endemic to California, where it is restricted to tidal salt marshes along the edges of San Francisco Bay. The species is a year-round resident (non-migratory), and breeds from late February to mid-August. Alameda song sparrows prefer upland marsh vegetation, along tidal marsh edges. It is most abundant in the taller vegetation found along tidal sloughs. Typically nests low in gumplant (*Grindelia* sp.) shrubs and in pickleweed.	**Not expected** Site is not located within the San Francisco Bay salt marshes.
American peregrine falcon *Falco peregrinus anatum*	FD, BCC CE, FP G4, SA MBTA	Nest on cliffs, but frequently use man-made structures such as bridges and buildings (White, et al 2002). Prey consists of mostly birds, from songbirds up to small geese. Bats and other small mammals are also taken. Nests are generally located close to water bodies with abundant avian prey. Nests consist of a shallow, unlined scrape placed on ledge of cliff or building, or in old raven nest (White, et al 2002).	**Not expected** Foraging habitat present. No nesting habitat present on site.

Species Name	Status	Habitat[3]	Potential to Occur On Site
Bank swallow *Riparia riparia*	CT G5 MBTA	Nests in colonies in vertical banks along creeks, rivers and sea cliffs with friable soils. Breeds from April to August. Most of California's nesting colonies occur along the upper Sacramento River. Breeding begins in April; double-brooded (Baicich & Harrison 2005).	**Moderate potential** Foraging habitat present. No nesting habitat present. Known colony west of Lake Merced at Fort Funston.
Burrowing owl *Athene cunicularia*	FSC, CSC G4 S3 MBTA	Inhabits valley bottoms and foothills with low vegetation and fossorial mammal activity. Listing includes wintering observations with/without a burrow in San Francisco, Ventura, Sonoma, Marin, Napa and Santa Cruz counties. Breeding begins in March; single-brooded (Baicich & Harrison 2005).	**Not expected** No suitable habitat present. No ground squirrel burrows or other suitable burrow features observed.
California black rail *Laterallus jamaicensis coturniculus*	FP, CT S1, ABC MTBA Sensitive	California black rails are secretive, sparrow sized birds that breed in tidal and freshwater marshes of San Francisco Bay. The species does not appear to migrate. They are generalist feeders that consume a variety of insects, spiders, small crustaceans, snails, and seeds. The nest is a woven cup of sedges and grasses with a canopy, often located in a clump of vegetation. Both parents incubate 6 to 8 eggs, and in 17 to 20 days the black, downy semi-precocial chicks hatch (Baicich & Harrison 2005). Lack of suitable habitat (high marsh) may limit nesting however tidal marsh restoration projects may be increasing habitat for this species.	**Low potential** Freshwater marsh is present on site; however, predation pressures may exclude them from the site. Last recorded at Lake Merced 1937 (CNDDB, 2019)
California least tern *Sternula antillarum browni*	FE, CE FP S2, CFP	The species nests in California, and migrates to California in April and remains through August; wintering takes place south of the United States. They nest in colonies on bare or sparsely vegetated sandy beaches, alkali flats and landfills. Presently, most nesting occurs on beaches or in coastal wetlands near estuaries, bays, harbors or the ocean. Least terns forage over marine and bay waters and feed on small fish and invertebrates.	**Not expected** No foraging or nesting habitat present.

Species Name	Status	Habitat[3]	Potential to Occur On Site
California Ridgway's rail *Rallus obsoletus obsoletus*	FE, CE S1, CFP	California Ridgway's rail is a chicken-sized bird that inhabits tidal salt marshes, brackish marshes and tidal sloughs in San Francisco Bay. The species is associated with dense cordgrass (*Spartina*), gumplant and pickleweed for nesting, and feeds on invertebrates in open mud areas along sloughs. In the San Francisco Bay area, clapper rails breed from mid-March through July.	**Not expected** No foraging or nesting habitat present.
Cooper's hawk *Accipiter cooperii*	WL, G5, S4	Inhabits dense stands of oak woodlands, riparian deciduous forests, or other forest habitats often near water & suburban areas. Hunts in broken woodlands & along forest edges. Breeding begins in April; single-brooded (Baicich & Harrison 2005).	**Moderate potential** Suitable nesting and foraging habitat present.
Double-crested cormorant *Phalacrocorax auritus*	WL, G5, S4	Rookery sites are located near large water bodies and on small islands, shorelines, bridges, isolated rocks, trees standing in water, and cliff ledges. Nest consists of a structure of twigs and plant material in a tree or tall manmade structures. Breeding begins in early March to mid-June; single-brooded (Baicich & Harrison 2005).	**Not expected** No suitable habitat for rookery sites within the project area. Known rookery to northwest of site within eucalyptus grove. No suitable foraging habitat.
Marbled murrelet *Branchyramphus marmoratus*	FT, SE G3G4, S1	Feeds near-shore and nests inland along coast from Eureka to Oregon Border and from Half Moon Bay to Santa Cruz. Nests in old-growth redwood-dominated forests up to six miles inland.	**Not expected** No suitable nesting or foraging habitat present on site. Site is outside the designated critical habitat for this species.
Merlin *Falco columbarius*	G5, S3S4 WL	Merlin found on seacoast, tidal estuaries, open woodlands, savannahs, edges of grassland and deserts, farms and ranches.	**Low potential** Species does not nest in San Francisco Bay region. Suitable foraging habitat present on site.
Northern harrier *Circus cyaneus*	CSC, G5, S3	Found in coastal salt and freshwater marshes. Forages over variety of habitats and nests in shrubby vegetation at marsh edge.	**Moderate potential** Suitable foraging habitat present on site. Nesting on site unlikely due to proximity to urban development.

Species Name	Status	Habitat[3]	Potential to Occur On Site
Salt marsh common yellowthroat *Geothlypis trichas sinuosa*	CSC, S3	The salt marsh common yellowthroat is a wood warbler that typically inhabits freshwater, brackish and saltwater wetlands in the San Francisco Bay Area. The species is a year-round resident in the Bay Area. The species can be found to utilize dense vegetation in wetlands, marshes, estuaries, prairies and riparian areas. It nests in dense shrubs or emergent vegetation near or over water. Breeding begins in April; double-brooded (Baicich & Harrison 2005).	**Present** Suitable nesting and foraging habitat present on site within wetland habitat along Lake shore. Observed foraging during site visits.
San Pablo song sparrow *Melospiza melodia samuellis*	CSC, S2	Salt marshes along the north side of the San Francisco and San Pablo Bays. Inhabits *Salicornia* marshes and nests in *Grindelia* bushes.	**Not expected** Site is not located within the San Francisco Bay salt marshes.
Short-tailed albatross *Phoebatria (=Diomedea) albratrus*	FE, CSC	Wide ranging in temperate and subarctic North Pacific Ocean including the Gulf of Alaska, along the Aleutian Islands, and in the Bering Sea. They feed on squid, fish, and shrimp. They nest on volcanic ash or grassy terraces on rugged, isolated, windswept islands. Breeds on two islands: Torishima and Minami Kojima, northwest of Taiwan.	**Not expected** Site is not within the known range for this species.
Western snowy plover *Charadrius alexandrinus nivosus*	FT, CSC G3T3, S2S3	Inhabits beaches, mud flats, estuaries, salt evaporation ponds and inland river channels with banks for foraging. Breeds on sandy beaches, dunes, levees, river banks and dry salt evaporation beds along the California coastline typically in areas with minimal human disturbance. Breeding begins in March; double-brooded (Baicich & Harrison 2005). Federal listing applies only to the Pacific coastal population that nests within 50 miles of the Pacific Ocean on the mainland coast, peninsulas, offshore islands, bays, estuaries, or rivers of the U.S. and Baja, California.	**Not expected** No suitable nesting or foraging habitat present. Site is outside the designated critical habitat for this species.

Species Name	Status	Habitat[3]	Potential to Occur On Site
White-tailed kite *Elanus leucurus*	Sensitive, CFP G5, S3S4	Inhabits rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodlands. Nest is loose twig structure. Breeding begins in mid-February; double-brooded (Baicich & Harrison 2005).	**Moderate potential** Suitable nesting in eucalyptus grove. Suitable foraging habitat on project site.
Yellow-headed blackbird *Xanthocephalus xanthocephalus*	CSC, S3	Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or ponds. Only nests where large insects such as dragonfly are abundant and nesting is timed to coincide with maximum emergence of aquatic insects. Breeding begins in late April; usually single-brooded (Baicich & Harrison 2005).	**Not expected** Only present in area during migration
Yellow rail *Coturnicops noveboracensis*	CSC, G4, S1S2 Sensitive, WL	Yellow rails inhabit freshwater marshlands. Nests are rarely found, but where located they are in sedge marshes or wet meadows on the ground in drier portions or among plant tufts in several inches of water (Baicich & Harrison 2005). Breeding begins in May to June; single-brooded.	**Low potential** Suitable nesting and foraging habitat in bull rush and soft rush marsh. Not known from vicinity.
MAMMALS			
American badger *Taxidea taxus*	S3, CSC	A large mustelid that inhabits open areas with friable soils within woodland, grassland, savannah and desert habitats. A fossorial mammal that preys predominately on ground squirrels (*Ammospermophilus* and *Spermophilus spp*.) and pocket gophers (*Thomomys spp*.). Mating occurs in late summer; young are born in March and April.	**Not expected** No appropriate habitat present. Last record from Golden Gate Park in 1947.

Species Name	Status	Habitat[3]	Potential to Occur On Site
Big free-tailed bat *Nyctinomops macrotis*	CSC, S3 WBWG:MH	Big free-tail bat ranges from most of South America northward to include Mexico, Arizona, New Mexico, southern and western Texas, southern California and southeastern Nevada, southern Utah, and north to central Colorado. The species is migratory, and the known elevational range is from near sea level to about 8,500 ft (2,600 meters). Big free-tail bats appear to mainly inhabit rugged, rocky habitats in arid landscapes. The species has been found in a variety of plant associations, including desert shrub, woodlands, and evergreen forests.	**Not expected** No suitable habitat present on site.
Hoary bat *Lasiurus cinereus*	WBWG:M	Ubiquitous throughout California. A solitary foliage rooster that prefers evergreens, but will use deciduous trees in forested habitats, particularly in edge habitat. May forage in small to large groups. Feeds primarily on moths, but will eat a variety of other insects. Migrates great distances.	**Not expected** No suitable roosting sites. Foraging habitat present. This species does not breed in the San Francisco Bay area.
North American porcupine *Erethizon dorsatum*	S3	North American porcupines inhabit coniferous and mixed woodland habitats in Sierra Nevada, Cascade and Coast Ranges.	**Not expected** No suitable habitat. Last record of porcupine in San Francisco was 1920.
Pallid bat *Antrozous pallidus*	CSC, S3, Sensitive, WBWG:H	Inhabits rocky terrain in open areas in lowlands, foothills and mountainous areas near water throughout California below 2,000 meters. Roosts in caves, rock crevices, mines, hollow trees, buildings and bridges in arid regions in low numbers (<200). Active from March-November; migrates in some areas, but may hibernate locally. Preys on large beetles and scorpions. This species is typically found in dry grasslands and oak savannah habitats, and currently can be detected in the south and east San Francisco Bay area.	**Not expected** Minimal **s**uitable foraging habitat. Species not detected in previous surveys of site for bats in 2015 (Kobernus, 2015).
Salt marsh harvest mouse *Reithrodontomys raviventris*	FE, SE, CFP G1G2, S1S2	Occurs in saline emergent wetlands in San Francisco Bay and tributaries. Pickleweed is its primary habitat, but may occur in other marsh vegetation types and in adjacent upland areas.	**Not expected** No suitable habitat present on the site. No pickleweed or tidal salt marsh in the vicinity of the project area.

Species Name	Status	Habitat[3]	Potential to Occur On Site
Salt-marsh wandering shrew *Sorex vagrans halicoetes*	S1, CSC	Species is restricted to salt marshes in San Francisco Bay. Feeds mainly on invertebrates and some plant material within a low, dense cover of *Salicornia*. Most young are born March to May. Maximum lifespan is about 16 months.	**Not expected** No suitable habitat present on the site. No pickleweed or tidal salt marsh in the vicinity of the project area.
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	CSC G5, S2S3	Species inhabits forests of moderate canopy and moderate to dense understory. May prefer chaparral and redwood habitats. Constructs nests of shredded grass, leaves and other material.	**Not expected** No nests observed on site. Predatory pressures may exclude species.
Silver-haired bat *Lasionycteris noctivagans*	S3, WBWG:M	Silver-haired bats summer in coastal and montane forests. Winters throughout California.	**Not expected** No suitable habitat present on site.
Southern sea otter *Enhydra lutris nereis*	FT, CFP, G4T2, S2	Species is restricted to nearshore marine environments from Ano Nuevo, San Mateo County south to Point Sal, Santa Barbara County. Requires canopies of giant kelp and bull kelp for rafting and feeding. Prefers rocky substrates with abundant invertebrates.	**Not expected** No suitable habitat present on the site. No nearshore marine environments in the vicinity of the project site.
Townsend's big-eared bat *Corynorhinus townsendii*	CSC, S2 WBWG:H, Sensitive	A cave rooster and moth specialist. Inhabits caves and mines, but may also use bridges, buildings, rock crevices and tree hollows in coastal lowlands, cultivated valleys and nearby hills characterized by mixed vegetation throughout California below 3,300 meters. Exhibits high site fidelity and is highly sensitive to disturbance. Forages along edge habitats near water; may travel long distances during foraging bouts. It is a moth specialist with over 90% of its diet composed of lepidopterans.	**Low potential** Potential foraging habitat and roosting sites present. Species not detected in previous surveys of site for bats in 2015 (Kobernus, 2015).
Western red bat *Lasiurus blossevillii*	S3, CSC, WBWG:H	Found throughout California, except the Great Basin region. Primarily a riparian obligate species, it is easily distinguished from other bats by its red fur. Roosting typically occurs individually in dense clumps of tree foliage in riparian areas, especially willows, cottonwoods and sycamores, and within orchards and suburban areas in trees and shrubs. Roosts are often hidden from view and only access from below. Primarily a moth specialist, but will forage for other insects as well.	**Low potential** Species does not breed in San Francisco bay region, but the site may provide suitable migration, wintering, and/or foraging habitat.

Explanation of State and Federal Listing Codes

(FE) Endangered = Federally listed as Endangered.
(FT) Threatened = Federal list, likely to become endangered in the foreseeable future.
(FP) Proposed = Species or Critical Habitat proposed for official Federal listing.
(FC) Candidate = Federal candidate to become a Proposed species.
(FD) Delisted from Federal List. Status to be monitored for 5 years.
(FSC) Federal Species of Concern = May be endangered or threatened, but not enough biological information to list.
(CE, CT, CR, SCT) State Listed = Listed as endangered, threatened, rare or candidate by California.
(CSC) California Species of Concern = CDFW concern for population trends.
(CFP) California Fully Protected = Fish and Wildlife Code prohibits take of individuals.
(CFGC) = California Department of Fish and Wildlife Code: §3503 prohibits the taking, possession or needless destruction of the nest or eggs of any bird; §3503.5 prohibits the taking, possession or destruction of any bird in the order Falconiformes or Strigiformes (birds-of-prey) or the taking, possession or destruction of the nest or eggs of any such bird; §3511 outlines protection for fully protected birds; and §3513 prohibits the taking or possession of any migratory non-game bird as designated in the Migratory Bird Treaty Act.
(AFS) = American Fisheries Society identifies marine, estuarine and diadromous fish species that are at risk of extinction in North America. The AFS has designated the following four classifications in order of conservation importance E – Endangered, T – Threatened, V – Vulnerable, and CD – Conservation Dependent.
(BCC) U.S. Fish and Wildlife Service Birds of Conservation Concern.
(CNPS 1B) = California Native Plant Society: rare or endangered in CA or elsewhere.
0.1: Seriously endangered in California
0.2: Fairly endangered in California
(CNPS 2) = California Native Plant Society: rare or endangered in CA but more common elsewhere.
(CNPS 3) = California Native Plant Society: more information is needed to determine degree of sensitivity.
(CNPS 4) = California Native Plant Society: plant of limited distribution.
CNPS Threat Ranks
0.1 = Seriously threatened in California
0.2 = Fairly threatened in California
0.3 = Not very threatened in California
(MBTA) = Migratory Bird Treaty Act. Species of migratory birds protected by the Migratory Bird Treaty Act (16 U.S.C. 703-711) and subject to the regulations on migratory birds contained in this subchapter B of title 50 CFR.
(Sensitive) = CA Dept. of Forestry classification; deserves special consideration during timber harvest operations.
(WBWG:M) = Western Bat Working Group: Medium Priority
(WBWG:H) = Western Bat Working Group: High Priority
(WL) Watch List California Department of Fish and Wildlife
(Xerces) = Xerces Society for Invertebrate Conservation. Red List identifies endangered, threatened or at-risk pollinator species. PE – Possibly Extinct indicates species only known from historical occurrences; CI – Critically Imperiled indicates species at very high risk of extinction; I – Imperiled indicates species at high risk of extinction; V – Vulnerable indicates species at moderate risk of extinction; DD – Data Deficient indicates lack of information to sufficiently assess status.

NatureServe Conservation Status Rankings

(G1) = Globally Critically Imperiled. At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
(G2) = Globally Imperiled. At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
(G3) = Globally Vulnerable. At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.
(G4) = Apparently secure; this rank is clearly lower than G3 but factors exist to cause some concern; i.e., there is some threat, or somewhat narrow habitat.
(G5) = Population or stand demonstrably secure to ineradicable due to being commonly found in the world.
(S1) = State Critically Imperiled. At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
(S2) = State Imperiled. At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
(S3) = State Vulnerable. At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.

APPENDIX A: Plant and Animal Species List

The following species were detected by sight or sign (e.g. scat, tracks) on the Lake Merced West project site at 520 John Muir Drive, San Francisco, CA during survey efforts in 2019.

	Species	**Common Name**	**Plant community/ Observed**
Plants	*Achillea millefolium*	Yarrow	C, T
	Acmispon glaber var. *glaber*	Deerweed	C, T
	Artemisia californica	California sage	C, T
	Baccharis pilularis ssp. *consanguinea*	Coyote brush	C, T, A
	Brassica nigra	Black mustard*	C, T
	Bromus carinatus	California brome	T
	Carduus pycnocephalus	Italian thistle	T
	Carpobrotus edulis	Iceplant*	C, S, H
	Ceanothus var. *Ray Hartman*	Ray Hartman wild lilac	C
	Cirsium vulgare	Bull thistle*	A, T
	Conium maculatum	Poison hemlock*	S, A, H
	Cortaderia selloana	Pampas grass	T
	Delairea odorata	Cape ivy*	S, E, H
	Deschampsia caespitosa	Tufted hairgrass	T, C
	Diplacus arantiacus	Sticky monkeyflower	C, T
	Elymus glaucus	Blue wildrye	T
	Epilobium ciliatum	Northern willow herb	C, T, A, H
	Erigeron canadensis	Canada horseweed	C, A
	Eriophyllum staechadifolium	Lizard tail/Seaside wooly sunflower	C, T
	Eucalyptus globulus	Blue gum	E
	Festuca idahoensis	Idaho fescue	C, T
	Fragaria chilensis	Beach strawberry	T
	Frangula californica	California coffeeberry	C, A
	Grindelia stricta var. *angustifolia*	Marsh gumplant	T
	Hedera helix	English ivy*	A, H
	Helminthotheca echioides	Bristly ox tongue*	T, A
	Hesperocyparis macrocarpa	Monterey cypress	C
	Juncus effusus	Common bog rush	R
	Juncus patens	Rush	R, T
	Lupinus arboreus	Yellow bush lupine	T

	Species	Common Name	Plant community/ Observed
Plants (cont'd)	*Lyonothamnus floribundus ssp. aspleniifolius*	Island (Santa Cruz Island) ironwood	C
	Medicago polymorpha	California burclover*	T
	Morella californica	Wax myrtle	A, T
	Oenothera elata	Hooker's evening primrose	S
	Oxalis pes-caprae	Bermuda buttercup, sourgrass*	T
	Persicaria amphibia	Water smartweed	S
	Plantago major	Common plantain*	T, C
	Polypogon monspeliensis	Rabbit's-foot grass*	T, A
	Pseudognaphalium luteoalbum	Jersey cudweed*	T, A
	Quercus agrifolia	Coast live oak	C
	Rubus armeniacus	Himalayan blackberry*	A, S, H
	Rubus ursinus	California blackberry	S, H, A
	Salix laseolepis	Arroyo willow	A, T
	Salix sitchensis	Sitka willow	T
	Salvia mellifera	Black sage	C
	Sambucus racemosa	Red elderberry	A
	Schoenoplectus californicus	California bulrush	B
	Scrophularia californica	California bee plant	T, C
	Senecio minimus	Coastal burnweed*	T, A
	Sisyrinchium bellum	Blue-eyed grass	T, C
	Solanum nigrum	Black nightshade*	T
	Toxicodendron diversilobum	Poison oak	S
	Tropaeolum majus	Garden nasturtium*	E
	Bryophyta	Moss	T, A
Birds	*Podilymbus podiceps*	Pied-billed grebe	OW
	Larus occidentalis	Western gull	OW
	Columba livia	Rock pigeon*	T, OH
	Accipiter cooperii	Cooper's hawk	OH
	Buteo lineatus	Red-shouldered hawk	E, OH
	Buteo jamaicensis	Red-tailed hawk	OH, E
	Calypte anna	Anna's hummingbird	E, V
	Aphelocoma californica	California scrub-jay	T
	Corvus brachyrhynchos	American crow	T, C, OH
	Corvus corax	Common raven	T, OH
	Sayornis nigricans	Black phoebe	T

	Species	**Common Name**	**Plant community/ Observed**
Birds (cont'd)	*Catharus guttatus*	Hermit thrush	C
	Psaltiparus minimus	Bushtit	T, C
	Sitta pygmaea	Pygmy nuthatch	E, T
	Cistothorus palustris	Marsh wren	A
	Regulus calendula	Ruby-crowned kinglet	T, A
	Geothlypis trichas	Common yellowthroat	A
	Setophaga coronata	Yellow-rumped warbler	A
	Setophaga townsendi	Townsend's warbler	E
	Cardellina pusilla	Wilson's warbler	E, A
	Junco hyemalis	Dark-eyed junco	C, T
	Zonotricha leucophrys	White-crowned sparrow	C, T
	Zonotrichia atricaphilla	Golden-crowned sparrow	C, T
	Melozone crissalis	California towhee	T, C
	Sturnella neglecta	Western meadowlark	T
Mammals	*Sylvilagus bachmani*	Brush rabbit	D- A, T, C,
	Vulpes vulpes	Red fox*	D- A, T

*= non-native species
Plant communities:
T= Tufted hairgrass meadow
C= Coast live oak woodland
E= Eucalyptus semi-natural woodland stand
A= Arroyo willow thicket
R= Soft rush marsh
S= Smartweed patch
B= California bulrush marsh
H= Himalayan black berry patch
Wildlife observations:
OH= overhead
V= vocalization
OW= open water
D= scat

APPENDIX B: Representative Photos of Lake Merced West Project Site

Figure B-1. View of tufted hairgrass meadow and arroyo willow thicket looking west; skeet shooting structures in background. Photo date: 12/06/2019.

Figure B-2. View of tufted hairgrass meadow looking west with existing buildings and skeet shooting structures. Eucalyptus grove in background. Photo date: 12/06/2019.

Figure B-3. View of parking area looking west, with Monterey cypress outside of fenceline and eucalyptus grove northwest of the site boundary visible in background. Photo date 12/26/2019.

Figure B-4. View of landscaped coast live oak woodland along the south project site boundary. Photo date: 12/26/2019.

Figure B-5. View of California bulrush marsh and swamp knotweed at Lake Merced Shoreline with arroyo willow thicket upslope and off-site eucalyptus in the background and far side of the lake. Photo date: 01/06/2020.

Figure B-6. View of tufted hairgrass meadow looking northeast. Swamp knotweed (red-purple line of plants), with California bulrush marsh behind knotweed. Soft rush marsh at right side of photo. Photo date: 01/06/2020.

APPENDIX C: USFWS, CDFW, and CNPS Species Lists

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
Phone: (916) 414-6600 Fax: (916) 414-6713

In Reply Refer To: January 21, 2020
Consultation Code: 08ESMF00-2020-SLI-0830
Event Code: 08ESMF00-2020-E-02612
Project Name: Lake Merced West

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, under the jurisdiction of the U.S. Fish and Wildlife Service (Service) that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the Service under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please follow the link below to see if your proposed project has the potential to affect other species or their habitats under the jurisdiction of the National Marine Fisheries Service:

http://www.nwr.noaa.gov/protected_species/species_list/species_lists.html

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Sacramento Fish And Wildlife Office
Federal Building
2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846
(916) 414-6600

Project Summary

Consultation Code: 08ESMF00-2020-SLI-0830

Event Code: 08ESMF00-2020-E-02612

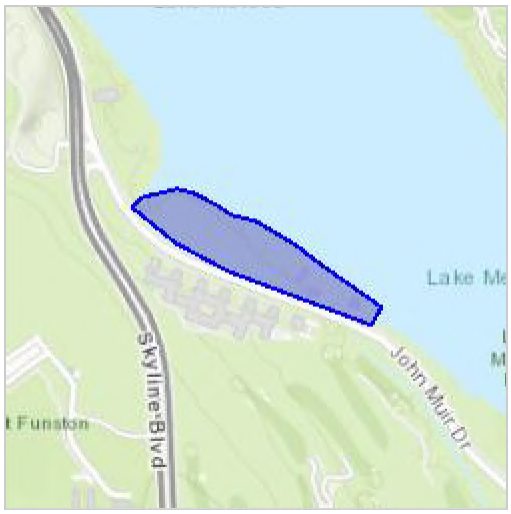
Project Name: Lake Merced West

Project Type: RECREATION CONSTRUCTION / MAINTENANCE

Project Description: The project site is at 520 John Muir Drive within the city and county of San Francisco. The site is approximately 11 acres. The planned project includes replacement or improvement of existing buildings for recreation facilities, a boat launch, fishing platform, hiking trails and open space. Development planned in 2020.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/37.71693537510771N122.49614061312505W



Counties: San Francisco, CA

Endangered Species Act Species

There is a total of 23 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Salt Marsh Harvest Mouse *Reithrodontomys raviventris* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/613	Endangered
Southern Sea Otter *Enhydra lutris nereis* No critical habitat has been designated for this species. *This species is also protected by the Marine Mammal Protection Act, and may have additional consultation requirements.* Species profile: https://ecos.fws.gov/ecp/species/8560	Threatened

Birds

NAME	STATUS
California Clapper Rail *Rallus longirostris obsoletus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4240	Endangered
California Least Tern *Sterna antillarum browni* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8104	Endangered
Marbled Murrelet *Brachyramphus marmoratus* Population: U.S.A. (CA, OR, WA) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/4467	Threatened
Short-tailed Albatross *Phoebastria (=Diomedea) albatrus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/433	Endangered
Western Snowy Plover *Charadrius nivosus nivosus* Population: Pacific Coast population DPS-U.S.A. (CA, OR, WA), Mexico (within 50 miles of Pacific coast) There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8035	Threatened

Reptiles

NAME	STATUS
Green Sea Turtle *Chelonia mydas* Population: East Pacific DPS No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6199	Threatened
San Francisco Garter Snake *Thamnophis sirtalis tetrataenia* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5956	Endangered

Amphibians

NAME	STATUS
California Red-legged Frog *Rana draytonii* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2891 Species survey guidelines: https://ecos.fws.gov/ipac/guideline/survey/population/205/office/11420.pdf	Threatened

Fishes

NAME	STATUS
Delta Smelt *Hypomesus transpacificus* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/321	Threatened
Tidewater Goby *Eucyclogobius newberryi* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/57	Endangered

Insects

NAME	STATUS
Bay Checkerspot Butterfly *Euphydryas editha bayensis* There is **final** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2320	Threatened
Callippe Silverspot Butterfly *Speyeria callippe callippe* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3779	Endangered
Mission Blue Butterfly *Icaricia icarioides missionensis* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6928	Endangered
Myrtle's Silverspot Butterfly *Speyeria zerene myrtleae* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6929	Endangered
San Bruno Elfin Butterfly *Callophrys mossii bayensis* There is **proposed** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/3394	Endangered

Flowering Plants

NAME	STATUS
Franciscan Manzanita *Arctostaphylos franciscana* There is **fi al** critical habitat for this species. Your location is outside the critical habitat. Species pr file: https://ecos.fws.gov/ecp/species/5350	Endangered
Presidio Ma nzanita *Arctostaphylos hookeri var. ravenii* No critical habitat has been designated for this species. Species pr file: https://ecos.fws.gov/ecp/species/7216	Endangered
Robust Spin eflower *Chorizanthe robusta var. robusta* There is **fi al** critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/9287	Endangered
San Francisco Lessingia *Lessingia germanorum (=L.g. var. germanorum)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8174	Endangered
Showy Indian Clover *Trifolium amoenum* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6459	Endangered
White-rayed Pentachaeta *Pentachaeta bellidiflora* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7782	Endangered

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Quad IS (San Francisco North (3712274) OR San Francisco South (3712264) OR San Mateo (3712253) OR Oakland West (3712273) OR Point Bonita (3712275) OR Montara Mountain (3712254) OR Hunters Point (3712263))

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Acanthomintha duttonii San Mateo thorn-mint	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_UCBG-UC Botanical Garden at Berkeley	325 550	5 S:2	0	0	0	0	1	1	2	0	1	1	0
Accipiter cooperii Cooper's hawk	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	30 30	118 S:1	0	0	0	0	0	1	0	1	1	0	0
Adela oplerella Opler's longhorn moth	G2 S2	None None		100 100	14 S:1	0	0	0	0	0	1	1	0	1	0	0
Agrostis blasdalei Blasdale's bent grass	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_UCSC-UC Santa Cruz	50 50	62 S:1	0	0	0	1	0	0	0	1	1	0	0
Allium peninsulare var. franciscanum Franciscan onion	G5T2 S2	None None	Rare Plant Rank - 1B.2	20 1,025	25 S:10	1	4	1	0	0	4	4	6	10	0	0
Ambystoma californiense California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_WL-Watch List IUCN_VU-Vulnerable	20 20	1231 S:1	0	0	0	0	1	0	1	0	0	0	1
Amsinckia lunaris bent-flowered fiddleneck	G3 S3	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_UCBG-UC Botanical Garden at Berkeley SB_UCSC-UC Santa Cruz	220 475	93 S:6	0	2	1	0	0	3	3	3	6	0	0
Antrozous pallidus pallid bat	G5 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	40 210	420 S:3	0	0	0	0	0	3	3	0	3	0	0
Arctostaphylos franciscana Franciscan manzanita	G1 S1	Endangered None	Rare Plant Rank - 1B.1 SB_UCBG-UC Botanical Garden at Berkeley	100 700	4 S:4	0	0	0	0	3	1	3	1	1	0	3

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Arctostaphylos imbricata San Bruno Mountain manzanita	G1 S1	None Endangered	Rare Plant Rank - 1B.1	900 1,000	2 S:2	1	0	0	0	0	1	1	1	2	0	0
Arctostaphylos montana ssp. ravenii Presidio manzanita	G3T1 S1	Endangered Endangered	Rare Plant Rank - 1B.1	75 700	7 S:7	0	1	0	0	5	1	6	1	2	1	4
Arctostaphylos montaraensis Montara manzanita	G1 S1	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden SB_USDA-US Dept of Agriculture	900 1,500	4 S:4	2	0	1	1	0	0	1	3	4	0	0
Arctostaphylos pacifica Pacific manzanita	G1 S1	None Endangered	Rare Plant Rank - 1B.1	1,045 1,045	1 S:1	0	0	1	0	0	0	0	1	1	0	0
Arctostaphylos regismontana Kings Mountain manzanita	G2 S2	None None	Rare Plant Rank - 1B.2	1,000 1,000	17 S:2	0	0	0	0	0	2	2	0	2	0	0
Arenaria paludicola marsh sandwort	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_SBBG-Santa Barbara Botanic Garden		16 S:1	0	0	0	0	1	0	1	0	0	0	1
Astragalus pycnostachyus var. pycnostachyus coastal marsh milk-vetch	G2T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley		25 S:2	0	0	0	0	0	2	2	0	2	0	0
Astragalus tener var. tener alkali milk-vetch	G2T1 S1	None None	Rare Plant Rank - 1B.2	20 50	65 S:3	0	0	0	0	3	0	3	0	0	2	1
Athene cunicularia burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	5 5	1989 S:1	0	1	0	0	0	0	0	1	1	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Banksula incredula incredible harvestman	G1 S1	None None		1,110 1,110	1 S:1	0	0	0	0	0	1	1	0	1	0	0
Bombus caliginosus obscure bumble bee	G4? S1S2	None None	IUCN_VU-Vulnerable	10 700	181 S:10	0	0	0	0	0	10	6	4	10	0	0
Bombus occidentalis western bumble bee	G2G3 S1	None Candidate Endangered	USFS_S-Sensitive XERCES_IM-Imperiled	10 800	279 S:15	0	0	0	0	0	15	15	0	15	0	0
Brachyramphus marmoratus marbled murrelet	G3G4 S1	Threatened Endangered	CDF_S-Sensitive IUCN_EN-Endangered NABCI_RWL-Red Watch List	800 800	110 S:1	0	0	0	0	0	1	0	1	1	0	0
Caecidotea tomalensis Tomales isopod	G2 S2S3	None None		50 2,100	6 S:2	0	0	1	1	0	0	2	0	2	0	0
Calicina minor Edgewood blind harvestman	G1 S1	None None		400 400	2 S:1	0	0	0	0	0	1	1	0	1	0	0
Callophrys mossii bayensis San Bruno elfin butterfly	G4T1 S1	Endangered None	XERCES_CI-Critically Imperiled	600 1,882	6 S:6	2	1	0	0	0	3	0	6	6	0	0
Calystegia purpurata ssp. saxicola coastal bluff morning-glory	G4T2T3 S2S3	None None	Rare Plant Rank - 1B.2	340 340	42 S:1	0	0	0	0	0	1	0	1	1	0	0
Carex comosa bristly sedge	G5 S2	None None	Rare Plant Rank - 2B.1	0 0	29 S:1	0	0	0	0	1	0	1	0	0	1	0
Carex praticola northern meadow sedge	G5 S2	None None	Rare Plant Rank - 2B.2	125 125	14 S:1	0	0	0	0	0	1	1	0	1	0	0
Centromadia parryi ssp. parryi pappose tarplant	G3T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	10 23	39 S:2	0	0	0	1	0	1	1	1	2	0	0
Charadrius alexandrinus nivosus western snowy plover	G3T3 S2S3	Threatened None	CDFW_SSC-Species of Special Concern NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	5 10	138 S:2	0	0	0	0	0	2	2	0	2	0	0
Chloropyron maritimum ssp. palustre Point Reyes salty bird's-beak	G4?T2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	5 370	76 S:5	0	0	1	0	3	1	4	1	2	3	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Chorizanthe cuspidata var. cuspidata San Francisco Bay spineflower	G2T1 S1	None None	Rare Plant Rank - 1B.2	8 650	17 S:14	0	0	3	0	2	9	7	7	12	1	1
Chorizanthe robusta var. robusta robust spineflower	G2T1 S1	Endangered None	Rare Plant Rank - 1B.1 BLM_S-Sensitive	30 150	20 S:3	0	0	0	0	3	0	3	0	0	3	0
Cicindela hirticollis gravida sandy beach tiger beetle	G5T2 S2	None None		10 10	34 S:1	0	0	0	0	1	0	1	0	0	0	1
Circus hudsonius northern harrier	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	5 5	53 S:1	0	0	0	0	0	1	0	1	1	0	0
Cirsium andrewsii Franciscan thistle	G3 S3	None None	Rare Plant Rank - 1B.2	50 550	31 S:14	1	5	2	0	1	5	4	10	13	1	0
Cirsium fontinale var. fontinale fountain thistle	G2T1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	400 400	5 S:1	0	1	0	0	0	0	0	1	1	0	0
Cirsium hydrophilum var. vaseyi Mt. Tamalpais thistle	G2T1 S1	None None	Rare Plant Rank - 1B.2		14 S:1	0	0	0	0	1	0	1	0	0	0	1
Cirsium occidentale var. compactum compact cobwebby thistle	G3G4T2 S2	None None	Rare Plant Rank - 1B.2	100 100	30 S:1	0	0	0	0	1	0	1	0	0	1	0
Clarkia franciscana Presidio clarkia	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_UCBG-UC Botanical Garden at Berkeley	75 300	4 S:3	0	1	1	0	1	0	1	2	2	1	0
Collinsia corymbosa round-headed Chinese-houses	G1 S1	None None	Rare Plant Rank - 1B.2	25 100	13 S:2	0	0	0	0	1	1	2	0	1	0	1
Collinsia multicolor San Francisco collinsia	G2 S2	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden SB_UCSC-UC Santa Cruz	100 900	36 S:18	0	4	0	0	0	14	11	7	18	0	0

Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Corynorhinus townsendii Townsend's big-eared bat	G3G4 S2	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	85 710	635 S:5	0	1	0	1	2	1	1	4	3	2	0
Coturnicops noveboracensis yellow rail	G4 S1S2	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern NABCI_RWL-Red Watch List USFS_S-Sensitive USFWS_BCC-Birds of Conservation Concern	20 20	45 S:1	0	0	0	0	0	1	1	0	1	0	0
Danaus plexippus pop. 1 monarch - California overwintering population	G4T2T3 S2S3	None None	USFS_S-Sensitive	10 250	383 S:17	0	2	6	1	3	5	11	6	14	1	2
Dicamptodon ensatus California giant salamander	G3 S2S3	None None	CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened	25 650	234 S:4	0	1	0	0	0	3	3	1	4	0	0
Dipodomys venustus venustus Santa Cruz kangaroo rat	G4T1 S1	None None		42 42	29 S:1	0	0	0	0	1	0	1	0	0	1	0
Dirca occidentalis western leatherwood	G2 S2	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden	255 1,265	71 S:11	2	2	2	0	0	5	3	8	11	0	0
Dufourea stagei Stage's dufourine bee	G1G2 S1	None None		700 700	1 S:1	0	0	0	0	0	1	1	0	1	0	0
Elanus leucurus white-tailed kite	G5 S3S4	None None	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_LC-Least Concern	5 5	180 S:1	0	1	0	0	0	0	1	0	1	0	0
Emys marmorata western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	9 525	1385 S:14	2	9	2	0	0	1	2	12	14	0	0

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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Enhydra lutris nereis southern sea otter	G4T2 S2	Threatened None	CDFW_FP-Fully Protected IUCN_EN-Endangered MMC_SSC-Species of Special Concern	0 0	2 S:1	0	0	0	0	0	1	1	0	1	0	0
Erethizon dorsatum North American porcupine	G5 S3	None None	IUCN_LC-Least Concern	210 509	523 S:2	0	0	0	0	1	1	2	0	1	1	0
Eriophyllum latilobum San Mateo woolly sunflower	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden	100 900	8 S:6	1	2	1	0	0	2	0	6	6	0	0
Eucyclogobius newberryi tidewater goby	G3 S3	Endangered None	AFS_EN-Endangered CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	5 20	127 S:4	0	0	0	0	2	2	4	0	2	0	2
Eumetopias jubatus Steller (=northern) sea-lion	G3 S2	Delisted None	IUCN_EN-Endangered MMC_SSC-Species of Special Concern	10 10	15 S:1	0	0	0	0	1	0	1	0	0	1	0
Euphydryas editha bayensis Bay checkerspot butterfly	G5T1 S1	Threatened None	XERCES_CI-Critically Imperiled	100 1,000	30 S:6	0	0	0	0	6	0	6	0	0	1	5
Extriplex joaquinana San Joaquin spearscale	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden		127 S:1	0	0	0	0	1	0	1	0	0	1	0
Falco columbarius merlin	G5 S3S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	65 65	37 S:1	0	1	0	0	0	0	0	1	1	0	0
Falco peregrinus anatum American peregrine falcon	G4T4 S3S4	Delisted Delisted	CDF_S-Sensitive CDFW_FP-Fully Protected USFWS_BCC-Birds of Conservation Concern	5 12	56 S:3	0	2	0	0	0	1	0	3	3	0	0
Fritillaria biflora var. ineziana Hillsborough chocolate lily	G3G4T1 S1	None None	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley SB_USDA-US Dept of Agriculture	550 550	2 S:2	0	1	0	0	0	1	1	1	2	0	0

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Fritillaria lanceolata var. tristulis Marin checker lily	G5T2 S2	None None	Rare Plant Rank - 1B.1	187 187	32 S:1	0	0	0	0	0	1	0	1	1	0	0
Fritillaria liliacea fragrant fritillary	G2 S2	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden USFS_S-Sensitive	295 800	82 S:7	0	2	0	0	1	4	5	2	6	0	1
Geothlypis trichas sinuosa saltmarsh common yellowthroat	G5T3 S3	None None	CDFW_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern	7 480	112 S:7	0	1	1	0	0	5	6	1	7	0	0
Gilia capitata ssp. chamissonis blue coast gilia	G5T2 S2	None None	Rare Plant Rank - 1B.1 SB_UCBG-UC Botanical Garden at Berkeley	10 650	37 S:13	0	1	0	1	2	9	7	6	11	0	2
Gilia millefoliata dark-eyed gilia	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	150 150	54 S:6	0	0	0	0	4	2	6	0	2	2	2
Grindelia hirsutula var. maritima San Francisco gumplant	G5T1Q S1	None None	Rare Plant Rank - 3.2 SB_UCSC-UC Santa Cruz	50 1,000	15 S:15	0	4	2	1	1	7	15	0	14	0	1
Helianthella castanea Diablo helianthella	G2 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	700 700	107 S:2	0	1	0	0	1	0	1	1	1	1	0
Hemizonia congesta ssp. congesta congested-headed hayfield tarplant	G5T2 S2	None None	Rare Plant Rank - 1B.2 SB_UCBG-UC Botanical Garden at Berkeley		52 S:2	0	0	0	0	1	1	2	0	1	1	0
Hesperevax sparsiflora var. brevifolia short-leaved evax	G4T3 S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	400 500	56 S:2	0	0	0	0	1	1	2	0	1	1	0
Hesperolinon congestum Marin western flax	G1 S1	Threatened Threatened	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	200 600	27 S:8	0	3	2	1	2	0	3	5	6	1	1
Heteranthera dubia water star-grass	G5 S2	None None	Rare Plant Rank - 2B.2		9 S:1	0	0	0	0	0	1	1	0	1	0	0

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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Holocarpha macradenia Santa Cruz tarplant	G1 S1	Threatened Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley	100 100	37 S:2	0	0	0	0	2	0	2	0	0	0	2
Horkelia cuneata var. sericea Kellogg's horkelia	G4T1? S1?	None None	Rare Plant Rank - 1B.1 SB_UCSC-UC Santa Cruz USFS_S-Sensitive	20 600	58 S:8	0	0	1	0	3	4	7	1	5	3	0
Horkelia marinensis Point Reyes horkelia	G2 S2	None None	Rare Plant Rank - 1B.2	300 500	36 S:3	0	0	0	0	0	3	3	0	3	0	0
Hydrochara rickseckeri Ricksecker's water scavenger beetle	G2? S2?	None None		35 35	13 S:1	0	0	0	0	0	1	1	0	1	0	0
Hydroporus leechi Leech's skyline diving beetle	G1? S1?	None None		680 680	13 S:1	0	0	0	0	0	1	1	0	0	1	0
Hypogymnia schizidiata island tube lichen	G2G3 S2	None None	Rare Plant Rank - 1B.3	890 1,780	10 S:4	2	0	0	0	0	2	0	4	4	0	0
Ischnura gemina San Francisco forktail damselfly	G2 S2	None None	IUCN_VU-Vulnerable	25 540	7 S:4	0	0	0	0	1	3	4	0	3	1	0
Lasiurus blossevillii western red bat	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern WBWG_H-High Priority	200 200	128 S:1	0	0	0	0	0	1	1	0	1	0	0
Lasiurus cinereus hoary bat	G5 S4	None None	IUCN_LC-Least Concern WBWG_M-Medium Priority	20 325	238 S:9	0	0	0	0	0	9	9	0	9	0	0
Lasthenia californica ssp. macrantha perennial goldfields	G3T2 S2	None None	Rare Plant Rank - 1B.2	40 350	59 S:2	0	1	0	0	0	1	0	2	2	0	0

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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Laterallus jamaicensis coturniculus California black rail	G3G4T1 S1	None Threatened	BLM_S-Sensitive CDFW_FP-Fully Protected IUCN_NT-Near Threatened NABCI_RWL-Red Watch List USFWS_BCC-Birds of Conservation Concern	0 178	303 S:8	0	0	1	2	2	3	7	1	6	2	0
Layia carnosa beach layia	G2 S2	Endangered Endangered	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_SBBG-Santa Barbara Botanic Garden	40 40	25 S:1	0	0	0	0	1	0	1	0	0	0	1
Leptosiphon croceus coast yellow leptosiphon	G1 S1	None Endangered	Rare Plant Rank - 1B.1 SB_UCBG-UC Botanical Garden at Berkeley	50 50	1 S:1	0	0	0	1	0	0	0	1	1	0	0
Leptosiphon rosaceus rose leptosiphon	G1 S1	None None	Rare Plant Rank - 1B.1	70 70	31 S:4	0	1	0	0	2	1	2	2	2	2	0
Lessingia arachnoidea Crystal Springs lessingia	G2 S2	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden	300 500	11 S:6	2	2	0	0	0	2	0	6	6	0	0
Lessingia germanorum San Francisco lessingia	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1	10 500	5 S:5	0	1	1	0	2	1	3	2	3	1	1
Lichnanthe ursina bumblebee scarab beetle	G2 S2	None None		15 20	8 S:2	0	0	0	0	0	2	2	0	2	0	0
Limnanthes douglasii ssp. ornduffii Ornduff's meadowfoam	G4T1 S1	None None	Rare Plant Rank - 1B.1	30 50	2 S:2	0	0	0	0	1	1	0	2	1	1	0
Malacothamnus arcuatus arcuate bush-mallow	G2Q S2	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden	10 700	30 S:6	0	1	0	1	1	3	4	2	5	0	1
Melospiza melodia pusillula Alameda song sparrow	G5T2? S2S3	None None	CDFW_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern	5 42	38 S:10	0	2	0	0	0	8	8	2	10	0	0

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						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
Melospiza melodia samuelis San Pablo song sparrow	G5T2 S2	None None	CDFW_SSC-Species of Special Concern USFWS_BCC-Birds of Conservation Concern		41 S:1	0	0	0	0	0	1	1	0	1	0	0
Microseris paludosa marsh microseris	G2 S2	None None	Rare Plant Rank - 1B.2 SB_SBBG-Santa Barbara Botanic Garden SB_UCSC-UC Santa Cruz	300 300	38 S:1	0	0	0	0	1	0	1	0	0	0	1
Monardella sinuata ssp. nigrescens northern curly-leaved monardella	G3T2 S2	None None	Rare Plant Rank - 1B.2 SB_SBBG-Santa Barbara Botanic Garden		25 S:1	0	0	0	0	1	0	1	0	0	1	0
Monolopia gracilens woodland woollythreads	G3 S3	None None	Rare Plant Rank - 1B.2	640 640	68 S:2	0	0	0	0	0	2	2	0	2	0	0
Mylopharodon conocephalus hardhead	G3 S3	None None	CDFW_SSC-Species of Special Concern USFS_S-Sensitive	20 20	33 S:1	0	0	0	0	0	1	1	0	1	0	0
Myotis thysanodes fringed myotis	G4 S3	None None	BLM_S-Sensitive IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	500 500	86 S:1	0	1	0	0	0	0	0	1	1	0	0
Neotoma fuscipes annectens San Francisco dusky-footed woodrat	G5T2T3 S2S3	None None	CDFW_SSC-Species of Special Concern	311 522	42 S:5	0	1	0	0	0	4	0	5	5	0	0
Northern Coastal Salt Marsh Northern Coastal Salt Marsh	G3 S3.2	None None		15 15	53 S:4	0	0	0	0	0	4	4	0	4	0	0
Northern Maritime Chaparral Northern Maritime Chaparral	G1 S1.2	None None		1,000 1,400	17 S:2	1	0	0	0	0	1	2	0	2	0	0
Nyctinomops macrotis big free-tailed bat	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern WBWG_MH-Medium-High Priority	150 175	32 S:2	0	0	0	0	0	2	2	0	2	0	0
Oncorhynchus kisutch pop. 4 coho salmon - central California coast ESU	G4 S2?	Endangered Endangered	AFS_EN-Endangered	130 130	23 S:1	0	0	0	0	0	1	1	0	1	0	0

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Oncorhynchus mykiss irideus pop. 8 steelhead - central California coast DPS	G5T2T3Q S2S3	Threatened None	AFS_TH-Threatened	100 550	44 S:3	0	1	0	0	0	2	2	1	3	0	0
Pentachaeta bellidiflora white-rayed pentachaeta	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1 SB_UCBG-UC Botanical Garden at Berkeley	400 500	14 S:4	0	0	0	0	3	1	4	0	1	1	2
Phalacrocorax auritus double-crested cormorant	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	30 75	39 S:4	0	0	2	0	0	2	2	2	4	0	0
Plagiobothrys chorisianus var. chorisianus Choris' popcornflower	G3T1Q S1	None None	Rare Plant Rank - 1B.2 SB_UCSC-UC Santa Cruz	20 1,250	42 S:8	0	2	0	0	1	5	5	3	7	0	1
Plagiobothrys diffusus San Francisco popcornflower	G1Q S1	None Endangered	Rare Plant Rank - 1B.1 SB_UCSC-UC Santa Cruz	200 200	17 S:1	0	0	0	0	1	0	1	0	0	0	1
Plagiobothrys glaber hairless popcornflower	GH SH	None None	Rare Plant Rank - 1A		9 S:1	0	0	0	0	1	0	1	0	0	1	0
Plebejus icarioides missionensis Mission blue butterfly	G5T1 S1	Endangered None	XERCES_CI-Critically Imperiled	200 750	14 S:14	0	2	1	0	1	10	5	9	14	0	0
Polemonium carneum Oregon polemonium	G3G4 S2	None None	Rare Plant Rank - 2B.2		16 S:4	0	0	0	0	0	4	4	0	4	0	0
Polygonum marinense Marin knotweed	G2Q S2	None None	Rare Plant Rank - 3.1		32 S:1	0	0	0	0	0	1	1	0	1	0	0
Potentilla hickmanii Hickman's cinquefoil	G1 S1	Endangered Endangered	Rare Plant Rank - 1B.1	25 240	4 S:2	0	1	0	0	1	0	1	1	1	0	1
Rallus obsoletus obsoletus California Ridgway's rail	G5T1 S1	Endangered Endangered	CDFW_FP-Fully Protected NABCI_RWL-Red Watch List	0 15	99 S:10	0	2	5	0	1	2	3	7	9	1	0
Rana boylii foothill yellow-legged frog	G3 S3	None Candidate Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_NT-Near Threatened USFS_S-Sensitive	63 878	2468 S:2	0	0	0	0	2	0	2	0	0	0	2
Rana draytonii California red-legged frog	G2G3 S2S3	Threatened None	CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	3 4,005	1543 S:52	12	10	11	0	0	19	12	40	52	0	0

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Reithrodontomys raviventris salt-marsh harvest mouse	G1G2 S1S2	Endangered Endangered	CDFW_FP-Fully Protected IUCN_EN-Endangered	2 3	144 S:2	0	0	0	0	0	2	2	0	2	0	0
Riparia riparia bank swallow	G5 S2	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern	10 40	298 S:3	0	1	0	0	0	2	2	1	3	0	0
Sanicula maritima adobe sanicle	G2 S2	None Rare	Rare Plant Rank - 1B.1 SB_SBBG-Santa Barbara Botanic Garden USFS_S-Sensitive	250 250	17 S:2	0	0	0	0	2	0	2	0	0	0	2
Scapanus latimanus insularis Angel Island mole	G5THQ SH	None None		150 150	1 S:1	0	0	0	0	0	1	1	0	1	0	0
Scapanus latimanus parvus Alameda Island mole	G5THQ SH	None None	CDFW_SSC-Species of Special Concern	10 30	8 S:7	0	0	0	0	0	7	7	0	7	0	0
Senecio aphanactis chaparral ragwort	G3 S2	None None	Rare Plant Rank - 2B.2 SB_RSABG-Rancho Santa Ana Botanic Garden	640 640	98 S:2	0	0	0	0	0	2	2	0	2	0	0
Serpentine Bunchgrass Serpentine Bunchgrass	G2 S2.2	None None		500 500	22 S:3	1	1	1	0	0	0	3	0	3	0	0
Silene scouleri ssp. scouleri Scouler's catchfly	G5T4T5 S2S3	None None	Rare Plant Rank - 2B.2	780 1,025	23 S:12	0	0	0	0	0	12	8	4	12	0	0
Silene verecunda ssp. verecunda San Francisco campion	G5T1 S1	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden SB_UCSC-UC Santa Cruz	10 1,500	20 S:14	0	1	1	0	6	6	6	8	8	4	2
Speyeria callippe callippe callippe silverspot butterfly	G5T1 S1	Endangered None	XERCES_CI-Critically Imperiled	250 900	12 S:7	0	1	1	0	1	4	4	3	6	0	1
Speyeria zerene myrtleae Myrtle's silverspot butterfly	G5T1 S1	Endangered None	XERCES_CI-Critically Imperiled	20 60	17 S:2	0	0	0	0	2	0	2	0	0	0	2
Spirinchus thaleichthys longfin smelt	G5 S1	Candidate Threatened		0 0	46 S:2	0	0	0	0	0	2	1	1	2	0	0

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Stebbinsoseris decipiens Santa Cruz microseris	G2 S2	None None	Rare Plant Rank - 1B.2 SB_RSABG-Rancho Santa Ana Botanic Garden SB_UCSC-UC Santa Cruz		19 S:1	0	0	0	0	0	1	1	0	1	0	0
Sternula antillarum browni California least tern	G4T2T3Q S2	Endangered Endangered	CDFW_FP-Fully Protected NABCI_RWL-Red Watch List	10 10	75 S:1	0	1	0	0	0	0	1	0	1	0	0
Suaeda californica California seablite	G1 S1	Endangered None	Rare Plant Rank - 1B.1	5 5	18 S:4	0	0	1	0	0	3	0	4	4	0	0
Taxidea taxus American badger	G5 S3	None None	CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern	50 1,500	592 S:4	0	0	0	0	0	4	4	0	4	0	0
Thamnophis sirtalis tetrataenia San Francisco gartersnake	G5T2Q S2	Endangered Endangered	CDFW_FP-Fully Protected	10 1,000	66 S:22	2	7	2	0	4	7	10	12	18	0	4
Trachusa gummifera San Francisco Bay Area leaf-cutter bee	G1 S1	None None		200 200	2 S:1	0	0	0	0	0	1	1	0	1	0	0
Trifolium amoenum two-fork clover	G1 S1	Endangered None	Rare Plant Rank - 1B.1 SB_RSABG-Rancho Santa Ana Botanic Garden SB_UCBG-UC Botanical Garden at Berkeley SB_USDA-US Dept of Agriculture		26 S:1	0	0	0	0	0	1	1	0	1	0	0
Trifolium hydrophilum saline clover	G2 S2	None None	Rare Plant Rank - 1B.2		49 S:4	0	0	0	0	3	1	4	0	1	0	3
Triphysaria floribunda San Francisco owl's-clover	G2? S2?	None None	Rare Plant Rank - 1B.2	5 450	50 S:17	0	0	1	0	6	10	15	2	11	4	2
Triquetrella californica coastal triquetrella	G2 S2	None None	Rare Plant Rank - 1B.2 USFS_S-Sensitive	400 1,200	13 S:4	0	0	0	0	0	4	1	3	4	0	0
Tryonia imitator mimic tryonia (=California brackishwater snail)	G2 S2	None None	IUCN_DD-Data Deficient	0 0	39 S:2	0	0	0	0	2	0	2	0	0	0	2

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Valley Needlegrass Grassland	G3	None		1,000	45	1	0	0	0	0	0	1	0	1	0	0
Valley Needlegrass Grassland	S3.1	None		1,000	S:1											
Vespericola marinensis	G2	None		90	23	0	0	0	0	0	2	2	0	2	0	0
Marin hesperian	S2	None		120	S:2											
Viburnum ellipticum	G4G5	None	Rare Plant Rank - 2B.3		39	0	0	0	0	0	1	1	0	1	0	0
oval-leaved viburnum	S3?	None			S:1											
Zapus trinotatus orarius	G5T1T3Q	None	CDFW_SSC-Species of Special Concern	25	5	0	0	0	0	0	2	2	0	2	0	0
Point Reyes jumping mouse	S1S3	None		200	S:2											

*The database used to provide updates to the Online Inventory is under construction. View updates and changes made since May 2019 here.

Plant List

13 matches found. *Click on scientific name for details*

Search Criteria
California Rare Plant Rank is one of **[1A, 1B, 2A, 2B, 3, 4]**, FESA is one of **[Endangered, Threatened, Candidate]**, CESA is one of **[Endangered, Threatened, Rare]**, Found in Quads **3712264, 3712274, 3712273, 3712263, 3712253 3712254** and **3712275**;

Modify Search Criteria | Export to Excel | Modify Columns | Modify Sort | Display Photos

Scientific Name	Common Name	Family	Lifeform	Blooming Period	CA Rare Plant Rank	State Rank	Global Rank
Acanthomintha duttonii	San Mateo thorn-mint	Lamiaceae	annual herb	Apr-Jun	1B.1	S1	G1
Arctostaphylos montana ssp. ravenii	Presidio manzanita	Ericaceae	perennial evergreen shrub	Feb-Mar	1B.1	S1	G3T1
Arenaria paludicola	marsh sandwort	Caryophyllaceae	perennial stoloniferous herb	May-Aug	1B.1	S1	G1
Chorizanthe valida	Sonoma spineflower	Polygonaceae	annual herb	Jun-Aug	1B.1	S1	G1
Cirsium fontinale var. fontinale	Crystal Springs fountain thistle	Asteraceae	perennial herb	(Apr)May-Oct	1B.1	S1	G2T1
Clarkia franciscana	Presidio clarkia	Onagraceae	annual herb	May-Jul	1B.1	S1	G1
Eriophyllum latilobum	San Mateo woolly sunflower	Asteraceae	perennial herb	May-Jun	1B.1	S1	G1
Hesperolinon congestum	Marin western flax	Linaceae	annual herb	Apr-Jul	1B.1	S1	G1
Holocarpha macradenia	Santa Cruz tarplant	Asteraceae	annual herb	Jun-Oct	1B.1	S1	G1
Layia carnosa	beach layia	Asteraceae	annual herb	Mar-Jul	1B.1	S2	G2
Lessingia germanorum	San Francisco lessingia	Asteraceae	annual herb	(Jun)Jul-Nov	1B.1	S1	G1
Pentachaeta bellidiflora	white-rayed pentachaeta	Asteraceae	annual herb	Mar-May	1B.1	S1	G1
Potentilla hickmanii	Hickman's cinquefoil	Rosaceae	perennial herb	Apr-Aug	1B.1	S1	G1

Suggested Citation

California Native Plant Society, Rare Plant Program. 2020. Inventory of Rare and Endangered Plants of California (online edition, v8-03 0.39). Website http://www.rareplants.cnps.org [accessed 01 May 2020].

APPENDIX D: Soil Resource Report

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Mateo County, Eastern Part, and San Francisco County, California

Lake Merced West Project Site Soils

February 3, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:2,480 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 35 70 140 210

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Mateo County, Eastern Part, and San Francisco County, California
Survey Area Data: Version 15, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 29, 2019—Jun 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
129	Sirdrak sand, 5 to 50 percent slopes	0.9	7.3%
131	Urban land	8.0	67.1%
135	Urban land-Orthents, smoothed complex, 5 to 50 percent slopes	3.1	25.7%
Totals for Area of Interest		**11.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

San Mateo County, Eastern Part, and San Francisco County, California

129—Sirdrak sand, 5 to 50 percent slopes

Map Unit Setting

National map unit symbol: h9hc
Elevation: 20 to 700 feet
Mean annual precipitation: 20 to 25 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Sirdrak and similar soils: 85 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sirdrak

Setting

Landform: Dunes
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Eolian sands

Typical profile

H1 - 0 to 17 inches: sand
H2 - 17 to 60 inches: sand

Properties and qualities

Slope: 5 to 50 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Beaches

Percent of map unit: 3 percent
Landform: Beaches
Hydric soil rating: Yes

Unnamed
Percent of map unit: 1 percent
Landform: Tidal flats
Hydric soil rating: Yes

Typic argiustolls
Percent of map unit: 1 percent
Hydric soil rating: No

Urban land
Percent of map unit: 1 percent
Hydric soil rating: No

Unnamed
Percent of map unit: 1 percent
Hydric soil rating: No

Dune land
Percent of map unit: 1 percent
Hydric soil rating: No

131—Urban land

Map Unit Setting
National map unit symbol: h9hf
Elevation: 10 to 320 feet
Mean annual precipitation: 15 to 30 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 275 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition
Urban land: 85 percent
Minor components: 14 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting
Landform position (two-dimensional): Toeslope

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Minor Components

Orthents, cut&fill
Percent of map unit: 7 percent
Hydric soil rating: No

Orthents, reclaimed

Percent of map unit: 7 percent
Hydric soil rating: No

135—Urban land-Orthents, smoothed complex, 5 to 50 percent slopes

Map Unit Setting

National map unit symbol: h9hk
Elevation: 100 to 500 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 65 percent
Orthents and similar soils: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Marine terraces, hills, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope, tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandstone

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Description of Orthents

Setting

Landform: Terraces, ridges, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Crest, side slope, tread
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Sandstone

Typical profile

H1 - 0 to 60 inches: variable

Properties and qualities

Slope: 5 to 50 percent
Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8e
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 10 percent
Hydric soil rating: No

H2 AQUATIC RESOURCES DELINEATION

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LAKE MERCED WEST RECREATION PROJECT
AQUATIC RESOURCES DELINEATION

PREPARED FOR:

San Francisco Environmental Planning

PREPARED BY:

Coast Ridge Ecology
1410 31st Avenue
San Francisco, CA 94122

May 2020

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APPENDICES

LIST OF FIGURES

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1. SUMMARY

This report presents the results of a formal delineation of potential waters of the United States, including wetlands, at the Lake Merced West property, located on the southeast border of Lake Merced, in San Francisco, California. The property is owned by the San Francisco Public Utilities Commission (SFPUC) and leased to the San Francisco Parks and Recreation Department. The site has undergone soil remediation and habitat restoration work over the past four years (2016 – 2020), and is now being considered for transition into a multi-use recreation site (ESA 2016; ESA 2018). The project area encompasses approximately 11 acres of land adjacent to Lake Merced at 520 John Muir Drive, in San Francisco, California.

The purpose of the aquatic resources delineation is to identify the types and extent of potential wetlands and other waters on site subject to 1) federal jurisdiction by the U.S. Army Corps of Engineers (USACE) under Section 404 of the federal Clean Water Act and Section 10 of the Rivers and Harbors Act (RHA), and 2) state jurisdiction by the Regional Water Quality Control Board, California Department of Fish and Wildlife, and California Coastal Commission.

The field delineation was conducted by Patrick Kobernus and Jennifer Radtkey of Coast Ridge Ecology on December 16 and 17, 2019. The delineation evaluated the project area as well as a 200-foot buffer zone (hereinafter 'the study area') which encompasses approximately 30 acres of land and water. Survey methods followed the protocol outlined in the USACE 1987 *Corps of Engineers Wetland Delineation Manual*, in incorporation with the USACE 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0*). Wetland vegetation types were mapped in the field using aerial photos of the site and a Trimble 6000 series GPS unit. Vegetation, soils and hydrology data were taken at data points along the northern boundary of the project site. The completed *Wetland Determination Data Forms for the Arid West Region* are included in Appendix A. Appendix B provides representative photos of the study area, and Appendix C provides a soil map of the study area.

Field data was analyzed with aerial photographs and elevation data to determine a wetland boundary. A total of 3.49 acres of potentially jurisdictional federal wetlands are present within the study area and may be subject to jurisdiction under Section 404 of the Clean Water Act. A total of 5.04 acres of potentially jurisdictional state wetlands are present within the study area, and may be subject to California Coastal Commission and California Regional Water Quality Control Board jurisdiction.

Freshwater marsh wetlands in the study area are composed of California bulrush (*Schoenoplectus acutus var. occidentalis*) and swamp knotweed (*Persicaria amphibian*), both obligate (OBL)[1]

[1] Obligate (OBL): almost always occurs in wetlands; Facultative wetland (FACW): usually occurs in wetlands, sometimes may occur in uplands; Facultative (FAC): equally likely to occur in wetlands or nonwetlands; Facultative upland (FACU): usually occurs in uplands but may occasionally occur in wetlands; Obligate upland (UPL): almost never occurs in wetlands.

hydrophytes. Soft rush (*Juncus effusus*; FACW), Himalaya blackberry (*Rubus armeniacus*; FAC) and arroyo willow (*Salix lasiolepis;* FACW) were also mapped as plant communities within the federal jurisdictional areas. Arroyo willow thickets comprised the majority of state wetland areas mapped within the study area. The extent of arroyo willow thickets on site has increased substantially within the study area due to habitat restoration work conducted over the past four years (2016 -2020).

These conclusions should be regarded as preliminary and subject to verification by the U.S. Army Corps of Engineers prior to performing any work that would impact wetland resources on site.

2. SETTING

2.1 SITE DESCRIPTION

The center of the site is located at 37.717015° North, -122.495893° West. It is bordered by Lake Merced to the northeast and John Muir Drive to the southwest. Developments in the vicinity include several apartment complexes to the south across John Muir Drive, and the San Francisco Police Department Pistol Range to the north. The Pacific Ocean is located approximately 2,000 feet to the west. Topography on the site is relatively flat on the southern side, and areas on the northern side slope down to Lake Merced, sometimes steeply. Elevations at the study area range from approximately 6 to 45 feet (City Datum). Figure 1 shows the project boundaries and location. Figure 2 provides the project location on a USGS 7.5-minute quadrangle map. Photographs of the study area can be found in Appendix B, and a soils report for the site in Appendix C.

The Pacific Rod and Gun Club operated skeet and trap shooting facilities at the site from 1934 to 2015. After the gun club vacated the site in 2015, the SFPUC implemented the Pacific Rod and Gun Club Upland Soil Remedial Action Project (remediation project) to remove and replace soil contaminated with lead shotgun pellets and other debris from the gun club activities. Soil was excavated to depths ranging from 1 to 10.5 feet across the site. After soil remediation work was completed in April 2016, the site was re-vegetated with California native plants, including restored wetland and riparian habitat areas. Monitoring and maintenance of the revegetated areas are ongoing (ESA 2016; ESA 2018).

2.2 PROJECT DESCRIPTION

The San Francisco Recreation and Parks Department proposes to transition the site into a multi-use recreation facility, and has a Memorandum of Understanding with the SFPUC to manage recreation at the Lake Merced West Project site, should the project be undertaken. The proposed project would include repairing or demolishing and replacing most of the buildings and structures onsite, and installing additional buildings, structures and parking lots, and creating walking trails. New structures on site would include a dock and boat launch, fishing dock, bird observatory platform, restrooms, restaurant, clubhouse, fitness studio, boathouse, operational support building, trash/recycling storage, and a maintenance yard. Several multi-purpose fields, a challenge course, and a picnic area would utilize some existing planted and developed areas within the flat portions of the site. The walking trails would be located along the north side of the site near the lake.

For the purposes of this aquatic resources delineation, the project area is approximately 11 acres and includes all proposed facilities associated with the Lake Merced West Recreation Project.

Figure 1
Pacific Rod and Gun Club Wetland Delineation
Project Location and Study Area

Source: ESRI 2013; USGS 2011
Map scale: 1:2,000

Project Boundary

Figure 2
Pacific Rod and Gun Club Wetland Delineation Project
USGS 7.5-minute 'San Francisco South' Quad
with Project Boundary

Source: USGS 2012

The study area is approximately 30 acres in size, and includes the project area and a 200-foot buffer beyond the project area boundary. The 200-foot buffer includes some adjoining wetlands and open waters of Lake Merced.

2.3 VEGETATION

As a part of the remediation activities in 2015, all existing plant communities and vegetation were removed from the former Pacific Rod and Gun Club site with the exception of several mature trees adjacent to buildings. Soils were replaced and revegetation/restoration began in April 2016, with additional planting and seeding occurring in 2017 and 2018. As of January 2020, the site continues to be irrigated during the dry season and vegetation within restoration areas along the north and south project site boundaries is still in the process of establishment (ESA 2016; ESA 2018). Revegetation did not occur in areas where soils were not remediated, such as wetlands jurisdictional to the Army Corps of Engineers[2] and the steep banks of the inlet of South Lake on the west side of the site.

Surveys were conducted in December, outside of the flowering and identifiable phase of some plants, making it difficult to definitively identify some plants to species. Most plants documented on site are either native species planted as part of the revegetation/restoration efforts or nonnative annual grasses, forbs and herbs (weeds) colonizing the soil fill areas and remediation boundary margins.

Vegetation was classified using A Manual of California Vegetation (Sawyer, et al., 2009). Eight plant communities are present within the study area. The upland plant communities include landscaped coast live oak woodland (*Quercus agrifolia* Woodland Alliance), which is present along the fenceline adjacent to John Muir Drive; Tufted hairgrass meadows (*Deschampsia caespitosa* Herbaceous Alliance), which covers the majority of the site including the upland, flat areas and the slope down to the riparian plant communities; and Eucalyptus semi-natural woodland stand, found along the northwestern edge of the study area. Riparian and wetland plant communities mapped on Figure 3 include Arroyo willow thickets (*Salix lasiolepis* Shrubland Alliance) which is dominant along the northern shoreline and upland transition areas; Soft rush marsh (*Juncus effusus* Herbaceous Alliance), Himalayan blackberry riparian scrub (*Rubus armeniacus* shrubland semi-natural alliance), swamp knotweed (*Persicaria amphibia* Provisional Herbaceous Alliance), and California bulrush marsh (*Schoenoplectus acutus var. occidentalis* Herbaceous Alliance). This combination of wetland plant communities forms a thick vegetated boundary along the northern boundary of the site and the shoreline of the Lake.

For the purposes of this delineation, only the plant communities with potential to be jurisdictional wetlands or waters of the U.S. or state are described below. The upland

[2] A permit to impact wetlands and waters of the (former) Pacific Rod and Gun Club site under jurisdiction to the U.S. Army Corps of Engineers was not pursued for the remediation project and therefore wetlands and waters north of the ordinary high water mark delineated for that project in 2014 were not disturbed.

communities of landscaped coast live oak woodland, tufted hairgrass meadow, and Eucalyptus semi-natural woodland stand are not discussed further in this document.

2.3.1 Arroyo Willow Thicket

Arroyo willow thickets (*Salix lasiolepis* Shrubland Alliance) planted as part of revegetation of the site in 2016 have expanded successfully and have coalesced with existing willow stands along the lake shoreline, covering 1.17 acres of the project area (Figure 3 and Photo 8, Appendix B). Arroyo willow is also present in association with swamp knotweed in undisturbed areas at lower elevations along the lakeshore. Understory herbaceous plant species include northern willow herb (*Epilobium ciliatum*), Canada horseweed, and moss groundcover patches in some areas. Non-native species within the thickets include Himalayan blackberry, English ivy (*Hedera helix*), and bull thistle (*Cirsium vulgare*). California wax myrtle saplings are present within the arroyo willow thicket and numerous small trees have sprouted along the edge of the thicket. Coyote brush shrubs are growing along the edge of the willow thicket on the eastern end.

2.3.2 Soft Rush Marsh

Areas of soft rush marsh (*Juncus effusus* Herbaceous Alliance) are found at the lake margin, covering 0.02 acre of the project area, with common bog rush (*Juncus effusus*) being the dominant species, and spreading rush (*J. patens*) interspersed throughout the stand.

2.3.3 Himalayan Blackberry Riparian Scrub

Two stands of Himalayan blackberry riparian scrub (*Rubus armeniacus* Shrubland Semi-Natural Alliance) cover 0.02 acre within the project area (Photo 10, Appendix B). Himalayan blackberry is the dominant species, with native herbs including willow herb, Hooker's evening primrose (*Oenothera elata*), California blackberry (*Rubus ursinus*), poison hemlock (*Conium maculatum*), and poison oak (*Toxicodendron diversilobum*) present throughout. Sea fig is also common within the Himalayan blackberry riparian scrub.

2.3.4 Swamp Knotweed Patch

Swamp knotweed (*Persicaria amphibia* Herbaceous Alliance) is found in several patches covering 0.01 acres within the project area, and in contiguous bands along the northern edge just outside of the project area along the lake (Photo 9, Appendix B) within the study area. The dominant species is swamp knotweed, and other herbaceous plants within the area include Hooker's evening primrose (*Oenothera elata*), California blackberry, poison hemlock, and poison oak (*Toxicodendron diversilobum*). Non-native weedy species in the area include Himalayan blackberry, Italian thistle (*Carduus pycnocephalus*), and sea fig.

2.3.5 California Bulrush Marsh

The California bulrush marsh (*Schoenoplectus acutus var. occidentalis* Herbaceous Alliance) is located in a dense monotypic stand of emergent vegetation within Lake Merced as it grows within shallow permanently flooded areas (Photos 9 and 10, Appendix B). This community covers 0.05 acres within the project area.

2.4 SOILS

Three soil units were mapped as occurring within the project area (Soil Survey Staff, Natural Resources Conservation Service 2019). These are Urban Land-Orthents, 5 to 50 percent slopes; Sirdrak Sands, 5 to 50 percent slopes, and Urban Land. The upland soil remediation project removed up to 10.5 vertical feet of soils throughout the remediation boundary (with the exception of limited volumes of soils underlying buildings, which were considered locations where excavation was not feasible at the time), and replaced this material with clean fill (RWQCB, 2019); therefore, the soil units mapped within the project area occur below the excavated areas or beyond the limits of the remediation boundary. Appendix C provides a soils map of the study area.

Sirdrak sands are found in dunes and are somewhat excessively drained and derived from Eolian sands. They are mapped on the northwestern edge of the site where the site slopes down to a small cove/inlet of Lake Merced.

Urban Land-Orthents are mapped on the northwestern half of the site along the shore of Lake Merced. This soil consists of 65% Urban land and 25% Orthents. The components of this unit are intricately intermingled and were not differentiated during the mapping process.

The Urban Land soil type occurs on the southwestern half of the project site. Urban land is defined by NRCS as areas where 85% or more of the ground surface is covered by asphalt, concrete, buildings, and other structures.

2.5 HYDROLOGY

Topography on the project site is relatively flat on the southern side, and areas on the northern side slope down to Lake Merced, sometimes very steeply. Elevations at the study area range from approximately 6 to 45 feet (City Datum). Water runoff drains from the upland portions of the site into the lake through freshwater marsh and arroyo willow riparian habitats. A small ephemeral drainage is located on the southeast boundary of the site, surrounded by arroyo willow thicket. Though the topography of the site was slightly altered by the soil remediation project, the basic drainage of the site was not changed. The Pacific Ocean is located approximately 2,000 feet to the west.

Post soil remediation, the site has been revegetated and irrigated for four years prior to this aquatic resources delineation. Although there is not substantial information available on the time

it takes for wetland indicators to form at restoration sites, there is some evidence to suggest that for some situations it may only take a few years (Vepraskas, et al; 1999).

2.5.1 Lake Merced

Historically Lake Merced formed as a dune lake at the mouth of a seasonal stream and was periodically connected to the Pacific Ocean. A sand bar formed between the lake and the ocean and since the 1880's the lake has been permanently separated from the ocean. Beginning in the 1880's, Lake Merced was subdivided into four separate lakes: North, East, South and Impound lakes, through the construction of berms within sections of the lake. The lakes are hydrologically connected when water levels are above 5 feet City Datum[3]. Water levels at Lake Merced have fluctuated through time reflecting changes in input and output including diversion of watershed stormwater, groundwater pumping and seasonal and yearly variations in precipitation. Lake Merced receives the majority of its annual inflow from direct precipitation and the remaining input from stormwater runoff from surrounding lands. Evaporation accounts for the majority of lake outflow (67%), with transpiration (14%), groundwater infiltration (14%) and manmade extractions (5%) accounting for all other outflow (SFPUC 2011). Lake Merced has one physical outlet that connects the lake to the Vista Grande Tunnel into the Vista Grande Canal, which flows to the Pacific Ocean. This 30-inch diameter outlet only operates at elevations above 13 feet City Datum, and is used as an overflow outlet (SFPUC 2011). As lake levels in the last ten years have not surpassed 7.4 feet City Datum, this outlet is rarely used (SFPUC 2013).

[3] City Datum is a measure of elevation established by the City of San Francisco. City Datum measurements are 11.38 feet higher than the North American Vertical Datum of 1988 (NAVD 88). NAVD88 is the most accurate and recent elevation measurement system, however Lake Merced water levels are usually measured with the City Datum system according to the SFPUC (SFPUC 2011).

3. METHODOLOGY

This wetland delineation was conducted in accordance with the USACE 1987 *Corps of Engineers Wetlands Delineation Manual* along with the USACE 2008 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region*. This report also conforms to the guidelines given by the July 2007 *San Francisco District Information Requested for Verification of Corps Jurisdiction* document prepared by the San Francisco District of the U.S. Army Corps of Engineers. A Level 3 Determination (*i.e.*, a combination of onsite inspection and aerial review) was conducted as defined in the *Wetland Delineation Manual*.

3.1 DEFINITION OF TERMS

The following section provides key definitions of terms used in this report that are relevant to the delineation of wetlands and other waters of the US. On April 21, 2020, the U.S. EPA promulgated a final rule revising the definition of Waters of the United States. While not effective until June 22, 2020, the revised definition of Waters of the United States is included here because it is expected to be in effect at the time of project permitting.

Waters of the United States: Title 33, Chapter II, Part 328.3 of the Code of Federal Regulations defines waters of the United States as:

(1) The territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide;

(2) Tributaries;

(3) Lakes and ponds, and impoundments of jurisdictional waters; and

(4) Adjacent wetlands.

Federal Definition of Wetlands: In Title 33, Chapter II, Part 328.4 of the Code of Federal Regulations, wetlands are defined as: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas." For the purposes of a USACE wetland delineation, an area must meet three diagnostic environmental characteristics in order to be considered a wetland. These three characteristics include the presence of hydrophytic vegetation, hydric soils, and wetland hydrology.

Hydrophytic Vegetation: The USACE 1987 *Wetland Delineation Manual* describes hydrophytic vegetation as "sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the

plant species present. The vegetation occurring in a wetland may consist of more than one plant community (species association). Emphasis is placed on the assemblage of plant species that exert a controlling influence on the character of the plant community, rather than on indicator species."

Hydric Soil: Defined by the USACE *Arid West Supplement* as "a soil that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part. Most hydric soils exhibit characteristic morphologies that result from repeated periods of saturation or inundation for more than a few days…These processes result in distinctive characteristics that persist in the soil during both wet and dry periods."

Wetland Hydrology: The USACE 1987 *Wetland Delineation Manual* describes wetland hydrology as "all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an overriding influence on characteristics of vegetation and soils due to anaerobic and reducing conditions, respectively."

Navigable Waters of the United States: Title 33, Chapter II, Part 329.4 of the Code of Federal Regulations defines navigable waters of the U.S. as "those waters subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for us to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the waterbody, and is not extinguished by later actions or events which impede or destroy navigable capacity." For the purposes of a USACE jurisdictional determination, navigable waters of the United States are considered Traditionally Navigable Waters.

Ordinary High Water Mark (OHWM): Title 33, Chapter II, Part 328.3 of the Code of Federal Regulations defines the OHWM as "that line on the shore established by the fluctuations of water and indicated by physical characteristics, such as a clear, natural line impressed on the bank, shelving, changes in the character of the soil, destruction of terrestrial vegetation, the presence of litter or debris, or other appropriate means that consider the characteristics of the surrounding area."

Mean High Water (MHW): Section 10 of the Rivers and Harbors Act (RHA), which regulates certain activities in navigable waters of the U.S., defines the landward limit of Section 10 jurisdiction as the Mean High Water (MHW) mark. The MHW mark, with respect to ocean and coastal waters, is defined as: "The line on the shore established by the average of all high tides. It is established by survey based on available tidal data (preferably averaged over a period of 18.6 years because of the variations in tide). In the absence of such data, less precise methods to determine the mean high water mark are used, such as physical markings, lines of vegetation or comparison of the area in question with an area having similar physical characteristics for which tidal data are readily available."

In the case of non-tidal waters regulated by the RHA, the MHW is defined as the OHWM.

State Definition of Wetlands: The State defines wetlands more broadly than the federal wetlands program by recognizing that wetlands may have evidence of only one of the three federal parameters. The State definition also conforms to the USFWS definition:

> "Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification, wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports hydrophytes, (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of each year" (Cowardin, 1979).

Additionally, the California Coastal Act of 1976 further specifies that wetlands are:

> “Land where the water table is at, near, or above the land surface long enough to promote the formation of hydric soils or to support the growth of hydrophytes, and shall also include those types of wetlands where vegetation is lacking and soil is poorly developed or absent as a result of frequent and drastic fluctuations of surface water levels, wave action, water flow, turbidity or high concentrations of salts or other substances in the substrate. Such wetlands can be recognized by the presence of surface water or saturated substrate at some time during each year and their location within, or adjacent to, vegetated wetlands or deep-water habitats” (CCR Title 14, Section 13577).

Although the State definition may require only a single parameter to establish the presence of wetlands , in practice, such decisions are based on a case-by-case interpretation of data that either support or disprove the presumption of whether wetlands are indicated by a single parameter.

3.2 REGULATORY SETTING

3.2.1 U.S. Army Corps of Engineers

The US Army Corps of Engineers (USACE) regulates activities that result in the discharge of dredged or fill materials into waters of the U.S. including wetlands, under Section 404 of the Clean Water Act. USACE also regulates dredging, filling, and construction activities in navigable waters under Section 10 of the Rivers and Harbors Act. Activities involving dredged or filled materials require a Section 404 permit, and/or a Section 10 permit, issued by the USACE. Section 404 projects may be authorized under general permits, also known as nationwide permits, or may require individual permits in the case of more complex projects that exceed the threshold for impacts under the nationwide permits.

3.2.2 California Coastal Commission

The California Coastal Commission (CCC) exercises jurisdiction over development activities within the coastal zone. In the city of San Francisco, construction projects within the coastal zone are regulated through the San Francisco Local Coastal Program, or in some cases by the CCC. A Coastal Development Permit (CDP), issued by the San Francisco Department of City Planning, is required for: "demolition, construction, reconstruction, alterations, change of use, change of occupancy, condominium conversions or any other development on or affecting real property located within the designated boundary of the Coastal Zone." In the vicinity of Lake Merced, there are three levels of coastal zone jurisdiction, all of which apply to the project site:

1) Land within the City's Western Shoreline Plan boundary, which are subject to CDP review by the City;
2) The waters of Lake Merced, for which the CCC has retained jurisdiction and CDP authority; and
3) A 100' buffer around wetland areas surrounding the lake within which CDP decisions by the City are appealable by an affected party to the CCC.

3.2.3 California Department of Fish and Wildlife

The California Department of Fish and Wildlife (CDFW) regulates projects that will:

(1) substantially divert or obstruct the natural flow of any river, stream or lake;
(2) substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake; or
(3) deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake. (Section 1602, California Fish and Game Code)

To complete projects which will affect these characteristics of any river, stream, or lake, within the state of California, projects must apply for a Lake or Streambed Alteration Agreement (Section 1600 Series Permit). The jurisdictional boundary of the CDFW typically follows the top-of-bank or the outermost edge of riparian vegetation adjacent to the regulated stream, river, or lake.

3.2.4 Regional Water Quality Control Board

The Regional Water Quality Control Board (RWQCB) has authority over projects that could result in negative impacts to waters of the State and wetlands. The RWQCB, defines "waters of the State" as any surface water or groundwater, including saline waters within the boundaries of the State of California (Cal. Water Quality Control, Division 7, January 2011). In addition, it defines "water quality control" as the regulation of any activity that may affect the quality of the waters of the State, and includes the prevention and correction of water pollution and nuisance.

Under the Porter-Cologne Water Quality Control Act, the RWQCB is authorized to regulate the discharge of waste that could affect the quality of State waters. Regulated discharges include any substances associated with human habitation that are harmful to the aquatic environment, including stormwater runoff associated with construction projects and other activities that could discharge soil, pollutants, or other materials into waters of the State. Projects that could produce pollutants or discharge into waters of the state must apply for a Section 401 Certification from the California Regional Water Quality Control Board to ensure that any discharges will be in compliance with California's water quality standards.

The State Water Resources Control Board adopted a State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State (Procedures), for inclusion in the forthcoming Water Quality Control Plan for Inland Surface Waters and Enclosed Bays and Estuaries and Ocean Waters of California. The Procedures provide the same wetland delineation methods that are used by the Army Corps of Engineers. The State Water Board's proposed definition clarifies that vegetated and unvegetated wetlands will be regulated in the same manner. The Procedures were approved on August 28, 2019 and will be effective May 28, 2020 (State Water Board 2019).

3.3 DELINEATION METHODS

This wetland delineation was conducted through the analysis of aerial photography, historical records, and other relevant data sources, as well as an onsite survey of the study area to characterize vegetation, soils, and hydrology.

3.4 LITERATURE REVIEW

Prior to the field survey, aerial photographs were reviewed for current and historical data on lake levels and vegetation. Soil types were assessed using the online *USDA Natural Resource Conservation Science Web Soil Survey (Soil Survey Staff 2019).* Data provided by the project proponent, SFPUC, and ESA was reviewed for detailed information on the proposed project. Historical and current land use data was accessed from various sources, including the Lake Merced Watershed Report (SFPUC 2011) and historical aerial photographs. A draft wetland delineation for an adjacent property, the Vista Grande Drainage Improvement Project, was also reviewed (ESA 2019).

3.5 FIELD SURVEY

The field delineation for the study area was conducted by Patrick Kobernus and Jennifer Radtkey of Coast Ridge Ecology on December 16 and 17, 2019. Weather conditions at the time of the field visits included clear skies, temperatures in the high 50's Fahrenheit, and calm winds. The onsite inspection evaluated the three parameters that identify and delineate the boundaries of jurisdictional wetlands and other waters, including (1) the dominance of wetland vegetation; (2) the presence of hydric soils; and (3) hydrologic conditions that result in periods of inundation or saturation on the surface from flooding or ponding.

Survey methods follow the protocol outlined in the 1987 USACE Wetland Delineation manual for Areas Greater Than Five Acres in Size. A baseline was determined running parallel to Lake Merced along the northern border of the project area. Three transects were chosen, bisecting this baseline and paired data points and soil pits were established at each of the transects. A fourth, unpaired data point(3b) was taken to help delineate wetland boundary. GPS coordinates of each sample location were recorded in the field with a Trimble GeoExplorer 6000 series GPS unit. Vegetation, soils and hydrology data were taken at each of these points. The completed *Wetland Determination Data Forms for the Arid West Region* are located in Appendix A.

3.5.1 Vegetation Data Collection

Vegetation data was collected at each sample point taken during the field survey. Sample sizes ranged from a five-foot radius for herbaceous and saplings/shrubs, and 30-foot radius for woody vines and trees. As per the 1987 *Wetland Delineation Manual* and the 2008 *Arid West* Regional Supplement, plants in the tree stratum are defined as woody plants with a diameter at breast height (DBH) of three inches or more. Saplings/shrubs are defined as woody plants with a diameter of less than three inches DBH, and herbs are defined as non-woody plants regardless of size. Species type and percent dominance of each species was recorded at each sample point. The USACE *National Wetland Plant List* was used to determine the wetland indicator status of plants observed in the study area. Wetland indicator status refers to the probability that a plant will occur within a wetland or upland area. The indicator status categories are defined as follows:

- *Obligate (OBL)*: almost always occurs in wetlands
- *Facultative wetland (FACW)*: usually occurs in wetlands, sometimes may occur in uplands
- *Facultative (FAC)*: equally likely to occur in wetlands or non-wetlands
- *Facultative upland (FACU)*: usually occurs in uplands but may occasionally occur in wetlands
- *Obligate upland (UPL)*: almost never occurs in wetlands
- *No indicator (NI)*: no indicator assigned due to lack of information

The presence of hydrophytic vegetation data was then determined using the dominance test and prevalence index described in the USACE *Wetland Delineation Manual* and *Arid West* Regional Supplement.

3.5.2 Soils

Soil pits were taken at each of the eight sample point sites. Soil pits were excavated to the maximum depth possible and soil color and texture was assessed and recorded onto the Arid West data sheets. Soil color was determined by matching samples to Munsell Soils Color Charts (Munsell Colors 2000). Soils were then assessed for hydric features described in the *Arid West* Regional Supplement, such as the presence of redoxomorphic concentrations, mucky soils or hydrogen sulfide odor.

3.5.3 Hydrology

Hydrology at each of the sample points was assessed based upon the USACE *Arid West Supplement* hydrology guidelines. Positive hydrological indicators may include the presence of a visible water table, saturation and/or muck, water marks or drift deposits, among others.

3.6 FEDERAL WETLAND BOUNDARY DETERMINATION

A preliminary wetland boundary line was recorded using Trimble GeoExplorer 6000 series GPS unit during the field visit based upon data collected at the wetland sample points, topography and presence of wetland vegetation. This wetland boundary line was further refined based upon a follow up field visit and inspection of wetland vegetation during vegetation mapping.

3.6.1 Ordinary High Water Mark Determination

For this delineation, the ordinary high water mark (OHWM) for Lake Merced was determined by observing field indicators such as drift marks, vegetation lines, and shelving, at the field site. An OHWM line was mapped in the field then digitized into ArcMap 10.2. In several areas the OHWM corresponded to the boundary between the federal (section 404) and state wetlands as well as the northern project boundary (Figure 3).

3.6.2 Acreage Calculations

The area for each individual vegetation polygon within the wetland boundary was calculated in ArcMAP 10.2, then all vegetation areas were added to obtain a total area for wetlands within the project area and the study area.

3.7 STATE WETLAND BOUNDARY DETERMINATION

The state definition of wetlands requires only a single parameter to be met in order to indicate the presence of wetlands. Hydrophytic vegetation was used to determine the state upland wetland boundary on the presumption that all stands of hydrophytic vegetation within proximity to the lake became established and are currently supported by interaction with local groundwater associated with the lake. This included arroyo willow stands that were planted as part of restoration work along the northern boundary of the site. Federal wetlands that included hydrophytic vegetation, hydric soils and wetland hydrology (i.e., open water and inundated or saturated soils) were documented at lower elevations along the Lake margin.

Areas of wetland vegetation were identified and hand-mapped on to printed maps and later digitized with ArcMAP 10.2. Vegetation units were mapped based upon the dominant species.

Areas of hydric vegetation were defined using the dominance test, and by assessing the indicator status of the dominant species. Vegetation defined as obligate or facultative wetland by the USACE *National Plant List* was mapped as wetland vegetation.
Wetland acreage was determined using the methods described in Section **3.6.2 Acreage Calculation.**

4. RESULTS

4.1 FEDERAL AND STATE WETLANDS WITHIN THE PROJECT AREA AND STUDY AREA

Table 1 provides the calculations for the total acreage for wetland areas within the project area and the study area. A total of 3.49 acres of wetlands potentially jurisdictional to the USACE, and 5.04 acres of state wetlands, occur within the aquatic resources study area. Within the project area, there are significantly less wetlands (0.26 acres of federal wetlands, and 1.28 acres of state wetlands). A substantial portion of the state wetlands within the project area are arroyo willow thickets planted after the remediation project which have expanded significantly over the last four years (2016 – 2020) since site revegetation.

Wetlands under federal jurisdiction occur along the steep northern bank of the site adjacent to (and including) South Lake Merced. These areas tend to be saturated or inundated with water from Lake Merced for all or much of the year. State jurisdictional areas include the federal wetlands along with the arroyo willow thickets upslope. Federal and state jurisdictional areas are represented by sample points 1B, 2B and 4B within the study area. Sample point 3B depicts state jurisdictional arroyo willow thickets just upslope of the federal wetland boundary. Figure 3 provides an illustration of potential state and federal wetlands and waters. Appendix B provides representative photographs of the sample points.

4.1.1 Vegetation

Freshwater marsh wetlands on the study site are composed of California bulrush and swamp knotweed, both obligate hydrophytes. Bulrush tends to be found in inundated areas within the lake shallows and the knotweed slightly higher in elevation within saturated soils. Soft rush (FACW), Himalayan blackberry (FAC) and arroyo willow (FACW) were also mapped as plant communities within the federal jurisdictional areas. Arroyo willow (FACW) thickets adjacent to the federal jurisdictional wetland areas were, for the most part, mapped as state wetlands. One exception to this was sample point 2B, which was also mapped as federal jurisdictional. This patch of willows developed adventitious roots in response to more frequent inundation (Photo 4, Appendix B). Most of the arroyo willow thickets on site have established as part of habitat restoration work conducted over the past four years (2016 -2020).

Figure 3: Wetland Delineation Map

Lake Merced, San Francisco, CA

Imagery Source: NAIP

Legend

- Wetland Delineation Point
- Study Area
- Project Boundary
- Section 404 Wetlands
- Section 10 and Other Waters

State Wetlands

- California bulrush marsh (BM)
- Open Water (OW)
- Himalayan blackberry riparian scrub (HB)
- Soft rush marsh (SR)
- Swamp knotweed (SK)
- Arroyo willow thicket (AW)

*State Wetlands include all Federal (Section 404) wetlands

Table 1. Federal and State Wetlands Within the Project Area and Study Area.

Wetland Type	Study Area				Project Area			
	Federal		State		Federal		State	
	Area (acre)	Area (sq ft)	Area (acre)	Area (sq ft)	Area (acre)	Area (sq ft)	Area (acre)	Area (sq ft)
Swamp Knotweed Wetland								
SK-1	0.070	3,048.49	0.070	3,048.49	0.003	123.07	0.003	123.07
SK-2	0.138	6,029.05	0.138	6,029.05	0.000	0.03	0.000	0.03
SK-3	0.017	755.10	0.017	755.10	0.008	356.89	0.008	356.89
SK-4	0.006	241.01	0.006	241.01				
subtotal	*0.231*	*10,073.66*	*0.231*	*10,073.66*	*0.011*	*479.992*	*0.011*	*479.992*
Arroyo Willow Thicket								
AW-1	0.857	37,348.31	1.761	76,724.58	0.096	4,181.53	0.478	20,802.62
AW-2	0.426	18,551.99	1.020	44,424.05	0.057	2,501.35	0.651	28,355.41
AW-3			0.031	1,335.20			0.031	1,335.20
AW-4			0.007	284.16			0.007	284.16
AW-5			0.005	215.21			0.005	215.21
subtotal	*1.283*	*55,900.30*	*2.823*	*122,983.20*	*0.153*	*6,682.88*	*1.171*	*50,992.60*
Soft Rush Marsh								
SR-1	0.059	2,554.55	0.059	2,554.55	0.024	1,027.15	0.024	1,027.16
subtotal	*0.059*	*2,554.55*	*0.059*	*2,554.55*	*0.024*	*1,027.15*	*0.024*	*1,027.16*
California Bulrush Marsh								
BM-1	1.771	77,140.33	1.771	77,146.14	0.048	2,076.26	0.048	2,076.26
BM-2	0.046	2,021.48	0.046	2,021.48				
subtotal	*1.817*	*79,161.81*	*1.817*	*79,167.62*	*0.05*	*2,076.26*	*0.05*	*2,076.26*
Himalayan Blackberry Scrub								
HB-1	0.093	4,035.68	0.093	4,035.68	0.011	467.38	0.011	467.39
HB-2	0.015	668.48	0.015	668.48	0.014	616.55	0.014	616.55
subtotal	*0.108*	*4,704.16*	*0.108*	*4,704.16*	*0.025*	*1,083.93*	*0.025*	*1,083.94*
Total	**3.498**	**152,394.47**	**5.039**	**219,483.19**	**0.261**	**11,350.21**	**1.278**	**55,659.95**

Table 2 depicts the acreage of potential federal and state jurisdictional non-wetland other waters within the study area. The limits of open water correspond to both the CWA Section 404 and the RHA Section 10 jurisdictional boundaries. As depicted on Figure 3, the project area boundary does not contain any open water of Lake Merced; therefore, there are no Section 10 or Section 404 jurisdictional other waters within the project area.

Table 2. Section 404 and Section 10 Federal Waters Within the Study Area.

Section 404 Other Waters and Section 10 Waters	Study Area		Project Area	
	Area (acre)	Area (sq ft)		
Open Water				
OW-1	5.490	239,139.40	N/A	N/A

4.1.2 Soils

Within the wetland sample points, soils tended to be dark brown and homogenous with a color matrix of 7.5YR 2.5/2 at sample point 1B, 10YR 4/1 at sample point 2B, and 10YR 3/2 at sample point 4B. Soil texture ranged from sandy loam to loamy sand. It should be noted that areas within the deeper marsh which are under water consistently, were not sampled as these areas were obviously wetlands. Soils within potential wetland areas within the soil remediation areas may not have had enough inundation over time to develop hydric soil indicators, such as hydrogen sulfide odor, which is prevalent in the deeper marsh areas. Most data points did not show hydric soil indicators, with the exception of sample point 3B, which had redox masses present, which may have been partly due to irrigation of the restoration areas.

4.1.3 Hydrology

Wetland hydrology indicators at sample point 2B included soil saturation at a depth of eight inches, and the presence of water within the soil pits at depths of ten inches below the soil surface. Hydrology indicators A2, High Water Table, was observed at sample point 4B. Photo 3 in Appendix B provides photographic evidence of a visible water table within sample point 2B.

4.2 OTHER WATERS OF THE U.S.

4.2.1 Lake Merced

Lake Merced is the largest natural freshwater lake in San Francisco and currently comprises four lakes: North, East, South, and Impound Lakes. South Lake Merced occurs north of the project area within the study area. Lake Merced is considered a traditionally navigable water (TNW) for the purposes of the USACE and the Clean Water Act, as it is used by residents and visitors for water-related recreation, including boating and fishing. Water from Lake Merced inundates and saturates areas of freshwater marsh and arroyo willow wetlands during all or part of the year.

As a TNW, Lake Merced is regulated under Section 10 of the Rivers and Harbors Act, up to mean high water, in this case defined as the ordinary high water mark.

4.3 CLEAN WATER ACT ANALYSIS

This section provides a summarized response to Section III of the Clean Water Act Analysis required for the Jurisdictional Determination form which will be completed by the San Francisco office of the USACE.

Lake Merced is considered a TNW as it is navigable and supports recreational fishing by residents as well as interstate and foreign travelers. All wetlands adjacent to Lake Merced are considered under jurisdiction of the USACE and regulated under Section 404 of the Clean Water Act as they are directly adjacent and hydrologically connected to Lake Merced through inundation and soil saturation by lake waters, a surface water connection to the TNW.

The study area does not contain any non-TNW tributaries and thus Section IIIB of the CWA Analysis in the Jurisdictional Determination form does not apply to this analysis.

4.4 STATE WETLANDS

A total of 5.04 acres of potential state jurisdictional wetlands occur within the aquatic resources study area, of which, 1.28 acres occur within the project area boundary. The acreage of state wetlands exceeds that of the federal wetlands because determination of the upland state wetland boundary is based upon only one parameter (hydrophytic vegetation) rather than the three (hydrophytic vegetation, hydric soils, and wetland hydrology) required by the federal wetland definition, and thereby includes the full extent of the arroyo willow thickets where hydric soils or hydrology are not present.

Table 1 provides the calculations for the total acreage for state and federal wetlands; Table 2 depicts state and federal non-wetland other waters within the study area. Figure 3 provides an illustration of potential state jurisdictional wetlands within the study area.

5. REPORT PREPARATION AND REFERENCES

5.1 REPORT PREPARATION

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Field work and report preparation were completed by Patrick Kobernus (Senior Biologist) and Jennifer Radtkey (Associate Biologist).

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APPENDIX A

Wetland determination data forms

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lake Merced West Recreation Project City/County: San Francisco/San Francisco Sampling Date: 12/16/19

Applicant/Owner: SF Parks and Recreation State: CA Sampling Point: 1A

Investigator(s): P. Kobernus, J. Radtkey Section, Township, Range:

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope (%): 2

Subregion (LRR): C- Mediterranean California Lat: Long: Datum:

Soil Map Unit Name: Urban Land-Orthents, smoothed complex, 5 to 50% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No X

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes No X	
Wetland Hydrology Present?	Yes No X	

Remarks:

Data point is within a grassland area. Soil within upland areas on site were removed and replaced with clean fill in 2015.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. Salix laseolepis	5		FACW
2.			
3.			
4.			
5.			
Total Cover:	5		
Herb Stratum			
1. Sysyrinchium bellum	5		FACW
2. Achillea milifolium	10		FACW
3. Psuedonaphalium luteoalbum	5		FAC
4. Moss (Bryopsida)	70		NS
5. Bromus carinatus	5		NS
6.			
7.			
8.			
Total Cover:	95		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 5 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:

NS: No Status

SOIL

Sampling Point: 1A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
12"	2.5y-4/4	100					Loamy-sand	Soil homogeneous at all depths

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Area is flat, gradually sloping grassland with no hydrology indicators.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lake Merced West Recreation Project City/County: San Francisco/San Francisco Sampling Date: 12/16/19

Applicant/Owner: SF Parks and Recreation State: CA Sampling Point: 1B

Investigator(s): P. Kobernus, J. Radtkey Section, Township, Range:

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope (%): 2

Subregion (LRR): C- Mediterranean California Lat: Long: Datum:

Soil Map Unit Name: Urban Land-Orthents, smoothed complex, 5 to 50% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes X No	

Remarks:
Clay pigeons and shot gun casings dominate soil structure.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1. Salix laseolepis	80		FACW
2.			
3.			
4.			
5.			
Total Cover:	80		
Herb Stratum			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:			
Woody Vine Stratum			
1. Rubus ursinus	10		FAC
2.			
Total Cover:	10		

% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

__ Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:
Herbaceous layer is 100% leaf litter.

SOIL

Sampling Point: 1B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
20"	7.5YR-2.5/2	100					Sandy-loam	Soil full of clay pigeons

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- X Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Soil very high in decomposing organic matter. Decomposition of red clay pigeons masks soil indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- X Water Marks (B1) (**Nonriverine**)
- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Shelving from lake shore edge within plot. Lake shore edge approximately 3 feet from edge of soil pit.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lake Merced West Recreation Project City/County: San Francisco/San Francisco Sampling Date: 12/16/19

Applicant/Owner: SF Parks and Recreation State: CA Sampling Point: 2A

Investigator(s): P. Kobernus, J. Radtkey Section, Township, Range:

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Convex Slope (%): 5

Subregion (LRR): C- Mediterranean California Lat: Long: Datum:

Soil Map Unit Name: Urban Land-Orthents, smoothed complex, 5 to 50% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:

Soil within upland areas on site were removed and replaced with clean fill in 2015.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Bromus sp.	35		NS
2. Lactuca seriola	5		FACN
3. Geranium molle	2		NS
4. Psuedognaphalium luteoalbum	5		FAC
5. Epilobium ciliatum	5		FACW
6. Achillia millefolium	3		FACU
7. Polypogon monspeliensis	1		FACW
8. Erophyllum sp.	1		NS
9. Moss (Bryopsida)	28		NS
~~Total Cover:~~ Total cover: 85			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes No X

Remarks:

NS: No Status

SOIL

Sampling Point: 2A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
15"	10YR-4/2	100					Sandy-loam	
0-4"	10YR-3/2	100					Sandy-loam	Slightly greater ribbon than at 15"

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

4" layer of topsoil, then sandy compacted fill soil. Very difficult to dig through. Substantial amount of rock.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Shelving from lake shore edge within plot. Lake shore edge approximately 3 feet from edge of soil pit.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lake Merced West Recreation Project City/County: San Francisco/San Francisco Sampling Date: 12/16/19

Applicant/Owner: SF Parks and Recreation State: CA Sampling Point: 2B

Investigator(s): P. Kobernus, J. Radtkey Section, Township, Range:

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): C- Mediterranean California Lat: Long: Datum:

Soil Map Unit Name: Urban Land-Orthents, smoothed complex, 5 to 50% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes No X	
Wetland Hydrology Present?	Yes X No	

Remarks:

Soil within upland areas on site were removed and replaced with clean fill in 2015.
Site is developing wetland characteristics (e.g., willows with adventitious roots).

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix laseolepis	40		FACW
2.			
3.			
4.			
Total Cover:	40		
Sapling/Shrub Stratum			
1. Salix laseolepis	70	X	FACW
2.			
3.			
4.			
5.			
Total Cover:	70		
Herb Stratum			
1. Bromus sp.	5		NS
2.			
3.			
4.			
5.			
6.			
7.			
8.			
Total Cover:	5		
Woody Vine Stratum			
1. Rubus ursinus	20		FAC
2.			
Total Cover:			

% Bare Ground in Herb Stratum 95 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species 110	x 2 = 220
FAC species 20	x 3 = 60
FACU species	x 4 =
UPL species	x 5 =
Column Totals: 130 (A)	280 (B)

Prevalence Index = B/A = 2.15

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:

Herb stratum is 95% bare ground and leaf litter.

SOIL

Sampling Point: 2B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
20"	10YR-4/1	100					Sandy-loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- X Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

"New" (fill) soil, which suggests short time for hydric development. Lighter color of soil suggests water logging and chemical reduction.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- X Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 10"

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 8"

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Saturation at 10" deep.
Adventitious roots on several willows.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lake Merced West Recreation Project City/County: San Francisco/San Francisco Sampling Date: 12/17/19

Applicant/Owner: SF Parks and Recreation State: CA Sampling Point: 3B

Investigator(s): P. Kobernus, J. Radtkey Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): C- Mediterranean California Lat: Long: Datum:

Soil Map Unit Name: Urban Land-Orthents, smoothed complex, 5 to 50% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes No X

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes X No	
Wetland Hydrology Present?	Yes No X	

Remarks:

Soil within upland areas on site were removed and replaced with clean fill in 2015.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Epilobium ciliatum	5		FACW
2. Psuedognaphalium luteoalbum	55	X	FAC
3. Rubus ursinus	5		FAC
4. Ehrharta erecta	3		NS
5. Geranium molle	2		NS
6.			
7.			
8.			
Total Cover:	70		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 30 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	
FACW species 5	x 2 =	10
FAC species 60	x 3 =	180
FACU species	x 4 =	
UPL species	x 5 =	
Column Totals: 65 (A)		190 (B)

Prevalence Index = B/A = 2.92

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:

NS: No Status

SOIL

Sampling Point: 3B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
4-20"	2.5Y-4/3	80	5YR-5/8	20	C	M	Loamy-sand	
0-4"	7.5YR-4/2	80	5YR-5/8	20	C	M	Sandy-loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Redox masses present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- X Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Water may temporarily stand here, but no signs of hydrology indicators. Might be due to irrigation of willows on slope.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lake Merced West Recreation Project City/County: San Francisco/San Francisco Sampling Date: 12/17/19

Applicant/Owner: SF Parks and Recreation State: CA Sampling Point: 4A

Investigator(s): P. Kobernus, J. Radtkey Section, Township, Range:

Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Covex Slope (%): 5

Subregion (LRR): C- Mediterranean California Lat: Long: Datum:

Soil Map Unit Name: Urban Land-Orthents, smoothed complex, 5 to 50% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation N, Soil Y, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** Yes No X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:

Soil within upland areas on site were removed and replaced with clean fill in 2015.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Oenethera elata	10		FACW
2. Epilobium ciliatum	4		FACW
3. Psuedognaphalium luteoalbum	4		FAC
4. Artemisia californica	1		NS
5. Achillia millefolium	2		FACU
6. Cirsium vulgare	1		FACU
7. Senecio minimus	1		FACU
8. Moss (Bryopsia)	50		NS
9. Erigeron canadensis	1		FACU
~~Total Cover:~~ Total cover: 74			
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 25 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

__ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

__ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes No X

Remarks:

NS: No Status

SOIL

Sampling Point: 4A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
14"	10YR-4/3	100					Sandy-loam	High concentration granitic rock

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- X Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Lake Merced West Recreation Project City/County: San Francisco/San Francisco Sampling Date: 12/17/19

Applicant/Owner: SF Parks and Recreation State: CA Sampling Point: 4B

Investigator(s): P. Kobernus, J. Radtkey Section, Township, Range:

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): C- Mediterranean California Lat: Long: Datum:

Soil Map Unit Name: Urban Land-Orthents, smoothed complex, 5 to 50% slopes NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation Y, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No	**Is the Sampled Area within a Wetland?** Yes X No
Hydric Soil Present?	Yes No X	
Wetland Hydrology Present?	Yes X No	

Remarks:

Dominant vegetation is invasive ice plant. Based on hydrology and adjacent wetland vegetation it is likely that wetland vegetation would dominate site if iceplant was removed.

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover:			
Sapling/Shrub Stratum			
1.			
2.			
3.			
4.			
5.			
Total Cover:			
Herb Stratum			
1. Carpobrotus edulis	50		NS
2. Epilobium ciliatum	2		FACW
3. Oenothera elata	25		FACW
4. Conium maculatum	3		FACW
5. Persicaria amphibia	1		OBL
6. Carduus pycnocephalus	1		NS
7. Toxicodendron diversilobum	8		FACU
8.			
Total Cover:	90		
Woody Vine Stratum			
1.			
2.			
Total Cover:			

% Bare Ground in Herb Stratum 10 % Cover of Biotic Crust 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species 1	x 1 = 1
FACW species 30	x 2 = 60
FAC species	x 3 =
FACU species 8	x 4 = 32
UPL species	x 5 =
Column Totals: 39 (A)	93 (B)

Prevalence Index = B/A = 2.3

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- X Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:

NS: No Status

Dominant vegetation is invasive ice plant. Based on hydrology and adjacent wetland vegetation it is likely that wetland vegetation would dominate site if iceplant was removed.

SOIL

Sampling Point: 4B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
20"	10YR-3/2	100					Loamy-sand	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

Sandy soil. No hydric indicators.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ___ Surface Water (A1)
- X High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Plowed Soils (C6)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Thin Muck Surface (C7)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 20"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX B

Representative Photographs

Photo 1. Data point 1A. Photo date: 12/16/19.

Photo 2. Data point 1B. Photo date: 12/16/19.

Photo 3. Data point 2B. Photo date: 12/17/19.

Photo 4. Adventitious roots on planted willow trees. Photo date: 12/17/19.

Photo 5. Saturated soil at data point 2B. Photo date: 12/17/19.

Photo 6. Data point 4A. Photo date: 12/17/19.

Photo 7. Data point 4B. Photo date: 12/17/19.

Photo 8. Dense willows (arroyo willow) along edge of lake, and scattered willows within grassland. Photo date: 12/17/19.

Photo 9. Knotweed and bulrush wetland near data point 3B. Photo date: 12⁄17⁄19.

Photo 10. Himalaya blackberry in foreground, and bulrush wetland in background near data Point 4B. Photo date: 12⁄17⁄19.

APPENDIX C

Soil Survey Map

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Mateo County, Eastern Part, and San Francisco County, California

Lake Merced West Project Site Soils

February 3, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:2,480 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 35 70 140 210

Feet
0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Mateo County, Eastern Part, and San Francisco County, California
Survey Area Data: Version 15, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 29, 2019—Jun 5, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background

MAP LEGEND

MAP INFORMATION

imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
129	Sirdrak sand, 5 to 50 percent slopes	0.9	7.3%
131	Urban land	8.0	67.1%
135	Urban land-Orthents, smoothed complex, 5 to 50 percent slopes	3.1	25.7%
Totals for Area of Interest		**11.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

San Mateo County, Eastern Part, and San Francisco County, California

129—Sirdrak sand, 5 to 50 percent slopes

Map Unit Setting

National map unit symbol: h9hc
Elevation: 20 to 700 feet
Mean annual precipitation: 20 to 25 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Sirdrak and similar soils: 85 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sirdrak

Setting

Landform: Dunes
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Concave
Parent material: Eolian sands

Typical profile

H1 - 0 to 17 inches: sand
H2 - 17 to 60 inches: sand

Properties and qualities

Slope: 5 to 50 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Somewhat excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): High to very high (5.95 to 19.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Low (about 3.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Beaches

Percent of map unit: 3 percent
Landform: Beaches
Hydric soil rating: Yes

Unnamed
Percent of map unit: 1 percent
Landform: Tidal flats
Hydric soil rating: Yes

Typic argiustolls
Percent of map unit: 1 percent
Hydric soil rating: No

Urban land
Percent of map unit: 1 percent
Hydric soil rating: No

Unnamed
Percent of map unit: 1 percent
Hydric soil rating: No

Dune land
Percent of map unit: 1 percent
Hydric soil rating: No

131—Urban land

Map Unit Setting
National map unit symbol: h9hf
Elevation: 10 to 320 feet
Mean annual precipitation: 15 to 30 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 275 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition
Urban land: 85 percent
Minor components: 14 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting
Landform position (two-dimensional): Toeslope

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Minor Components

Orthents, cut&fill
Percent of map unit: 7 percent
Hydric soil rating: No

Orthents, reclaimed

Percent of map unit: 7 percent
Hydric soil rating: No

135—Urban land-Orthents, smoothed complex, 5 to 50 percent slopes

Map Unit Setting

National map unit symbol: h9hk
Elevation: 100 to 500 feet
Mean annual precipitation: 25 to 35 inches
Mean annual air temperature: 54 to 57 degrees F
Frost-free period: 300 to 350 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 65 percent
Orthents and similar soils: 25 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Marine terraces, hills, ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope, tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandstone

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: No

Description of Orthents

Setting

Landform: Terraces, ridges, hills
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Crest, side slope, tread
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Sandstone

Typical profile

H1 - 0 to 60 inches: variable

Properties and qualities

Slope: 5 to 50 percent
Depth to restrictive feature: More than 80 inches

Natural drainage class: Well drained
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water storage in profile: Very low (about 0.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8e
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 10 percent
Hydric soil rating: No