Initial Study/Mitigated Negative Declaration

Morse Recreation Center Project

MARCH 2022

Prepared for:

COSUMNES COMMUNITY SERVICES DISTRICT
8820 Elk Grove Boulevard
Elk Grove, California 95624
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Acronyms and Abbreviations

Acronym/Abbreviation	Definition
AB	Assembly Bill
APN	Assessor's Parcel Number
BACT	best available control technology
BMP	best management practice
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CAP	Climate Action Plan
CARB	California Air Resources Board
CCSD	Cosumnes Community Service District
CEQA	California Environmental Quality Act
CFD	Cosumnes Fire Department
City	City of Elk Grove
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
District	Cosumnes Community Service District
DOC	California Department of Conservation
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
EIR	environmental impact report
EOP	Emergency Operations Plan
ESD	equivalent single-family dwelling
EV	electric vehicle
FHSZ	fire hazard severity zone
GHG	greenhouse gas
GWP	global warming potential
HVAC	heating, ventilation, and air conditioning
in/sec	inches per second
kg	Kilogram
LRA	Local Responsibility Area
mgd	million gallons per day
MT	metric tone
MTP/SCS	Metropolitan Transportation Plan/Sustainable Communities Strategy
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NO_2	nitrogen dioxide
NO_x	oxides of nitrogen
O_3	Ozone
OPR	Governor's Office of Planning and Research
PM_{10}	particulate matter equal to or less than 10 microns in aerodynamic diameter

Acronym/Abbreviation	Definition
$PM_{2.5}$	particulate matter equal to or less than 10 microns in aerodynamic diameter
ppm	parts per million
PPV	peak particle velocity
proposed project	Morse Recreation Center
ROG	reactive organic gas
SACOG	Sacramento Area Council of Governments
SAP	Sustainability Action Plan
SCWA	Sacramento County Water Agency
sf	square foot
SIP	State Implementation Plan
SMAQMD	Sacramento Metropolitan Air Quality Management District
SMUD	Sacramento Municipal Utility District
SO_2	sulfur dioxide
SRA	state responsibility area
SVAB	Sacramento Valley Air Basin
SWPPP	stormwater pollution prevention plan
TAC	toxic air contaminant
UWMP	Urban Water Management Plan
VMT	vehicle miles traveled

1 Introduction

1.1 Project Overview and Location

The Morse Recreation Center ("proposed project") proposes to develop a new, 54,222 square-foot (sf) recreation center on 3 acres of undeveloped land within an approximately 14-acre parcel (Assessor's Parcel Number [APN] 132-0020-149-0000) that is part of the existing 30-acre Morse Community Park. The project site is located at the intersection of Bellaterra Drive and Fire Poppy Drive in the City of Elk Grove ("City") generally located in the northwestern corner of Morse Community Park (see Figure 1). The site is bordered by residences to the north, west, and south, active playground areas and surface parking within Morse Community Park to the northeast, and open space within Morse Community Park to the southeast. The project, which is proposed by the Cosumnes Community Services District ("CCSD" or "District"), is designed to provide a variety of recreation activities to support the community including individual and group fitness options, sports classes, leagues, and tournament events. The project is proposing four indoor basketball courts, with overlay courts for volleyball and pickle ball; two aerobic/dance spaces; a multi-purpose room; indoor and outdoor fitness spaces; an indoor jogging track; restrooms for individuals and families and space for administration. The project also proposes an outdoor recreation space and an event lawn. In addition, new landscaping, lighting, and additional surface parking would be included.

1.2 California Environmental Quality Act Compliance

This Initial Study/Mitigated Negative Declaration (IS/MND) has been prepared per the requirements of the California Environmental Quality Act (CEQA) of 1970 (California Public Resources Code Section 21000, et seq.), and the CEQA Guidelines (California Code of Regulations, Title 14, Section 15000 et seq.).

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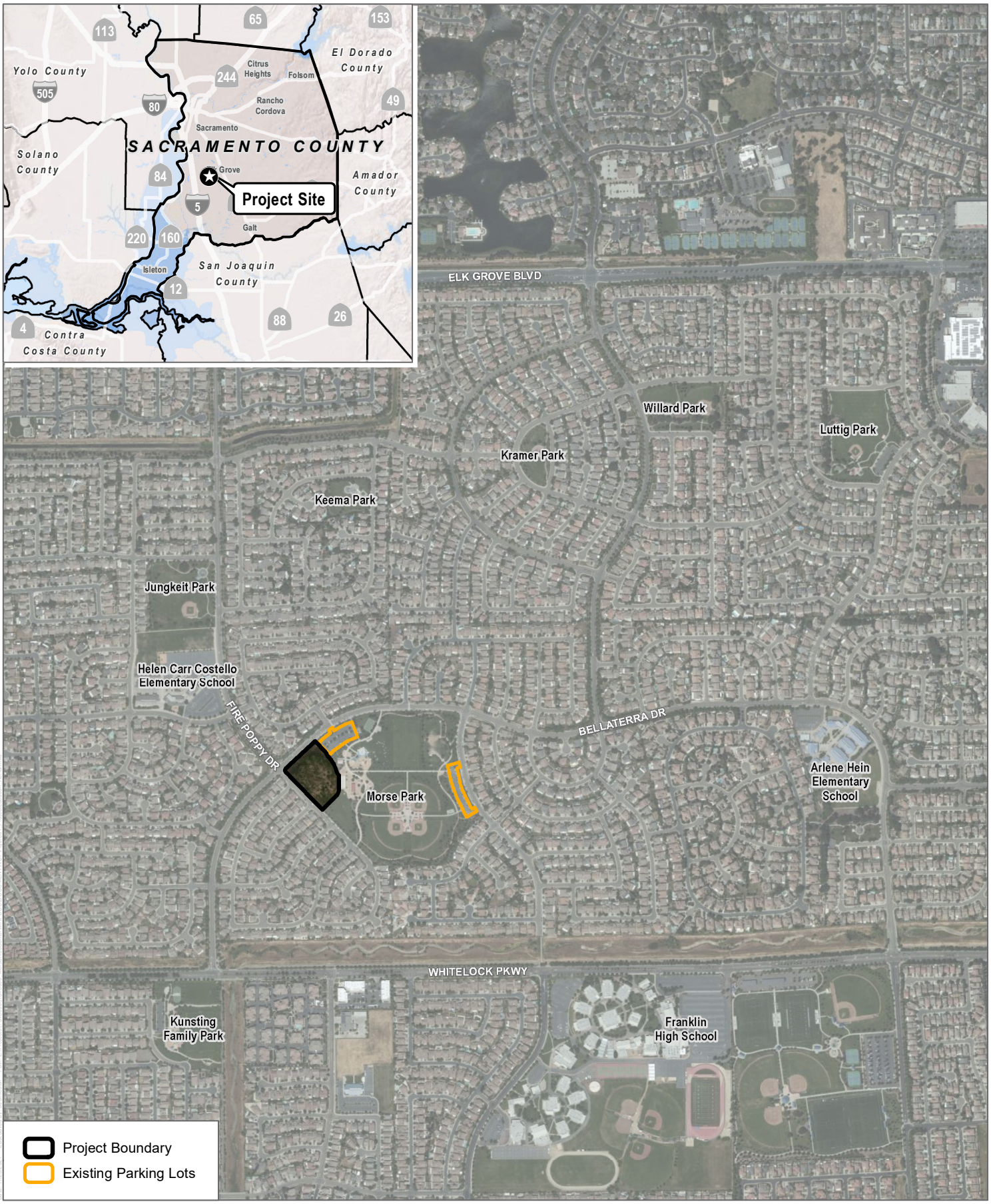

SOURCE: Bing Maps (Accessed 2021), Sacramento County 2012

DUDEK

0 500 1,000 Feet

0 150 300 Meters

FIGURE 1

Project Location

Morse Recreation Center Project

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2 Summary of Findings

2.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project. The environmental factors checked below can be fully mitigated to less than significant with required mitigation measures and further analysis in the environmental impact report (EIR) is not required.

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

2.2 Determination (To be completed by the Lead Agency)

On the basis of this initial evaluation:

☐ 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 ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier ENVIRONMENTAL IMPACT REPORT or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

03/24/2022

Date

3 Initial Study Checklist

1. **Project title:**

   Morse Recreation Center

2. **Lead agency name and address:**

   Cosumnes Community Services District
   8820 Elk Grove Boulevard
   Elk Grove, California 95624

3. **Contact person and phone number:**

   Fred Bremerman, Deputy Project Manager
   FredBremerman@csdparks.com

4. **Project location:**

   Northwest corner of Bellaterra Drive and Fire Poppy Drive
   APN: 132-0020-149-0000

5. **Project sponsor's name and address:**

   Cosumnes Community Services District
   8820 Elk Grove Boulevard
   Elk Grove, California 95624

6. **General plan designation:**

   P/OS; Parks and Open Space

7. **Zoning:**

   PR; Parks and Recreation

8. **Description of project:**

   The proposed project includes development of a new recreation center designed to provide both indoor and outdoor recreation space to support the community including fitness programs, health and wellness events, instructional classes, sports leagues and tournaments. The following provides an overview of the project and its various components including new landscaping, lighting, and additional surface parking. The project's conceptual site plan in included in Figure 2.

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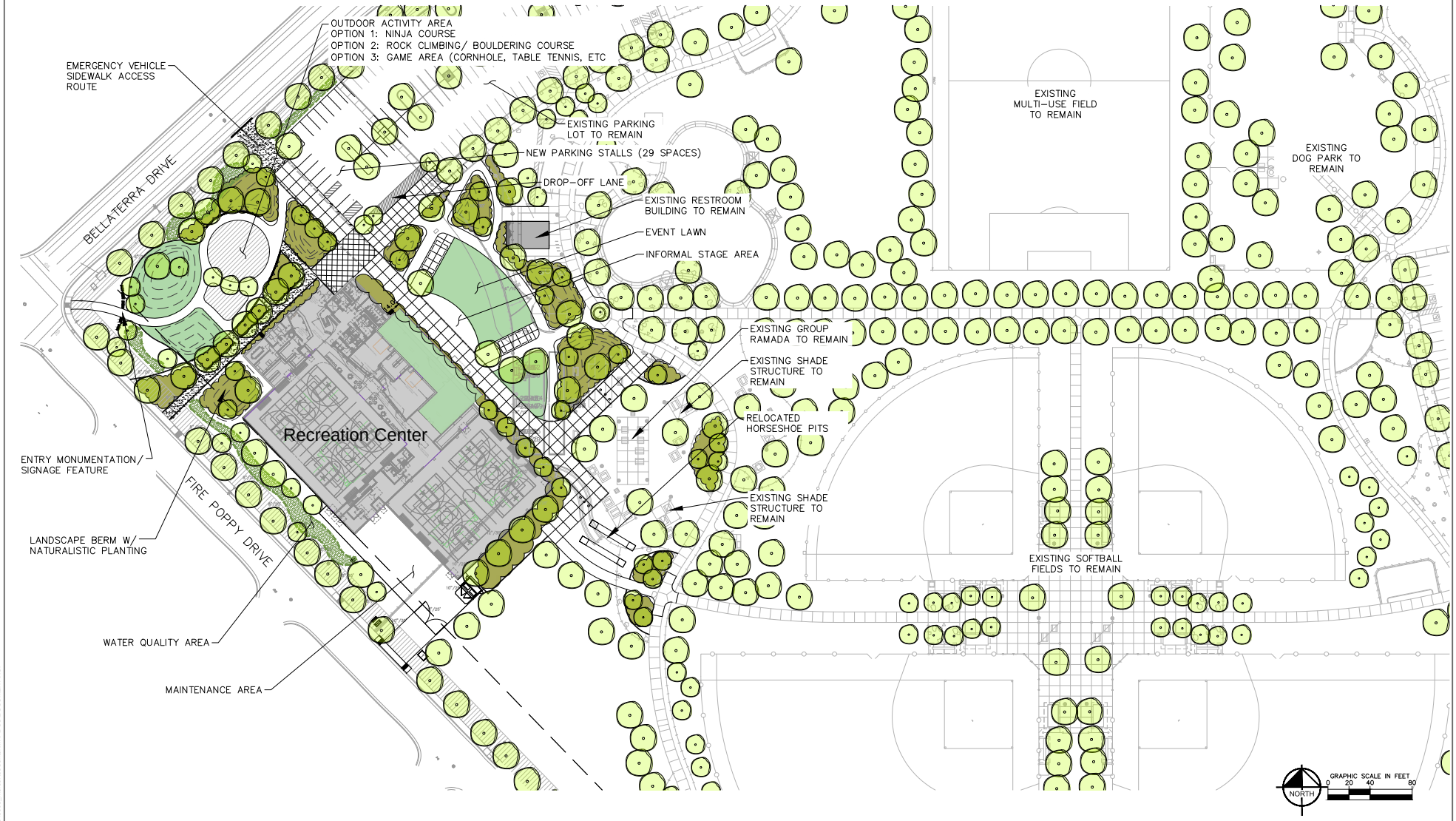

SOURCE:Kimley-Horn and Cosumnes Community Services District 2021

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FIGURE 2

Site Plan

Morse Recreation Center Project

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Indoor Space

The primary entry to the recreation center would be provided at the northeast corner of the building. The first floor would include an entry lobby, a reception desk, office space, public lounge areas, a multi-purpose room, an aerobics/dance room, and two separate gymnasiums, along with restrooms and utility rooms. The two indoor gymnasiums would include two basketball courts each (for a total of four basketball courts) and overlay courts for volleyball and pickle ball. One 11,732 sf gymnasium would be centrally located within the building while the second 11,706 sf gymnasium would be at the southeastern area of the building.

The second floor would include another space for aerobics/dance and additional space for free weights, cardio, stretching, and functional fitness. A 5,219 sf interior running track would create a loop around the second floor open to the first floor below. The building would also have a 2,624 sf rooftop fitness area used for group activities and events. The recreation center building would be completed with standard construction methods.

Outdoor Space

Outdoor space would act as both a draw for park visitors and an exterior extension of the recreation center. The project proposes an open lawn and paved area to the east of the proposed building that would be available for small, programmed events and would also function as an informal public gathering and pedestrian space that connects the existing Morse Community Park to the new building. The outdoor area to the north of the building would feature nature themed gardens and landscaped gathering areas with benches and areas that feature outdoor unprogrammed park and recreation activities. These activity zones are located a considerable distance from any residences and any noise or visual effects would be addressed through landscaping and creation of earthen mounds.

Another exterior feature that is part of the recreation center is a 3,000 sf “outdoor” fitness area on the ground floor. Outdoor fitness would be enclosed by a fenced-off area in front of the building.

Programming and Operations

The hours of operation are anticipated to be 6:00 a.m. to 10:00 p.m., Monday through Sunday. The recreation center would employ up to eight full-time staff members and 20 part-time staff members.

The recreation center would offer individual workout opportunities and group fitness classes. Fitness classes would include classes for various ages and fitness levels (i.e., yoga, spin, chair yoga, bootcamp). The second floor fitness areas would be accessible via a membership or day pass.

The recreation center would offer sports classes, camps, leagues and tournaments (i.e., basketball and volleyball). The sports classes and camps would expand on programs currently held at the CCSD Wackford Community Complex. The sports leagues would serve local adult and youth players from Elk Grove and immediately adjacent communities and it is anticipated some players may transfer from existing leagues at the Wackford Community Complex. The recreation center would also host tournaments involving four or more teams, on 8 to 16 weekends annually when league play is not occurring. Tournaments are expected to draw the majority of teams from Elk Grove, with some teams from adjacent areas (i.e., Sacramento, Galt, and Rancho Cordova).

Lighting

Currently, there are pedestrian and parking lot lights located throughout the developed portion of the existing park site. The proposed project would include additional lighting for the building, decorative up-lighting of trees, building and sculptural elements, and pedestrian lighting for the lawn and paved outdoor gathering areas, and parking lot lighting for security and safety. All lighting would use LED fixtures in compliance with Measure BD-2 of the CCSD Climate Action Plan/Sustainability Plan (CAP/SAP) which requires energy efficient lighting to reduce GHG emissions.

Landscaping

The proposed project would preserve the 17 existing street trees on the project site. There are no additional trees on the development site beyond the existing street trees. New landscaping would include turf, approximately 80 new trees, groundcover and shrub plantings, nature gardens, and vegetative stormwater gardens.

Circulation and Parking

Vehicle access to the project site would be through a combination of parking lots and on-street parking. The most direct access is through the existing parking lot driveway on Bellaterra Drive that currently provides parking for Morse Community Park, as shown on Figure 2. The proposed project would extend this existing parking lot, adding approximately 29 new parking spaces, including two ADA-compliant accessible parking spaces and nine clean air parking spaces (including eight electric vehicle charging parking spaces). This would increase the number of parking spaces from 104 to 133. A new drop-off zone would be constructed near the entrance to the building as part of the parking lot improvements.

The other parking lot serving Morse Community Park along Sorrentino Drive offers 84 parking spaces. Access to this parking lot would be via a pedestrian pathway through the park connecting to the recreation center. Other parking options include on-street parking abutting the park and project site along Bellaterra Drive and Fire Poppy Drive, which equates to approximately 120 spaces, not including the available on-street parking on the non-adjacent side of the road. In order to accommodate larger events, CCSD has a Joint Use Agreement with Elk Grove Unified School District, which would provide CCSD with use of 112 parking spaces at Helen Carr Castello Elementary School, located approximately a quarter-mile north of the project site on Fire Poppy Drive.

The proposed project would provide up to 12 bicycle parking space located at the entrance to the Morse Recreation Center. Bicycle access would be available from Bellaterra Drive and Fire Poppy Drive. Bike paths are located along Bellaterra Drive and the portion of Fire Poppy Drive north of the project site. Both are considered Class II bike lanes (bike lanes established along streets defined by striping and signage).

The proposed project would also extend the ADA-compliant accessible pathways in Morse Community Park to connect to the recreation center and parking lot adjacent to Bellaterra Drive.

Sustainability Measures

The proposed project would include the following sustainability features:

- Compliance with current Title 24, Part 6, of the California Code of Regulations energy efficiency standards at the time of construction of the recreation center.
- Compliance with current Title 24, Part 11, of the California State Building Code "Green Building Standards Code" in effect at the time of construction of the recreation center. To achieve the project goal of reaching CalGreen Tier 2, the project would include a higher efficiency heating, ventilation, and air conditioning (HVAC) system, non-potable water flushing system, and electric vehicle charging stations.
- Compliance with all state regulations related to solid waste generation, storage, and disposal, including the California Integrated Waste Management Act, as amended. During construction, all waste generated would be recycled to the maximum extent possible.
- Compliance with the CCSD CAP/SAP adopted in October 2020, and subsequent climate action policies adopted in February 2021 (CCSD 2020, 2021). This includes:
  - Measure BD-1: Energy-Efficient Buildings
  - Measure BD-2: Improve Lighting Efficiency
  - Measure BD-3: Limit Natural Gas Use
  - Measure BD-4: Zero Net Energy
  - Measure BD-5: Water Conservation in Facilities
  - Measure RE-1: Renewable Energy Production Plan
  - Measure LP-1: Provide Bicycle Parking
  - Measure LP-2: Bicycle and Pedestrian Infrastructure Improvement
  - Measure LP-3: Electric Vehicle Charging Infrastructure
  - Measure LP-5: Cool Community Strategies
  - Measure LM-2: Low-maintenance Nature Gardens
  - Measure LM-4: Water-Efficient Irrigation Practices
  - Measure LM-5: Implement Landscaping Guidelines
  - Measure LM-7: Recycled Water
  - Measure SW-3: Construction Waste Diversion

Utilities and Storm Drainage

The proposed project would be served by existing municipal water infrastructure, wastewater collection and treatment facilities, stormwater drainage, electric power, natural gas, and telecommunications infrastructure near the project site.

The Sacramento Municipal Utility District (SMUD) has existing underground 12 kilovolt facilities along Bellaterra Drive, Fire Poppy Drive, and on the project parcel that would remain.

Potable and non-potable water would be provided by the Sacramento County Water Agency (SCWA). The project would tie into existing water connections at Morse Community Park or in adjacent roadways. Potable water would be provided to serve the proposed recreation center building. Non-potable (reclaimed or recycled) water would be available to irrigate the exterior recreation lawn areas and landscaping.

Wastewater from the proposed project would be conveyed to the Sacramento Area Sewer District (SASD) sewer system using existing connections at Fire Poppy Drive. Collected wastewater is diverted to the conveyance systems of the Sacramento Regional County Sanitation District (Regional San) and treated at the Sacramento Regional Wastewater Treatment Plant.

The project site is currently undeveloped and the project would develop approximately 2.3 acres with impervious surfaces. While the project would introduce new impervious cover, there would be sufficient bioretention areas to capture all stormwater runoff from the expanded parking area and the recreation center building and other site improvements.

Project Construction/Phasing

Project construction is anticipated to begin in late 2022 to early 2023 and be completed in early-to-mid 2024 after 16-18 months of construction. All construction equipment would be staged on-site when in-use for that particular phase of construction (i.e., site clearing, grading, trenching for utilities, building erection, etc.). Site grading and earthwork would involve 3,600 cubic yards of soil graded within the site with no import or export.

9. Surrounding land uses and setting:

The City of Elk Grove's General Plan designates the project site for Parks and Open Space and the site is zoned Parks and Recreation. The surrounding area is developed with residential uses and zoned Low Density Residential to the north, south, and west; Morse Community Park borders the site directly to the northeast, east, and southeast and is also designated Parks and Open Space and zoned Parks and Recreation.

10. Other public agencies whose approval is required (e.g., permits, financing approval, or participation agreement):

The project would require the following CCSD approvals:

- Adoption of the MND
- Capital Improvement Plan Project Budget Approval
- Construction Project Bid Award

The project would also require ministerial approval of a building permit by the City of Elk Grove.

11. Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

An Assembly Bill (AB) 52 notification letter was sent on October 12, 2021, to 10 tribes by certified mail. On December 2, 2021, Wilton Rancheria requested a meeting to discuss the project. Tribal consultation is still ongoing.

3.1 Aesthetics

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
I.	**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 point). 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 day or nighttime views in the area?	☐	☐	☒	☐

a) Would the project have a substantial adverse effect on a scenic vista?

Scenic vistas are defined as an expansive view of highly valued landscape features (e.g., mountain range, lake, or coastline) observable from a publicly accessible vantage point. In the project vicinity, publicly accessible vantage points are limited to public roads (Bellaterra Drive and Fire Poppy Drive) and the existing Morse Community Park, which is a public park. None of these would be considered a scenic vista. In addition, there are no officially designated scenic vistas within the City (City of Elk Grove 2018). Therefore, the project would have **no impact** on scenic vistas.

b) Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

There are no officially designated scenic highways within the City (City of Elk Grove 2018). According to the California Department of Transportation (Caltrans), the nearest officially designated state scenic highway is Route 160, which is located approximately four miles west of the project site (Caltrans 2018). Due to the intervening urban environment and distance from the project site, development of the project would occur outside of the viewshed of this highway. Additionally, the site does not contain and scenic resources; therefore, there would be **no impact** associated with damaging scenic resources within a state scenic highway.

c) In non-urbanized areas, would the project 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 point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

The project site is located in the City of Elk Grove within a developed neighborhood. The area surrounding the project site is developed with residential uses, as shown on Figure 2, and would be considered an urbanized area. For the purposes of this analysis, a substantial degradation of the existing visual character or quality of the site would occur if the project would conflict with the underlying zoning or any other CCSD regulations that govern scenic quality. The project site is designated and zoned as "Parks and Open Space"/"Parks and Recreation" on the City's General Plan Land Use Map and Zoning Map (City of Elk Grove 2018). Development of the site with a new recreation center would be consistent with the underlying land use designation and zoning. The project would not conflict with any goals and policies contained in the City's General Plan, Chapter 3, Community and Resource Protection specific to ensuring future development maintains the City's scenic resources. In addition, the CCSD does not have any plans or regulations that oversee scenic quality concerns. The Morse Recreation Center is envisioned to be approximately two stories and 38 feet in height, less than the 40-foot height limit allowed in the Parks and Recreation zone (see Section 23.29.020 of the Elk Grove Zoning Code). The project does not include any design elements or features that would be considered inappropriate in size or mass such that they would significantly obstruct public views. While there would be a change in the visual character of the site from undeveloped to a developed recreation center, there would be no conflict with applicable zoning or other regulations and thus there would be **no impact.**

d) Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

The project would include new building lights, pathway lighting and parking lot lighting for security and safety. These new sources of light would be required to comply with the City's lighting and glare standards (City of Elk Grove Municipal Code Chapter 23.56), which requires that:

- Parking lots, trash enclosures/areas, public phones, shall be illuminated with a minimum maintained one foot-candle (fc) of light and an average not to exceed four fc of light;
- All outdoor lighting shall be constructed with full shielding to reduce glare so that the light source is not visible from within any residential dwelling unit;
- Exterior doors of nonresidential structures shall be illuminated during the hours of darkness with a minimum maintained one fc of light.

Glare occurs when light is reflected off of surfaces and causes a nuisance to surrounding sensitive-receptors. Glare can result from sunlight or from artificial light reflecting off building exteriors, such as glass windows or other highly reflective surface materials. The building would use low-reflective glass and exterior materials and colors that absorb, rather than reflect, light in order to reduce potential glare impacts.

The project would adhere to the City's lighting requirements and would use building materials that would minimize glare; therefore, the project would not cause substantial light or glare impacts and impacts associated with an increase in light and glare would be **less than significant.**

Mitigation Measures

No mitigation measures are required.

3.2 Agriculture and Forestry Resources

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
II.	**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 Dept. 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 (Farmland), 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 which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

a) ***Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?***

The California Department of Conservation (DOC) has designated the site as "Urban and Built-Up Land" (DOC 2016). The site does not contain any land identified as Prime Farmland, Unique Farmland, or

Farmland of Statewide Importance. Therefore, there would be **no impact** related to converting Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.

b) Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

The project site is zoned Parks and Recreation by the City of Elk Grove. This zoning designation is intended to provide recreational opportunities and does not allow for agricultural uses. The site is not planned for or used for any agricultural or forestry purposes and is not subject to a Williamson Act contract. Therefore, there would be **no impact** related to conflict with existing zoning or a Williamson Act contract.

c) Would the project 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))?

The project site is zoned Parks and Recreation. The surrounding area is characterized by low-density residential and park uses. The project site is undeveloped and has previously been graded. There are street trees adjacent to Bellaterra Drive and Fire Poppy Drive. There are no other trees on the site and no portion of the site is considered forest land[1] as defined in California Public Resources Code Section 12220(g). Timberland[2] (as defined by California Public Resources Code Section 4526) or timberland-zoned timberland production[3] (as defined by Section 51104(g) of the Government Code) is not present on site, nor are there any active or potential commercial timber operations present in the area. Therefore, the project would not conflict with lands zoned for forest land, timberland, or timberland production and there would be **no impact**.

d) Would the project result in the loss of forest land or conversion of forest land to non-forest use?

Refer to answer provided in 'c' above. The project would not result in the loss of forest land or conversion of forest land to non-forest use; there would be **no impact**.

e) Would the project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

Refer to answers provided in 'a,' 'b,' and 'c' above. The project would not involve changes in the existing environment that could result in the conversion of farmland to non-agricultural use or conversion of forest land to non-forest use; there would be **no impact.**

Mitigation Measures

No mitigation measures are required.

1 "Forest land" is land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.

2 "Timberland" means land, other than land owned by the federal government and land designated by the board as experimental forest land, which is available for, and capable of, growing a crop of trees of a commercial species used to produce lumber and other forest products, including Christmas trees. Commercial species shall be determined by the board on a district basis.

3 "Timberland production zone" or "TPZ" means an area, which is devoted to and used for growing and harvesting timber, or for growing and harvesting timber and compatible uses.

3.3 Air Quality

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. 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 or state 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?	☐	☐	☒	☐

Ambient air quality is generally affected by climatological conditions, the topography of the air basin, the type and amounts of pollutants emitted, and, for some pollutants, sunlight. The project site is located within Sacramento Valley Air Basin (SVAB). Topographical and climatic factors in the SVAB create the potential for high concentrations of regional and local air pollutants. This section describes relevant characteristics of the air basin, types of air pollutants, health effects, and existing air quality levels.

The SVAB includes Sacramento, Shasta, Tehama, Butte, Glenn, Colusa, Sutter, Yuba, Yolo, and portions of Solano and Placer counties. The SVAB extends from south of Sacramento to north of Redding and is bounded on the west by the Coast Ranges and on the north and east by the Cascade Range and Sierra Nevada. The San Joaquin Valley Air Basin is located to the south.

The Sacramento Metropolitan Air Quality Management District (SMAQMD) is the designated air quality management district for the City. SMAQMD has established significance thresholds for project construction and operational emissions within the City. Air pollutant emissions during proposed project construction and operation were modeled using California Emissions Estimator Model (CalEEMod) Version 2020.4.0. The air quality emissions modeling is included in Appendix A.

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter equal to or less than 10 microns in aerodynamic diameter (PM_{10}), particulate matter equal

to or less than 10 microns in aerodynamic diameter ($PM_{2.5}$), and lead (Pb). In California, sulfates, vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

The significance criteria used to evaluate the project impacts are based on Appendix G of the CEQA Guidelines and the SMAQMD thresholds. A significant impact related to air quality would occur if the project would:

- Conflict with or obstruct implementation of an applicable air quality plan;
- Result in short-term (construction) emissions of oxides of nitrogen (NOx) above 85 pounds per day, or PM10 above 80 pounds per day or PM2.5 above 82 pounds per day with all feasible best available control technology (BACT) or best management practices (BMPs) implemented;
- Result in long-term (operational) emissions of NOx or reactive organic gases (ROG) above 65 pounds per day, or PM10 above 80 pounds per day or PM2.5 above 82 pounds per day with all feasible best available control technology (BACT) or best BMPs implemented;
- Result in CO concentrations that exceed the 1-hour state ambient air quality standard (i.e., 20.0 parts per million (ppm) or the 8-hour state ambient standard (i.e., 9.0 ppm);
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project area is in non-attainment under an applicable federal or state ambient air quality standard (including the release of emissions that exceed quantitative thresholds for ozone precursors);
- Create objectionable odors affecting a substantial number of people; or
- Create a lifetime cancer risk from toxic air contaminant (TAC) exposures exceeding 10 in 1 million for stationary sources, or substantially increase the lifetime cancer risk as a result of increased exposure to TACs from mobile sources.

a) Would the project conflict with or obstruct implementation of the applicable air quality plan?

The project site is under the jurisdiction of the SMAQMD within the SVAB. The SVAB is designated nonattainment for both national and California ozone standards. Accordingly, the SMAQMD, along with other local air districts in the SVAB, is required to comply with and implement the State Implementation Plan (SIP) to demonstrate when and how the region can attain the federal O_3 standards. As such, the SMAQMD, along with the other air districts in the region, prepared the Sacramento *Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan (2017 SIP Revisions)*. The Ozone Attainment Plan addresses attainment of the federal 8-hour O_3 standard, while the 2015 Triennial Report and Air Quality Plan Revision address attainment of the California 1-hour and 8-hour O_3 standards (SMAQMD 2016). These are the latest plans adopted by the SMAQMD in coordination with the air quality management districts and air pollution control districts of El Dorado, Sacramento, Solano, Sutter, and Yolo counties, and they incorporate land use assumptions and travel demand modeling provided by Sacramento Area Council of Governments (SACOG). The purpose of a consistency finding is to determine if a project is inconsistent with the assumptions and objectives of the regional air quality plans, and thus if it would interfere with the region's ability to comply with federal and state air quality standards. In general, projects are considered consistent with, and would not conflict with or obstruct implementation of the air quality plan if the growth in socioeconomic factors is consistent with the underlying regional plans used to develop the air quality management plan.

Demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industry) were developed by SACOG for its Metropolitan Transportation Plan/Sustainable

Communities Strategy (MTP/SCS) (SACOG 2019) based on general plans for cities and counties in the SVAB. The air quality management plans rely on the land use and population projections provided in the MTP/SCS, which is generally consistent with the local plans; therefore, the air quality management plans are generally consistent with local government plans.

The proposed project includes construction of a recreation center, which would include outdoor and indoor space including offering recreational classes, individual and group fitness options, sports classes, leagues and tournaments that would serve visitors to the existing Morse Community Park. Therefore, the project would not generate population growth that was not accounted for in regional plans such as SACOG's MTP/SCS, impacts relating to the project's potential to conflict with or obstruct implementation of the applicable air quality management plan would be **less than significant.**

b) Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

Construction

Construction of the project would result in a temporary addition of pollutants to the local air shed caused by soil disturbance, fugitive dust emissions, and combustion pollutants from on-site construction equipment, off-site trucks hauling demolition debris and excavated earth materials, and construction workers travelling to and from the site. Construction emissions can vary substantially from day to day depending on the level of activity and the specific type of operation, and, for dust, the prevailing weather conditions. Therefore, an increment of day-to-day variability exists.

Pollutant emissions associated with construction activities were quantified using CalEEMod. Default values provided by the program were used where detailed project information was not available. CalEEMod is a statewide computer model developed in cooperation with air districts throughout the state to quantify criteria air pollutant and GHG emissions associated with the construction and operational activities from a variety of land use projects, such as residential, commercial, and industrial facilities. CalEEMod input parameters, including the project land use type and size and construction schedule were based on information provided by the proposed project applicant, or default model assumptions if project specifics were unavailable. A detailed depiction of the construction schedule—including information regarding phasing, equipment used during each phase, haul trucks, vendor trucks, and worker vehicles—is contained in the CalEEMod outputs, provided in Appendix A.

To estimate project emissions, and based on information provided by the proposed project applicant, it is assumed that construction of the project would begin in late 2022 and would be completed early-to-mid 2024. For the analysis, it was generally assumed that heavy construction equipment would be operating at the site for up to 8 hours per day (depending on phase), 5 days per week (22 days per month), during project construction. In addition to construction equipment operation, emissions from worker trips and vendor trucks (i.e., delivery trucks) were estimated based on CalEEMod defaults. Vendor trucks transporting building materials were assumed for building construction. It was assumed that the project site would require limited import or export of soils and the project site would be balanced.

Entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. The project would be required to comply with SMAQMD's Basic Construction Emission Control Practices, which are required for all construction activities

within the SMAQMD jurisdiction. These measures include watering the construction site twice daily, limiting vehicle speeds on unpaved roadways to 15 miles per hour, minimizing vehicle idling, covering haul trucks transporting soil, and cleaning paved roads (SMAQMD 2009). Internal combustion engines used by construction equipment and haul trucks, vendor trucks, and worker vehicles would result in emissions of ROG, NO_x, CO, PM_{10}, and $PM_{2.5}$.

CalEEMod was used to quantify construction NO_x, PM_{10}, and $PM_{2.5}$ emissions from off-road equipment, haul trucks associated with demolition and soils export, on-road worker vehicle emissions, and vendor delivery trips. Predicted construction emissions for the worst-case day for each of the construction years are presented in Table 3.3-1 and compared to the SMAQMD thresholds.

Table 3.3-1. Estimated Maximum Daily Construction Emissions

Year	NO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day		
2022	17.01	2.73	1.63
2023	14.78	1.17	0.74
2024	22.07	1.60	0.89
Maximum Daily	**22.07**	**2.73**	**1.63**
Pollutant Threshold	*85*	*80*	*82*
Threshold Exceeded?	**No**	**No**	**No**

Source: See Appendix A for detailed results.
NO_x = oxides of nitrogen; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter
Notes: These estimates reflect implementation of all feasible BACT/BMPs.
The values shown are the maximum summer or winter daily emissions results from CalEEMod.

As noted above, all construction projects in the SMAQMD jurisdiction are required to implement SMAQMD's BACT and BMPs in order to reduce fugitive dust emissions (SMAQMD 2009). As shown in Table 3.3-1, daily construction emissions would not exceed the SMAQMD significance thresholds for NO_x, PM_{10}, or $PM_{2.5}$ during construction in all construction years. Therefore, construction impacts of the proposed project would be **less than significant** and no mitigation measures are required.

Operations

Following the completion of construction activities, the proposed project would generate criteria pollutant emissions from vehicular traffic, area sources (consumer products, architectural coatings, landscaping equipment), and energy sources (natural gas appliances, space and water heating). Default trips characteristics were assumed in the modeling. The proposed project would also be required to comply with the 2019 Title 24 standards which CalEEMod assumes. Default daily vehicle trip characteristics were assumed in the modeling. Area sources include gasoline-powered landscape maintenance equipment, consumer products, and architectural coatings for the proposed recreation center. Notably, the CCSD CAP/SAP includes climate action policies, which were adopted in February 2021. Some of the measures include:

- Measure BD-1: Energy-Efficient Buildings
- Measure BD-2: Improve Lighting Efficiency
- Measure BD-3: Limit Natural Gas Use

- Measure BD-4: Zero Net Energy
- Measure BD-5: Water Conservation in Facilities
- Measure LP-3: Electric Vehicle Charging Infrastructure
- Measure LM-4: Water-Efficient Irrigation Practices
- Measure LM-7: Recycled Water

The proposed project would implement all applicable CAP/SAP measures. Furthermore, the SMAQMD requires implementation of Tier 1 BMPs (no natural gas). Therefore, in accordance with the CAP/SAP and SMAQMD Tier 1 BMPs, the proposed project was assumed to be "all-electric," meaning that no natural gas would be consumed during operations. As such, natural gas was zeroed out in CalEEMod, and replaced with equivalent electricity demand to account for water heating and heating, ventilation, and air conditioning (HVAC) operations.[4] CalEEMod was used to estimate daily emissions from operational sources without the application of any mitigation measures. The estimated daily emissions from project operation are shown in Table 3.3-2.

Table 3.3-2. Estimated Unmitigated Maximum Daily Operational Emissions

Source	ROG	NO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day			
Area	1.23	<0.01	<0.01	<0.01
Energy	0.00	0.00	0.00	0.00
Mobile	2.94	2.50	3.03	0.82
Total	**4.17**	**2.50**	**3.03**	**0.82**
Pollutant Threshold	*65*	*65*	*80*	*82*
Threshold Exceeded?	**No**	**No**	**No**	**No**

Source: See Appendix A for detailed results.
Notes: ROG = reactive organic gases; NO_x = oxides of nitrogen; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; <0.01 = value less than reported 0.01 pounds per day.
These estimates reflect implementation of all feasible BACT/BMPs.
The values shown are the maximum summer or winter daily emissions results from CalEEMod.

As shown in Table 3.3-2, ROG, NO_x, PM_{10}, and $PM_{2.5}$ emissions would be below the SMAQMD threshold of significance. The SMAQMD CEQA guidance states that operational emissions that generate above zero pounds per day of PM_{10} and $PM_{2.5}$ would result in a significant impact, unless all feasible BACT and BMPs are implemented (SMAQMD 2009). The proposed project would comply with BMP measures in its final design to reduce operational PM_{10} and $PM_{2.5}$ emissions including compliance with the California Building Energy Efficiency Standards and Green Building Code (Title 24, Parts 6 and 11). Because the project would not exceed the SMAQMD thresholds during operation, the project would result in a **less-than-significant impact**.

Health Impacts of Criteria Air Pollutants

Construction and operational emissions of the project would not exceed the SMAQMD thresholds for any criteria air pollutants, including ROG, NO_x, PM_{10}, and $PM_{2.5}$.

[4] The increased electricity consumption of the proposed project is included in the GHG emissions estimation, but would not generate on-site criteria air pollutants.

Health effects associated with O_3 include respiratory symptoms, worsening of lung disease leading to premature death, and damage to lung tissue (CARB 2019). ROG and NO_x are precursors to O_3, for which the SCAB is designated as nonattainment with respect to the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). Due to the lack of quantitative methods to assess this complex photochemistry, the holistic effect of a single project's emissions of O_3 precursors is speculative. However, because the project would not exceed the SMAQMD thresholds for ROG or NO_x, the project would not contribute to health effects associated with O_3.

Health effects associated with PM_{10} include premature death and hospitalization, primarily for worsening of respiratory disease (CARB 2019). Construction of the project would not exceed thresholds for PM_{10} or $PM_{2.5}$, would not contribute to exceedances of the NAAQS and CAAQS for particulate matter, and would not obstruct the SVAB from coming into attainment for these pollutants. Therefore, the project is not anticipated to result in health effects associated with PM_{10} or $PM_{2.5}$.

In summary, construction and operation of the project would not result in exceedances of the SCAQMD significance thresholds for criteria pollutants, and potential health effects associated with criteria air pollutants would be **less than significant**.

c) Would the project expose sensitive receptors to substantial pollutant concentrations?

Air quality varies as a direct function of the amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Air quality problems arise when the rate of pollutant emissions exceeds the rate of dispersion. People most likely to be affected by air pollution include children, the elderly, athletes, and people with cardiovascular and chronic respiratory diseases. Sensitive receptors include residences, schools, playgrounds, childcare centers, athletic facilities, long-term healthcare facilities, rehabilitation centers, convalescent centers, and retirement homes.

Toxic Air Contaminants

TACs are defined as substances that may cause or contribute to an increase in deaths or in serious illness, or that may pose a present or potential hazard to human health. The nearest on-site sensitive receptors are playgrounds and athletic fields which are located within the park, east of the project site. Furthermore, the closest off-site sensitive receptors to the project site are single-family residences located adjacent to the proposed construction boundary. Health effects from carcinogenic air toxics are usually described in terms of cancer risk. The SMAQMD recommends an incremental cancer risk threshold of 10 in 1 million (SMAQMD 2009). "Incremental cancer risk" is the net increased likelihood that a person continuously exposed to concentrations of TACs resulting from a project over a 9-, 30-, and 70-year exposure period would contract cancer based on the use of standard Office of Environmental Health Hazard Assessment risk-assessment methodology (OEHHA 2015). In addition, some TACs have non-carcinogenic effects. TACs that would potentially be emitted during construction activities associated with project would be Diesel Particulate Matter (DPM).

The greatest potential for TAC emissions during construction would be DPM emissions from heavy equipment operations and heavy-duty trucks during construction of the project and the associated potential health impacts to sensitive receptors. DPM has established cancer risk factors and relative exposure values for long-term chronic health hazard impacts; however, no short-term, acute relative exposure level has been established for DPM. Total project construction would last approximately 16 months, after which project-

related TAC emissions would cease. According to the Office of Environmental Health Hazard Assessment, health risk assessments (which determine the exposure of sensitive receptors to toxic emissions) should be based on a 30-year exposure period for the maximally exposed individual receptor; however, such assessments should also be limited to the period/duration of activities associated with the project. A 16-month construction schedule represents a short duration of exposure (4% of a 30-year exposure period) while cancer and chronic risk from DPM are typically associated with long-term exposure. Thus, the proposed project would not result in a long-term source of TAC emissions and impacts to sensitive receptors would be **less than significant**.

d) Would the project result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

The project involves construction of a new recreation center within the existing Morse Community Park. This land use would not result in sources commonly associated with odors. Potential odors produced during construction would be attributable to concentrations of unburned hydrocarbons from tailpipes of construction equipment, architectural coatings, and asphalt pavement application. In general, odors are highest near the source, but disperse quickly resulting in a reduced off-site exposure. Therefore, impacts associated with odors generated from construction and operations would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.4 Biological Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IV. 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 Game 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 Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

a) ***Would the project 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 Game or U.S. Fish and Wildlife Service?***

There are a number of species listed under the federal and/or California endangered species acts known to occur in the general area, including Giant Garter Snake (*Thamnophis gigas*), California Red-legged Frog (*Rana draytonii*), California Tiger Salamander (*Ambystoma californiense*), and Valley Elderberry Longhorn Beetle (*Desmocerus californicus dimorphus*) (USFWS 2021). However, these species are not anticipated to be impacted by the project because there is no suitable habitat on the project site to support these species. The project site is entirely covered with non-native annual grasses, is regularly mowed, and has previously been graded. The project boundary adjacent to Bellaterra Drive and Fire Poppy Drive is lined with small, non-native ornamental trees. There are no bodies of water on the site that would provide suitable habitat for any aquatic species. Due to the level of disturbance at the site, the proposed project would not impact any listed species and **no impact** would occur.

b) ***Would the project 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 Game or U.S. Fish and Wildlife Service?***

As discussed in item 'a' above, the project site is entirely covered with non-native annual grasses and does not include any riparian habitat or other sensitive natural communities. There would be **no impact**.

c) Would the project have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

The proposed project would not have a substantial adverse effect on any federally protected wetlands. The project site consists of regularly mowed, non-native annual grasses and does not contain any waters or wetlands. As such, **no impact** would occur from the proposed project.

d) Would the project 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?

As discussed item 'a,' the project site has been previously disturbed by grading and mowing. The project site is also located in an area surrounded by residential development and the existing Morse Community Park which also undergoes regular landscaping and maintenance. Therefore, the potential of the site to be used as a terrestrial corridor connecting larger open space areas is non-existent. The project would have **no impact** related to the movement of native resident species or wildlife nursery sites.

e) Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The City of Elk Grove has adopted regulations for the preservation and protection of existing trees in the City, detailed in Chapter 19.12 of the City's Municipal Code. According to Section 19.12.070, no person shall conduct work within the critical root zone, cut down, remove, top, or relocate any landmark trees (trees specifically identified for protection), trees of local importance (trees of specific varieties greater than six inches in diameter), secured trees (trees protected as part of the development process for residential and commercial developments), or trees on City property or in the public right-of-way unless a valid tree permit has been approved. The proposed project does not include any trees that would be protected under the City's tree ordinance. The site currently contains approximately 17 small, non-native ornamental trees lining the project boundary along Bellaterra Drive and Fire Poppy Drive. The project would preserve the existing trees and add approximately 80 new trees. As such, the proposed project would not conflict with the City's tree ordinance and impacts would be **less than significant**.

f) Would the project 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 Habitat Conservation Plan or Natural Community Conservation Plan. There would be **no impact**.

Mitigation Measures

No mitigation measures are required.

3.5 Cultural Resources

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
V.	**CULTURAL RESOURCES** – Would the project:				
a)	Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☐	☒
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?	☐	☐	☒	☐

A Cultural Resources Inventory Report for the proposed was prepared by Dudek archaeological staff in November 2021 (included as Appendix B). A records search was conducted for the project at the North Central Information Center on September 21, 2021. The report included the project site and a 0.5-mile radius of the project site. A Dudek archaeologist conducted an intensive-level pedestrian survey of the entire project site on September 30, 2021, using standard archaeological procedures and techniques.

a) Would the project cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?

Historical resource is a term with a defined statutory meaning (see Public Resources Code section 21084.1 and CEQA Guidelines section 15064.5(a), (b)). The term includes any resources listed or determined to be eligible for listing in the National Register of Historic Places, as well as some California State Landmarks and Points of Historical Interest. In addition, historical resources are evaluated against the California Register of Historical Resources criteria prior to making a finding as to the project's impacts on historical resources. According to the results of the September 2021 records search, there are two resources consisting of historic properties located within the 0.5-mile of the project area. However, both of these resources were found ineligible for the National Register of Historic Places and California Register of Historical Resources through survey evaluation. The project, as presently designed, would not impact any known cultural resources. Based on the pedestrian survey, no prehistoric sites, historic sites or historic landscapes were identified on the project site. Because there are no historical resources on the project site, the proposed project would result in **no impact** to any historical resources.

b) Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Observation of the conditions within the project site indicate surface conditions are disturbed due to regular grading and mowing. No newly identified archaeological resources were recorded during the pedestrian survey. Furthermore, the North Central Information Center records search did not identify the presence of archaeological resources within the proposed project site or the surrounding vicinity. The proposed project,

as currently designed, appears to have a very low potential for encountering intact cultural deposits, during ground-disturbing activities. Based on these negative findings and the observed condition of the project site, no additional cultural resources efforts, including archaeological monitoring, are recommended to be necessary beyond standard protection measures for unanticipated discoveries of cultural resources detailed in Mitigation Measure CUL-1. Implementation of Mitigation Measures CUL-1 would ensure that project impacts to archaeological resources would be **less-than-significant with mitigation**.

c) Would the project disturb any human remains, including those interred outside of formal cemeteries?

Based on the disturbed nature of the project site, the site has a very low potential for discovering and/or disturbing human remains. However, if human remains are found, the County Coroner shall be immediately notified of the discovery in accordance with Section 7050.5 of the California Health and Safety Code. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within 2 working days of notification of the discovery if the potential remains are human in origin. If the County Coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the Native American Heritage Commission (NAHC) in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the Most Likely Descendant from the deceased Native American. The Most Likely Descendant shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains. Compliance with this state law would ensure that impacts to human remains would be **less than significant**.

Mitigation Measures

Compliance with Mitigation Measure CUL-1 would ensure the proper procedures are followed in the event any resources are uncovered during any site disturbing activities. Impacts would be reduced to **less than significant** with the following measure.

CUL-1: Unanticipated Discovery of Cultural Resources. In the event that archaeological resources (sites, features, or artifacts) or Tribal Cultural Resources are exposed during construction activities, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and determine whether or not additional study is warranted. Depending upon the significance of the find under CEQA (14 CCR 15064.5(f); PRC Section 21082), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted.

3.6 Energy

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VI. 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?	☐	☐	☒	☐

The Sacramento Municipal Utility District (SMUD) is the utility provider that would serve the project site. SMUD receives electric power from a variety of sources. According to SMUD's 2020 Sustainability Report, 33.8% of SMUD's power came from eligible renewable energy sources in 2019, including biomass/waste, geothermal, small hydroelectric, solar, and wind sources (SMUD 2020). Notably, as discussed in Section 3.8, SMAQMD requires projects implement Tier 1 BMPs to avoid conflicting with long-term state goals. Furthermore, the CCSD CAP/SAP includes a variety of sustainability measures including limiting the consumption of natural gas in district facilities. Consistent with the CAP/SAP the proposed project would be required to be designed and constructed without natural gas infrastructure.

a) ***Would the project result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?***

The short-term construction and long-term operation of the project will require the consumption of energy resources in several forms at the project site and within the project area. Construction and operational energy consumption of electricity, natural gas, and petroleum fuels is evaluated in detail below. As analyzed in this section, the overall impact is **less than significant**.

Electricity

Construction Use

Temporary electric power for as-necessary lighting and electronic equipment such as computers inside temporary construction trailers would be provided by SMUD. The electricity used for such activities would be temporary and would have a negligible contribution to the project's overall energy consumption.

Operational Use

The operational phase would require electricity for multiple purposes including building heating and cooling, lighting, appliances, electronics, and for water and wastewater treatment and conveyance. The estimation of operational building energy and water and wastewater was based on the CalEEMod default assumptions for the recreation center. Table 3.6-1 presents the electricity demand for the project.

Table 3.6-1. Project Operations – Electricity Demand

Project Facility	kWh/year
Project Buildings	758,935
Water/Wastewater	22,576
Total	**781,511**

Source: Appendix A.
Notes: kWh = kilowatt-hour.

For disclosure, in comparison, for Sacramento County, electricity demand in 2019 was 10,828 million kilowatt-hours (CEC 2020). The proposed project would result in a minimal increase in electricity consumption and would be inherently energy efficient with implementation of the CCSD CAP/SAP climate action policies. Impacts related to operational electricity use would be **less than significant**.

Natural Gas

Construction Use

Natural gas is not anticipated to be required during construction of the proposed project. Fuels used for construction would primarily consist of diesel and gasoline, which are discussed below under the "petroleum" subsection. Any minor amounts of natural gas that may be consumed as a result of project construction would have a negligible contribution to the project's overall energy consumption. Thus, the impact would be less than significant.

Operational Use

It was assumed that the proposed project would be built without natural gas during operations and would be "all-electric" per SMAQMD Tier 1 BMP. As such, natural gas was zeroed out in CalEEMod, and replaced with equivalent electricity demand to account for HVAC operations. Therefore, the proposed project would not result in a wasteful use of energy in regard to natural gas consumption during operations.

Petroleum

Construction Use

Heavy-duty construction equipment associated with construction activities would rely on diesel fuel, as would haul and vendor trucks involved in delivery of materials to the project site. Construction workers would travel to and from the project site throughout the duration of construction. It is assumed in this analysis that construction workers would travel to and from the site in gasoline-powered light-duty vehicles.

Heavy-duty construction equipment of various types would be used during each phase of project construction. Appendix A lists the assumed equipment usage for each phase of construction. The project's construction equipment is estimated to operate a total combined 16,900 hours based on CalEEMod defaults assumptions.

Fuel consumption from construction equipment was estimated by converting the total carbon dioxide (CO_2) emissions from each construction phase to gallons using the conversion factors for CO_2 to gallons of gasoline or diesel. The conversion factor for gasoline is 8.78 kilograms per metric ton CO_2 per gallon, and the conversion factor for diesel is 10.21 kilograms per metric ton CO_2 per gallon (The Climate Registry 2021). The estimated diesel fuel usage from construction equipment is shown in Table 3.6-2.

Table 3.6-2. Construction Equipment Diesel Demand

Phase	Pieces of Equipment	Equipment CO_2 (MT)	kg CO_2/Gallon	Gallons
Grading	4	9.05	10.21	886.52
Building Construction	8	311.55	10.21	30,514.17
Paving	6	7.76	10.21	759.78
Architectural Coating	1	1.28	10.21	125.03
			Total	**32,285.51**

Sources: Pieces of equipment and equipment CO_2 (Appendix A); kg CO_2/Gallon (The Climate Registry 2021).
Notes: CO_2 = carbon dioxide; MT = metric ton; kg = kilogram.

Fuel estimates for total worker vehicles and vendor truck fuel consumption are provided in Table 3.6-3.

Table 3.6-3. Construction Worker and Vendor Truck Petroleum Demand

Phase	Total Trips	Vehicle MT CO_2	kg CO_2/ Gallon	Gallons
Worker Vehicles (Gasoline)				
Grading	100	0.30	8.78	34.21
Building Construction	16,500	48.15	8.78	5,484.31
Paving	150	0.42	8.78	48.09
Architectural Coating	110	0.31	8.78	35.26
			Total	**5,601.87**
Vendor Trucks (Diesel)				
Grading	0	0.00	10.21	0.00
Building Construction	6,300	58.63	10.21	5,742.66
Paving	0	0.00	10.21	0.00
Architectural Coating	0	0.00	10.21	0.00
			Total	**5,742.66**

Sources: Trips and vehicle CO_2 (Appendix A); kg CO_2/Gallon (The Climate Registry 2021).
Notes: MT = metric ton; CO_2 = carbon dioxide; kg = kilogram.

In summary, construction of the project is conservatively anticipated to consume 5,602 gallons of gasoline and 38,028 gallons of diesel, for a total of 43,630 gallons of petroleum over a period of approximately 352 working days. For disclosure, by comparison, approximately 21 billion gallons of petroleum would be consumed in California over the course of the proposed project's construction phase, based on the California daily petroleum consumption estimate of approximately 78.6 million gallons per day. Furthermore, the proposed project would be subject to the California Air Resources Board (CARB) In-Use Off-Road Diesel Vehicle Regulation that requires the vehicle fleet to reduce emissions by retiring, replacing, repowering older engines, or installing Verified Diesel Emissions Control Strategies. Overall, because petroleum use during construction would be temporary, and would not be wasteful or inefficient, impacts would be **less than significant**.

Operational Use

The fuel consumption resulting from the proposed project's operational phase would be attributable to various vehicles associated with each land use. Petroleum fuel consumption associated with motor vehicles traveling within the City during operation is a function of vehicle miles traveled (VMT). Default trip characteristics from CalEEMod including trip generation rates and trip length were assumed. The estimated fuel use from the proposed project operational mobile sources is shown in Table 3.6-4.

Table 3.6-4. Petroleum Consumption – Operation

Fuel	Vehicle MT CO_2	kg CO_2/Gallon[a]	Gallons
Gasoline	334,25	8.78	38,069.12
Diesel	21.35	10.21	2,091.57
		Total	**40,160.69**

Sources: Trips and vehicle CO_2 (Appendix A); kg CO_2/Gallon (The Climate Registry 2021).
Notes: MT = metric ton; CO_2 = carbon dioxide; kg = kilogram.

As depicted in Table 3.6-4, mobile sources from operation of the proposed project would result in approximately 40,161 gallons of petroleum fuel usage per year. For disclosure, by comparison, California as a whole consumes approximately 28.7 billion gallons of petroleum per year. Therefore, the proposed project would consume a small percentage of the petroleum consumed within the state. Furthermore, the proposed project would be located in the existing Morse Community Park, which would encourage alternative transportation thus reducing the need for cars and parking and would also include the installation of electric vehicle (EV) charging stations.

In summary, the consumption of energy resources (including electricity, natural gas, and petroleum) during the proposed project construction and operation would not be inefficient or wasteful and would result in a **less-than-significant impact**.

b) Would the project conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

The proposed project would comply with the most current Title 24 California Building Code/Code of Regulations (2019), CAL Green Code, California Green Building Standards Code, and 2019 energy standards at the time of building construction, as amended by the State of California. The proposed recreation center would comply with all current Title 24 energy requirements. Furthermore, CCSD adopted the CAP/SAP in October 2020, which outlines the actions the District will undertake to reduce its energy use and contribution to global climate change. The proposed project would be consistent with the CCSD's CAP/SAP, thus reducing the proposed project's energy demand. During both construction and operation of the project, the CCSD or their contractor would comply with all state regulations related to solid waste generation, storage, and disposal, including the California Integrated Waste Management Act, as amended. During construction, all waste generated would be recycled to the maximum extent possible.

As such, impacts related to the project's potential to conflict with plans for renewable energy and energy efficiency would be **less than significant**.

3.7 Geology and Soils

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VII. 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 a 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 waste water 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?	☐	☐	☒	☐

A geotechnical report for the project was prepared by Terracon Consultants, Inc. in June 2021 (included as Appendix C). The report presents the findings of a subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations and floor slabs for the proposed project.

a) Would the project 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.

The Alquist-Priolo Zones Special Studies Act defines active faults as those that have experienced surface displacement or movement during the last 11,000 years. According to the California Geological Survey Fault Activity Map of California, there are no known active faults located within the City of Elk Grove (CGS 2015). Therefore, there would be **no impact** related to the rupture of a known earthquake fault.

ii) Strong seismic ground shaking?

The closest known active fault traces are those of the Midland fault, more than 18 miles west of the project site (CGS 2015). The extent of ground shaking is controlled by the magnitude and intensity of the earthquake, distance from the epicenter, and local geologic conditions. The distance from active or potentially active fault zones means that the likelihood of ground shaking is low. Despite the project site's low likelihood for strong seismic ground shaking, the proposed project would comply with the California Building Code to ensure that all structures, including the Recreation Center, would be constructed to resist the effects of seismic ground shaking. With the project's adherence to these existing regulations, the risks to people and structures due to strong seismic ground shaking would be **less than significant**.

iii) Seismic-related ground failure, including liquefaction?

Soil liquefaction most commonly occurs when ground shaking from an earthquake causes a sediment layer saturated with groundwater to lose strength and take on the characteristics of a fluid, thus becoming similar to quicksand. Liquefaction may also occur in the absence of a seismic event when unconsolidated soil above hardpan becomes saturated with water. The soils underlying the project site are dense and the upper 50 feet of soil are above the depth of groundwater (City of Elk Grove 2018). Additionally, the geotechnical report concluded based on the age of the geologic formation and the relative depth to groundwater at the site that the potential for liquefaction at the site is low. Therefore, the potential for seismic-related ground failure to affect the project, including liquefaction, would be **less than significant**.

iv) Landslides?

The project site is flat and not located within an area identified as being susceptible to landslides. Therefore, an earthquake-induced landslide on the project site is highly unlikely and **no impact** would occur.

b) Would the project result in substantial soil erosion or the loss of topsoil?

Soil erosion, which is discussed in detail in Section 3.10, Hydrology and Water Quality, of this Initial Study, could occur during project grading and construction. The State Water Resources Control Board has adopted

a National Pollutant Discharge Elimination General Permit for the Discharge of Storm Water from Small Municipal Separate Storm Sewer Systems (WQ Order No. 2003-0005-DWQ) to provide permit coverage for smaller municipalities, including the CCSD. Under this General Permit, the CCSD must develop a stormwater pollution prevention program (SWPPP) to control the discharge of pollutants from construction sites disturbing greater than or equal to one acre of land. The potential for erosion resulting from the project would be minimized by adhering to the General Permit requirements, as enforced through City's Municipal Code Section 15.12.020(B)(3) and Municipal Code Chapter 16.44, Land Grading and Erosion Control. The SWPPP would include best management practices (BMPs) such as procedures for handling construction debris to minimize non-stormwater discharges. Compliance with these existing regulations, which includes preparation and implementation of a SWPPP, would ensure that the project would not result in substantial erosion; impacts would be **less than significant**.

c) Would the project be located on a 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?

Unstable geologic units or soils are characterized by materials lacking sufficient integrity to support urban development. The area surrounding the project site supports development, which indicates that geologic conditions in the area are capable of supporting future development of the site and would not be unstable.

Potential impacts related to unstable soil including landslides, liquefaction, and lateral spreading are discussed under Item (a) above and were found to be less than significant. Subsidence or collapse can result from the removal of subsurface water, resulting in either catastrophic or gradual depression of the surface elevation of the project site. Subsidence can also occur as a result of differential (i.e., unequal) settlement. The project would not involve any dewatering activities that could cause subsidence or collapse. The project site is also not subject to expansive soils (discussed in detail in item 'd' below) that would cause differential settlement due to dewatering. Impacts would be **less than significant**.

d) Would the project 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?

Expansive soils shrink and swell as a result of moisture change. These volume changes can result in damage over time to building foundations, underground utilities, and other subsurface facilities if they are not designed and constructed appropriately to resist the damage associated with changing soil conditions. Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3%; moderate if 3% to 6%; high if 6% to 9%; and very high if more than 9% (USDA 2019). The project site's underlying soil is comprised of San Joaquin silt loam, which has a linear extensibility rating of 2.4% (USDA 2021). The geotechnical report also indicated that the near surface soils have low expansion potential. However, the geotechnical report recommends that special measures be taken to protect floor slabs from potentially expansive clays at the site. This could be achieved by chemical treatment of the upper 12 inches of the building pad subgrade soil, or to use low volume change engineered fill for the upper 12 inches of the building pad. The proposed project would comply with the recommendations of the geotechnical report, which would ensure that the project would not create substantial direct or indirect risks to life or property. Impacts would be **less than significant.**

e) Would the project have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No septic tanks or alternative wastewater disposal systems are proposed; therefore, the project would have **no impact** related to septic tanks or alternative wastewater disposal systems.

f) Would the project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

There are no known paleontological resources in the City; however, the geological formations present in the City and surrounding region are considered sensitive for paleontological resources, and excavation and grading during construction could affect previously undiscovered fossils (City of Elk Grove 2018). Per state law, in the event that paleontological resources or unique geologic features are encountered during construction, all earthwork within a 50-meter (164-foot) radius of the find shall be stopped, the City of Elk Grove notified, and a paleontologist retained to assess the potential resource. Compliance with state law regarding paleontological resources would ensure that the project impact is **less than significant.**

Mitigation Measures

No mitigation measures are required.

3.8 Greenhouse Gas Emissions

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
VIII. 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 an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

Greenhouse gases (GHGs) are gases that absorb infrared radiation in the atmosphere. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature. Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect. Principal GHGs include carbon dioxide, methane, nitrous oxide, O_3, and water vapor. Climate change is already affecting California: average temperatures have increased, leading to more extreme hot days and fewer cold nights; shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year; sea levels have risen; and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010).

The effect each GHG has on climate change is measured as a combination of the mass of its emissions and the potential of a gas or aerosol to trap heat in the atmosphere, known as its global warming potential (GWP), which varies

among GHGs. Total GHG emissions are expressed as a function of how much warming would be caused by the same mass of CO_2. Thus, GHG emissions are typically measured in terms of pounds or tons of CO_2 equivalent (CO_2e).[5]

Addressing GHG generation impacts requires an agency to make a determination as to what constitutes a significant impact. The Governor's Office of Planning and Research (OPR) Guidance does not include a quantitative threshold of significance to use for assessing a proposed development's GHG emissions under CEQA. Moreover, CARB has not established such a threshold or recommended a method for setting a threshold for proposed development-level analysis.

In April 2020, SMAQMD adopted an update to their land development project operational GHG threshold, which requires a project to demonstrate consistency with CARB's 2017 Climate Change Scoping Plan. The Sacramento County Board of Supervisors adopted the updated GHG threshold in December 2020. SMAQMD's technical support document, "Greenhouse Gas Thresholds for Sacramento County," identifies operational measures that should be applied to a project to demonstrate consistency. All projects must implement Tier 1 BMPs to demonstrate consistency with the Climate Change Scoping Plan. After implementation of Tier 1 BMPs, project emissions are compared to the operational land use screening levels table (equivalent to 1,100 metric tons (MT) of CO_2e per year). Furthermore, the CCSD adopted a CAP/SAP in October 2020. The CAP/SAP includes emission reduction measures which new CCSD facilities are required to implement. Specifically, CAP/SAP measure BD-1 would require energy-efficient buildings. All new CCSD buildings and facilities are required to comply with the mandatory CALGreen measures, and it is recommended that new facilities adopt Tier 1 or Tier 2 measures. The proposed project would meet the Tier 2 standards, which would result in a 15 percent reduction in energy consumption.

If a project's operational emissions are less than or equal to 1,100 MT CO_2e per year after implementation of Tier 1 BMPs, the project will result in a less than cumulatively considerable contribution and has no further action. Tier 1 Best Management Practices include:

- BMP 1 – no natural gas: projects shall be designed and constructed without natural gas infrastructure.
- BMP 2 – EV Ready: projects shall meet the current CALGreen Tier 2 standards.
  - EV Capable requires the installation of "raceway" (the enclosed conduit that forms the physical pathway for electrical wiring to protect it from damage) and adequate panel capacity to accommodate future installation of a dedicated branch circuit and charging station(s)
  - EV Ready requires all EV Capable improvements plus installation of dedicated branch circuit(s) (electrical pre-wiring), circuit breakers, and other electrical components, including a receptacle (240-volt outlet) or blank cover needed to support future installation of one or more charging stations

Projects that implement BMP 1 and BMP 2 can use the screening criteria for operation emissions. Projects that do not exceed 1,100 MT CO_2e are then screened out of further requirements. For projects that exceed 1,100 MT CO_2e per year, then compliance with BMP 3 is also required:

- BMP 3 – Reduce applicable project VMT by 15% residential and 15% worker relative to Sacramento County targets, and no net increase in retail VMT. In areas with above-average existing VMT, commit to provide electrical capacity for 100% electric vehicles.

[5] The CO_2E for a gas is derived by multiplying the mass of the gas by the associated GWP, such that metric tons of CO_2E = (metric tons of a GHG) × (GWP of the GHG). CalEEMod assumes that the GWP for CH_4 is 25, which means that emissions of 1 metric ton of CH_4 are equivalent to emissions of 25 metric tons of CO_2, and the GWP for N_2O is 298, based on the Intergovernmental Panel on Climate Change Fourth Assessment Report.

Therefore, this assessment uses SMAQMD's GHG construction and operational emissions thresholds of 1,100 per year to evaluate whether the project would generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

a) Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Construction

Construction of the proposed project would result in GHG emissions that are primarily associated with use of off-road construction equipment and off-site sources including haul trucks, vendor trucks, and worker vehicles. CalEEMod was used to calculate the annual GHG emissions based on the construction scenario as analyzed in Section 3.3, Air Quality. It was assumed that construction would begin in late 2022. Emissions from on-site and off-site sources are combined for the purposes of this analysis and are presented below in Table 3.8-1.

Table 3.8-1. Estimated Annual Construction GHG Emissions

Year	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
2022	57.13	0.01	<0.01	57.73
2023	362.25	0.05	0.01	366.16
2024	18.07	<0.01	<0.01	18.23
			Total Project Emissions	**442.12**
			SMAQMD GHG Threshold	*1,100*
			Threshold Exceeded?	**No**

Source: See Appendix A for detailed results.
Notes: MT = metric tons; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent; <0.01 = value less than reported 0.01 metric tons per year.

As shown in Table 3.8-1, total construction GHG emissions would be approximately 442 MT CO_2e as a result of construction-related activities. Construction GHG emissions are a one-time release and are typically considered separate from operational emissions, as global climate change is inherently a cumulative effect that occurs over a long period of time and is quantified on a yearly basis. As previously discussed, the SMAQMD identifies a GHG emission threshold for construction-related emissions of 1,100 MT CO_2e per year. Table 3.8-1 indicates that the project would not exceed the SMAQMD GHG threshold. Therefore, the project's construction-related GHG emissions would represent a **less-than-significant impact**.

Operation

Following the completion of construction activities, the project would generate GHG emissions from mobile sources (vehicle trips), area sources (landscaping equipment), energy sources (electricity consumption), solid waste generation, water supply, and wastewater treatment. The estimated annual operational project-generated GHG emissions from these sources are shown in Table 3.8-2.

Table 3.8-2. Estimated Annual Operational GHG Emissions

Emission Source	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Area Sources	<0.01	<0.01	0.00	<0.01
Energy	219.15	0.01	<0.01	220.41
Mobile	355.60	0.03	0.02	362.77
Solid Waste	58.49	3.46	0.00	144.90
Water Supply and Wastewater	5.21	<0.01	<0.01	6.01
			Total	**734.09**
			SMAQMD GHG Threshold	*1,100*
			Threshold Exceeded?	**No**

Source: See Appendix A for detailed results.
Notes: MT = metric tons; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent; <0.01 = value less than reported 0.01 metric tons per year.

Table 3.8-2 indicates that the GHG emissions associated with operation of the project would be 734 MT CO_2e per year, which is below SMAQMD's GHG threshold of 1,100 MT CO_2e per year. Therefore, the project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment, and this would represent a cumulatively **less than significant** GHG impact.

b) Would the project generate conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The CCSD adopted a CAP/ SAP in October 2020. The plan recommends numerous emission reduction, sustainability, and adaptation measures that can be taken by the CCSD to reduce its GHGs, conserve natural resources, preserve biodiversity, reduce pollution, and adapt to climate change. Some of measures within the CAP/SAP that would be applicable to the proposed project includes designing all new facilities to be all electric to meet CALGreen standards; provide EV charging infrastructure at all new and existing CCSD-owned facilities; transition the vehicle fleet to EV or zero-emission vehicle models by replacement at end of fossil fueled vehicle service life or sooner as feasible; and increasing the urban forest and biomass planting, minimize water use, reduce stormwater runoff, preserve and increase wildlife habitat, reduce green waste and support low impact landscape maintenance practices. Furthermore, the SMAQMD requires projects commit to Tier 1 BMPs (no natural gas and EV ready). With implementation of Tier 1 BMPs and emissions below the 1,100 MT CO_2e per year threshold, projects would avoid conflicting with long-term state goals established by AB 32 and Senate Bill 32 and would help maintain a trajectory to meet the 2050 state target identified in Executive Order S-3-05. As such, the project would not conflict with any applicable plan, policy, or regulation adopted for the purposes of reducing the emissions of GHGs. The project's impact would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.9 Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
IX. 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 that 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?	☐	☐	☐	☒

A search of the Department of Toxic Substances Control (DTSC) Envirostor database was completed and there are no active cleanup sites listed within two miles of the project site. The closest active cleanup site is approximately 2.6 miles east of the project at the Laguna Ridge East Elementary School site (DTSC 2021). There are several leaking underground storage tank cleanup sites listed as close as 0.3 miles from the project site; however, these cleanups have all been completed and no further action is required. The project site is also not included in or near any identified hazardous sites.

The closest schools to the project site are Helen Carr Castello Elementary School (0.2 miles northwest), Elk Grove Charter School (0.4 miles south), Franklin High School (0.5 miles southeast), and Arlene Hein Elementary School (0.6 miles east). The nearest airport is Franklin Field Airport, located approximately 6 miles south of project site. The Sacramento Executive Airport is located approximately 8 miles north of the site.

a) Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Construction of the project would involve temporary use of hazardous materials, including fuel for construction equipment, paints, solvents and sealants. Storage, handling, and use of these materials would occur in accordance with standard construction BMPs to minimize the potential for spill or release and ensure that any such spill or release would be controlled on site. This would include storing all hazardous materials inside buildings or under other cover, vehicle specifications for hazardous material transport and disposal, procedures for safe storage, and training requirements for those handling hazardous materials. Project construction contractors are required by state law to implement and comply with existing hazardous material regulations. Because each of these regulations is specifically designed to protect the public health through procedures for transporting, storing, and handling hazardous materials, improved technology in the equipment used to transport these materials, and quicker, more coordinated response to emergencies, impacts related to the creation of significant hazards to the public through routine transport, use, disposal, and risk of upset during construction would be **less than significant**.

It is anticipated that hazardous materials used during long-term operation of the project could include building maintenance and cleaning chemicals, as well as other landscaping fertilizers. These materials are commonly used across all types of land uses, and the project is not expected to present any significant risks associated with their use. During operation, the project would be required to use, store, and transport hazardous materials in compliance with applicable federal, state, and local regulations during project operation. Therefore, impacts related to the creation of significant hazards to the public through routine transport, use, disposal, and risk of upset during project operations would be **less than significant**.

b) Would the project 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?

The project would not create a significant hazard to the public or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials because the project would be required to use, store, and transport hazardous materials in compliance with applicable federal, state, and local regulations. Impacts would be **less than significant**; refer to the answer provided in 'a' above.

c) Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

The closest schools to the project site are Helen Carr Castello Elementary School (0.2 miles northwest), Elk Grove Charter School (0.4 miles south), Franklin High School (0.5 miles southeast), and Arlene Hein Elementary School (0.6 miles east). As discussed above in items 'a' and 'b' the proposed project would not create any significant hazards related to the transport, use, disposal, or upset and accident conditions involving hazardous materials or their release into the environment. Therefore, impacts to schools would be **less than significant**.

d) Would the project be located on a site that 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?

Pursuant to Government Code Section 65962.5, the State of California Hazardous Waste and Substances Site List (also known as the "Cortese List") is a planning document used by state and local agencies and developers to comply with CEQA requirements in providing information about the location of hazardous materials sites. The project site is not included on the Cortese List. According to the DTSC EnviroStor database, the closest cleanup site is approximately 2.6 miles east of the project at the Laguna Ridge East Elementary School site (DTSC 2021). However, this cleanup is currently underway and would not impact the project area due to its distance from the project site. There are several leaking underground storage tank cleanup sites close to the project site, but these have all been remediated and no further action is required. Thus, there would be **no impact**.

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?

The closest airport is the Franklin Field Airport, located approximately 6 miles south of project site. The project site is not located within an airport land use plan and is not within two miles of a public airport or public use airport. There would be **no impact**.

f) Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

The project would not interfere with any adopted emergency or evacuation plans. The City's 2018 Basic Emergency Operations Plan (EOP) serves as the legal and conceptual framework for emergency management in the City and is intended to facilitate interagency coordination for emergency operations, including coordination with the CCSD (City of Elk Grove 2018). The EOP addresses planned responses to emergency situations associated with large-scale disasters and establishes the primary responsibilities of each department and agency during such emergencies. The project would be consistent with allowed uses and would not involve any operations or activities that would interfere with the EOP. Additionally, the project would provide emergency access to the site by extending an existing parking lot with a fire access turning radius to the south; a fire access lane would also be constructed that would extend perpendicular to the parking lot to the east. Therefore, the project would have **no impact** related to implementation of emergency or evacuation plans.

g) Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

The project site is in a Local Responsibility Area (LRA) and is not designated as a very high fire hazard severity zone (FHSZ) (CAL FIRE 2008). There are no moderate, high, or very high FHSZs in Elk Grove, and the City is not within a State Responsibility Area (SRA).

The City of Elk Grove's General Plan EIR indicates that the probability of wildfire is likely on a County-wide level because of the area's flat topography and extent of undeveloped land (City of Elk Grove 2018). This risk is highest in areas that adjoin open grasslands to the south of the City. The proposed project is within the

southwestern area of the City but does not adjoin any open grasslands or large swaths of vegetation that pose a wildfire hazard. The site is included within an irrigated and maintained park surrounded by a residential neighborhood. Fire and emergency medical services in the project area would continue to be provided by the Cosumnes Fire Department (CFD). Because the project site is not in or near an area of high fire hazard severity, adequate fire protection services would be provided by the CFD, and the project would be designed to be Fire Code-compliant, there would be **no impact** related to wildfire hazards.

Mitigation Measures

No mitigation measures are required.

3.10 Hydrology and Water Quality

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
X. HYDROLOGY AND WATER QUALITY – Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water 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 which would:				
i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
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?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

a) Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

The project site is currently undeveloped, and the project would allow for future development of the Morse Recreation Center, which would add impervious surfaces. The project would introduce a total of 2.3 acres (53% cover) of impervious surface. While the project would introduce new impervious cover, there would be 3,200 sf of bioretention areas to capture stormwater runoff from the site, parking lot, and recreation center roof drains. Additionally, as described in Section 3.7(b), the CCSD must develop a SWPPP to control the discharge of pollutants from construction sites disturbing greater than or equal to one acre of land. As such, the proposed project would not violate any water standards or otherwise degrade water quality and impacts would be **less than significant**.

b) Would the project substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Implementation of the proposed project would result in the development of impervious surfaces that could interfere with on-site groundwater recharge. The project is located within the Sacramento Valley Groundwater Basin and the South American Subbasin (SCGA 2021). However, recharge areas in the County typically occur in areas along rivers, streambed, and other areas of high soil permeability (SCGA 2021, Figure 2.2-44). Urban areas such as the project site are classified as "very poor" recharge areas. Nevertheless, the proposed project would include 3,200 sf of bioretention areas that would collect runoff water from nearby impervious surfaces and allow for groundwater percolation. Development associated with the project would also be required to comply with CALGreen standards for water efficiency and therefore would not impede sustainable management of groundwater resources. Therefore, impacts related to groundwater would be **less than significant**.

c) Would the project 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 which would:

i) Result in substantial erosion or siltation on- or off-site?

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?

iv) Impede or redirect flood flows?

As discussed previously, the proposed project would introduce new impervious areas that could affect current site drainage patterns. However, the project would include bioretention areas that would collect runoff water from nearby impervious surfaces so that there would be no flooding on- or off-site, and these stormwater features would ensure the capacity of the existing stormwater infrastructure would not be adversely affected. The potential for erosion resulting from the project would be minimized by adhering to the General Permit requirements, as enforced through City's Municipal Code Section 15.12.020(B)(3) and Municipal Code Chapter 16.44, Land Grading and Erosion Control. The SWPPP would include BMPs designed to minimize polluted runoff and non-stormwater discharges. According to the Federal Emergency Management Agency National Flood Hazard Layer Viewer, the project site is located within flood hazard zone X which is an area of minimal flood hazard (FEMA 2021). The project would therefore have no impact on any flood flows. Overall, there would be a **less-than-significant impact** related to alteration of the existing drainage pattern of the site.

d) In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation?

As discussed previously, the project site is within an area of minimal flood hazard. There are no dams or levees in the vicinity of the project site. The project would not expose people or structures to significant loss related to flooding. The project site is physically removed from any large body of water and is not subject to inundation by seiche, tsunami, or mudflow. Therefore, the project would have **no impact** related to flooding or other water-related hazards.

e) Would the project conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

The proposed project would not conflict or obstruct implementation of the South American Subbasin Groundwater Sustainability Plan (SCGA 2021). As discussed previously, the project would not substantially decrease groundwater supplies or interfere substantially with groundwater recharge. Urban areas such as the project area are not considered important recharge areas contributing to groundwater supply, and development associated with the project would be required to comply with CALGreen standards for water efficiency. Therefore, the project would not impede sustainable management of groundwater resources. There would be **no impact**.

Mitigation Measures

No mitigation measures are required.

3.11 Land Use and Planning

		Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XI.	**LAND USE AND PLANNING** – Would the project:				
a)	Physically divide an established community?	☐	☐	☐	☒
b)	Cause a significant 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?	☐	☐	☐	☒

a) Would the project physically divide an established community?

The physical division of an established community is typically associated with the construction of a linear feature, such as a major highway or railroad tracks, which would impair mobility within an existing community or between a community and an outlying area. The project would be constructed on an undeveloped portion of Morse Community Park. The project does not include any features that would physically divide an established community and the proposed use would be consistent with the underlying land use and zoning as well as the surrounding residential and park uses. The project would have **no impact** related to the physical division of an established community.

b) Would the project cause a significant 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?

The City's General Plan designates the project site as Parks and Open Space; the site is also zoned Parks and Recreation, per the City's Municipal Code. The CCSD is an independent district but does not have local land use authority so is required to comply with Chapter 23.24.020 of the Municipal Code, which states that the Parks and Recreation district is typically intended for existing and future parks and recreation facilities. The project would consist of a recreation center designed to complement the park and provide a variety of recreational activities. Because the recreation center would dedicate most of its usable space for sports and fitness, the project is considered a "fitness and sports facility," per Section 23.26.050(F)(2) of the Municipal Code. The Parks and Recreation zoning district allows fitness and sports facilities subject to approval of a conditional use permit. The proposed project, subject to conditional use permit approval, would be consistent with the City's General Plan land use designation and Zoning Code.

Additionally, the project would comply with related plans including the CCSD CAP/SAP for reducing GHG emissions, the applicable California Building Code for geology and soils impacts, and CALGreen standards to ensure energy and water efficiency and sustainable construction practices. Accordingly, the project would have **no impact** regarding potential conflicts with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect.

Mitigation Measures

No mitigation measures are required.

3.12 Mineral Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XII. 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?	☐	☐	☐	☒

a) ***Would the project 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?***

The DOC provides maps that classify lands according to the significance of mineral resource deposits within the area. The DOC designates the project site as being within Mineral Resource Zone 3 (MRZ-3), which describes areas containing mineral deposits, the significance of which cannot be evaluated from available data (DOC 1999). According to the City's General Plan, there are no known mineral resources within the City (City of Elk Grove 2021). Accordingly, the proposed project would have **no impacts** related to the loss of availability of mineral resources.

b) ***Would the project 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?***

Refer to answer provided in 'a' above. The project would not result in the loss of availability of a locally important mineral resource recovery site; **no impact** would occur.

Mitigation Measures

No mitigation measures are required.

3.13 Noise

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIII. 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 or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

a) Would the project 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?

The City of Elk Grove noise ordinance (Chapter 6.32 of the Municipal Code) states that is unlawful for any person to create any noise in exterior areas that results in the exposure of sensitive receptors on any day of the week to noise levels that exceed the levels shown in Table 3.13-1, below.

Table 3.13-1. Exterior Noise Standards for Sensitive Receptors

Noise Source	7:00 am to 10:00 pm	10:00 pm to 7:00 am
Stationary noise sources, generally	55 dBA	45 dBA
Stationary noise sources which are tonal, impulsive, repetitive, or consist primarily of speech or music	50 dBA	40 dBA

Section 6.32.100 of the City's Municipal Code exempts construction activities if these activities only occur during the less noise-sensitive hours between 7:00 a.m. and 7:00 p.m. on any day of the week when located in close proximity to residential uses. If not in close proximity to residential uses, construction activities may occur between 6:00 a.m. and 8:00 p.m. Residential uses exist as close as 0.01 miles west of the proposed project site. Therefore, the proposed project would be required to limit construction to the hours between 7:00 a.m. and 7:00 p.m. Monday through Sunday, which would not conflict with the City's noise ordinance.

The proposed project would result in the development of a new recreation center building and outdoor recreational space that could introduce new sources of noise to the area. The most intensive noise-generating uses could occur at the proposed event lawn and informal stage area which would occasionally host small gatherings and recreational activities. However, the proposed project is not anticipated to host any programming or large-scale events that could potentially disrupt nearby residential areas. Furthermore, the event lawn and informal stage area would be separated from nearby residential areas by the proposed recreation center building, which would act as a noise buffer. The project does include an open space area directly adjacent to Bellaterra Drive across from existing residences; however, this area is intended for more quiet recreational activities and would not be used for any events or formal gatherings. As such, the proposed project is not anticipated to result in an increase in ambient noise levels in excess of the City's noise ordinance and impacts would be **less than significant**.

b) Would the project result in generation of excessive groundborne vibration or groundborne noise levels?

The proposed project may result in an increase in groundborne vibration or noise levels during project construction. However, the proposed project would not include any heavy construction equipment such as bulldozers which are associated with an increase in vibration disturbance to sensitive receptors. For reference, groundborne vibration levels for various types of construction equipment are included below in Table 3.13-2. Vibration levels are represented in terms of peak particle velocity (PPV).

Table 3.13-2. Representative Vibration Levels for Construction Equipment

Equipment	PPV at 25 feet (in/sec)[1,2]
Hoe Ram	0.089
Large Bulldozer	0.089
Caisson Drilling	0.089
Heavy-duty Trucks (Loaded)	0.076
Jackhammer	0.035
Small Bulldozer	0.003

Source: FTA 2018.
Notes:
1 Where PPV is the peak particle velocity.
2 Vibration levels can be approximated at other locations and distances using the above reference levels and the following equation: PPVequip = PPVref (25/D)$^{1.5}$ (in/sec); where "PPV ref" is the given value in the above table, "D" is the distance for the equipment to the new receiver in feet.

Construction activities on the project site may result in varying degrees of temporary ground vibration, depending on the specific construction equipment used and operations involved. Caltrans has collected groundborne vibration information related to construction activities (Caltrans 2020) that indicate continuous vibrations with a PPV of approximately 0.2 inches per second (in/sec) is considered annoying. The closest residential uses are located approximately 0.01 miles or 70 feet west of the project site. Even if the project were to use the equipment in Table 3.13-2 with the highest vibration levels, vibration levels at the nearest sensitive receptors would only be approximately 0.02 in/sec, far less than the Caltrans standard for what is considered annoying. Therefore, any vibration impacts from the proposed project would be **less than significant**.

c) ***For a project located within the vicinity of a private airstrip or 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 expose people residing or working in the project area to excessive noise levels?***

The closest airport is Franklin Field, which is located approximately 6 miles southwest of the project site. The project site is not located within an airport land use plan and is not within two miles of a public airport or public use airport. Thus, the project would not expose people within the project area to excessive noise from airports or airstrips. There would be **no impact**.

Mitigation Measures

No mitigation measures are required.

3.14 Population and Housing

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIV. 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, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

a) ***Would the project 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)?***

The proposed project would primarily serve the existing Elk Grove community. The recreation center would employ up to eight full-time staff members and 20 part-time staff members. However, this represents a minimal number of employees that would likely be hired from the regional workforce. Although the project would generate a limited number of short-term construction jobs, these jobs would be accommodated within the regional workforce as well. The project does not include any residential uses or improvements to off-site infrastructure such as new roadways or extension of utilities that could induce population growth. The CCSD Parks and Recreation 2018 Master Plan and 2019-2022 Strategic Plan identified development of a recreation center at Morse Community Park in the East Franklin area as a key District-wide recommendation to serve the existing community and offset programming demands at existing recreational facilities (CCSD 2018, 2019). Therefore, the proposed project would result in a **less-than-significant impact** related to unplanned population growth.

b) Would the project displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

The project site does not contain existing housing units; therefore, the proposed project would not displace people or housing, necessitating the construction of replacement housing elsewhere. **No impact** would occur.

Mitigation Measures

No mitigation measures are required.

3.15 Public Services

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XV. PUBLIC SERVICES				
a) Would the project 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:				
Fire protection?	☐	☐	☐	☒
Police protection?	☐	☐	☐	☒
Schools?	☐	☐	☐	☒
Parks?	☐	☐	☐	☒
Other public facilities?	☐	☐	☐	☒

a) Would the project 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:

Fire protection?

The CFD provides fire protection service to the City of Elk Grove. Services include fire and emergency medical services in a 157-square-mile service area covering the cities of Elk Grove, Galt, and a portion of unincorporated southern Sacramento County. The CFD has 205 personnel and operates out of eight fire stations, with one additional fire station scheduled to be constructed in 2022. The nearest fire station to the project site is Fire Station 72, located at 10035 Atkins Drive, which is approximately 0.3 miles to the south of the project site (CFD 2021). The project would not result in a substantial increase in the number of emergency calls because the project does not propose uses or components associated with the need for additional fire or emergency medical services. The project would not induce population growth and therefore would not require new fire facilities to serve new City residents. The proposed recreation center building would be constructed in compliance with the applicable codes and standards in place at time of permit issuance. The project site is already well-served by a fire station located 0.3 miles from the project site and would not impact

fire response times. Therefore, the project would not result in the need to expand the existing fire station and there would be **no impact** on fire protection services.

Police protection?

Police protection services within the City are provided by the Elk Grove Police Department, which operates primarily out of two facilities located in the Elk Grove City Hall complex at 8380 and 8400 Laguna Palms Way (City of Elk Grove 2018). This complex is located approximately 2.6 miles northeast of the project site. Similar to the discussion for fire protection services above, the proposed project does not include any uses that would result in a substantial increase in calls for police services. The project site also would not result in a population increase that would require new police facilities to serve new City residents. The project would not result in the need to expand the existing police station; therefore, **no impact** on police protection services would result due to project implementation.

Schools?

The proposed project does not include any residential uses or other components that would induce population growth; therefore, the project would not result in a population increase that would require new schools to serve new City residents. For this reason, **no impact** on schools would result with project implementation.

Parks or Other Public Facilities?

The proposed project would not induce substantial population growth. The project would involve the development of a new recreation center, adding new indoor and outdoor recreation opportunities to the public. As discussed previously, the proposed project was included in the CCSD Parks and Recreation 2018 Master Plan and 2019-2022 Strategic Plan to better serve the existing community and offset programming demands at existing recreational facilities (CCSD 2018, 2019). Therefore, the project would not generate a need for new or physically altered parks or other public facilities. There would be **no impact** on parks or other public facilities.

Mitigation Measures

No mitigation measures are required.

3.16 Recreation

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVI. RECREATION				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐

a) ***Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?***

The proposed project does not include residential land uses and would not increase population in the City. Therefore, demand of park and recreational facilities would not increase. The project would, in fact, provide a recreational facility to the Elk Grove community that would offset demands at existing recreational facilities, per the CCSD Parks and Recreation 2018 Master Plan and 2019-2022 Strategic Plan (CCSD 2018, 2019). Because the project would not induce population growth and involves the development of a new recreational facility to better serve the existing community, there would be no increase in use of existing parks or other recreational facilities such that physical deterioration would occur. Therefore, **no impacts** to recreational facilities would occur.

b) ***Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?***

As discussed in answer 'a,' the project involves the construction of a new recreational facility. Thus, the project would increase and improve recreational services available in the community. Environmental impacts that would occur as a result of the project are analyzed throughout this IS. Therefore, impacts would be **less than significant**.

Mitigation Measures

No mitigation measures are required.

3.17 Transportation

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVII. TRANSPORTATION – Would the project:				
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☐	☒

On September 27, 2013, Governor Brown signed Senate Bill 743 which eliminated reliance on level of service and other similar measures of vehicle capacity or traffic congestion as a basis for determining impacts under CEQA. The Governor's Office of Planning and Research (OPR) has issued final guidance recommending the elimination of auto delay and level of service for CEQA purposes and the use of VMT, as the preferred CEQA transportation metric. The City's General Plan Mobility Element includes a VMT policy that establishes VMT limits for land use and transportation projects as well as significance thresholds for CEQA analysis of future projects. Policy MOB-1-1 (City of Elk Grove 2019, p. 6-7) requires that development projects shall demonstrate that the VMT produced by the project at buildout is equal to or less than the VMT limit of the project's General Plan land use designation, which incorporates a 15% reduction from 2015 conditions. Additionally, the City's Transportation Analysis (TA) Guidelines (City of Elk Grove 2019) provide guidance for the analyses of projects within the jurisdiction of the City. The following analysis has been prepared per requirements of CEQA and the VMT metrics as outlined in the City's General Plan Mobility Element.

a) Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

The proposed project would not result in any changes to the existing roadway system. The proposed project would not alter Bellaterra Drive and users and employees of the project would use the existing driveway at the intersection of Landview Drive/Bellaterra Drive to access the site. The project would expand the existing parking area that currently serves Morse Community Park and would include a new driveway on Fire Poppy Drive for the occasional use of maintenance and delivery vehicles only. These improvements would not impact the general circulation system.

The proposed project would also add ADA-compliant accessible pathways connecting to the existing sidewalk along Bellaterra Drive and the existing Morse Community Park parking lot located adjacent to Bellaterra Drive. Pedestrian and bicycle access would also be available from Bellaterra Drive, and through the parking lot. The new pathways would connect to existing trails and sidewalks within Morse Community Park. The proposed project, as designed, would improve bicycle and pedestrian connectivity. Accordingly, there would be no conflict with the existing circulation system, and **no impact** would occur.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

CEQA Guidelines Section 15064.3(b), focuses on newly adopted criteria (VMT) for determining the significance of transportation impacts. It is further divided into four subdivisions: (1) land use projects, (2) transportation projects, (3) qualitative analysis, and (4) methodology.

The CCSD has not adopted a threshold to evaluate VMT and is adhering to the City's approach to VMT Analysis identified in the City's TA Guidelines (City of Elk Grove 2019) and General Plan Mobility Element (City of Elk Grove 2019).

City TA Guidelines (p.4) state the following:

> "The City has established specific limits on VMT allowable for each land use project by General Plan land use designation as well as Citywide limits and limits within each Study Area. The City's Development Services Department will conduct an initial assessment of each project based on the project description and proposed uses. Figure 1 summarizes the VMT analysis process for land use projects."

Figure 1 in the City's TA Guidelines (P.6) provides a four-step process to determine when a proposed project requires VMT Analysis.

- **Step 1: Project Type Screening:** Per City's TA guidelines, a discretionary project is exempt from further VMT analysis if it is:
  - A residential project of <10 dwelling units (DU)
  - A commercial, office, or industrial project of <50,000 square feet
  - A mixed-use project containing <10 DU and <50,000 square feet of commercial, office, or industrial space
  - A project that is high density low-income housing on a high-density housing site as designated in the Housing Element

The project would not be considered a residential project, nor would it serve as a commercial, office, or industrial project. Therefore, under the criteria above, it would not qualify for an exemption from VMT Analysis under the City's guidelines. Therefore, the VMT Analysis Process continues to the next step.

- **Step 2: Project Location and Land Use:** To determine if VMT analysis is necessary based on project location or land use designation, evaluate if the project is consistent with the Land Use Plan in the existing City or consistent with the Study Area Organizing Principles and applicable Study Area Land Use Program.

The proposed project is consistent with the land use and zoning of Parks and Open Space per City's General Plan. According to General Plan Policy MOB-1-1, development projects need to demonstrate that the VMT produced by the project by buildout is equal to or less than the VMT of the project's General Plan land use designation. The VMT limit for Parks and Open Space is zero (0) VMT, because this land use designation has no residents and few to no employees (footnote "a" in Table 6-1: Vehicle Miles Traveled Limits by Land Use Designation, Elk Grove General Plan Mobility Element, 2019). The City's General Plan designates the project site for Parks and Open Space uses. Per the VMT Limit analysis in Table 6-1 of the City's Mobility

Element, Parks and Open Space uses, such as the proposed project, have no VMT limit and are exempt from conducting a VMT analysis. Based on the screening criteria above, the proposed project would meet the VMT analysis exemption per the City's VMT Limit Policy. Therefore, no further VMT analysis is required and the project's VMT impacts can presumed to be **less than significant.**

c) Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

The key roadways near the proposed project site are Bellaterra Drive and Fire Poppy Drive. Bellaterra Drive is a two-lane local roadway with an east-west loop configuration with two connections to Whitelock Parkway. It provides access to predominantly single-family residences, Morse Community Park, the proposed project site, and the Arlene Hein Elementary School. On-street parking is permitted within the striped parking lanes along both sides of the roadway. The posted speed limit along Bellaterra Drive near the project site is 30 miles per hour (mph). Fire Poppy Drive is a north-south two-lane local roadway that also provides access to predominantly single-family residences, Morse Community Park the proposed project site, Helen Carr Castello Elementary School, and Jungkeit Park. Parking is permitted on both sides the roadway. The posted speed limit along Fire Poppy Drive near the project site is also 30 mph.

There is a Class II (striped) bike lane on both sides of Bellaterra Drive in the vicinity of the proposed project and along Fire Poppy Drive, north of Bellaterra Drive. Sidewalks are present along Bellaterra Road and Fire Poppy Drive along both sides of the roadways. The Fire Poppy Drive/Bellaterra Drive intersection is all-way stop sign controlled and has crosswalks and ADA accessible curb ramps on all approaches. Additionally, as noted above, Elk Grove Transit operates bus service routes, Commuter Route 11 and Local Route 111 along Bellaterra Drive and Fire Poppy Drive adjacent to the proposed project.

The proposed project does not include any design features that could be considered hazardous or incompatible with existing uses. Additionally, the existing pedestrian and bicycle facilities, adjacent transit stops, and striped on-street parking lanes would serve users and employees of the proposed recreation center. The new driveway on Fire Poppy Drive would be a 24-foot-wide driveway that would be used only for maintenance and delivery vehicles, and would include a truck loading zone. This driveway would be appropriately signed and gated for those vehicles only. The expansion of the existing parking lot would include a fire access turning radius to the south.

The recreation center would also host tournaments involving four or more teams, on 16 weekends annually. The additional parking demand for tournaments would be provided through a combinations of on-site parking at Morse Community Park, on-street parking along Bellaterra Drive and Fire Poppy Drive, and the parking lot of Helen Carr Castello Elementary School, located approximately 700 feet north of the project site. The CCSD would provide parking information for tournaments on their website and on tournament information notices and schedules. The existing sidewalks along Fire Poppy Drive between the elementary school and project site as well as an all-way stop sign-controlled intersection at Fire Poppy Drive/Bellaterra Drive would facilitate safe pedestrian movements.

Therefore, the proposed project would not create any hazardous geometric design features or include other components that could increase hazards. Project plans would be designed in accordance with City and County Standard Construction Specifications and approved per the City's plan review and comment process. This process would ensure that the project would not increase hazards, andas such, there would be **no impact**.

d) Would the project result in inadequate emergency access?

The project is designed with a new emergency vehicle access (fire) lane to the building from Bellaterra Drive to meet the requirements of the California Fire Code and the CFD. Buildout of the project would not result in inadequate emergency access or affect the accessibility of any roads or emergency access points. As mentioned in Section 3.9, Hazards and Hazardous Materials, the City's EOP oversees emergency management, including emergency evacuation plans in the City. Additionally, the project would provide emergency access to the site by extending the existing parking lot with a fire access turning radius to the south; a fire access lane would also be constructed that would extend perpendicular to the parking lot to the east. The proposed project would not involve any operations or activities that would interfere with the City's EOP and adequate access is provided in the event of an emergency situation. Therefore, the project would have **no impact** related to inadequate emergency access.

Mitigation Measures

No mitigation measures are required.

3.18 Tribal Cultural Resources

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES				
Would the project 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, 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:				
a) 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	☐	☒	☐	☐
b) 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.	☐	☒	☐	☐

The project is subject to compliance with AB 52 (California Public Resources Code, Section 21074), which requires consideration of impacts to tribal cultural resources as part of the CEQA process and requires the CEQA lead agency

to notify any groups (who have requested notification) and are traditionally or culturally affiliated with the geographic area of the project.

An AB 52 notification letter was sent on October 12, 2021, to 10 tribes by certified mail. On December 2, 2021, Wilton Rancheria requested a meeting to discuss the project. Tribal consultation is still ongoing.

As previously described in Section 3.5, Cultural Resources, a Cultural Resources Inventory Report for the proposed project was prepared by Dudek archaeological staff (included as Appendix B). An NAHC Sacred Lands File search was requested on September 9, 2021 and on October 20, 2021 the NAHC responded that the result of the Sacred Lands File check was negative. A pedestrian survey of the project area did not identify any new resources.

Would the project 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, 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:

a) ***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)?***

An NAHC Sacred Lands File search was requested in September 2021, and in October 2021 the NAHC responded indicating that the result was negative. However, because an unknown tribal cultural resource could be unearthed during construction activities, implementation of Mitigation Measure TCR-1 would ensure that if any tribal cultural resources, artifacts, cultural deposits, or human remains are found, all work shall cease, and the findings shall be evaluated by qualified personnel. Mitigation Measure TCR-1 restates Mitigation Measure CUL-1 provided in Section 3.5, Cultural Resources. Therefore, impacts would be **less-than-significant with mitigation.**

b) ***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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.***

Refer to the answer provided in 'a' above.

Mitigation Measures

Implementation of Mitigation Measure TCR-1, which restates Mitigation Measure CUL-1 from Section 3.5, Cultural Resources, would reduce impacts to previously undiscovered tribal cultural resources, artifacts, cultural deposits, or human remains to a less-than-significant level.

TCR-1: Cultural Resources. The CCSD shall comply with Mitigation Measure CUL-1.

3.19 Utilities and Service Systems

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XIX. UTILITIES AND SERVICE SYSTEMS – Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water 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 adequate 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?	☐	☐	☒	☐

a) ***Would the project require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?***

The proposed project would be served by existing City water infrastructure, wastewater collection and treatment facilities, stormwater drainage, electric power, natural gas, and telecommunications infrastructure near the project site.

Potable water and irrigation water would be provided by the Sacramento County Water Agency (SCWA). According to the SCWA 2020 Urban Water Management Plan (UWMP), the project site is within the South Service Area of Zone 40 which is supplied by a mix of surface water, groundwater, and recycled water (SCWA 2021). The project would tie into existing potable water connections at Morse Community Park or in adjacent roadways. The proposed recreation center building would include potable water while the exterior recreation and lawn areas would have approximately 20,000 sf of turf and landscaping that would be

irrigated. To estimate water demand of the proposed project, Table 3.19-1 below uses the water demand factors for the Public Recreation land use category specified in SCWA's Zone 40 Water System Infrastructure Plan Update (SCWA 2016).

Table 3.19-1. Estimated Water Demand

Land Use	Gross Unit Water Demand Factor (acre-foot per year per acre)	Project Acreage	Estimated Water Demand (acre-foot per year)
Public Recreation	2.8	3.0	8.4

Source: SCWA 2016.

The UWMP states that the SCWA water supply portfolio is capable of meeting water demand during normal, dry, and multiple (five consecutive) dry years through the year 2045. The estimated water demand of 8.4 acre-feet per year from the proposed project would not be substantial, given the available water supply. However, the CCSD CAP/SAP does acknowledge that a likely result of climate change is increased temperatures, which increases water demand for irrigation (CCSD 2020). Such increases may be tempered by implementation of efficient irrigation systems and controls. The proposed project would comply with Measure LM-4 of the CAP/SAP which commits CCSD to maintaining water-efficient irrigation practices such as using drip irrigation systems instead of sprinklers. Additionally, Measure LM-5 implements landscaping design guidelines with efficiency requirements for indoor and outdoor water fixtures, BMPs related to irrigation infrastructure and monitoring, and compliance with the statewide Model Water Efficient Landscape Ordinance. Water use in the Morse Recreation Center would comply with Measure BD-5 which promotes water conservation in CCSD facilities by establishing water efficiency standards, maintaining an inventory of water use by facility, and auditing facilities to identify potential water-saving measures. The proposed project would tie into existing water infrastructure near the site and would implement water efficient measures such that it would not contribute to the need new or expanded water facilities. Impacts related to water facilities would therefore be **less than significant**.

Wastewater from the proposed project would connect to the Sacramento Area Sewer District (SASD) sewer system using existing connections at Fire Poppy Drive. Table 3.19-2 estimates the amount of wastewater generated by the project based on the SASD Standards and Specifications which states that open space, recreational areas, and parks will use a minimum design flow of six equivalent single-family dwellings (ESD) per gross acre for estimating wastewater flows.

Table 3.19-2. Estimated Wastewater Generation

Land Use	ESD	Flow Rate (gallons per day)	Project Acreage	Estimated Wastewater Generation (gallons per day)
Recreation	6	1,900	3.0	5,700

Source: SASD 2021.
Note: ESD = equivalent single-family dwelling.

Table 3.19-2 estimates that wastewater generation from the project would be 5,700 gallons per day (gpd) or 0.0057 million gallons per day (mgd). Collected wastewater is diverted to the conveyance systems of the Sacramento Regional County Sanitation District (Regional San) and treated at the Sacramento Regional

Wastewater Treatment Plant. According to the City's General Plan EIR, the Sacramento Regional Wastewater Treatment Plan is limited to an equivalent 207 mgd average dry weather flow but has been master planned to accommodate additional growth beyond the 2020 planning year to 350 mgd average dry weather flow (City of Elk Grove 2018). The construction of future treatment facilities would occur in incremental stages and can be delayed or accelerated based on growth rates. As a result, additional project-generated wastewater of 0.0057 mgd would be minimal and would not exceed capacity of the treatment plant, and the treatment plant would have adequate capacity to serve the proposed project. Impacts would be **less than significant.**

Development of the site would result in an increase of impervious surfaces but would include 3,200 sf of new bioretention areas to capture stormwater runoff. Any stormwater not captured by this feature would flow into the City's storm drain system in Fire Poppy Drive via an existing lateral connection serving the park. As described in Section 3.10, Hydrology and Water Quality, the proposed project would not result in a substantial increase of surface runoff that would exceed the current capacity of the City stormwater system. There would be no need for new or expanded stormwater drainage infrastructure and impacts would be **less than significant.**

SMUD provides electricity services in the City. Pacific Gas and Electric provides gas services in the City. As discussed in Section 3.6, Energy, the proposed project would comply with the most current Title 24 California Building Code/Code of Regulations, CALGreen Code, and energy standards at the time of building construction, as amended by the state and City. The project would not result in wasteful, inefficient, or unnecessary consumption of energy resources during construction or operation. Therefore, no new or expanded facilities would need to be built and impacts would be **less than significant**.

Telecommunications usage would be minimal would not require the construction or new facilities or expansion of existing facilities. Therefore, this impact would be **less than significant.**

b) Would the project have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Water service would be provided by SCWA. According to the SCWA's 2020 UWMP, the project site is within the South Service Area of Zone 40 which is supplied by a mix of surface water, groundwater, and recycled water (SCWA 2021). The UWMP states that the SCWA water supply portfolio is capable of meeting water demand during normal, dry, and multiple dry (five consecutive) years throughout the year 2045. As discussed above in item 'a,' project development would not exceed current available water supply and demand would be further reduced through compliance with CAP/SAP measures for water efficiency. As such, the proposed project would not require SCWA to increase its existing water entitlements and it is reasonable to assume there is adequate water supply available to meet the demands associated with the project during normal, dry, and multiple dry years. For these reasons, impacts associated with water supply for the project would be **less than significant**.

c) Would the project result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Refer to the answer provided in 'a' above.

d) Would the project 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) Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Republic Services provides solid waste disposal and recycling in the City. The City is served by ten landfills, the majority of which have over 60% available remaining capacity (City of Elk Grove 2018). Therefore, the nearby landfills have sufficient permitted capacity to accommodate the project's disposal needs.

AB 939 requires the City of Elk Grove to develop and implement a solid waste management program. California Public Resources Code Section 41780(a)(2) also requires cities and counties to divert 50% of solid waste produced within their respective jurisdictions through source reduction, recycling, and/or composting activities. In addition, Elk Grove Municipal Code Section 30.70.030(E) requires that all projects recycle or divert at least 65% of the materials collected at the construction site, not including excavated soil and land clearing debris. The project does not contain any uses that would generate a substantial increase in solid waste and construction debris would be disposed of in accordance with applicable regulations. Therefore, the project would have a **less-than-significant impact** regarding solid waste standards and would not exceed the capacity of local infrastructure.

Mitigation Measures

No mitigation measures are required.

3.20 Wildfire

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XX. 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 plan?	☐	☐	☐	☒
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?	☐	☐	☒	☐

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

The project site is not located in an area classified as a very high FHSZ or located in or near an SRA (CAL FIRE 2008). The area surrounding the project site is developed with a mix of residential and recreational uses.

a) Would the project substantially impair an adopted emergency response plan or emergency evacuation plan?

As discussed in Section 3.9, Hazards and Hazardous Materials, the project would not interfere with the City's EOP. The project does not include any operations or activities that would potentially interfere with or impair emergency response or evacuation plans. Fire suppression services in the project would continue to be provided by the CFD. Additionally, the project would provide emergency access to the site by extending an existing parking lot with a fire access turning radius to the south; a fire access lane would also be constructed that would extend perpendicular to the parking lot to the east. For these reasons, the project would have **no impact** related to implementation of emergency response or evacuation plans.

b) Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

The project site is in a LRA and is not designated as a being in a FHSZ (CAL FIRE 2008). Areas surrounding the site are developed with residential and park/recreation uses. As discussed in Section 3.9, the City's General Plan EIR indicates that the probability of wildfire is highly likely on a County-wide level and this risk is highest in areas adjoining open grasslands to the south of the City (City of Elk Grove 2018). The proposed project is within the southwestern area of the City but does not adjoin any open grasslands or large swaths of vegetation that pose a wildfire hazard. Furthermore, the risk of wildfire can be reduced through Fire Code-compliant design to ensure state and local fire safe regulations are implemented. Fire suppression services in the project area would continue to be provided by the CFD. Because the project site is not in or near an area of high fire hazard severity, adequate fire protection services would be provided by the CFD, and the project would be designed to be Fire Code-compliant, this impact would be **less than significant**.

c) Would the project 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?

As described in Section 3.9, project-level wildfire risks are low, as the site is not within a very FHSZ designated by CAL FIRE and the area surrounding the project site is already developed with urban uses. The project would require electrical wiring and utility extensions; however, this would not exacerbate fire risk as the project site is located in an area that is already served by existing utilities. Therefore, the Project would have a **less-than-significant impact** regarding fire risk associated with new infrastructure.

d) Would the project expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

The project site is relatively flat and located within an urbanized area that does not contain a significant risk of flooding, landslides, slope instability, or drainage changes. As noted in Section 3.7, Geology and Soils, the project would have a **less-than-significant impact** regarding landslides and flooding, and would not expose people or structures to significant risks in the event of a post-fire situation.

Mitigation Measures

No mitigation measures are required.

3.21 Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project 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) Does the project 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) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

a) Does the project 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?

As discussed in Section 3.3, the proposed project would not 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, or reduce the number or restrict the range of a rare or endangered plant or animal. Biological resources impacts would be **less than significant.**

To ensure that cultural and tribal cultural resources impacts are less than significant, Mitigation Measures CUL-1 and TCR-1 (which restates Mitigation Measure CUL-1) is required to ensure the proper protocol is followed in the event any cultural resources are unearthed during construction. Thus, impacts would be **less than significant with mitigation**.

b) Does the project 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.)

The analysis provided throughout this IS/MND demonstrates that the project's contribution to existing cumulative impacts would be reduced to less-than-significant levels through mitigation and would not be considered cumulatively considerable; therefore, the project's contribution to existing cumulative impacts would be **no impact** or **less-than-significant with mitigation**.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

The analysis provided throughout this IS/MND identifies project impacts that may be potentially significant and identifies mitigation measures that would reduce impacts to a **less-than-significant level with mitigation**.

4 References and Preparers

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4.2 List of Preparers

Cosumnes Community Service District

Fred Bremerman – Project Manager
Scott Jones – Engineering, Development and Design Director
Paul Mewton – Chief of Planning, Design, and Construction
Drew Golbin – Recreation Manager

Dudek

Christine Kronenberg, AICP – Project Director
Angelica Chiu – Project Manager
Daniel Hoffman – Analyst
Ian McIntire – Air Quality Specialist
Adam Giacinto – Archaeologist
Nicholas Hanten – Archaeologist
Dennis Pascua – Transportation Specialist
Sabita Tewani – Transportation Specialist

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Appendix A
CalEEMod Outputs

CalEEMod Version: CalEEMod.2020.4.0

Date: 12/6/2021 8:46 AM

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Morse Park Recreation Center Project

Sacramento Metropolitan AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	72.00	Space	0.65	28,800.00	0
City Park	1.19	Acre	1.19	51,836.40	0
Racquet Club	50.53	1000sqft	1.16	50,530.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2024
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	357.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Morse Park Recreation Center Project

Land Use - 50,534 gross square-foot (gsf) recreation center on 3 acres. Project would also include 72 parking spaces.

Construction Phase - Project construction would begin Nov 2022 and would be completed early 2024.

Off-road Equipment - Defualt equipment assumed.

Off-road Equipment - Defualt equipment assumed.

Off-road Equipment - Defualt equipment assumed.

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Off-road Equipment - Defualt equipment assumed.

Off-road Equipment - Defualt equipment assumed.

Trips and VMT - Default trips

Demolition - 38 parking spaces removed.

Grading - Site would be balanced.

Vehicle Trips - Assume trips only for rec center (racquet club).

Construction Off-road Equipment Mitigation - Water two times daily.

Water Mitigation - Use of water efficient irrigation.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	220.00	300.00
tblConstructionPhase	NumDays	6.00	10.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	WD_TR	0.78	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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					
2022	0.0430	0.3557	0.3209	6.6000e-004	0.0306	0.0159	0.0465	0.0128	0.0151	0.0279	0.0000	57.1290	57.1290	0.0101	1.1800e-003	57.7348
2023	0.2468	1.9169	2.0542	4.2300e-003	0.0685	0.0808	0.1493	0.0186	0.0774	0.0960	0.0000	362.2508	362.2508	0.0537	8.6300e-003	366.1647
2024	0.2498	0.0886	0.1172	2.1000e-004	2.5400e-003	3.9200e-003	6.4600e-003	6.8000e-004	3.7000e-003	4.3800e-003	0.0000	18.0722	18.0722	3.7700e-003	2.1000e-004	18.2304
Maximum	**0.2498**	**1.9169**	**2.0542**	**4.2300e-003**	**0.0685**	**0.0808**	**0.1493**	**0.0186**	**0.0774**	**0.0960**	**0.0000**	**362.2508**	**362.2508**	**0.0537**	**8.6300e-003**	**366.1647**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated 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					
2022	0.0430	0.3557	0.3209	6.6000e-004	0.0189	0.0159	0.0348	7.1500e-003	0.0151	0.0222	0.0000	57.1289	57.1289	0.0101	1.1800e-003	57.7347
2023	0.2468	1.9169	2.0542	4.2300e-003	0.0685	0.0808	0.1493	0.0186	0.0774	0.0960	0.0000	362.2505	362.2505	0.0537	8.6300e-003	366.1644
2024	0.2498	0.0886	0.1172	2.1000e-004	2.5400e-003	3.9200e-003	6.4600e-003	6.8000e-004	3.7000e-003	4.3800e-003	0.0000	18.0722	18.0722	3.7700e-003	2.1000e-004	18.2304
Maximum	**0.2498**	**1.9169**	**2.0542**	**4.2300e-003**	**0.0685**	**0.0808**	**0.1493**	**0.0186**	**0.0774**	**0.0960**	**0.0000**	**362.2505**	**362.2505**	**0.0537**	**8.6300e-003**	**366.1644**

	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**	**11.50**	**0.00**	**5.78**	**17.62**	**0.00**	**4.41**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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2.2 Overall Operational

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	0.2237	1.0000e-005	1.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.0700e-003	3.0700e-003	1.0000e-005	0.0000	3.2700e-003
Energy	9.6900e-003	0.0881	0.0740	5.3000e-004		6.7000e-003	6.7000e-003		6.7000e-003	6.7000e-003	0.0000	219.1471	219.1471	0.0132	3.1400e-003	220.4114
Mobile	0.3028	0.3104	2.1965	3.8400e-003	0.3847	3.2600e-003	0.3880	0.1029	3.0400e-003	0.1059	0.0000	355.6018	355.6018	0.0323	0.0213	362.7691
Waste						0.0000	0.0000		0.0000	0.0000	58.4858	0.0000	58.4858	3.4564	0.0000	144.8960
Water						0.0000	0.0000		0.0000	0.0000	1.0573	4.2647	5.3220	4.0300e-003	2.3500e-003	6.1222
Total	**0.5361**	**0.3985**	**2.2721**	**4.3700e-003**	**0.3847**	**9.9700e-003**	**0.3947**	**0.1029**	**9.7500e-003**	**0.1126**	**59.5431**	**579.0166**	**638.5597**	**3.5060**	**0.0268**	**734.2020**

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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	0.2237	1.0000e-005	1.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.0700e-003	3.0700e-003	1.0000e-005	0.0000	3.2700e-003
Energy	9.6900e-003	0.0881	0.0740	5.3000e-004		6.7000e-003	6.7000e-003		6.7000e-003	6.7000e-003	0.0000	219.1471	219.1471	0.0132	3.1400e-003	220.4114
Mobile	0.3028	0.3104	2.1965	3.8400e-003	0.3847	3.2600e-003	0.3880	0.1029	3.0400e-003	0.1059	0.0000	355.6018	355.6018	0.0323	0.0213	362.7691
Waste						0.0000	0.0000		0.0000	0.0000	58.4858	0.0000	58.4858	3.4564	0.0000	144.8960
Water						0.0000	0.0000		0.0000	0.0000	1.0573	4.1520	5.2093	4.0200e-003	2.3500e-003	6.0089
Total	**0.5361**	**0.3985**	**2.2721**	**4.3700e-003**	**0.3847**	**9.9700e-003**	**0.3947**	**0.1029**	**9.7500e-003**	**0.1126**	**59.5431**	**578.9040**	**638.4471**	**3.5060**	**0.0268**	**734.0887**

	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**	**0.02**	**0.02**	**0.00**	**0.00**	**0.02**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Grading	Grading	11/1/2022	11/14/2022	5	10	
2	Building Construction	Building Construction	11/15/2022	1/8/2024	5	300	
3	Paving	Paving	1/8/2024	1/19/2024	5	10	
4	Architectural Coating	Architectural Coating	1/20/2024	2/2/2024	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 6

Acres of Paving: 0.65

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 75,795; Non-Residential Outdoor: 25,265; Striped Parking Area: 1,728

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OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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
Grading	4	10.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	55.00	21.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	11.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Grading - 2022

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					0.0213	0.0000	0.0213	0.0103	0.0000	0.0103	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7000e-003	0.0849	0.0461	1.0000e-004		3.7100e-003	3.7100e-003		3.4100e-003	3.4100e-003	0.0000	9.0514	9.0514	2.9300e-003	0.0000	9.1245
Total	**7.7000e-003**	**0.0849**	**0.0461**	**1.0000e-004**	**0.0213**	**3.7100e-003**	**0.0250**	**0.0103**	**3.4100e-003**	**0.0137**	**0.0000**	**9.0514**	**9.0514**	**2.9300e-003**	**0.0000**	**9.1245**

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	1.5000e-004	1.0000e-004	1.2600e-003	0.0000	3.7000e-004	0.0000	3.7000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3004	0.3004	1.0000e-005	1.0000e-005	0.3034
Total	**1.5000e-004**	**1.0000e-004**	**1.2600e-003**	**0.0000**	**3.7000e-004**	**0.0000**	**3.7000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3004**	**0.3004**	**1.0000e-005**	**1.0000e-005**	**0.3034**

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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					9.5600e-003	0.0000	9.5600e-003	4.6200e-003	0.0000	4.6200e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7000e-003	0.0849	0.0461	1.0000e-004		3.7100e-003	3.7100e-003		3.4100e-003	3.4100e-003	0.0000	9.0514	9.0514	2.9300e-003	0.0000	9.1245
Total	**7.7000e-003**	**0.0849**	**0.0461**	**1.0000e-004**	**9.5600e-003**	**3.7100e-003**	**0.0133**	**4.6200e-003**	**3.4100e-003**	**8.0300e-003**	**0.0000**	**9.0514**	**9.0514**	**2.9300e-003**	**0.0000**	**9.1245**

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	1.5000e-004	1.0000e-004	1.2600e-003	0.0000	3.7000e-004	0.0000	3.7000e-004	1.0000e-004	0.0000	1.0000e-004	0.0000	0.3004	0.3004	1.0000e-005	1.0000e-005	0.3034
Total	**1.5000e-004**	**1.0000e-004**	**1.2600e-003**	**0.0000**	**3.7000e-004**	**0.0000**	**3.7000e-004**	**1.0000e-004**	**0.0000**	**1.0000e-004**	**0.0000**	**0.3004**	**0.3004**	**1.0000e-005**	**1.0000e-005**	**0.3034**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2022

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	0.0315	0.2483	0.2440	4.3000e-004		0.0119	0.0119		0.0114	0.0114	0.0000	35.3056	35.3056	6.8100e-003	0.0000	35.4759
Total	**0.0315**	**0.2483**	**0.2440**	**4.3000e-004**		**0.0119**	**0.0119**		**0.0114**	**0.0114**	**0.0000**	**35.3056**	**35.3056**	**6.8100e-003**	**0.0000**	**35.4759**

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	7.6000e-004	0.0205	5.9600e-003	7.0000e-005	2.0900e-003	1.9000e-004	2.2800e-003	6.0000e-004	1.8000e-004	7.9000e-004	0.0000	6.8532	6.8532	1.8000e-004	1.0000e-003	7.1571
Worker	2.8800e-003	1.8800e-003	0.0236	6.0000e-005	6.8700e-003	4.0000e-005	6.9100e-003	1.8300e-003	4.0000e-005	1.8600e-003	0.0000	5.6183	5.6183	1.9000e-004	1.7000e-004	5.6738
Total	**3.6400e-003**	**0.0224**	**0.0295**	**1.3000e-004**	**8.9600e-003**	**2.3000e-004**	**9.1900e-003**	**2.4300e-003**	**2.2000e-004**	**2.6500e-003**	**0.0000**	**12.4715**	**12.4715**	**3.7000e-004**	**1.1700e-003**	**12.8309**

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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	0.0315	0.2483	0.2440	4.3000e-004		0.0119	0.0119		0.0114	0.0114	0.0000	35.3056	35.3056	6.8100e-003	0.0000	35.4759
Total	**0.0315**	**0.2483**	**0.2440**	**4.3000e-004**		**0.0119**	**0.0119**		**0.0114**	**0.0114**	**0.0000**	**35.3056**	**35.3056**	**6.8100e-003**	**0.0000**	**35.4759**

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	7.6000e-004	0.0205	5.9600e-003	7.0000e-005	2.0900e-003	1.9000e-004	2.2800e-003	6.0000e-004	1.8000e-004	7.9000e-004	0.0000	6.8532	6.8532	1.8000e-004	1.0000e-003	7.1571
Worker	2.8800e-003	1.8800e-003	0.0236	6.0000e-005	6.8700e-003	4.0000e-005	6.9100e-003	1.8300e-003	4.0000e-005	1.8600e-003	0.0000	5.6183	5.6183	1.9000e-004	1.7000e-004	5.6738
Total	**3.6400e-003**	**0.0224**	**0.0295**	**1.3000e-004**	**8.9600e-003**	**2.3000e-004**	**9.1900e-003**	**2.4300e-003**	**2.2000e-004**	**2.6500e-003**	**0.0000**	**12.4715**	**12.4715**	**3.7000e-004**	**1.1700e-003**	**12.8309**

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3.3 Building Construction - 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					
Off-Road	0.2228	1.7711	1.8479	3.2500e-003		0.0798	0.0798		0.0764	0.0764	0.0000	270.0127	270.0127	0.0511	0.0000	271.2893
Total	**0.2228**	**1.7711**	**1.8479**	**3.2500e-003**		**0.0798**	**0.0798**		**0.0764**	**0.0764**	**0.0000**	**270.0127**	**270.0127**	**0.0511**	**0.0000**	**271.2893**

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	3.5600e-003	0.1331	0.0401	5.2000e-004	0.0160	7.1000e-004	0.0167	4.6200e-003	6.8000e-004	5.3000e-003	0.0000	50.6331	50.6331	1.2500e-003	7.4300e-003	52.8783
Worker	0.0205	0.0127	0.1662	4.5000e-004	0.0525	2.8000e-004	0.0528	0.0140	2.6000e-004	0.0142	0.0000	41.6051	41.6051	1.3300e-003	1.2000e-003	41.9972
Total	**0.0241**	**0.1458**	**0.2064**	**9.7000e-004**	**0.0685**	**9.9000e-004**	**0.0695**	**0.0186**	**9.4000e-004**	**0.0195**	**0.0000**	**92.2382**	**92.2382**	**2.5800e-003**	**8.6300e-003**	**94.8755**

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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	0.2228	1.7711	1.8479	3.2500e-003		0.0798	0.0798		0.0764	0.0764	0.0000	270.0124	270.0124	0.0511	0.0000	271.2889
Total	**0.2228**	**1.7711**	**1.8479**	**3.2500e-003**		**0.0798**	**0.0798**		**0.0764**	**0.0764**	**0.0000**	**270.0124**	**270.0124**	**0.0511**	**0.0000**	**271.2889**

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	3.5600e-003	0.1331	0.0401	5.2000e-004	0.0160	7.1000e-004	0.0167	4.6200e-003	6.8000e-004	5.3000e-003	0.0000	50.6331	50.6331	1.2500e-003	7.4300e-003	52.8783
Worker	0.0205	0.0127	0.1662	4.5000e-004	0.0525	2.8000e-004	0.0528	0.0140	2.6000e-004	0.0142	0.0000	41.6051	41.6051	1.3300e-003	1.2000e-003	41.9972
Total	**0.0241**	**0.1458**	**0.2064**	**9.7000e-004**	**0.0685**	**9.9000e-004**	**0.0695**	**0.0186**	**9.4000e-004**	**0.0195**	**0.0000**	**92.2382**	**92.2382**	**2.5800e-003**	**8.6300e-003**	**94.8755**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 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	4.7900e-003	0.0385	0.0423	8.0000e-005		1.6100e-003	1.6100e-003		1.5500e-003	1.5500e-003	0.0000	6.2314	6.2314	1.1600e-003	0.0000	6.2604
Total	**4.7900e-003**	**0.0385**	**0.0423**	**8.0000e-005**		**1.6100e-003**	**1.6100e-003**		**1.5500e-003**	**1.5500e-003**	**0.0000**	**6.2314**	**6.2314**	**1.1600e-003**	**0.0000**	**6.2604**

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	8.0000e-005	3.0100e-003	9.0000e-004	1.0000e-005	3.7000e-004	2.0000e-005	3.8000e-004	1.1000e-004	2.0000e-005	1.2000e-004	0.0000	1.1463	1.1463	3.0000e-005	1.7000e-004	1.1972
Worker	4.4000e-004	2.6000e-004	3.5600e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9288	0.9288	3.0000e-005	3.0000e-005	0.9372
Total	**5.2000e-004**	**3.2700e-003**	**4.4600e-003**	**2.0000e-005**	**1.5800e-003**	**3.0000e-005**	**1.6000e-003**	**4.3000e-004**	**3.0000e-005**	**4.5000e-004**	**0.0000**	**2.0750**	**2.0750**	**6.0000e-005**	**2.0000e-004**	**2.1344**

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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	4.7900e-003	0.0385	0.0423	8.0000e-005		1.6100e-003	1.6100e-003		1.5500e-003	1.5500e-003	0.0000	6.2314	6.2314	1.1600e-003	0.0000	6.2604
Total	**4.7900e-003**	**0.0385**	**0.0423**	**8.0000e-005**		**1.6100e-003**	**1.6100e-003**		**1.5500e-003**	**1.5500e-003**	**0.0000**	**6.2314**	**6.2314**	**1.1600e-003**	**0.0000**	**6.2604**

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	8.0000e-005	3.0100e-003	9.0000e-004	1.0000e-005	3.7000e-004	2.0000e-005	3.8000e-004	1.1000e-004	2.0000e-005	1.2000e-004	0.0000	1.1463	1.1463	3.0000e-005	1.7000e-004	1.1972
Worker	4.4000e-004	2.6000e-004	3.5600e-003	1.0000e-005	1.2100e-003	1.0000e-005	1.2200e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9288	0.9288	3.0000e-005	3.0000e-005	0.9372
Total	**5.2000e-004**	**3.2700e-003**	**4.4600e-003**	**2.0000e-005**	**1.5800e-003**	**3.0000e-005**	**1.6000e-003**	**4.3000e-004**	**3.0000e-005**	**4.5000e-004**	**0.0000**	**2.0750**	**2.0750**	**6.0000e-005**	**2.0000e-004**	**2.1344**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 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	4.2100e-003	0.0405	0.0585	9.0000e-005		1.9800e-003	1.9800e-003		1.8300e-003	1.8300e-003	0.0000	7.7574	7.7574	2.4600e-003	0.0000	7.8188
Paving	8.5000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.0600e-003**	**0.0405**	**0.0585**	**9.0000e-005**		**1.9800e-003**	**1.9800e-003**		**1.8300e-003**	**1.8300e-003**	**0.0000**	**7.7574**	**7.7574**	**2.4600e-003**	**0.0000**	**7.8188**

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	2.0000e-004	1.2000e-004	1.6200e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4222	0.4222	1.0000e-005	1.0000e-005	0.4260
Total	**2.0000e-004**	**1.2000e-004**	**1.6200e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4222**	**0.4222**	**1.0000e-005**	**1.0000e-005**	**0.4260**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	4.2100e-003	0.0405	0.0585	9.0000e-005		1.9800e-003	1.9800e-003		1.8300e-003	1.8300e-003	0.0000	7.7573	7.7573	2.4600e-003	0.0000	7.8188
Paving	8.5000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.0600e-003**	**0.0405**	**0.0585**	**9.0000e-005**		**1.9800e-003**	**1.9800e-003**		**1.8300e-003**	**1.8300e-003**	**0.0000**	**7.7573**	**7.7573**	**2.4600e-003**	**0.0000**	**7.8188**

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	2.0000e-004	1.2000e-004	1.6200e-003	0.0000	5.5000e-004	0.0000	5.5000e-004	1.5000e-004	0.0000	1.5000e-004	0.0000	0.4222	0.4222	1.0000e-005	1.0000e-005	0.4260
Total	**2.0000e-004**	**1.2000e-004**	**1.6200e-003**	**0.0000**	**5.5000e-004**	**0.0000**	**5.5000e-004**	**1.5000e-004**	**0.0000**	**1.5000e-004**	**0.0000**	**0.4222**	**0.4222**	**1.0000e-005**	**1.0000e-005**	**0.4260**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Architectural Coating - 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					
Archit. Coating	0.2382					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.0000e-004	6.0900e-003	9.0500e-003	1.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	1.2766	1.2766	7.0000e-005	0.0000	1.2784
Total	**0.2391**	**6.0900e-003**	**9.0500e-003**	**1.0000e-005**		**3.0000e-004**	**3.0000e-004**		**3.0000e-004**	**3.0000e-004**	**0.0000**	**1.2766**	**1.2766**	**7.0000e-005**	**0.0000**	**1.2784**

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	1.5000e-004	9.0000e-005	1.1900e-003	0.0000	4.0000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3096	0.3096	1.0000e-005	1.0000e-005	0.3124
Total	**1.5000e-004**	**9.0000e-005**	**1.1900e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3096**	**0.3096**	**1.0000e-005**	**1.0000e-005**	**0.3124**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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					
Archit. Coating	0.2382					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	9.0000e-004	6.0900e-003	9.0500e-003	1.0000e-005		3.0000e-004	3.0000e-004		3.0000e-004	3.0000e-004	0.0000	1.2766	1.2766	7.0000e-005	0.0000	1.2784
Total	**0.2391**	**6.0900e-003**	**9.0500e-003**	**1.0000e-005**		**3.0000e-004**	**3.0000e-004**		**3.0000e-004**	**3.0000e-004**	**0.0000**	**1.2766**	**1.2766**	**7.0000e-005**	**0.0000**	**1.2784**

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	1.5000e-004	9.0000e-005	1.1900e-003	0.0000	4.0000e-004	0.0000	4.1000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.3096	0.3096	1.0000e-005	1.0000e-005	0.3124
Total	**1.5000e-004**	**9.0000e-005**	**1.1900e-003**	**0.0000**	**4.0000e-004**	**0.0000**	**4.1000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.3096**	**0.3096**	**1.0000e-005**	**1.0000e-005**	**0.3124**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

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	0.3028	0.3104	2.1965	3.8400e-003	0.3847	3.2600e-003	0.3880	0.1029	3.0400e-003	0.1059	0.0000	355.6018	355.6018	0.0323	0.0213	362.7691
Unmitigated	0.3028	0.3104	2.1965	3.8400e-003	0.3847	3.2600e-003	0.3880	0.1029	3.0400e-003	0.1059	0.0000	355.6018	355.6018	0.0323	0.0213	362.7691

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Racquet Club	708.94	1,078.82	879.22	1,037,992	1,037,992
Total	708.94	1,078.82	879.22	1,037,992	1,037,992

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
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
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Racquet Club	10.00	5.00	6.50	11.50	69.50	19.00	52	39	9

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351
Parking Lot	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351
Racquet Club	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351

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	123.2335	123.2335	0.0114	1.3800e-003	123.9279
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	123.2335	123.2335	0.0114	1.3800e-003	123.9279
NaturalGas Mitigated	9.6900e-003	0.0881	0.0740	5.3000e-004		6.7000e-003	6.7000e-003		6.7000e-003	6.7000e-003	0.0000	95.9136	95.9136	1.8400e-003	1.7600e-003	96.4835
NaturalGas Unmitigated	9.6900e-003	0.0881	0.0740	5.3000e-004		6.7000e-003	6.7000e-003		6.7000e-003	6.7000e-003	0.0000	95.9136	95.9136	1.8400e-003	1.7600e-003	96.4835

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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
Parking Lot	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
Racquet Club	1.79735e+006	9.6900e-003	0.0881	0.0740	5.3000e-004		6.7000e-003	6.7000e-003		6.7000e-003	6.7000e-003	0.0000	95.9136	95.9136	1.8400e-003	1.7600e-003	96.4835
Total		**9.6900e-003**	**0.0881**	**0.0740**	**5.3000e-004**		**6.7000e-003**	**6.7000e-003**		**6.7000e-003**	**6.7000e-003**	**0.0000**	**95.9136**	**95.9136**	**1.8400e-003**	**1.7600e-003**	**96.4835**

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
Parking Lot	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
Racquet Club	1.79735e+006	9.6900e-003	0.0881	0.0740	5.3000e-004		6.7000e-003	6.7000e-003		6.7000e-003	6.7000e-003	0.0000	95.9136	95.9136	1.8400e-003	1.7600e-003	96.4835
Total		**9.6900e-003**	**0.0881**	**0.0740**	**5.3000e-004**		**6.7000e-003**	**6.7000e-003**		**6.7000e-003**	**6.7000e-003**	**0.0000**	**95.9136**	**95.9136**	**1.8400e-003**	**1.7600e-003**	**96.4835**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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
Parking Lot	10080	1.6368	1.5000e-004	2.0000e-005	1.6460
Racquet Club	748855	121.5968	0.0112	1.3600e-003	122.2819
Total		**123.2335**	**0.0114**	**1.3800e-003**	**123.9279**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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
Parking Lot	10080	1.6368	1.5000e-004	2.0000e-005	1.6460
Racquet Club	748855	121.5968	0.0112	1.3600e-003	122.2819
Total		**123.2335**	**0.0114**	**1.3800e-003**	**123.9279**

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	0.2237	1.0000e-005	1.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.0700e-003	3.0700e-003	1.0000e-005	0.0000	3.2700e-003
Unmitigated	0.2237	1.0000e-005	1.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.0700e-003	3.0700e-003	1.0000e-005	0.0000	3.2700e-003

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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	0.0238					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1997					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.5000e-004	1.0000e-005	1.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.0700e-003	3.0700e-003	1.0000e-005	0.0000	3.2700e-003
Total	**0.2237**	**1.0000e-005**	**1.5800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.0700e-003**	**3.0700e-003**	**1.0000e-005**	**0.0000**	**3.2700e-003**

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	0.0238					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1997					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.5000e-004	1.0000e-005	1.5800e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.0700e-003	3.0700e-003	1.0000e-005	0.0000	3.2700e-003
Total	**0.2237**	**1.0000e-005**	**1.5800e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.0700e-003**	**3.0700e-003**	**1.0000e-005**	**0.0000**	**3.2700e-003**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.0 Water Detail

7.1 Mitigation Measures Water

Use Water Efficient Irrigation System

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.2093	4.0200e-003	2.3500e-003	6.0089
Unmitigated	5.3220	4.0300e-003	2.3500e-003	6.1222

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7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 1.41786	0.8058	7.0000e-005	1.0000e-005	0.8103
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Racquet Club	2.9885 / 1.83166	4.5162	3.9600e-003	2.3400e-003	5.3119
Total		**5.3220**	**4.0300e-003**	**2.3500e-003**	**6.1222**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 1.33137	0.7567	7.0000e-005	1.0000e-005	0.7609
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Racquet Club	2.9885 / 1.71993	4.4527	3.9500e-003	2.3400e-003	5.2480
Total		**5.2093**	**4.0200e-003**	**2.3500e-003**	**6.0089**

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8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	58.4858	3.4564	0.0000	144.8960
Unmitigated	58.4858	3.4564	0.0000	144.8960

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8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.1	0.0203	1.2000e-003	0.0000	0.0503
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Racquet Club	288.02	58.4655	3.4552	0.0000	144.8457
Total		**58.4858**	**3.4564**	**0.0000**	**144.8960**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	0.1	0.0203	1.2000e-003	0.0000	0.0503
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Racquet Club	288.02	58.4655	3.4552	0.0000	144.8457
Total		**58.4858**	**3.4564**	**0.0000**	**144.8960**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Morse Park Recreation Center Project

Sacramento Metropolitan AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	72.00	Space	0.65	28,800.00	0
City Park	1.19	Acre	1.19	51,836.40	0
Racquet Club	50.53	1000sqft	1.16	50,530.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2024
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	357.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Morse Park Recreation Center Project

Land Use - 50,534 gross square-foot (gsf) recreation center on 3 acres. Project would also include 72 parking spaces.

Construction Phase - Project construction would begin Nov 2022 and would be completed early 2024.

Off-road Equipment - Defualt equipment assumed.

Off-road Equipment - Defualt equipment assumed.

Off-road Equipment - Defualt equipment assumed.

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Off-road Equipment - Defualt equipment assumed.

Off-road Equipment - Defualt equipment assumed.

Trips and VMT - Default trips

Demolition - 38 parking spaces removed.

Grading - Site would be balanced.

Vehicle Trips - Assume trips only for rec center (racquet club).

Construction Off-road Equipment Mitigation - Water two times daily.

Water Mitigation - Use of water efficient irrigation.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	220.00	300.00
tblConstructionPhase	NumDays	6.00	10.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	WD_TR	0.78	0.00

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2022	2.1002	17.0019	16.3221	0.0331	4.3256	0.7427	5.0683	2.0750	0.6858	2.7583	0.0000	3,133.0115	3,133.0115	0.6476	0.0755	3,167.1306
2023	1.9270	14.6853	16.0121	0.0329	0.5449	0.6212	1.1661	0.1474	0.5952	0.7426	0.0000	3,105.3174	3,105.3174	0.4543	0.0725	3,138.2892
2024	47.8576	21.9804	27.8634	0.0515	0.6590	0.9417	1.6007	0.1777	0.8880	1.0656	0.0000	4,896.7163	4,896.7163	0.9911	0.0732	4,943.3208
Maximum	**47.8576**	**21.9804**	**27.8634**	**0.0515**	**4.3256**	**0.9417**	**5.0683**	**2.0750**	**0.8880**	**2.7583**	**0.0000**	**4,896.7163**	**4,896.7163**	**0.9911**	**0.0755**	**4,943.3208**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Mitigated 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	lb/day										lb/day					
2022	2.1002	17.0019	16.3221	0.0331	1.9884	0.7427	2.7311	0.9449	0.6858	1.6281	0.0000	3,133.0115	3,133.0115	0.6476	0.0755	3,167.1306
2023	1.9270	14.6853	16.0121	0.0329	0.5449	0.6212	1.1661	0.1474	0.5952	0.7426	0.0000	3,105.3174	3,105.3174	0.4543	0.0725	3,138.2892
2024	47.8576	21.9804	27.8634	0.0515	0.6590	0.9417	1.6007	0.1777	0.8880	1.0656	0.0000	4,896.7163	4,896.7163	0.9911	0.0732	4,943.3208
Maximum	**47.8576**	**21.9804**	**27.8634**	**0.0515**	**1.9884**	**0.9417**	**2.7311**	**0.9449**	**0.8880**	**1.6281**	**0.0000**	**4,896.7163**	**4,896.7163**	**0.9911**	**0.0755**	**4,943.3208**

	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**	**42.27**	**0.00**	**29.83**	**47.09**	**0.00**	**24.75**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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2.2 Overall Operational

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	lb/day										lb/day					
Area	1.2259	1.1000e-004	0.0126	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0271	0.0271	7.0000e-005		0.0288
Energy	0.0531	0.4828	0.4055	2.9000e-003		0.0367	0.0367		0.0367	0.0367		579.3238	579.3238	0.0111	0.0106	582.7664
Mobile	2.9448	2.1680	17.1663	0.0311	3.0039	0.0246	3.0285	0.8009	0.0230	0.8238		3,167.6267	3,167.6267	0.2484	0.1702	3,224.5563
Total	**4.2238**	**2.6509**	**17.5844**	**0.0340**	**3.0039**	**0.0613**	**3.0652**	**0.8009**	**0.0597**	**0.8606**		**3,746.9776**	**3,746.9776**	**0.2595**	**0.1808**	**3,807.3516**

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	lb/day										lb/day					
Area	1.2259	1.1000e-004	0.0126	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0271	0.0271	7.0000e-005		0.0288
Energy	0.0531	0.4828	0.4055	2.9000e-003		0.0367	0.0367		0.0367	0.0367		579.3238	579.3238	0.0111	0.0106	582.7664
Mobile	2.9448	2.1680	17.1663	0.0311	3.0039	0.0246	3.0285	0.8009	0.0230	0.8238		3,167.6267	3,167.6267	0.2484	0.1702	3,224.5563
Total	**4.2238**	**2.6509**	**17.5844**	**0.0340**	**3.0039**	**0.0613**	**3.0652**	**0.8009**	**0.0597**	**0.8606**		**3,746.9776**	**3,746.9776**	**0.2595**	**0.1808**	**3,807.3516**

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	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	Grading	Grading	11/1/2022	11/14/2022	5	10	
2	Building Construction	Building Construction	11/15/2022	1/8/2024	5	300	
3	Paving	Paving	1/8/2024	1/19/2024	5	10	
4	Architectural Coating	Architectural Coating	1/20/2024	2/2/2024	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 6

Acres of Paving: 0.65

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 75,795; Non-Residential Outdoor: 25,265; Striped Parking Area: 1,728

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OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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
Grading	4	10.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	55.00	21.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	11.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Grading - 2022

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	lb/day										lb/day					
Fugitive Dust					4.2496	0.0000	4.2496	2.0548	0.0000	2.0548			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829		1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**4.2496**	**0.7423**	**4.9918**	**2.0548**	**0.6829**	**2.7377**		**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

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	lb/day										lb/day					
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
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
Worker	0.0362	0.0183	0.2954	7.2000e-004	0.0761	4.1000e-004	0.0765	0.0202	3.8000e-004	0.0206		72.6055	72.6055	2.1700e-003	1.8900e-003	73.2224
Total	**0.0362**	**0.0183**	**0.2954**	**7.2000e-004**	**0.0761**	**4.1000e-004**	**0.0765**	**0.0202**	**3.8000e-004**	**0.0206**		**72.6055**	**72.6055**	**2.1700e-003**	**1.8900e-003**	**73.2224**

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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	lb/day										lb/day					
Fugitive Dust					1.9123	0.0000	1.9123	0.9247	0.0000	0.9247			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829	0.0000	1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**1.9123**	**0.7423**	**2.6546**	**0.9247**	**0.6829**	**1.6076**	**0.0000**	**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

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	lb/day										lb/day					
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
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
Worker	0.0362	0.0183	0.2954	7.2000e-004	0.0761	4.1000e-004	0.0765	0.0202	3.8000e-004	0.0206		72.6055	72.6055	2.1700e-003	1.8900e-003	73.2224
Total	**0.0362**	**0.0183**	**0.2954**	**7.2000e-004**	**0.0761**	**4.1000e-004**	**0.0765**	**0.0202**	**3.8000e-004**	**0.0206**		**72.6055**	**72.6055**	**2.1700e-003**	**1.8900e-003**	**73.2224**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2022

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	lb/day										lb/day					
Off-Road	1.8555	14.6040	14.3533	0.0250		0.7022	0.7022		0.6731	0.6731		2,289.2813	2,289.2813	0.4417		2,300.3230
Total	**1.8555**	**14.6040**	**14.3533**	**0.0250**		**0.7022**	**0.7022**		**0.6731**	**0.6731**		**2,289.2813**	**2,289.2813**	**0.4417**		**2,300.3230**

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	lb/day										lb/day					
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
Vendor	0.0454	1.1439	0.3444	4.1500e-003	0.1265	0.0111	0.1377	0.0364	0.0106	0.0471		444.4002	444.4002	0.0116	0.0651	464.0843
Worker	0.1992	0.1006	1.6244	3.9500e-003	0.4184	2.2700e-003	0.4207	0.1110	2.0900e-003	0.1131		399.3300	399.3300	0.0119	0.0104	402.7234
Total	**0.2447**	**1.2445**	**1.9688**	**8.1000e-003**	**0.5449**	**0.0134**	**0.5583**	**0.1474**	**0.0127**	**0.1601**		**843.7302**	**843.7302**	**0.0236**	**0.0755**	**866.8076**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	lb/day										lb/day					
Off-Road	1.8555	14.6040	14.3533	0.0250		0.7022	0.7022		0.6731	0.6731	0.0000	2,289.2813	2,289.2813	0.4417		2,300.3230
Total	**1.8555**	**14.6040**	**14.3533**	**0.0250**		**0.7022**	**0.7022**		**0.6731**	**0.6731**	**0.0000**	**2,289.2813**	**2,289.2813**	**0.4417**		**2,300.3230**

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	lb/day										lb/day					
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
Vendor	0.0454	1.1439	0.3444	4.1500e-003	0.1265	0.0111	0.1377	0.0364	0.0106	0.0471		444.4002	444.4002	0.0116	0.0651	464.0843
Worker	0.1992	0.1006	1.6244	3.9500e-003	0.4184	2.2700e-003	0.4207	0.1110	2.0900e-003	0.1131		399.3300	399.3300	0.0119	0.0104	402.7234
Total	**0.2447**	**1.2445**	**1.9688**	**8.1000e-003**	**0.5449**	**0.0134**	**0.5583**	**0.1474**	**0.0127**	**0.1601**		**843.7302**	**843.7302**	**0.0236**	**0.0755**	**866.8076**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 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	lb/day										lb/day					
Off-Road	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880		2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**		**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

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	lb/day										lb/day					
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
Vendor	0.0281	0.9724	0.3027	4.0000e-003	0.1265	5.4300e-003	0.1320	0.0364	5.1900e-003	0.0416		429.2069	429.2069	0.0106	0.0629	448.2209
Worker	0.1852	0.0890	1.4949	3.8200e-003	0.4184	2.1500e-003	0.4205	0.1110	1.9800e-003	0.1130		386.5872	386.5872	0.0107	9.6100e-003	389.7204
Total	**0.2133**	**1.0614**	**1.7976**	**7.8200e-003**	**0.5449**	**7.5800e-003**	**0.5525**	**0.1474**	**7.1700e-003**	**0.1546**		**815.7941**	**815.7941**	**0.0214**	**0.0725**	**837.9413**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	lb/day										lb/day					
Off-Road	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880	0.0000	2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**	**0.0000**	**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

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	lb/day										lb/day					
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
Vendor	0.0281	0.9724	0.3027	4.0000e-003	0.1265	5.4300e-003	0.1320	0.0364	5.1900e-003	0.0416		429.2069	429.2069	0.0106	0.0629	448.2209
Worker	0.1852	0.0890	1.4949	3.8200e-003	0.4184	2.1500e-003	0.4205	0.1110	1.9800e-003	0.1130		386.5872	386.5872	0.0107	9.6100e-003	389.7204
Total	**0.2133**	**1.0614**	**1.7976**	**7.8200e-003**	**0.5449**	**7.5800e-003**	**0.5525**	**0.1474**	**7.1700e-003**	**0.1546**		**815.7941**	**815.7941**	**0.0214**	**0.0725**	**837.9413**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 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	lb/day										lb/day					
Off-Road	1.5971	12.8235	14.1002	0.0250		0.5381	0.5381		0.5153	0.5153		2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**1.5971**	**12.8235**	**14.1002**	**0.0250**		**0.5381**	**0.5381**		**0.5153**	**0.5153**		**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

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	lb/day										lb/day					
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
Vendor	0.0269	0.9531	0.2932	3.9200e-003	0.1265	5.3500e-003	0.1319	0.0364	5.1200e-003	0.0415		421.0327	421.0327	0.0103	0.0619	439.7250
Worker	0.1729	0.0792	1.3853	3.7000e-003	0.4184	2.0400e-003	0.4204	0.1110	1.8800e-003	0.1129		373.8642	373.8642	9.7000e-003	8.9400e-003	376.7716
Total	**0.1998**	**1.0323**	**1.6785**	**7.6200e-003**	**0.5449**	**7.3900e-003**	**0.5523**	**0.1474**	**7.0000e-003**	**0.1544**		**794.8968**	**794.8968**	**0.0200**	**0.0708**	**816.4966**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	lb/day										lb/day					
Off-Road	1.5971	12.8235	14.1002	0.0250		0.5381	0.5381		0.5153	0.5153	0.0000	2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**1.5971**	**12.8235**	**14.1002**	**0.0250**		**0.5381**	**0.5381**		**0.5153**	**0.5153**	**0.0000**	**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

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	lb/day										lb/day					
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
Vendor	0.0269	0.9531	0.2932	3.9200e-003	0.1265	5.3500e-003	0.1319	0.0364	5.1200e-003	0.0415		421.0327	421.0327	0.0103	0.0619	439.7250
Worker	0.1729	0.0792	1.3853	3.7000e-003	0.4184	2.0400e-003	0.4204	0.1110	1.8800e-003	0.1129		373.8642	373.8642	9.7000e-003	8.9400e-003	376.7716
Total	**0.1998**	**1.0323**	**1.6785**	**7.6200e-003**	**0.5449**	**7.3900e-003**	**0.5523**	**0.1474**	**7.0000e-003**	**0.1544**		**794.8968**	**794.8968**	**0.0200**	**0.0708**	**816.4966**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 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	lb/day										lb/day					
Off-Road	0.8425	8.1030	11.7069	0.0179		0.3957	0.3957		0.3652	0.3652		1,710.2024	1,710.2024	0.5420		1,723.7529
Paving	0.1703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0128**	**8.1030**	**11.7069**	**0.0179**		**0.3957**	**0.3957**		**0.3652**	**0.3652**		**1,710.2024**	**1,710.2024**	**0.5420**		**1,723.7529**

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	lb/day										lb/day					
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
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
Worker	0.0472	0.0216	0.3778	1.0100e-003	0.1141	5.6000e-004	0.1147	0.0303	5.1000e-004	0.0308		101.9630	101.9630	2.6500e-003	2.4400e-003	102.7559
Total	**0.0472**	**0.0216**	**0.3778**	**1.0100e-003**	**0.1141**	**5.6000e-004**	**0.1147**	**0.0303**	**5.1000e-004**	**0.0308**		**101.9630**	**101.9630**	**2.6500e-003**	**2.4400e-003**	**102.7559**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	lb/day										lb/day					
Off-Road	0.8425	8.1030	11.7069	0.0179		0.3957	0.3957		0.3652	0.3652	0.0000	1,710.2024	1,710.2024	0.5420		1,723.7529
Paving	0.1703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0128**	**8.1030**	**11.7069**	**0.0179**		**0.3957**	**0.3957**		**0.3652**	**0.3652**	**0.0000**	**1,710.2024**	**1,710.2024**	**0.5420**		**1,723.7529**

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	lb/day										lb/day					
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
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
Worker	0.0472	0.0216	0.3778	1.0100e-003	0.1141	5.6000e-004	0.1147	0.0303	5.1000e-004	0.0308		101.9630	101.9630	2.6500e-003	2.4400e-003	102.7559
Total	**0.0472**	**0.0216**	**0.3778**	**1.0100e-003**	**0.1141**	**5.6000e-004**	**0.1147**	**0.0303**	**5.1000e-004**	**0.0308**		**101.9630**	**101.9630**	**2.6500e-003**	**2.4400e-003**	**102.7559**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Architectural Coating - 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	lb/day										lb/day					
Archit. Coating	47.6422					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**47.8230**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	lb/day										lb/day					
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
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
Worker	0.0346	0.0159	0.2771	7.4000e-004	0.0837	4.1000e-004	0.0841	0.0222	3.8000e-004	0.0226		74.7728	74.7728	1.9400e-003	1.7900e-003	75.3543
Total	**0.0346**	**0.0159**	**0.2771**	**7.4000e-004**	**0.0837**	**4.1000e-004**	**0.0841**	**0.0222**	**3.8000e-004**	**0.0226**		**74.7728**	**74.7728**	**1.9400e-003**	**1.7900e-003**	**75.3543**

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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	lb/day										lb/day					
Archit. Coating	47.6422					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**47.8230**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	lb/day										lb/day					
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
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
Worker	0.0346	0.0159	0.2771	7.4000e-004	0.0837	4.1000e-004	0.0841	0.0222	3.8000e-004	0.0226		74.7728	74.7728	1.9400e-003	1.7900e-003	75.3543
Total	**0.0346**	**0.0159**	**0.2771**	**7.4000e-004**	**0.0837**	**4.1000e-004**	**0.0841**	**0.0222**	**3.8000e-004**	**0.0226**		**74.7728**	**74.7728**	**1.9400e-003**	**1.7900e-003**	**75.3543**

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4.0 Operational Detail - Mobile

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	lb/day										lb/day					
Mitigated	2.9448	2.1680	17.1663	0.0311	3.0039	0.0246	3.0285	0.8009	0.0230	0.8238		3,167.6267	3,167.6267	0.2484	0.1702	3,224.5563
Unmitigated	2.9448	2.1680	17.1663	0.0311	3.0039	0.0246	3.0285	0.8009	0.0230	0.8238		3,167.6267	3,167.6267	0.2484	0.1702	3,224.5563

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Racquet Club	708.94	1,078.82	879.22	1,037,992	1,037,992
Total	708.94	1,078.82	879.22	1,037,992	1,037,992

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
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
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Racquet Club	10.00	5.00	6.50	11.50	69.50	19.00	52	39	9

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351
Parking Lot	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351
Racquet Club	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351

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	lb/day										lb/day					
NaturalGas Mitigated	0.0531	0.4828	0.4055	2.9000e-003		0.0367	0.0367		0.0367	0.0367		579.3238	579.3238	0.0111	0.0106	582.7664
NaturalGas Unmitigated	0.0531	0.4828	0.4055	2.9000e-003		0.0367	0.0367		0.0367	0.0367		579.3238	579.3238	0.0111	0.0106	582.7664

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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	lb/day										lb/day					
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
Parking Lot	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
Racquet Club	4924.25	0.0531	0.4828	0.4055	2.9000e-003		0.0367	0.0367		0.0367	0.0367		579.3238	579.3238	0.0111	0.0106	582.7664
Total		**0.0531**	**0.4828**	**0.4055**	**2.9000e-003**		**0.0367**	**0.0367**		**0.0367**	**0.0367**		**579.3238**	**579.3238**	**0.0111**	**0.0106**	**582.7664**

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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	lb/day										lb/day					
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
Parking Lot	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
Racquet Club	4.92425	0.0531	0.4828	0.4055	2.9000e-003		0.0367	0.0367		0.0367	0.0367		579.3238	579.3238	0.0111	0.0106	582.7664
Total		**0.0531**	**0.4828**	**0.4055**	**2.9000e-003**		**0.0367**	**0.0367**		**0.0367**	**0.0367**		**579.3238**	**579.3238**	**0.0111**	**0.0106**	**582.7664**

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	lb/day										lb/day					
Mitigated	1.2259	1.1000e-004	0.0126	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0271	0.0271	7.0000e-005		0.0288
Unmitigated	1.2259	1.1000e-004	0.0126	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0271	0.0271	7.0000e-005		0.0288

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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	lb/day										lb/day					
Architectural Coating	0.1305					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0942					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1600e-003	1.1000e-004	0.0126	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0271	0.0271	7.0000e-005		0.0288
Total	**1.2259**	**1.1000e-004**	**0.0126**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0271**	**0.0271**	**7.0000e-005**		**0.0288**

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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	lb/day										lb/day					
Architectural Coating	0.1305					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0942					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1600e-003	1.1000e-004	0.0126	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0271	0.0271	7.0000e-005		0.0288
Total	**1.2259**	**1.1000e-004**	**0.0126**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0271**	**0.0271**	**7.0000e-005**		**0.0288**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Morse Park Recreation Center Project

Sacramento Metropolitan AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	72.00	Space	0.65	28,800.00	0
City Park	1.19	Acre	1.19	51,836.40	0
Racquet Club	50.53	1000sqft	1.16	50,530.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	3.5	**Precipitation Freq (Days)**	58
Climate Zone	6			**Operational Year**	2024
Utility Company	Sacramento Municipal Utility District				
CO2 Intensity (lb/MWhr)	357.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Morse Park Recreation Center Project

Land Use - 50,534 gross square-foot (gsf) recreation center on 3 acres. Project would also include 72 parking spaces.

Construction Phase - Project construction would begin Nov 2022 and would be completed early 2024.

Off-road Equipment - Defualt equipment assumed.

Off-road Equipment - Defualt equipment assumed.

Off-road Equipment - Defualt equipment assumed.

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Off-road Equipment - Defualt equipment assumed.

Off-road Equipment - Defualt equipment assumed.

Trips and VMT - Default trips

Demolition - 38 parking spaces removed.

Grading - Site would be balanced.

Vehicle Trips - Assume trips only for rec center (racquet club).

Construction Off-road Equipment Mitigation - Water two times daily.

Water Mitigation - Use of water efficient irrigation.

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	220.00	300.00
tblConstructionPhase	NumDays	6.00	10.00
tblVehicleTrips	ST_TR	1.96	0.00
tblVehicleTrips	SU_TR	2.19	0.00
tblVehicleTrips	WD_TR	0.78	0.00

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2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

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	lb/day										lb/day					
2022	2.0762	17.0061	16.1200	0.0327	4.3256	0.7427	5.0683	2.0750	0.6859	2.7583	0.0000	3,088.7130	3,088.7130	0.6479	0.0771	3,123.3637
2023	1.9048	14.7782	15.8329	0.0324	0.5449	0.6213	1.1662	0.1474	0.5953	0.7427	0.0000	3,062.9217	3,062.9217	0.4559	0.0741	3,096.3988
2024	47.8537	22.0748	27.6567	0.0510	0.6590	0.9418	1.6008	0.1777	0.8880	1.0657	0.0000	4,844.6516	4,844.6516	0.9930	0.0751	4,891.8429
Maximum	**47.8537**	**22.0748**	**27.6567**	**0.0510**	**4.3256**	**0.9418**	**5.0683**	**2.0750**	**0.8880**	**2.7583**	**0.0000**	**4,844.6516**	**4,844.6516**	**0.9930**	**0.0771**	**4,891.8429**

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Mitigated 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	lb/day										lb/day					
2022	2.0762	17.0061	16.1200	0.0327	1.9884	0.7427	2.7311	0.9449	0.6859	1.6281	0.0000	3,088.7130	3,088.7130	0.6479	0.0771	3,123.3637
2023	1.9048	14.7782	15.8329	0.0324	0.5449	0.6213	1.1662	0.1474	0.5953	0.7427	0.0000	3,062.9217	3,062.9217	0.4559	0.0741	3,096.3988
2024	47.8537	22.0748	27.6567	0.0510	0.6590	0.9418	1.6008	0.1777	0.8880	1.0657	0.0000	4,844.6516	4,844.6516	0.9930	0.0751	4,891.8429
Maximum	**47.8537**	**22.0748**	**27.6567**	**0.0510**	**1.9884**	**0.9418**	**2.7311**	**0.9449**	**0.8880**	**1.6281**	**0.0000**	**4,844.6516**	**4,844.6516**	**0.9930**	**0.0771**	**4,891.8429**

	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**	**42.27**	**0.00**	**29.83**	**47.09**	**0.00**	**24.75**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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2.2 Overall Operational

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	lb/day										lb/day					
Area	1.2259	1.1000e-004	0.0126	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0271	0.0271	7.0000e-005		0.0288
Energy	0.0531	0.4828	0.4055	2.9000e-003		0.0367	0.0367		0.0367	0.0367		579.3238	579.3238	0.0111	0.0106	582.7664
Mobile	2.1599	2.5026	18.1802	0.0285	3.0039	0.0247	3.0285	0.8009	0.0230	0.8239		2,906.8603	2,906.8603	0.2965	0.1870	2,970.0054
Total	**3.4389**	**2.9855**	**18.5984**	**0.0314**	**3.0039**	**0.0614**	**3.0653**	**0.8009**	**0.0598**	**0.8606**		**3,486.2112**	**3,486.2112**	**0.3077**	**0.1976**	**3,552.8007**

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	lb/day										lb/day					
Area	1.2259	1.1000e-004	0.0126	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0271	0.0271	7.0000e-005		0.0288
Energy	0.0531	0.4828	0.4055	2.9000e-003		0.0367	0.0367		0.0367	0.0367		579.3238	579.3238	0.0111	0.0106	582.7664
Mobile	2.1599	2.5026	18.1802	0.0285	3.0039	0.0247	3.0285	0.8009	0.0230	0.8239		2,906.8603	2,906.8603	0.2965	0.1870	2,970.0054
Total	**3.4389**	**2.9855**	**18.5984**	**0.0314**	**3.0039**	**0.0614**	**3.0653**	**0.8009**	**0.0598**	**0.8606**		**3,486.2112**	**3,486.2112**	**0.3077**	**0.1976**	**3,552.8007**

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	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	Grading	Grading	11/1/2022	11/14/2022	5	10	
2	Building Construction	Building Construction	11/15/2022	1/8/2024	5	300	
3	Paving	Paving	1/8/2024	1/19/2024	5	10	
4	Architectural Coating	Architectural Coating	1/20/2024	2/2/2024	5	10	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 6

Acres of Paving: 0.65

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 75,795; Non-Residential Outdoor: 25,265; Striped Parking Area: 1,728

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OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
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
Grading	4	10.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	55.00	21.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	11.00	0.00	0.00	10.00	6.50	20.00	LD_Mix	HDT_Mix	HHDT

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3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Grading - 2022

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	lb/day										lb/day					
Fugitive Dust					4.2496	0.0000	4.2496	2.0548	0.0000	2.0548			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829		1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**4.2496**	**0.7423**	**4.9918**	**2.0548**	**0.6829**	**2.7377**		**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

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	lb/day										lb/day					
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
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
Worker	0.0320	0.0225	0.2558	6.4000e-004	0.0761	4.1000e-004	0.0765	0.0202	3.8000e-004	0.0206		64.5606	64.5606	2.4800e-003	2.1700e-003	65.2686
Total	**0.0320**	**0.0225**	**0.2558**	**6.4000e-004**	**0.0761**	**4.1000e-004**	**0.0765**	**0.0202**	**3.8000e-004**	**0.0206**		**64.5606**	**64.5606**	**2.4800e-003**	**2.1700e-003**	**65.2686**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	lb/day										lb/day					
Fugitive Dust					1.9123	0.0000	1.9123	0.9247	0.0000	0.9247			0.0000			0.0000
Off-Road	1.5403	16.9836	9.2202	0.0206		0.7423	0.7423		0.6829	0.6829	0.0000	1,995.4825	1,995.4825	0.6454		2,011.6169
Total	**1.5403**	**16.9836**	**9.2202**	**0.0206**	**1.9123**	**0.7423**	**2.6546**	**0.9247**	**0.6829**	**1.6076**	**0.0000**	**1,995.4825**	**1,995.4825**	**0.6454**		**2,011.6169**

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	lb/day										lb/day					
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
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
Worker	0.0320	0.0225	0.2558	6.4000e-004	0.0761	4.1000e-004	0.0765	0.0202	3.8000e-004	0.0206		64.5606	64.5606	2.4800e-003	2.1700e-003	65.2686
Total	**0.0320**	**0.0225**	**0.2558**	**6.4000e-004**	**0.0761**	**4.1000e-004**	**0.0765**	**0.0202**	**3.8000e-004**	**0.0206**		**64.5606**	**64.5606**	**2.4800e-003**	**2.1700e-003**	**65.2686**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 2022

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	lb/day										lb/day					
Off-Road	1.8555	14.6040	14.3533	0.0250		0.7022	0.7022		0.6731	0.6731		2,289.2813	2,289.2813	0.4417		2,300.3230
Total	**1.8555**	**14.6040**	**14.3533**	**0.0250**		**0.7022**	**0.7022**		**0.6731**	**0.6731**		**2,289.2813**	**2,289.2813**	**0.4417**		**2,300.3230**

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	lb/day										lb/day					
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
Vendor	0.0447	1.2286	0.3596	4.1500e-003	0.1265	0.0112	0.1377	0.0364	0.0107	0.0471		444.3483	444.3483	0.0116	0.0652	464.0637
Worker	0.1760	0.1235	1.4071	3.5100e-003	0.4184	2.2700e-003	0.4207	0.1110	2.0900e-003	0.1131		355.0834	355.0834	0.0137	0.0119	358.9771
Total	**0.2207**	**1.3521**	**1.7668**	**7.6600e-003**	**0.5449**	**0.0135**	**0.5584**	**0.1474**	**0.0128**	**0.1602**		**799.4318**	**799.4318**	**0.0252**	**0.0771**	**823.0407**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	lb/day										lb/day					
Off-Road	1.8555	14.6040	14.3533	0.0250		0.7022	0.7022		0.6731	0.6731	0.0000	2,289.2813	2,289.2813	0.4417		2,300.3230
Total	**1.8555**	**14.6040**	**14.3533**	**0.0250**		**0.7022**	**0.7022**		**0.6731**	**0.6731**	**0.0000**	**2,289.2813**	**2,289.2813**	**0.4417**		**2,300.3230**

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	lb/day										lb/day					
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
Vendor	0.0447	1.2286	0.3596	4.1500e-003	0.1265	0.0112	0.1377	0.0364	0.0107	0.0471		444.3483	444.3483	0.0116	0.0652	464.0637
Worker	0.1760	0.1235	1.4071	3.5100e-003	0.4184	2.2700e-003	0.4207	0.1110	2.0900e-003	0.1131		355.0834	355.0834	0.0137	0.0119	358.9771
Total	**0.2207**	**1.3521**	**1.7668**	**7.6600e-003**	**0.5449**	**0.0135**	**0.5584**	**0.1474**	**0.0128**	**0.1602**		**799.4318**	**799.4318**	**0.0252**	**0.0771**	**823.0407**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Building Construction - 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	lb/day										lb/day					
Off-Road	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880		2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**		**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

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	lb/day										lb/day					
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
Vendor	0.0272	1.0451	0.3165	4.0000e-003	0.1265	5.4900e-003	0.1320	0.0364	5.2500e-003	0.0417		429.5145	429.5145	0.0106	0.0631	448.5722
Worker	0.1640	0.1092	1.3020	3.4000e-003	0.4184	2.1500e-003	0.4205	0.1110	1.9800e-003	0.1130		343.8839	343.8839	0.0124	0.0110	347.4787
Total	**0.1912**	**1.1543**	**1.6185**	**7.4000e-003**	**0.5449**	**7.6400e-003**	**0.5525**	**0.1474**	**7.2300e-003**	**0.1546**		**773.3984**	**773.3984**	**0.0229**	**0.0741**	**796.0509**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	lb/day										lb/day					
Off-Road	1.7136	13.6239	14.2145	0.0250		0.6136	0.6136		0.5880	0.5880	0.0000	2,289.5233	2,289.5233	0.4330		2,300.3479
Total	**1.7136**	**13.6239**	**14.2145**	**0.0250**		**0.6136**	**0.6136**		**0.5880**	**0.5880**	**0.0000**	**2,289.5233**	**2,289.5233**	**0.4330**		**2,300.3479**

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	lb/day										lb/day					
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
Vendor	0.0272	1.0451	0.3165	4.0000e-003	0.1265	5.4900e-003	0.1320	0.0364	5.2500e-003	0.0417		429.5145	429.5145	0.0106	0.0631	448.5722
Worker	0.1640	0.1092	1.3020	3.4000e-003	0.4184	2.1500e-003	0.4205	0.1110	1.9800e-003	0.1130		343.8839	343.8839	0.0124	0.0110	347.4787
Total	**0.1912**	**1.1543**	**1.6185**	**7.4000e-003**	**0.5449**	**7.6400e-003**	**0.5525**	**0.1474**	**7.2300e-003**	**0.1546**		**773.3984**	**773.3984**	**0.0229**	**0.0741**	**796.0509**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 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	lb/day										lb/day					
Off-Road	1.5971	12.8235	14.1002	0.0250		0.5381	0.5381		0.5153	0.5153		2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**1.5971**	**12.8235**	**14.1002**	**0.0250**		**0.5381**	**0.5381**		**0.5153**	**0.5153**		**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

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	lb/day										lb/day					
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
Vendor	0.0259	1.0246	0.3067	3.9300e-003	0.1265	5.4100e-003	0.1319	0.0364	5.1700e-003	0.0416		421.3879	421.3879	0.0103	0.0620	440.1223
Worker	0.1535	0.0972	1.2123	3.2900e-003	0.4184	2.0400e-003	0.4204	0.1110	1.8800e-003	0.1129		332.6772	332.6772	0.0112	0.0103	336.0126
Total	**0.1794**	**1.1218**	**1.5190**	**7.2200e-003**	**0.5449**	**7.4500e-003**	**0.5523**	**0.1474**	**7.0500e-003**	**0.1544**		**754.0650**	**754.0650**	**0.0215**	**0.0723**	**776.1349**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	lb/day										lb/day					
Off-Road	1.5971	12.8235	14.1002	0.0250		0.5381	0.5381		0.5153	0.5153	0.0000	2,289.6541	2,289.6541	0.4265		2,300.3154
Total	**1.5971**	**12.8235**	**14.1002**	**0.0250**		**0.5381**	**0.5381**		**0.5153**	**0.5153**	**0.0000**	**2,289.6541**	**2,289.6541**	**0.4265**		**2,300.3154**

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	lb/day										lb/day					
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
Vendor	0.0259	1.0246	0.3067	3.9300e-003	0.1265	5.4100e-003	0.1319	0.0364	5.1700e-003	0.0416		421.3879	421.3879	0.0103	0.0620	440.1223
Worker	0.1535	0.0972	1.2123	3.2900e-003	0.4184	2.0400e-003	0.4204	0.1110	1.8800e-003	0.1129		332.6772	332.6772	0.0112	0.0103	336.0126
Total	**0.1794**	**1.1218**	**1.5190**	**7.2200e-003**	**0.5449**	**7.4500e-003**	**0.5523**	**0.1474**	**7.0500e-003**	**0.1544**		**754.0650**	**754.0650**	**0.0215**	**0.0723**	**776.1349**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.4 Paving - 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	lb/day										lb/day					
Off-Road	0.8425	8.1030	11.7069	0.0179		0.3957	0.3957		0.3652	0.3652		1,710.2024	1,710.2024	0.5420		1,723.7529
Paving	0.1703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0128**	**8.1030**	**11.7069**	**0.0179**		**0.3957**	**0.3957**		**0.3652**	**0.3652**		**1,710.2024**	**1,710.2024**	**0.5420**		**1,723.7529**

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	lb/day										lb/day					
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
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
Worker	0.0419	0.0265	0.3306	9.0000e-004	0.1141	5.6000e-004	0.1147	0.0303	5.1000e-004	0.0308		90.7301	90.7301	3.0600e-003	2.8000e-003	91.6398
Total	**0.0419**	**0.0265**	**0.3306**	**9.0000e-004**	**0.1141**	**5.6000e-004**	**0.1147**	**0.0303**	**5.1000e-004**	**0.0308**		**90.7301**	**90.7301**	**3.0600e-003**	**2.8000e-003**	**91.6398**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	lb/day										lb/day					
Off-Road	0.8425	8.1030	11.7069	0.0179		0.3957	0.3957		0.3652	0.3652	0.0000	1,710.2024	1,710.2024	0.5420		1,723.7529
Paving	0.1703					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0128**	**8.1030**	**11.7069**	**0.0179**		**0.3957**	**0.3957**		**0.3652**	**0.3652**	**0.0000**	**1,710.2024**	**1,710.2024**	**0.5420**		**1,723.7529**

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	lb/day										lb/day					
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
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
Worker	0.0419	0.0265	0.3306	9.0000e-004	0.1141	5.6000e-004	0.1147	0.0303	5.1000e-004	0.0308		90.7301	90.7301	3.0600e-003	2.8000e-003	91.6398
Total	**0.0419**	**0.0265**	**0.3306**	**9.0000e-004**	**0.1141**	**5.6000e-004**	**0.1147**	**0.0303**	**5.1000e-004**	**0.0308**		**90.7301**	**90.7301**	**3.0600e-003**	**2.8000e-003**	**91.6398**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.5 Architectural Coating - 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	lb/day										lb/day					
Archit. Coating	47.6422					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**47.8230**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	lb/day										lb/day					
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
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
Worker	0.0307	0.0194	0.2425	6.6000e-004	0.0837	4.1000e-004	0.0841	0.0222	3.8000e-004	0.0226		66.5354	66.5354	2.2500e-003	2.0500e-003	67.2025
Total	**0.0307**	**0.0194**	**0.2425**	**6.6000e-004**	**0.0837**	**4.1000e-004**	**0.0841**	**0.0222**	**3.8000e-004**	**0.0226**		**66.5354**	**66.5354**	**2.2500e-003**	**2.0500e-003**	**67.2025**

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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	lb/day										lb/day					
Archit. Coating	47.6422					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**47.8230**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

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	lb/day										lb/day					
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
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
Worker	0.0307	0.0194	0.2425	6.6000e-004	0.0837	4.1000e-004	0.0841	0.0222	3.8000e-004	0.0226		66.5354	66.5354	2.2500e-003	2.0500e-003	67.2025
Total	**0.0307**	**0.0194**	**0.2425**	**6.6000e-004**	**0.0837**	**4.1000e-004**	**0.0841**	**0.0222**	**3.8000e-004**	**0.0226**		**66.5354**	**66.5354**	**2.2500e-003**	**2.0500e-003**	**67.2025**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

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	lb/day										lb/day					
Mitigated	2.1599	2.5026	18.1802	0.0285	3.0039	0.0247	3.0285	0.8009	0.0230	0.8239		2,906.8603	2,906.8603	0.2965	0.1870	2,970.0054
Unmitigated	2.1599	2.5026	18.1802	0.0285	3.0039	0.0247	3.0285	0.8009	0.0230	0.8239		2,906.8603	2,906.8603	0.2965	0.1870	2,970.0054

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Racquet Club	708.94	1,078.82	879.22	1,037,992	1,037,992
Total	708.94	1,078.82	879.22	1,037,992	1,037,992

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
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
City Park	10.00	5.00	6.50	33.00	48.00	19.00	66	28	6
Parking Lot	10.00	5.00	6.50	0.00	0.00	0.00	0	0	0
Racquet Club	10.00	5.00	6.50	11.50	69.50	19.00	52	39	9

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4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351
Parking Lot	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351
Racquet Club	0.542485	0.056811	0.183752	0.130945	0.025591	0.005989	0.013266	0.009393	0.000917	0.000565	0.025954	0.000983	0.003351

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	lb/day										lb/day					
NaturalGas Mitigated	0.0531	0.4828	0.4055	2.9000e-003		0.0367	0.0367		0.0367	0.0367		579.3238	579.3238	0.0111	0.0106	582.7664
NaturalGas Unmitigated	0.0531	0.4828	0.4055	2.9000e-003		0.0367	0.0367		0.0367	0.0367		579.3238	579.3238	0.0111	0.0106	582.7664

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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	lb/day										lb/day					
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
Parking Lot	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
Racquet Club	4924.25	0.0531	0.4828	0.4055	2.9000e-003		0.0367	0.0367		0.0367	0.0367		579.3238	579.3238	0.0111	0.0106	582.7664
Total		**0.0531**	**0.4828**	**0.4055**	**2.9000e-003**		**0.0367**	**0.0367**		**0.0367**	**0.0367**		**579.3238**	**579.3238**	**0.0111**	**0.0106**	**582.7664**

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	lb/day										lb/day					
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
Parking Lot	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

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Racquet Club	4.92425	0.0531	0.4828	0.4055	2.9000e-003		0.0367	0.0367		0.0367	0.0367		579.3238	579.3238	0.0111	0.0106	582.7664
Total		**0.0531**	**0.4828**	**0.4055**	**2.9000e-003**		**0.0367**	**0.0367**		**0.0367**	**0.0367**		**579.3238**	**579.3238**	**0.0111**	**0.0106**	**582.7664**

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	lb/day										lb/day					
Mitigated	1.2259	1.1000e-004	0.0126	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0271	0.0271	7.0000e-005		0.0288
Unmitigated	1.2259	1.1000e-004	0.0126	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0271	0.0271	7.0000e-005		0.0288

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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	lb/day										lb/day					
Architectural Coating	0.1305					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0942					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1600e-003	1.1000e-004	0.0126	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0271	0.0271	7.0000e-005		0.0288
Total	**1.2259**	**1.1000e-004**	**0.0126**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0271**	**0.0271**	**7.0000e-005**		**0.0288**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

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	lb/day										lb/day					
Architectural Coating	0.1305					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.0942					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.1600e-003	1.1000e-004	0.0126	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005		0.0271	0.0271	7.0000e-005		0.0288
Total	**1.2259**	**1.1000e-004**	**0.0126**	**0.0000**		**4.0000e-005**	**4.0000e-005**		**4.0000e-005**	**4.0000e-005**		**0.0271**	**0.0271**	**7.0000e-005**		**0.0288**

Morse Park Recreation Center Project

Project Construction Energy Demand

Construction Worker Gasoline Demand

Phase	Trips	Vehicle CO_2 (MT)	Kg CO2/Gallon	Gallons
Grading	100	0.30	8.78	34.21
Building Construction	16,500	48.15	8.78	5,484.31
Paving	150	0.42	8.78	48.09
Architectural Coating	110	0.31	8.78	35.26
Total				**5,601.87**

Construction Vendor Diesel Demand

Phase	Trips	Vehicle CO_2 (MT)	Kg CO2/Gallon	Gallons
Grading	0	0.00	10.21	0.00
Building Construction	6,300	58.63	10.21	5,742.66
Paving	0	0.00	10.21	0.00
Architectural Coating	0	0.00	10.21	0.00
Total				**5,742.66**

Construction Haul Diesel Demand

Phase	Trips	Vehicle CO_2 (MT)	Kg CO2/Gallon	Gallons
Grading	0	0.00	10.21	0.00
Building Construction	0	0.00	10.21	0.00
Paving	0	0.00	10.21	0.00
Architectural Coating	0	0.00	10.21	0.00
Total				**0.00**

Construction Equipment Diesel Demand

Phase	Pieces of Equipment	Equipment CO_2 (MT)	Kg CO2/Gallon	Gallons
Grading	4	9.05	10.21	886.52
Building Construction	8	311.55	10.21	30,514.17
Paving	6	7.76	10.21	759.78
Architectural Coating	1	1.28	10.21	125.03
Total				**32,285.51**

Construction Equipment Usage

Phase	Hours of Use
Grading	120
Building Construction	14,400
Paving	2,320
Architectural Coating	60
Total	**16,900**

Morse Park Recreation Center Project

Project Operational Energy Demand

Mobile Source Gasoline Demand

Project Facility	Vehicle MT CO_2	Kg CO2/Gallon	Gallons
Recreation Center	334.25	8.78	38,069.12

Mobile Source Diesel Demand

Project Facility	Vehicle MT CO_2	Kg CO2/Gallon	Gallons
Recreation Center	21.35	10.21	2,091.57

Electricity Demand

Project Consumption	kWh/Year
Recreation Center	758,935.00
Water/Wastewater	22,575.77
Total	**781,510.77**

Appendix B

Cultural Resources Inventory Report

1102 R STREET
SACRAMENTO, CALIFORNIA 95811
T 916.443.8335 F 916.443.5113

November 15, 2021

Fred Bremerman
Project Manager
Cosumnes CSD Parks and Recreation
(916) 524-0563

Subject: ***Cultural Resources Letter Report for the Morse Park Rec Center Project, City of Elk Grove, Sacramento County, California***

Dear Mr. Bremerman:

This letter report documents the cultural resources study conducted by Dudek for the proposed Morse Park Rec Center Project (Project), located in the City of Elk Grove, California. The Cosumnes Community Service District (District) is the lead agency responsible for compliance with the California Environmental Quality Act (CEQA). This cultural resources study included a North Central Information Center (NCIC) records search, Native American Heritage Commission (NAHC) Sacred Lands File search, and an intensive pedestrian survey for cultural resources. The cultural resources study was conducted by Dudek in accordance with the standards and guidelines defined by the California Office of Historic Preservation and CEQA.

PROJECT LOCATION AND DESCRIPTION

The Project site is located in Section 4 of Township 6 North, Ranges 5 East, of the Florin 7.5' USGS Quadrangle map (Figure 1). The Project site is located in the southwestern portion of the City of Elk Grove, at the east corner of Bellaterra Drive and Fire Poppy Drive. The proposed project site includes an undeveloped portion within the larger developed Morse Park. The undeveloped portion of the park consists of mowed non-native annual grasses, while the remainder of the park includes sports fields and playing courts, playgrounds, picnic area, paved parking lots, sidewalks and walkways, and landscaping. The Project proposes development of a recreation center to provide a variety of recreation activities:

- Construction of an approximately 50,000 sf recreation center with indoor basketball courts, aerobic/dance spaces, fitness spaces, a multi-purpose room, indoor track, administrative space, and locker rooms

- Construction of and outdoor game space and event lawn

- Additional landscaping, walkways, lighting, and surface parking

These improvements are proposed on approximately 3 acres in the undeveloped eastern portion of Morse Park (Figure 2).

REGULATORY FRAMEWORK

State Regulations

The California Register of Historical Resources

In California, the term "historical resource" includes but is not limited to "any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California" (California Public Resources Code [PRC] Section 5020.1(j)). In 1992, the California legislature established the California Register of Historical Resources (CRHR) "to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Section 5024.1(a)). The criteria for listing resources in the CRHR were expressly developed to be in accordance with previously established criteria developed for listing in the National Register of Historic Places (NRHP), enumerated below. According to PRC Section 5024.1(c)(1–4), a resource is considered historically significant if it (i) retains "substantial integrity," and (ii) meets at least one 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.

(4) Has yielded, or may be likely to yield, information important in prehistory or history.

In order to understand the historic importance of a resource, sufficient time must have passed to obtain a scholarly perspective on the events or individuals associated with the resource. A resource less than 50 years old may be considered for listing in the CRHR if it can be demonstrated that

sufficient time has passed to understand its historical importance (see California Code Regulations, Title 14, Section 4852(d)(2)).

The CRHR protects cultural resources by requiring evaluations of the significance of prehistoric and historic resources. The criteria for the CRHR are nearly identical to those for the NRHP, and properties listed or formally designated as eligible for listing in the NRHP are automatically listed in the CRHR, as are the state landmarks and points of interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

California Environmental Quality Act

As described further below, the following CEQA statutes and CEQA Guidelines are of relevance to the analysis of archaeological, historic, and tribal cultural resources:

- PRC Section 21083.2(g) defines "unique archaeological resource."
- PRC Section 21084.1 and CEQA Guidelines Section 15064.5(a) defines "historical resources." In addition, CEQA Guidelines Section 15064.5(b) defines the phrase "substantial adverse change in the significance of an historical resource;" it also defines the circumstances when a project would materially impair the significance of an historical resource.
- PRC Section 21074(a) defines "tribal cultural resources."
- PRC Section 5097.98 and CEQA Guidelines Section 15064.5(e): Set forth standards and steps to be employed following the accidental discovery of human remains in any location other than a dedicated ceremony.
- PRC Sections 21083.2(b)-(c) and CEQA Guidelines Section 15126.4: Provide information regarding the mitigation framework for archaeological and historic resources, including examples of preservation-in-place mitigation measures; preservation-in-place is the preferred manner of mitigating impacts to significant archaeological sites because it maintains the relationship between artifacts and the archaeological context, and may also help avoid conflict with religious or cultural values of groups associated with the archaeological site(s).

More specifically, under CEQA, a project may have a significant effect on the environment if it may cause "a substantial adverse change in the significance of an historical resource" (PRC Section 21084.1; CEQA Guidelines Section 15064.5(b)). If a site is either listed or eligible for listing in the CRHR, or if it is included in a local register of historic resources, or identified as significant in a historical resources survey (meeting the requirements of PRC Section 5024.1(q)), it is a "historical resource" and is presumed to be historically or culturally significant for purposes of CEQA (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)). The lead agency is not

precluded from determining that a resource is a historical resource even if it does not fall within this presumption (PRC Section 21084.1; CEQA Guidelines Section 15064.5(a)).

A "substantial adverse change in the significance of an historical resource" reflecting a significant effect under CEQA means "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines Section 15064.5(b)(1); PRC Section 5020.1(q)). In turn, the significance of a historical resource is materially impaired when a project:

(1) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register; or

(2) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, 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

(3) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register as determined by a lead agency for purposes of CEQA (CEQA Guidelines Section 15064.5(b)(2)).

Pursuant to these sections, the CEQA inquiry begins with evaluating whether a project site contains any "historical resources," then evaluates whether that project will cause a substantial adverse change in the significance of a historical resource such that the resource's historical significance is materially impaired.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (PRC Section 21083.2[a], [b], and [c]).

PRC Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Impacts to non-unique archaeological resources are generally not considered a significant environmental impact (PRC Section 21083.2(a); CEQA Guidelines Section 15064.5(c)(4)). However, if a non-unique archaeological resource qualifies as tribal cultural resource (PRC Sections 21074(c); 21083.2(h)), further consideration of significant impacts is required.

CEQA Guidelines Section 15064.5 assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. As described below, these procedures are detailed in PRC Section 5097.98.

Native American Historic Cultural Sites

State law addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction; establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project; and establishes the Heritage Commission to resolve disputes regarding the disposition of such remains. In addition, the Native American Historic Resource Protection Act makes it a misdemeanor punishable by up to 1 year in jail to deface or destroy a Native American historic or cultural site that is listed or may be eligible for listing in the CRHR.

California Health and Safety Code Section 7050.5

California law protects Native American burials, skeletal remains, and associated grave goods, regardless of their antiquity, and provides for the sensitive treatment and disposition of those remains. Health and Safety Code Section 7050.5 requires that if human remains are discovered in any place other than a dedicated cemetery, no further disturbance or excavation of the site or nearby area reasonably suspected to contain human remains shall occur until the County coroner has examined the remains (Section 7050.5b). PRC Section 5097.98 also outlines the process to be followed in the event that remains are discovered. If the coroner determines or has reason to believe

the remains are those of a Native American, the coroner must contact the NAHC within 24 hours (Section 7050.5c). The NAHC will notify the Most Likely Descendant (MLD). With the permission of the landowner, the MLD may inspect the site of discovery. Recommendations by the MLD must be provided within 48 hours of being provided access. The MLD may recommend means of treating or disposing of, with appropriate dignity, the human remains and items associated with Native Americans.

BACKGROUND RESEARCH

Cultural Records Search Results

A records search was completed for the current proposed Project site and a 1/2-mile radius by Dudek staff at the NCIC at Sacramento State University on September 21, 2021 (Confidential Appendix A). This search included a review of their collection of mapped prehistoric, historical, and built-environment resources, Department of Parks and Recreation Site Records, technical reports, historical maps, and local inventories. Additional consulted sources included the NRHP, California Inventory of Historical Resources/CRHR and listed Office of Historic Preservation Archaeological Determinations of Eligibility, California Points of Historical Interest, and California Historical Landmarks.

Previously Conducted Studies

NCIC records indicate that five (5) previous cultural resources technical investigations have been conducted within 1/2-mile of the proposed Project site (Table 1). Of these studies, two include portions of the proposed Project site.

Table 1.
Previous Technical Studies

Report Number	Date	Title	Author
Reports within the Project Site			
002531	2001	Cultural Resources Inventory Laguna Creek South Elk Grove, Sacramento County, California	Windmiller, Ric and Daniel Osanna
003845	1999	Cultural Resources Assessment of the East Franklin Specific Plan Area, Sacramento County, CA	Peak and Associates, Inc.
Reports within the 1/2-Mile Search Site			
001882	1997	Cultural Resources Assessment of the Elk Grove Unified School District 6th High School and Middle School Site, Sacramento County, Sacramento, California.	Peak and Associates, Inc.
006124	2004	Cultural Resources Analysis for Cingulra Wireless Site SP-060-05	Losee, Carolyn

Table 1.
Previous Technical Studies

Report Number	Date	Title	Author
009201	2007	Cultural Resource Inventory of Approximately 645 Acres for the South Interceptor Project Near Elk Grove, California	Carpenter, Tim

Previously Identified Cultural Resources

NCIC records indicate that no archaeological or built-environment resources are on file within or adjacent to the Project site. Two (2) resources were on file within the ½-mile records search area (Table 2). Both of these resources consist of historic properties that were found ineligible for the NRHP and CRHR through survey evaluation.

Table 2.
Previously Recorded Cultural Resources

Primary Number	Trinomial	Period	Name	Type	NRHP/CRHR Status
Resources within the Project Site					
None					
Resources within the 1/2-Mile Search Site					
P-34-000579	CA-SAC-634H	Historic-era	Nunes Dairy; Hog Barn	Single family property; Ancillary building	Ineligible (6Z)
P-34-000830	CA-SAC-639H	Historic-era		Single family property	Ineligible (6Z)

Archival and Building Development Research

Dudek consulted historic maps and aerial photographs to understand development of the proposed Project site and surrounding properties. Historic aerial photographs were available from 1957 to 2018; historic maps were available from 1909 to 2018 (NETR 2021). Aerial images indicate the vicinity of the Project site was undeveloped agricultural land until the early 2000s. Initial development of the area is visible on the 2002 aerial image, the surrounding housing development is present in the 2005 aerial and Morse Park, while graded, is not fully developed. By 2009 development appears as it does presently. Topographic maps from 1954 and 1963 show an ephemeral drainage intersecting the southern portion of Morse Park, this appears to be Franklin Creek, which was later channelized south of the project area.

NAHC and Tribal Correspondence

Dudek requested a NAHC search of their Sacred Lands File on September 9, 2021 for the Project site. On October 20, 2021, the NAHC responded that the result of the Sacred Lands File check was negative. Follow-up communication and formal consultation with Native American tribes pursuant to Assembly Bill (AB) 52 will be completed by District staff.

The proposed Project is subject to compliance with Assembly Bill 52 (PRC Section 21074), which requires consideration of impacts to "tribal cultural resources" as part of the CEQA process and requires the CEQA lead agency to notify any groups (who have requested notification) of the Project who are traditionally or culturally affiliated with the geographic area of the Project. Because AB 52 is a government-to government process, all records of correspondence related to AB 52 notification and any subsequent consultation are on file with the District.

Intensive Pedestrian Survey

Dudek archaeologist Nicholas Hanten inspected all portions of the approximately 3-acre Project site and portions of the larger Morse Park on September 30, 2021, using standard archaeological procedures and techniques that meet the Secretary of Interior's Standards and Guidelines for cultural resources inventory. Surface visibility in Morse Park outside of the proposed undeveloped area was very low (less than 5%) due to the development of the park. The entirety of the proposed 3-acre development area was covered with non-native annual grasses that had been mowed to a height of 2-3 inches, such that surface visibility in the area was low (<10%) with the dense grass partially obscuring the ground. Exposed ground surfaces were observed for surface artifacts, undisturbed areas, archaeological deposits, and historic structures and periodic boot scrapes were employed to expose additional ground surface. Evidence of artifacts and archaeological deposits were also opportunistically sought after in animal burrows. The entire area appears to have been previously disturbed by grading and mowing. No historic structures were observed. No archaeological resources were identified within the Project site during the field survey.

Geomorphology

Potential for yet identified cultural resources in the vicinity was reviewed against geologic and topographic GIS data for the area and information from other nearby projects. The "archaeological sensitivity," or potential to support the presence of a buried prehistoric archaeological deposits, is generally interpreted based on geologic landform and environmental parameters (i.e., distance to water and landform slope).

The Project site is located within the Great Valley Geomorphic Province of California, a large basin comprised of the Sacramento and San Joaquin Valleys, bounded by the Serra Nevada and

Coast Ranges to the east and west respectively. Specifically, the Project site is situated in the floodplain on the Cosumnes River and is directly north of Franklin Creek, which has been channelized and runs approximately 175 meters south of the boundary of Morse Park and 300 meters south of the proposed rec center development area. Historic topographic maps and aerial images, discussed above, indicate that prior to its channelization, Elk Grove Creek ran in closer proximity to the project area.

Soils within the site are entirely characterized as San Joaquin silt loam soil series, which consists of moderately deep to a duripan, well and moderately well drained soils. These soils are formed in alluvium derived from mixed but dominantly granitic rock sources, generally on undulating low terraces with slopes between 0- and 9-percent. Slopes within the Project site are between 0-1 percent. Based on review of this information and ignoring surface disturbances observed during survey, the flat topography and proximity to an active waterway indicate the Project site would be moderately-well suited to support the formation or continued presence of buried cultural deposits or surface manifestations.

SUMMARY AND MANAGEMENT RECOMMENDATIONS

Archaeological Resources

Observation of the present conditions within the proposed Project indicate surface conditions are disturbed from previous agricultural activities, development of Morse Park and the surrounding housing development, and ongoing landscaping and maintenance. No newly identified archaeological resources were recorded during the pedestrian survey of the proposed Project site. Further, a NCIC records search did not identify the presence of cultural resources within the proposed Project site or the surrounding vicinity. An NAHC Sacred Lands File search was negative. The proposed Project, as currently designed, appears to have a very low potential for encountering intact cultural deposits during ground-disturbing activities and would have no impact to known cultural resources. Based on these negative findings and the observed conditions of the present proposed Project site, no additional cultural resources efforts, including archaeological monitoring, are recommended to be necessary beyond standard protection measures for unanticipated discoveries of cultural resources and human remains, outlined below.

Unanticipated Discovery of Archaeological Resources

In the event that archaeological resources (sites, features, or artifacts) are exposed during construction activities for the proposed Project, all construction work occurring within 100 feet of the find shall immediately stop until a qualified archaeologist, meeting the Secretary of the Interior's Professional Qualification Standards, can evaluate the significance of the find and

determine whether or not additional study is warranted. Depending upon the significance of the find under CEQA (14 CCR 15064.5(f); PRC Section 21082), the archaeologist may simply record the find and allow work to continue. If the discovery proves significant under CEQA, additional work such as preparation of an archaeological treatment plan, testing, or data recovery may be warranted.

Unanticipated Discovery of Human Remains

In accordance with Section 7050.5 of the California Health and Safety Code, if human remains are found, the County Coroner shall be immediately notified of the discovery. No further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains shall occur until the County Coroner has determined, within 2 working days of notification of the discovery, if the potential remains are human in origin. If the County Coroner determines that the remains are, or are believed to be, Native American, he or she shall notify the NAHC in Sacramento within 24 hours. In accordance with California Public Resources Code, Section 5097.98, the NAHC must immediately notify those persons it believes to be the MLD from the deceased Native American. The MLD shall complete their inspection within 48 hours of being granted access to the site. The designated Native American representative would then determine, in consultation with the property owner, the disposition of the human remains.

If you have any questions about this report, please contact me at wburns@dudek.com.

Respectfully submitted,

Nicholas Hanten M.A.

cc: Adam Giacinto, MA, RPA, Dudek
Christine Kronenberg, Dudek

Att: NADB Information
Figure 1. Project Location
Figure 2. Project Site
Appendix A: NCIC Records Search Results - Confidential
Appendix B: NAHC SLF Search

REFERENCES CITED

NETR (Nationwide Environmental Title Research). *Historical Aerials.* Accessed October 4, 2021. www.historicaerials.com.

UC Davis (University of California, Davis). 2021. *California Soil Resource Lab: SoilWeb.* Accessed October 4, 2021. https://casoilresource.lawr.ucdavis.edu/gmap/.

USDA (United States Department of Agricultural). 2017. *Natural Resources Conservation Service: Web Soil Survey.* Accessed October 4, 2021. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

NATIONAL ARCHAEOLOGICAL DATABASE (NADB) INFORMATION

Authors:	Nicholas Hanten, MA, and Adam Giacinto, MA, RPA
Firm:	Dudek
Project Proponent:	Cosumnes Community Service District
Report Date:	October 2021
Report Title:	Cultural Resources Letter Report for the Morse Park Rec Center Project, Sacramento County, California
Type of Study:	Archaeological Inventory, Intensive Pedestrian Survey
Acreage:	Approximately 3 acres
Resources:	None
USGS Quads:	Sections 4, Township 6 North, Range 5 East, Florin Quadrangle USGS map
Keywords:	Elk Grove, Archaeological Inventory, Intensive Pedestrian Survey, Cosumnes Community Service District

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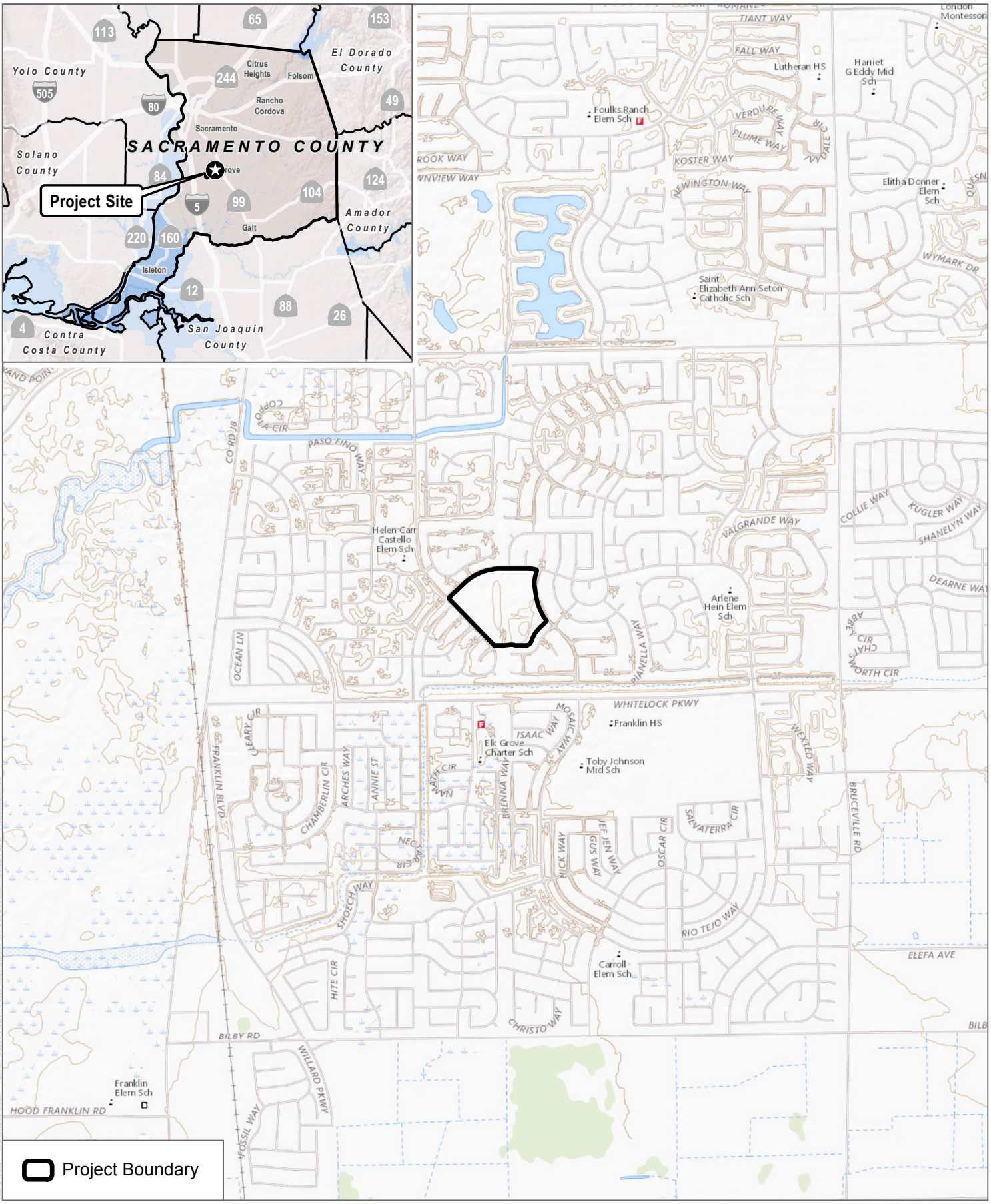

SOURCE: USGS National Map Florin Quadrangle
Township 6N \ Range 5E \ Section 04

0 1,000 2,000 Feet
0 300 600 Meters

DUDEK

FIGURE 1

Project Location

Morse Park Rec Center Project

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SOURCE: USGS National Map Florin Quadrangle
Township 6N \ Range 5E \ Section 04

0 110 220 Feet
0 30 60 Meters

DUDEK

FIGURE 1

Project Location

Morse Park Rec Center Project

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APPENDIX A

CONFIDENTIAL

NCIC Records Search Results

APPENDIX B

NAHC SLF Search

Local Government Tribal Consultation List Request

Native American Heritage Commission
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691
916-373-3710
916-373-5471 – Fax
nahc@nahc.ca.gov

Type of List Requested

■ **CEQA Tribal Consultation List (AB 52)** – ***Per Public Resources Code § 21080.3.1, subs. (b), (d), (e) and 21080.3.2***

☐ **General Plan (SB 18)** - ***Per Government Code § 65352.3.***

Local Action Type:

☐ **General Plan** ☐ **General Plan Element** ☐ **General Plan Amendment**

☐ **Specific Plan** ☐ **Specific Plan Amendment** ☐ **Pre-planning Outreach Activity**

Required Information

Project Title: Morse Park Rec Center Project

Local Government/Lead Agency: _____

Contact Person: Ross Owen (Dudek)

Street Address: 853 Lincoln Way #208

City: Auburn **Zip:** 95603

Phone: (916) 531-8654 **Fax:** _____

Email: rowen@dudek.com

Specific Area Subject to Proposed Action

County: Sacramento **City/Community:** Elk Grove

Project Description:

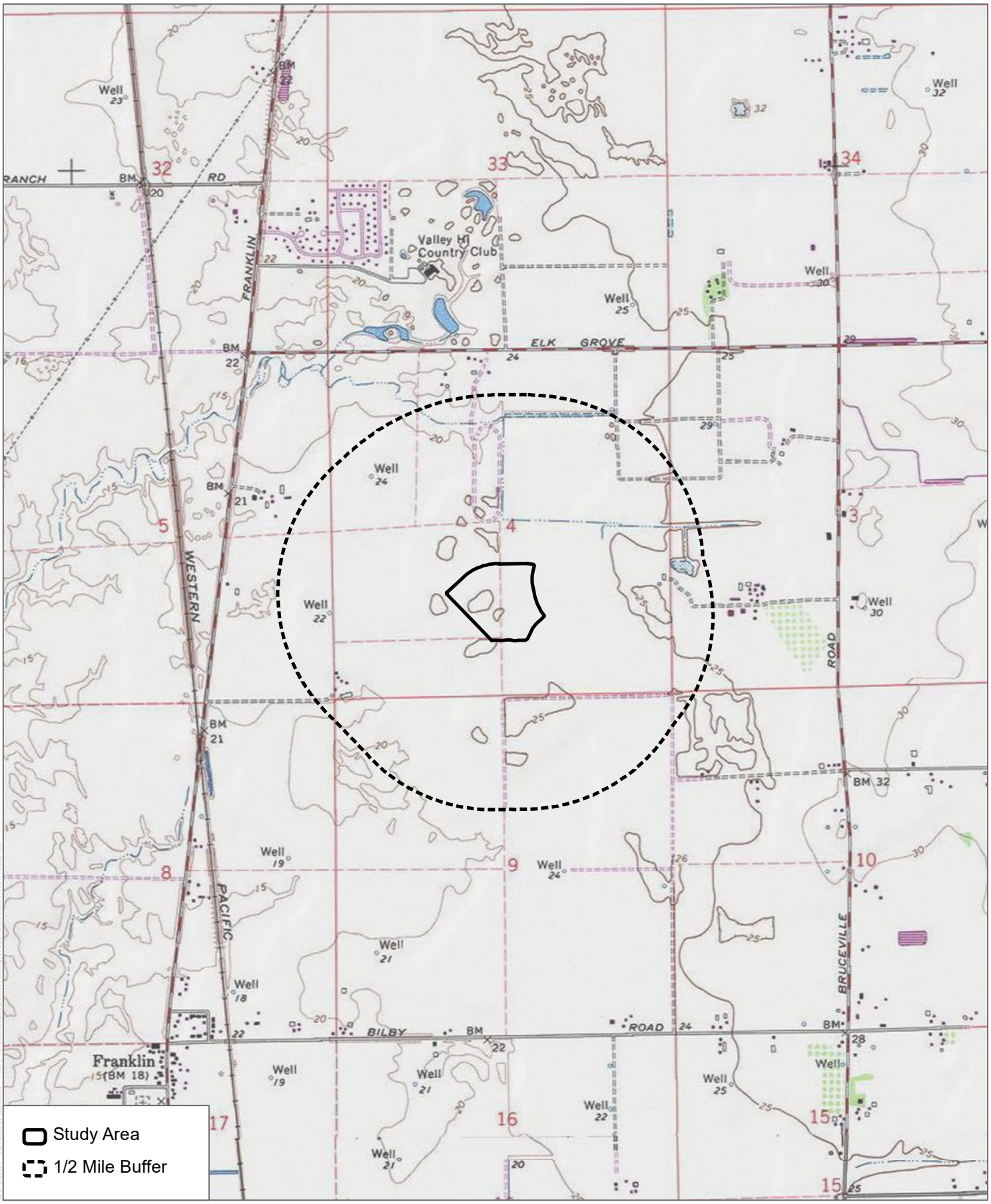
A recreation center is proposed for development within Morse Park in Elk Grove, California.

Additional Request

■ **Sacred Lands File Search** - ***Required Information:***

USGS Quadrangle Name(s): Florin

Township: 6N **Range:** 5E **Section(s):** 3-5, 8-10



SOURCE: USGS 7.5-Minute Series Florin Quadrangle
Township 6N; Range 5E; Sections 3, 4, 5, 8, 9, 10

DUDEK

0 1,000 2,000 Feet
0 285 570 Meters
1:24,000

Records Search
Morse Park Rec Center Project

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

October 20, 2021

Ross Owen
Dudek

Via Email to: rowen@dudek.com

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09,21084.2 and 21084.3, Morse Park Rec Center Project, Sacramento County.

Dear Mr. Owens:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measures.

     All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was negative.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Katy.Sanchez@nahc.ca.gov.

Sincerely,

Katy Sanchez

Katy Sanchez
Associate Environmental Planner

Attachment

Native American Heritage Commission
Native American Contacts List
October 19, 2021

Buena Vista Rancheria of Me-Wuk Indians
Rhonda Morningstar Pope, Chairperson
1418 20th Street, Suite 200 — Me-Wuk / Miwok
Sacramento ,CA 95811
rhonda@buenavistatribe.com
(916) 491-0011 Office
(916) 491-0012 Fax

Chicken Ranch Rancheria of Me-Wuk Indians
Lloyd Mathiesen, Chairperson
P.O. Box 1159 — Miwok - Me-wuk
Jamestown ,CA 95327
lmathiesen@crtribal.com
(209) 984-9066
(209) 984-9269

Colfax-Todds Valley Consolidated Tribe
Clyde Prout, Chairperson
P.O. Box 4884 — Miwok
Auburn ,CA 95604 — Maidu
miwokmaidu@yahoo.com
(916) 577-3558

Guidiville Indian Rancheria
Donald Duncan, Chairperson
P.O. Box 339 — Pomo
Talmage ,CA 95481
admin@guidiville.net
(707) 462-3682
(707) 462-9183 Fax

Ione Band of Miwok Indians
Sara A. Dutschke, Chairperson
9252 Bush Street — Miwok
Plymouth ,CA 95669
consultation@ionemiwok.net
(209) 245-5800
(209) 256-9799

Muwekma Ohlone Indian Tribe of the SF Bay Area
Charlene Nijmeh, Chairperson
20885 Redwood Road, Suite 232 — Ohlone / Costanoan
Castro Valley ,CA 94546
cnijmeh@muwekma.org
(408) 464-2892
(408) 205-9714

Nashville Enterprise Miwok-Maidu-Nishinam Tribe
Cosme A. Valdez, Chairperson
P.O. Box 580986 — Miwok
Elk Grove ,CA 95758-001
valdezcome@comcast.net
(916) 429-8047 Voice/Fax
(916) 396-1173 Cell

North Valley Yokuts Tribe
Katherine Erolinda Perez, Chairperson
P.O. Box 717 — Ohlone/Costanoan
Linden ,CA 95236 — Northern Valley Yokuts
canutes@verizon.net — Bay Miwok
(209) 887-3415

Shingle Springs Band of Miwok Indians
Regina Cuellar, Chairperson
P.O. Box 1340 — Miwok
Shingle Springs ,CA 95682 — Maidu
rcuellar@ssband.org
(530) 387-4970
(530) 387-8067 Fax

The Confederated Villages of Lisjan
Corrina Gould, Chairperson
10926 Edes Avenue — Ohlone/Costanoan
Oakland ,CA 94603
cvltribe@gmail.com
(510) 575-8408

Appendix C
Geotechnical Report

Revised Preliminary Geotechnical Engineering Report

Morse Park Recreation Center
Elk Grove, California
June 23, 2021
Terracon Project No. NB215008

Prepared for:
Barker Rinker Seacat Architecture
Denver, Colorado

Prepared by:
Terracon Consultants, Inc.
Sacramento, California

June 23, 2021

Barker Rinker Seacat Architecture
3457 Ringsby Ct, Unit 200
Denver, Colorado 80216-4910

Attn: Mr. Daniel Matoba
P: (303) 455-1366
E: danielmatoba@brsarch.com

Re: Revised Preliminary Geotechnical Engineering Report
Morse Park Recreation Center
540 Bellatera Drive
Elk Grove, California
Terracon Project No. NB215008

Dear Mr. Matoba:

We have completed the Revised Preliminary Geotechnical Engineering report for the above referenced project. This study was performed in general accordance with the Terracon Proposal No. PNB215008 dated April 8, 2021. This report presents the findings of the subsurface exploration and provides geotechnical recommendations concerning earthwork and the design and construction of foundations and floor slabs for the proposed project.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report or if we may be of further service, please contact us.

Sincerely,
Terracon Consultants, Inc.

Beau D. Donaldson, P.E. 91954
Project Engineer

Frederick Maurer Jr., P.E., G.E. 2035
Geotechnical Department Manager

REPORT TOPICS

Note: This report was originally delivered in a web-based format. **Orange Bold** text in the report indicates a referenced section heading. The PDF version also includes hyperlinks which direct the reader to that section and clicking on the ***GeoReport*** logo will bring you back to this page. For more interactive features, please view your project online at client.terracon.com.

ATTACHMENTS

Note: Refer to each individual Attachment for a listing of contents.

Revised Preliminary Geotechnical Engineering Report

Morse Park Recreation Center
540 Bellatera Drive
Elk Grove, California

Terracon Project No. NB215008

June 23, 2021

INTRODUCTION

This report presents the results of our preliminary subsurface exploration and geotechnical engineering services performed for the proposed Morse Park Recreation (Rec) center to be located at 540 Bellatera Drive in Elk Grove, California. The purpose of these services is to provide subsurface information and preliminary geotechnical engineering recommendations relative to:

- Subsurface soil conditions
- Site preparation and earthwork
- Excavation considerations
- Foundation design and construction
- Floor slab design and construction
- Seismic site classification and design parameters per 2019 CBC
- Pavement design and construction

The preliminary recommendations will be used by the design team to perform the initial design for the proposed development. We previously issued a Preliminary Geotechnical Engineering Report, dated May 12, 2021 that was based on the information from our April 8, 2021 Proposal; however, additional information provided by the project team required that we perform additional analyses and prepare this revised report.

The preliminary geotechnical engineering Scope of Services for this project included the advancement of six (6) test borings to depths ranging from approximately 6.5 to 26.5 feet below existing site grades. It is our understanding that once a definitive site plan for the proposed development has been finalized, we will be authorized to return to the site to perform a supplementary geotechnical field exploration where we will advance borings within the areas of the proposed final building footprint. We will then deliver a final geotechnical report which will be based off data obtained from our preliminary and supplementary geotechnical field explorations.

Maps showing the site and boring locations are shown in the **Site Location** and **Exploration Plan** sections, respectively. The results of the laboratory testing performed on soil samples obtained from the site during the field exploration are included on the boring logs and as separate graphs in the **Exploration Results** section.

SITE CONDITIONS

The following description of site conditions is derived from our site visit in association with the field exploration and our review of publicly available geologic and topographic maps.

Item	Description
Parcel Information	■ The project is located at 5540 Ballatera Drive in Elk Grove, CA ■ The site encompasses about 3 acres. ■ Approximate coordinates: 38.3981°N and 121.4382°W ■ See **Site Location**
Existing Improvements	Historical aerial imagery dating back to the 1980s suggests that the site has likely never been developed. The site currently acts as a vacant field with native grasses and weeds. The site is surrounded to the north, south and west by roadways and to the east by Morse Park.
Current Ground Cover	Moderately vegetated with native grasses and weeds.
Existing Topography	The site contains approximately 5 feet of topographic relief across the site with gentle slopes generally sloping downward to the north to northwest.
Geology	The project area is situated within the Great Valley Geomorphic Provence of California. The Great Valley is an alluvial plain located between the Coast Ranges and the Sierra Nevada and consists of an alluvial basin and flood plain. The native materials underlying the site are considered to consist of Riverbank Formation (Q_{r1}), as described in the USGS geologic maps of the area. According to the maps, the Riverbank Formation is Pleistocene in age (duration about 2.6 million years ago to 12,000 years ago) and consists primarily of arkosic sediments derived mainly from the interior of the Sierra Nevada, underlying terraces and coalescing alluvial fans along most of the eastern San Joaquin Valley. The subsurface materials encountered in our investigation are generally consistent with the mapped geology.

PROJECT DESCRIPTION

Our initial understanding of the project was provided in our proposal and was discussed during project planning. A period of collaboration has transpired since the project was initiated, and our final understanding of the project conditions is presented in the following sections.

Item	Description
Information Provided	■ January 27, 2021 Email sent by Mr. Brenton Peabody of SVA Architects, Inc. providing a conceptual site pan and general project information ■ March 31, 2021 Email sent by Mr. Daniel Matoba of Barker Rinker Seacat Architecture (BRS) providing a revised scope of work requesting two phased geotechnical field explorations for the site. ■ April 14, 2021 Email sent by Mr. Matoba providing an April 12, 2021 letter prepared by Martin/Martin, Inc. describing the proposed recreation center structure and outlining the structural requirements for the project geotechnical investigation. ■ April 15, 2021 Email sent by Mr. Scott Jones of Cosumnes Community Services District (CSD) providing a preliminary boring exploration plan. ■ May 14, 2021 Email sent by Mr. Chris Cosenza of BRS providing comments referencing Terracon's May 12, 2021 Preliminary Geotechnical Engineering Report for the subject project. ■ June 8, 2021 Email sent by Mr. Cosenza providing additional comments referencing Terracon's May 12, 2021 Preliminary Geotechnical report.
Project Description	The project includes the construction of a new recreation center for the Cosumnes Community Services District. We understand the recreation center will include an approximately 35,000 square foot two-story building and associated parking, drive lanes and landscaping. The building's main level will include a lobby, offices, two basketball courts and an aerobic/dance room. The upper level will include a running track, fitness zones and a wellness studio.
Building Construction	The rec center building will be constructed out of steel framing members with a composite concrete over metal deck floor system. The building's main floor will be slab-on-grade (non-basement). The proposed location for the recreation center building is currently unknown.
Finished Floor Elevation	Within 1 foot of existing grades.
Maximum Loads (Provided by Martin/Martin Inc.)	Maximum columns loads for the building will be 300 kips. Maximum wall loads for the building will be 3 kips per linear foot (klf).
Maximum Loads (Assumed)	Slabs will have maximum loads up to 150 pounds per square foot (psf)
Grading/Slopes	Up to 2 feet of cut and 2 feet of fill will be required to develop final grade.
Below-Grade Structures	A pool may be constructed as part of the proposed development, but we understand that detailed recommendations for the pool are not to be included in this report.

Item	Description
Pavements	Both rigid (concrete) and flexible (asphalt) pavements are planned for the development. Anticipated traffic is as follows: ■ Non-Vehicular Pavements: Traffic Index of <4.5 ■ Automobile parking areas: Traffic Index of 4.5 ■ Driving Lanes: Traffic Index of 5.5 ■ Emergency Vehicle Parking Areas: TI = 6.0 ■ Emergency Vehicle Driving Areas: TI = 7.0 The pavement design period is 20 years.

PRELIMINARY GEOTECHNICAL CHARACTERIZATION

We have developed a general characterization of the subsurface conditions based upon our review of the preliminary subsurface exploration, laboratory data, geologic setting and our understanding of the project. This characterization, termed GeoModel, forms the basis of our geotechnical calculations and evaluation of site preparation and foundation options. Conditions encountered at each exploration point are indicated on the individual logs. The individual logs can be found in the **Exploration Results** section and the GeoModel can be found in the **Figures** section of this report.

As part of our analyses, we identified the following model layers within the subsurface profile. For a more detailed view of the model layer depths at each boring location, refer to the GeoModel.

Model Layer	Layer Name	General Description
1	**Lean Clay**	varying sand content, low to medium plasticity, very stiff to hard, moderate cementation
2	**Sand**	varying fines content, varying cementation, medium dense to very dense

Conditions encountered at each boring location are indicated on the individual boring logs shown in the **Exploration Results** section and are attached to this report. Stratification boundaries on the boring logs represent the approximate location of changes in native soil types; in situ, the transition between materials may be gradual.

Lab Results

Laboratory tests were conducted on selected soil samples and the test results are shown in the **Exploration Results** section and on the boring logs. Atterberg limit test results indicate that the near surface clayey soils have low to medium plasticity. An expansion index test indicates the near surface clayey soils have low expansion potential.

Groundwater Conditions

The boreholes were observed while drilling and after completion for the presence and level of groundwater. Groundwater was not encountered in our test borings while drilling, or for the short duration the borings could remain open.

According to data collected from the Water Data Library for the State of California from a nearby well, located approximately 0.4 miles southwest of the site in State Well Number 06N05E04N002M, historic groundwater levels between March 03, 1990 and March 30, 1999 were recorded at greater than 50 feet bgs.[1]

Groundwater level fluctuations occur due to seasonal variations in the amount of rainfall, runoff and other factors not evident at the time the borings were performed. Therefore, groundwater levels during construction or at other times in the life of the structure may be higher or lower than anticipated. The possibility of groundwater level fluctuations should be considered when developing the design and construction plans for the project.

SEISMIC CONSIDERATIONS

The 2019 California Building Code (CBC) Seismic Design Parameters have been generated using the SEAOC/OSHPD Seismic Design Maps Tool. This web-based software application calculates seismic design parameters in accordance with ASCE 7-16 and 2019 CBC. The 2019 CBC requires that a site-specific ground motion study be performed in accordance with Section 11.4.8 of ASCE 7-16 for Site Class D sites with a mapped S_1 value greater than or equal 0.2.

However, Section 11.4.8 of ASCE 7-16 includes an exception from such analysis for specific structures on Site Class D sites. The commentary for Section 11 of ASCE 7-16 (Page 534 of Section C11 of ASCE 7-16) states that “In general, this exception effectively limits the requirements for site-specific hazard analysis to very tall and or flexible structures at Site Class D sites.” Based on our understanding of the proposed structures, it is our approach that the exception in Section 11.4.8 applies to the proposed structure, and the structural engineer has indicated they agree but will confirm the applicability of this exception as the design work proceeds.

Based on this exception, the spectral response accelerations presented below were calculated using the site coefficients (F_a and F_v) from Tables 1613.2.3(1) and 16132.3(2) presented in Section 16.4.4 of the 2019 CBC.

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[1] *Groundwater elevation was obtained from the Water Data Library for the State of California Well ID 7153 (https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#gwlevels).*

Description	Value
2019 California Building Code Site Soil Classification[1]	D[2]
Site Latitude	38.3981°N
Site Longitude	121.4382°W
S_s – Spectral Acceleration Parameter for a Short Period[4]	0.592
S_1 – Spectral Acceleration Parameter for a 1-Second Period[4]	0.256
F_a – Site Amplification Factor for a Short Period	1.326
F_v – Site Amplification Factor for a 1-Second Period	2.088
S_{MS} – MCE[3] Spectral Acceleration Parameter for a Short Period	0.785
S_{M1} – MCE[3] Spectral Acceleration Parameter for a 1-Second Period	0.535
S_{DS} – Design Spectral Acceleration for a Short Period	0.523
S_{D1} – Design Spectral Acceleration for a 1-Second Period	0.356

1. Seismic site soil classification in general accordance with the *2019 California Building Code*, which refers to ASCE 7-16.
2. The 2019 California Building Code (CBC) uses a site profile extending to a depth of 100 feet for seismic site soil classification. The borings for this report extended to the maximum depth of approximately 26.5 feet and this seismic site class assignment considers that similar soils continue below the maximum depth of the subsurface exploration. Additional exploration to greater depths could be considered to confirm the conditions below the current depth of exploration. Alternatively, a geophysical exploration could be utilized in order to attempt to justify a more favorable seismic site class.
3. MCE refers to Maximum Considered Earthquake.
4. These values were obtained using online seismic design maps and tools provided by SEAOC and OSHPD (https://seismicmaps.org/).

Typically, a site-specific ground motion study will generate less conservative coefficients and acceleration values which may reduce construction costs. We recommend consulting with the project structural engineer to evaluate the need for such a study and its potential impact on construction costs. Terracon should be contacted if a site-specific ground motion study is desired.

Faulting and Estimated Ground Motions

The site is located in Northern California, which is a seismically active area. The type and magnitude of seismic hazards affecting the site are dependent on the distance to causative faults, the intensity, and the magnitude of the seismic event. Based on the OSHPD Seismic Design Maps Report, using the American Society of Civil Engineers (ASCE 7-16) standard, the peak ground acceleration (PGA_M) at the project site is expected to be 0.335g. Based on the USGS Unified Hazard Tool, the project site has a mean earthquake magnitude of 6.43. Furthermore, the site is

not located within an Alquist-Priolo Earthquake Fault Zone based on our review of the State Fault Hazard Maps.[2]

LIQUEFACTION

Liquefaction is a mode of ground failure that results from the generation of high pore water pressures during earthquake ground shaking, causing loss of shear strength. Liquefaction is typically a hazard where loose sandy soils or non-plastic fine-grained soils exist below groundwater. The California Geologic Survey (CGS) has designated certain areas within California as potential liquefaction hazard zones. These are areas considered at a risk of liquefaction-related ground failure during a seismic event, based upon mapped surficial deposits and the presence of a relatively shallow water table. The project site is not located within a liquefaction hazard zone mapped by the CGS.

A liquefaction analysis was not part of our scope of services, however, based on the Pleistocene age of the geologic formation and the relative depth to groundwater at this site, we conclude that the potential for liquefaction at this site is low. Therefore, other seismically induced hazards, such as lateral spreading, should also be considered low.

CORROSIVITY

The table below lists the results of laboratory soluble sulfate, soluble chloride, electrical resistivity, and pH testing. The values may be used to estimate potential corrosive characteristics of the on-site soils with respect to contact with the various underground materials which will be used for project construction.

Corrosivity Test Results Summary									
Boring	**Sample Depth (ft)**	**Soil Description**	**Soluble Sulfate (%)**	**Sulfides (ppm)**	**Chlorides (ppm)**	**Red-Ox Potential (mV)**	**Electrical Resistivity (Ω-cm)**	**Total Salts (ppm)**	**pH**
B-1	1.0 to 2.5	Sandy Lean Clay	0.01	nil	11	+360	2,272	342	7.60

These test results are provided to assist in determining the type and degree of corrosion protection that may be required for the project. We recommend that a certified corrosion engineer determine the need for corrosion protection and design appropriate protective measures.

[2] California Department of Conservation Division of Mines and Geology (CDMG), *"Digital Images of Official Maps of Alquist-Priolo Earthquake Fault Zones of California, Southern Region"*, CDMG Compact Disc 2000-003, 2000.

Resistivity

The resistivity value indicates the sample tested exhibits moderate corrosive potential to buried metal pipes. Evaluation of the test results is based upon the guidelines of J.F. Palmer, "Soil Resistivity Measurements and Analysis", Materials Performance, Volume 13, January 1974. The following table outlines the guidelines for soil resistivity for corrosion potential.

Corrosion Potential of Soil on Steel	
Soil Resistivity (ohm-cm)	**Corrosion Potential**
0 to 1,000	Very High
1,000 to 2,000	High
2,000 to 5,000	Moderate
> 5,000	Mild

Sulfates

The sulfate test result indicates that the soil from boring B-1 classifies as Class S0 according to Table 19.3.1.1 of ACI 318-14. This indicates that the sulfate severity is negligible when considering corrosion to concrete. ACI 318-14, Section 19.3 does not provided restrictions to the type of concrete used for Sulfate Class S0. For further information, see ACI 318-14, Section 19.3.

Laboratory pH

Data suggests the soil pH should not be the dominant soil variable affecting soil corrosion if the soil has a pH in the 5 to 8 range. The pH of the sample tested within the recommended range and therefore should not be considered when determining soil corrosion potential.

PRELIMINARY GEOTECHNICAL OVERVIEW

Based on the provided building loads, geotechnical engineering analyses, subsurface exploration and laboratory test results, we recommend the proposed rec center building be supported on a spread footing foundation system bearing on engineered fill. Engineered fill should extend to a minimum depth of depth of 18 inches below the bottom of foundations or 3.5 feet below existing grades, whichever is greater.

Due to the clayey nature of the near surface soils, and their anticipated moderate expansion potential in places, there is the potential for potentially damaging shrink-swell movements with changes in soil moisture. Special measures should be taken to protect slab-on-grade floors from swelling pressures of the near surface clays. Two options are being provided to help protect slab-on-grade floor. The following is a summary of the two options:

Option 1 – Chemical Treatment: Following rough grading operations, treat the upper 12 inches of the building pad subgrade soil with high calcium quicklime or cement. This procedure reduces the swell potential of the surface soils and creates a stable working platform on which construction can proceed and support of the slab on non-expansive material can be provided.

Option 2 – Low Volume Change (LVC) Engineered Fill: For this option, the upper 12 inches beneath interior floor slabs should consist of LVC engineered fill placed and compacted as defined in **Earthwork**.

For either option, building pads should be over-built a minimum of 5 feet beyond the building perimeter and under any attached flatwork. In addition, prior to chemical treatment of building pad soils or placement of LVC engineered fill, the upper 12 inches or deeper of subgrade below the chemically treated soils or LVC engineered fill should be evaluated by Terracon prior to grading operations to verify the subgrade soils are in an over optimum moisture condition. If the subgrade soils below the chemically treated soils or the LVC engineered fill are not in an over optimum moisture condition at the time of grading, there is a potential for swell to occur after construction.

Recommendations for pavement designs including asphalt concrete pavement and Portland cement concrete pavement are provided in **Pavements**. As an alternative to conventional pavement sections, we have also provided pavement sections utilizing chemical treatment of the subgrade soils with either lime or cement.

The recommendations contained in this report are based upon the results of preliminary field and laboratory testing (presented in the **Exploration Results** section), engineering analyses, and our current understanding of the proposed project. Once the site development plan has been established, Terracon can complete additional field and laboratory investigation, as deemed necessary, and provide a final geotechnical engineering report.

The **General Comments** section provides an understanding of the report limitations.

EARTHWORK

The following recommendations include site preparation, excavation, subgrade preparation and placement of engineered fills on the project. The recommendations presented for design and construction of earth supported elements including foundations, slabs, and pavements are contingent upon following the recommendations outlined in this section.

Earthwork on the project should be observed and evaluated by Terracon. The evaluation of earthwork should include observation and testing of engineered fill, subgrade preparation, slab on grade bearing soils, and other geotechnical conditions exposed during the construction of the project.

Site Preparation

Strip and remove existing vegetation, debris, pavements, and other deleterious materials from proposed building and pavement areas. Exposed surfaces should be free of mounds and depressions which could prevent uniform compaction. The site should be initially graded to create a relatively level surface to receive fill and provide for a relatively uniform thickness of fill beneath proposed building structure.

Although no evidence of fills, utilities, or underground facilities such as septic tanks, cesspools, basements, and utilities were observed during the site reconnaissance, such features could be encountered during construction. If unexpected fills, utilities, or underground facilities are encountered, such features should be removed and the excavation thoroughly cleaned prior to backfill placement and/or construction.

Once cuts have been made and prior to placing any engineered fill, the subgrade should be proofrolled with an adequately loaded vehicle such as a fully-loaded tandem-axle dump truck or water truck. The proofrolling should be performed under the direction of the Geotechnical Engineer. Areas excessively deflecting under the proofroll should be delineated and subsequently addressed by the Geotechnical Engineer. Such areas should either be removed or moisture conditioned and recompacted, depending upon the Geotechnical Engineer's recommendations. Such areas may also be modified by stabilizing with lime treatment or aggregate base with geogrids.

Subgrade Preparation

Once cuts and over-excavations have been made, and prior to placing any fill, the subgrade soil should be scarified, moisture conditioned, if needed, and compacted. The depth of scarification of subgrade soils and moisture conditioning of the subgrade is highly dependent on the time of year of construction and the site conditions that exist immediately prior to construction. If construction occurs during the winter or spring, when the subgrade soils are typically already in a moist condition, scarification and compaction may only be 8 inches. If construction occurs during the summer or fall when the subgrade soils have been allowed to dry out deeper, the depth of scarification and moisture conditioning may be as much as 18 inches or more. A representative from Terracon should be present to observe the exposed subgrade and specify the depth of scarification and moisture conditioning required. As previously mentioned, the condition of subgrade soils beneath areas to be chemically treated or receive LVC engineered fill should also be evaluated by a representative of the Geotechnical Engineer prior to the start of those operations.

Following scarification and compaction of the subgrade, over-excavated areas may be backfilled with compacted engineered fill and any additional fill may be placed and compacted. The upper 12 inches of subgrade soils within the building pad should be chemically (lime/cement) treated or consist of LVC material. The moisture content and compaction of subgrade soils should be

maintained until foundation/slab/pavement construction. Care should be taken to prevent wetting or drying of the bearing materials during construction.

Based upon the subsurface conditions determined from the geotechnical exploration, subgrade soils exposed during construction are anticipated to be relatively workable. However, the workability of the subgrade may be affected by precipitation, repetitive construction traffic or other factors. If unworkable conditions develop, workability may be improved by scarifying and drying. If drying is not an option, our office shall be contacted to provide additional stabilization recommendations such as chemical treatment or mixing operations.

Excavation

It is anticipated that excavations for the proposed construction can be accomplished with conventional earthmoving equipment.

The bottom of excavations should be thoroughly cleaned of loose soils and disturbed materials prior to backfill placement and/or construction.

Individual contractors are responsible for designing and constructing stable, temporary excavations. Excavations should be sloped or shored in the interest of safety following local, and federal regulations, including current OSHA excavation and trench safety standards. As a minimum, excavations should be performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, “Excavations” and its appendices, and in accordance with any applicable local, and/or state regulations.

Fill Material and Placement

All fill materials should be inorganic soils free of vegetation, debris, and fragments larger than 3 inches in size. Pea gravel or other similar non-cementitious, poorly-graded materials should not be used as fill or backfill without the prior approval of the Geotechnical Engineer. Imported earth materials for use as engineered fill should be pre-approved by our representative prior to construction.

Due to the clayey nature of the near surface native soils, they are not recommended for use as engineered fill below interior floor slabs unless they are chemically treated to a depth of 12 inches (**Option 1** above). On-site clay soils may be used be used as fill material for the following:

- general site grading
- pavement areas

Approved imported LVC soils should be used as engineered fill for:

- foundation areas
- foundation backfill
- interior floor slab areas (**Option 2** above)

Imported soils for use as fill material within proposed building and structure areas should conform to LVC materials as indicated in the following specifications:

	Gradation	**Percent Finer (by weight)***
■	3”	100
■	No. 4 Sieve	50 - 100
■	No. 200 Sieve	15 - 50

	Property	**Limit**
■	Liquid Limit	30 (max)
■	Plasticity Index	10 (max)
■	Maximum Expansive Index**	20 (max)

*ASTM C 136, **ASTM D 4829

The contractor shall notify the Geotechnical Engineer of import sources sufficiently ahead of their use so that the sources can be observed and approved as to the physical characteristic of the import material. For all import material, the contractor shall also submit current verified reports from a recognized analytical laboratory indicating that the import has a "not applicable" (Class S0) potential for sulfate attack based upon current ACI criteria and is "mildly corrosive" to ferrous metal and copper. The reports shall be accompanied by a written statement from the contractor that the laboratory test results are representative of all import material that will be brought to the job.

Engineered fill should be placed and compacted in horizontal lifts, using equipment and procedures that will produce recommended moisture contents and densities throughout the lift. Fill lifts should not exceed 10 inches loose thickness.

Compaction Requirements

Recommended compaction and moisture content criteria for engineered fill materials are as follows:

Material Type and Location	Per the Modified Proctor Test (ASTM D 1557)		
	Minimum Compaction Requirement (%)	Range of Moisture Contents for Compaction Above Optimum	
		Minimum	Maximum
Low volume change imported fill:			
Beneath foundations:	90	+0%	+3%
Beneath interior slabs:	90	+0%	+3%
Utility trenches (pavement and structural areas)*	90	+0%	+3%
Clean on-site native soils:			
Lime treated native soils:	90	+2%	+4%
Miscellaneous backfill:	90	+2%	+4%
Fills greater than 5 feet in depth:	95	+1%	+4%
Beneath pavements:	95	+1%	+4%
Utility Trenches*:	90	+2%	+4%
Bottom of excavation receiving fill:	90	+2%	+4%
Aggregate base (beneath pavements):	95	0%	+4%

* Upper 12 inches should be compacted to 95% within pavement and structural areas. Low-volume change imported soils should be used in structural areas.

We recommend that compacted native soil or any engineered fill be tested for moisture content and relative compaction during placement. Should the results of the in-place density tests indicate the specified moisture content or compaction requirements have not been met, the area represented by the test should be reworked and retested as required until the specified moisture content and relative compaction requirements are achieved.

Grading and Drainage

Positive drainage should be provided during construction and maintained throughout the life of the development. Infiltration of water into utility trenches or foundation excavations should be prevented during construction. Planters and other surface features which could retain water in areas adjacent to the building or pavements should be sealed or eliminated. In areas where sidewalks or paving do not immediately adjoin the structure, we recommend that protective slopes be provided with a minimum grade of approximately 5 percent for at least 10 feet from perimeter walls. Backfill against footings, exterior walls, and in utility and sprinkler line trenches should be well compacted and free of all construction debris to reduce the possibility of moisture infiltration.

Roof drainage should discharge onto pavements or be carried via tight lines to the storm drain system. Sprinkler systems and landscaped irrigation should not be installed within 5 feet of foundation walls.

Trees or other vegetation whose root systems have the ability to remove excessive moisture from the subgrade and foundation soils should not be planted next to the structure. Trees and shrubbery should be kept away from the exterior of the structure a distance at least equal to their expected mature height.

Utility Trench Backfill

It is anticipated that the on-site soils and fill materials will provide suitable support for underground utilities and piping that may be installed. Any soft and/or unsuitable material encountered at the bottom of excavations should be removed and be replaced with an adequate bedding material. A non-expansive granular material with a sand equivalent greater than 30 should be used for bedding and shading of utilities, unless allowed or specified otherwise by the utility manufacturer.

On-site materials are considered suitable for backfill of utility and pipe trenches from one foot above the top of the pipe to the final ground surface, provided the material is free of organic matter and deleterious substances. Imported low volume change soils should be used for trench backfill in structural areas.

Trench backfill should be mechanically placed and compacted as discussed earlier in this report. Compaction of initial lifts should be accomplished with hand-operated tampers or other lightweight compactors. Where trenches are placed beneath slabs or footings, the backfill should satisfy the gradation and expansion index requirements of engineered fill discussed in this report. Flooding or jetting for placement and compaction of backfill is not recommended.

For low permeability subgrades, utility trenches are a common source of water infiltration and migration. Utility trenches penetrating beneath the building should be effectively sealed to restrict water instruction and flow through the trenches, which could migrate below the building. The trench should provide an effective trench plug that extends at least 5 feet from the face of the building exterior. The plug material should consist of cementitious flowable fill or low permeability clay. The trench plug material should be placed to surround the utility line. If used, the clay trench plug material should be placed and compacted to 90 percent of the maximum dry density and within 2% to 4% above the optimum moisture content obtained in the ASTM D1557.

If chemical treatment is performed on the building pad or within the pavement subgrade areas prior to utility construction, lime/cement treated spoils shall not be used for backfill. Within the building pad, the upper 12 inches of utility trench backfill should consist of either 12 inches of compacted Class 2 aggregate base or a controlled density low strength material, such as a lean concrete or sand/cement slurry mix. Below that depth, imported LVC soil or moisture conditioned native soils may be used for backfill. Within the pavement areas, a controlled density low strength material, such as a lean concrete or sand/cement slurry mix, shall be used for backfill of utility trenches. Aggregate base shall not be used as backfill of trenches in pavement areas with lime treated subgrade.

Construction Considerations

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of floor slabs and pavements. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompacted prior to floor slab and pavement construction.

On-site clay soils may pump and unstable subgrade conditions could develop during general construction operations, particularly if the soils are wetted and/or subjected to repetitive construction traffic. The use of light construction equipment would aid in reducing subgrade disturbance.

Should unstable subgrade conditions develop stabilization measures will need to be employed. Stabilization measures may include placement of aggregate base and multi-axial geogrid. Use of lime or cement could also be considered as a stabilization technique. Laboratory evaluation prior to construction is recommended to determine the effect of chemical stabilization on subgrade soils.

We recommend that the earthwork portion of this project be completed during extended periods of dry weather if possible. If earthwork is completed during the wet season (typically November through April) it may be necessary to take extra precautionary measures to protect subgrade soils. Wet season earthwork operations may require additional mitigative measures beyond that which would be expected during the drier summer and fall months. This could include diversion of surface runoff around exposed soils and draining of ponded water on the site. Once subgrades are established, it may be necessary to protect the exposed subgrade soils from construction traffic.

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean Terracon is assuming responsibility for construction site safety, or the contractor's activities; such responsibility shall neither be implied nor inferred.

Construction Observation and Testing

The Geotechnical Engineer should be retained during the construction phase of the project to observe earthwork and to perform necessary tests and observations during subgrade preparation, proof-rolling, placement and compaction of controlled compacted fills, chemical treatment operations and backfilling of excavations to the completed subgrade.

The exposed subgrade and each lift of compacted fill should be tested, evaluated, and reworked, as necessary, until approved by the Geotechnical Engineer prior to placement of additional lifts. Each lift of fill should be tested for density and water content at a frequency of at least one test for every 2,500 square feet of compacted fill in the building areas and 5,000 square feet in pavement areas. One density and water content test should be performed on each lift for every 50 linear feet of compacted utility trench backfill.

In areas of foundation excavations, the bearing subgrade should be evaluated under the direction of the Geotechnical Engineer. If unanticipated conditions are encountered, the Geotechnical Engineer should prescribe mitigation options.

In addition to the documentation of the essential parameters necessary for construction, the continuation of the Geotechnical Engineer into the construction phase of the project provides the continuity to maintain the Geotechnical Engineer's evaluation of subsurface conditions, including assessing variations and associated design changes.

SHALLOW FOUNDATIONS

If the site has been prepared in accordance with the requirements noted in **Earthwork**, the following design parameters are applicable for shallow foundations.

Design Parameters – Compressive Loads

Item	Description
Maximum Net Allowable Bearing pressure [1, 2]	3,000 psf
Required Bearing Stratum [3]	LVC engineered fill extending a minimum 18 inches below footing or 3.5 feet below existing grades, whichever is greater.
Minimum Foundation Dimensions	Columns: 30 inches Continuous: 18 inches
Maximum Foundation Dimensions	Columns: 11 feet Continuous: 6 feet
Ultimate Passive Resistance [4] **(equivalent fluid pressures)**	350 pcf (LVC engineered fill)
Ultimate Coefficient of Sliding Friction [5]	0.35 (LVC engineered fill)
Minimum Embedment below Finished Grade [6]	18 inches
Estimated Total Settlement from Structural Loads [2]	Less than about 1 inch

Item	Description
Estimated Differential Settlement [2, 7]	About 1/2 of total settlement

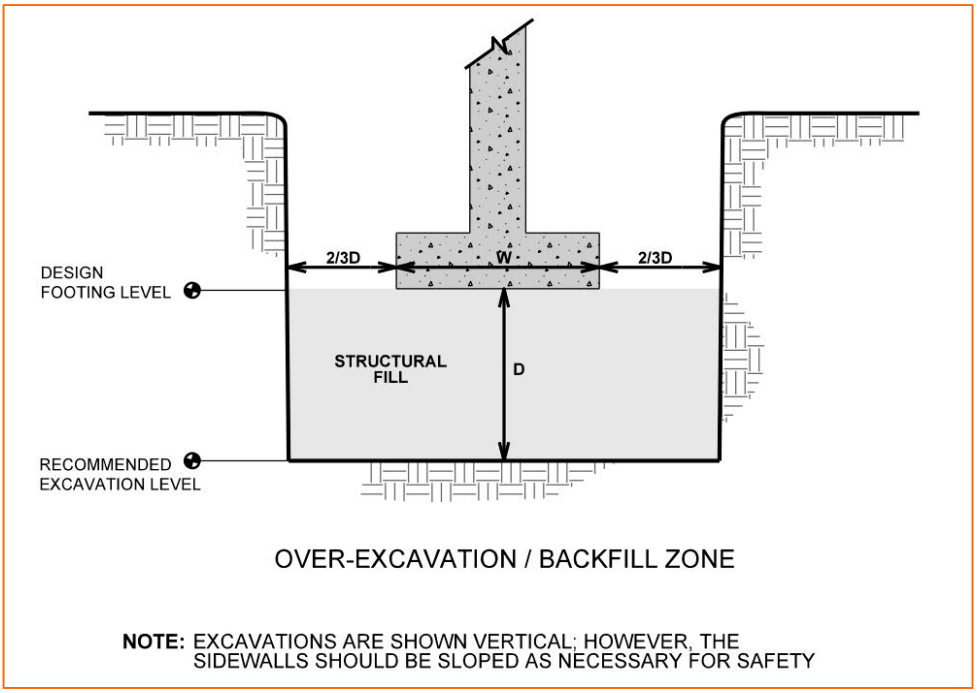
1. The maximum net allowable bearing pressure is the pressure in excess of the minimum surrounding overburden pressure at the footing base elevation. An appropriate factor of safety has been applied. Values assume that exterior grades are no steeper than . % within 10 feet of structure.
2. Values provided are for maximum loads noted in **Project Description**.
3. Unsuitable or soft soils should be over-excavated and replaced per the recommendations presented in the **Earthwork**.
4. Use of passive earth pressures require that the sides of the excavation for the spread footing foundation be nearly vertical and the concrete placed neat against these vertical faces or that the footing forms be removed and compacted engineered fill or lean slurry be placed against the vertical footing face.
5. Can be used to compute sliding resistance where foundations are placed on suitable soil/materials. Should be neglected for foundations subject to net uplift conditions.
6. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure.
7. Differential settlements are as measured over a span of 40 feet.

Foundation Construction Considerations

As noted in **Earthwork**, the footing over-excavations for placement of the underlying LVC engineered fill should be evaluated under the direction of the Geotechnical Engineer. The base of all excavations should be free of water and loose soil prior to placing the LVC fill. Care should be taken to prevent wetting or drying of the bearing materials during construction. Excessively wet or dry material or any loose/disturbed material in the bottom of the footing excavations should be removed/reconditioned before fill is placed.

If unsuitable bearing soils are encountered at the base of the over-excavations, the excavation may have to be extended deeper to suitable soils per the recommendations of the Geotechnical Engineer.

Over-excavation for structural fill placement below footings should be conducted to the extent shown below. The over-excavation should be backfilled up to the footing base elevation with engineered fill placed as recommended in the **Earthwork** section.



To ensure foundations have adequate support, special care should be taken when footings are located adjacent to trenches. The bottom of such footings should be at least 1 foot below an imaginary plane with an inclination of 1.5 horizontal to 1.0 vertical extending upward from the nearest edge of the adjacent trench.

FLOOR SLABS

The rec center building will be constructed with concrete slab-on-grade floors. As previously discussed, special measures should be taken to protect the floor slabs from the swelling pressures of the potentially expansive clays at the site. The following two options are being provided to help protect floor slabs:

- **Option 1 – Chemical Treatment:** Following rough grading operations, treat the upper 12 inches of the building pad subgrade soil with a certain percentage of high calcium quicklime or a combination of lime and cement, usually 3.5 to 5.5 percent based on the dry unit weight of the soil, for a depth of 12 inches. For estimating purposes, we recommend using 5 percent cement or lime, and a soil unit weight of 110 pounds per cubic foot. For a 12-inch treatment depth, this results in an estimated minimum spread rate of 5.5 pounds per square foot for lime. The actual amount of cement or lime to be used should be determined by Terracon and by laboratory testing **at least three weeks prior** to the start of grading operations. Chemical treatment is performed after rough grading is completed. This procedure reduces the swell potential of the surface soils and creates a stable working platform on which construction can proceed. We recommend this testing

be performed as soon as possible to provide the mix design requirements for the grading contractors to consider in preparing their bids.

- **Option 2 – Low Volume Change (LVC) Engineered Fill:** The upper 12 inches of the building pads should consist of LVC structural/engineered fill placed and compacted as recommended in the **Earthwork** section.

For either option, due to the potential for moisture fluctuations of subgrade material beneath slabs supported at-grade, the upper 12 inches of subgrade below the chemically treated soils or LVC engineered fill should be evaluated by Terracon prior to placement to verify the subgrade soils are in an over optimum moisture condition. Soils below the specified water contents within this zone should be moisture conditioned or replaced with structural fill as stated in our **Earthwork** section. This can be accomplished by having the grading contractor excavate several test pits within the proposed construction areas prior to the start of grading operations to determine the moisture condition of the subgrade soils. A representative of the Geotechnical Engineer should be present during the excavation of these test pits and samples of the subgrade soils should be obtained for moisture content testing.

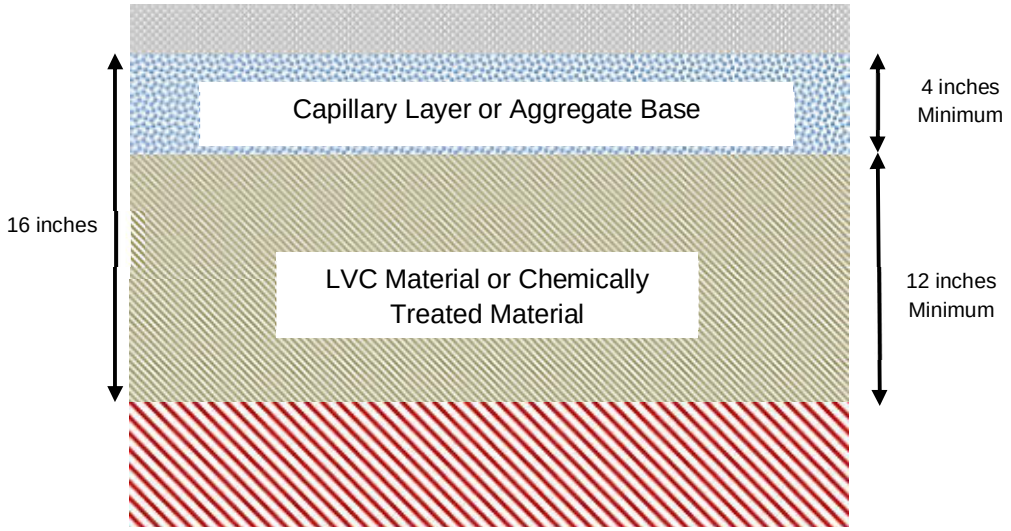
Design parameters for floor slabs assume the requirements for **Earthwork** have been followed.

Floor Slab Design Parameters

Item	Description
Floor Slab Base	Minimum 4 inches of free-draining (less than 5% passing the U.S. No. 200 sieve) crushed aggregate [1, 2]
Floor Slab Sub Base	At least 12 inches of compacted, non-expansive (LVC) soils or chemical treated subgrade.
Estimated Modulus of Subgrade Reaction [1]	150 pounds per square inch per inch (psi/in) for point loads

1. Modulus of subgrade reaction is an estimated value based upon our experience with the subgrade condition, the requirements noted in **Earthwork**, and the floor slab support as noted in this table. It is provided for point loads. For large area loads the modulus of subgrade reaction would be lower.
2. Free-draining granular material should have less than 5% fines (material passing the No. 200 sieve). Other design considerations such as cold temperatures and condensation development could warrant more extensive design provisions.

Concrete Slab-on-Grade



The use of a vapor retarder should be installed beneath concrete slabs on grade covered with wood, tile, carpet, or other moisture sensitive or impervious coverings, or when the slab will support equipment sensitive to moisture. When conditions warrant the use of a vapor retarder, the slab designer should refer to ACI 302 and/or ACI 360 for procedures and cautions regarding the use and placement of a vapor retarder.

Saw-cut control joints should be placed in the slab to help control the location and extent of cracking. For additional recommendations refer to the ACI Design Manual. Joints or cracks should be sealed with a water-proof, non-extruding compressible compound specifically recommended for heavy duty concrete pavement and wet environments.

Where floor slabs are tied to perimeter walls or turn-down slabs to meet structural or other construction objectives, our experience indicates differential movement between the walls and slabs will likely be observed in adjacent slab expansion joints or floor slab cracks beyond the length of the structural dowels. The Structural Engineer should account for potential differential settlement through use of sufficient control joints, appropriate reinforcing or other means.

Floor Slab Construction Considerations

Finished subgrade, within and for at least 10 feet beyond the floor slab, should be protected from traffic, rutting, or other disturbance and maintained in a relatively moist condition until floor slabs are constructed. If the subgrade should become damaged or desiccated prior to construction of floor slabs, the affected material should be removed and structural fill should be added to replace the resulting excavation. Final conditioning of the finished subgrade should be performed immediately prior to placement of the floor slab support course.

The Geotechnical Engineer should approve the condition of the floor slab subgrades immediately prior to placement of the floor slab support course, reinforcing steel, and concrete. Attention should be paid to high traffic areas that were rutted and disturbed earlier, and to areas where backfilled trenches are located.

Exterior Hardscape and/or Flatwork

Exterior hardscape, exterior architectural features, and utilities may experience some movement due to the volume change of the subgrade soils. To reduce the potential for damage caused by movement, we recommend:

- Minimizing moisture increases in the subgrade soils and backfill;
- Controlling moisture-density during placement of fill;
- Using designs which allow vertical movement between the exterior features and adjoining structural elements;
- Placing effective control joints on relatively close centers.
- Ensuring clay subgrade soils are in a moist condition (minimum of 2 percent above optimum moisture content as determined by ASTM D1557) prior to slab construction.
- Providing reinforcement, a minimum of No. 4 rebar spaced at 24 inches on center each way.

PAVEMENTS

Pavement designs are provided for the traffic conditions and pavement life conditions as noted in **Project Description** and in the following sections of this report. A critical aspect of pavement performance is site preparation. Pavement designs noted in this section must be applied to the site which has been prepared as recommended in the **Earthwork** section.

Design of Asphaltic Concrete (AC) pavements are based on the procedures in the Caltrans Highway Design Manual, Seventh edition. Design of Portland Cement Concrete (PCC) pavements are based upon American Concrete Institute (ACI) 330R-08; Guide for Design and Construction of Concrete Parking Lots. Terracon does not practice traffic engineering. We recommend that the project civil engineer or traffic engineer verify that the Traffic Indices (TIs) used are appropriate for this project. If the traffic loading conditions are expected to differ from our assumptions, we should be contacted so we can evaluate whether the design pavement sections remain applicable.

One sample of the near surface soils was obtained from boing B-6 and classified at our laboratory by an Engineer. The sample was tested to determine the Resistance Value (R-value) of the sample. The test produced an R-value of 17, therefore, a design R-value of 17 was used for the AC and PCC pavement designs. We have provided pavement sections for traffic indices (TIs) of less than 4.5 (for non-trafficked pavements), 4.5, 5.5, 6.0, and 7.0. Due to the nominal site

earthwork operations, the variability of site surface soils, and the potential for import/export soils resulting in variable strength properties of soils after processing, we recommend that additional laboratory testing be performed at the site to confirm the on-site pavement sections provided.

As an alternative to conventional pavement sections, chemical treatment of the subgrade soils with lime and/or cement may be performed to improve their physical support characteristics and reduce the pavement section thicknesses. The procedures presented for lime/cement treatment in **Floor Slabs** above should be used. Recommendations for both conventional and lime treated pavement sections are presented below.

Pavement Section Thicknesses

The following table provides options for AC and PCC Sections:

Typical Pavement Sections (inches)					
Traffic Area	**Alternative**	**Asphalt Concrete (AC) Surface Course**[1]	**Portland Cement Concrete (PCC)**[1,2]	**Aggregate Base (AB) Course**[1]	**Total Thickness**
Non Vehicular Pavements Assumed Traffic Index (TI) < 4.5	PCC	--	4.0	4.0	8.0
	AC	2.5	--	6.0	8.5
Auto Parking Areas Assumed Traffic Index (TI) = 4.5	PCC	--	5.0	4.0	9.0
	AC	2.5	--	8.0	10.5
Auto Drive Areas Assumed Traffic Index (TI) = 5.5	PCC	--	5.5	4.0	9.5
	AC	3.5	--	9.0	12.5
Emergency Vehicle Parking Assumed Traffic Index (TI) = 6.0	PCC	--	5.5	4.0	9.5
	AC	3.5	--	11.0	14.5
Emergency Vehicle Driving Assumed Traffic Index (TI) = 7.0	PCC	--	6.0	4.0	10.0
	AC	4.0	--	13.0	17.0

1. All materials should meet the current Caltrans Standard Specifications, latest edition
2. Minimum compressive strength of 4,000 psi at 28 days, minimum modulus of rupture of 500 psi/in., 6-sack min. mix. PCC pavements are recommended for trash container pads and in any other areas subjected to heavy wheel loads and/or turning traffic.

The asphalt pavement sections with lime/cement treated subgrade presented below are based on the following assumptions:

- Lime/cement treated subgrade soil will produce a minimum R-value of 50.
- Lime/cement treated subgrade soil will produce a minimum unconfined compressive strength of 300 pounds per square inch.
- Since it is not possible to compact the subgrade soil beneath the treated portion, an additional 3 inches of treated soil has been added to the calculated pavement section.
- Lime/cement treated materials shall conform to the requirements in Section 24 of the Caltrans Standard Specification, latest edition.

Lime/Cement Treated Pavement Sections (inches)

Traffic Area	Alternative	Asphalt Concrete (AC) Surface Course[1]	Aggregate Base (AB) Course[1]	Treated Subgrade[2]	Total Thickness
Non Vehicular Pavements Assumed Traffic Index (TI) < 4.5	AC	2.5	4.0	12.0	18.5
Auto Parking Areas Assumed Traffic Index (TI) = 4.5	AC	2.5	4.0	12.0	18.5
Auto Drive Areas Assumed Traffic Index (TI) = 5.5	AC	3.0	5.0	12.0	20.0
Emergency Vehicle Parking Assumed Traffic Index (TI) = 6.0	AC	3.5	4.0	12.0	19.5
Emergency Vehicle Driving Assumed Traffic Index (TI) = 7.0	AC	4.0	4.0	12.0	20.0

1. All materials should meet the current Caltrans Standards Specifications, latest edition.
2. Lime/cement treated materials shall conform to the requirements in Section 24 of the Caltrans Standard Specification, latest edition.

The estimated pavement sections provided in this report are minimums for the assumed design criteria, and as such, periodic maintenance should be expected. Areas for parking of heavy vehicles, concentrated turn areas, and start/stop maneuvers could require thicker pavement sections. Edge restraints (i.e. concrete curbs or aggregate shoulders) should be planned along curves and areas of maneuvering vehicles. A maintenance program including surface sealing, joint cleaning and sealing, and timely repair of cracks and deteriorated areas will increase the

pavement's service life. As an option, thicker sections could be constructed to decrease future maintenance.

Concrete for rigid pavements should have a minimum 28-day compressive strength of 4,000 psi, a modulus of rupture of 500 psi, and be placed with a maximum slump of 4 inches. Proper joint spacing will also be required to prevent excessive slab curling and shrinkage cracking. Joints should be sealed to prevent entry of foreign material and dowelled where necessary for load transfer.

Where practical, we recommend early-entry cutting of crack-control joints in PCC pavements. Cutting of the concrete in its "green" state typically reduces the potential for micro-cracking of the pavements prior to the crack control joints being formed, compared to cutting the joints after the concrete has fully set. Micro-cracking of pavements may lead to crack formation in locations other than the sawed joints, and/or reduction of fatigue life of the pavement.

Pavement design methods are intended to provide structural sections with adequate thickness over a subgrade such that wheel loads are reduced to a level the subgrade can support.

Openings in pavements, such as decorative landscaped areas, are sources for water infiltration into surrounding pavement systems. Water can collect in the islands and migrate into the surrounding subgrade soils thereby degrading support of the pavement. This is especially applicable for islands with raised concrete curbs, irrigated foliage, and low permeability near-surface soils. The civil design for the pavements with these conditions should include features to restrict or to collect and discharge excess water from the islands. Examples of features are edge drains connected to the storm water collection system, longitudinal subdrains, or other suitable outlet and impermeable barriers preventing lateral migration of water such as a cutoff wall installed to a depth below the pavement structure.

Dishing in parking lots surfaced with AC is usually observed in frequently-used parking stalls (such as near the front of buildings), and occurs under the wheel footprint in these stalls. The use of higher-grade asphaltic cement, or surfacing these areas with PCC, should be considered. The dishing is exacerbated by factors such as irrigated islands or planter areas, sheet surface drainage to the front of structures, and placing the ACC directly on a compacted clay subgrade.

Rigid PCC pavements will perform better than AC in areas where short-radii turning and braking are expected (i.e. entrance/exit aprons) due to better resistance to rutting and shoving. In addition, PCC pavement will perform better in areas subject to large or sustained loads. An adequate number of longitudinal and transverse control joints should be placed in the rigid pavement in accordance with ACI and/or AASHTO requirements. Expansion (isolation) joints must be full depth and should only be used to isolate fixed objects abutting or within the paved area.

PCC pavement details for joint spacing, joint reinforcement, and joint sealing should be prepared in accordance with American Concrete Institute (ACI 330R-01 and ACI 325R.9-91). PCC pavements should be provided with mechanically reinforced joints (doweled or keyed) in accordance with ACI 330R-01.

Pavement Drainage

Pavements should be sloped to provide rapid drainage of surface water. Water allowed to pond on or adjacent to the pavements could saturate the subgrade and contribute to premature pavement deterioration. In addition, the pavement subgrade should be graded to provide positive drainage within the granular base section. Appropriate sub-drainage or connection to a suitable daylight outlet should be provided to remove water from the granular subbase.

The pavement surfacing and adjacent sidewalks should be sloped to provide rapid drainage of surface water. Water should not be allowed to pond on or adjacent to slabs, since it could saturate the subgrade and contribute to premature pavement or slab deterioration.

Pavement Maintenance

The pavement sections represent minimum recommended thicknesses and, as such, periodic maintenance should be anticipated. Therefore, preventive maintenance should be planned and provided for through an on-going pavement management program. Maintenance activities are intended to slow the rate of pavement deterioration and to preserve the pavement investment. Maintenance consists of both localized maintenance (e.g. crack and joint sealing and patching) and global maintenance (e.g. surface sealing). Preventive maintenance is usually the priority when implementing a pavement maintenance program. Additional engineering observation is recommended to determine the type and extent of a cost-effective program. Even with periodic maintenance, some movements and related cracking may still occur and repairs may be required.

Pavement performance is affected by its surroundings. In addition to providing preventive maintenance, the civil engineer should consider the following recommendations in the design and layout of pavements:

1. Final grade adjacent to paved areas should slope down from the edges at a minimum 2%.
2. Subgrade and pavement surfaces should have a minimum 2% slope to promote proper surface drainage.
3. Install below pavement drainage systems surrounding areas anticipated for frequent wetting.
4. Install joint sealant and seal cracks immediately.
5. Seal all landscaped areas in or adjacent to pavements to reduce moisture migration to subgrade soils.
6. Place compacted, low permeability backfill against the exterior side of curb and gutter.

7. Place curb, gutter and/or sidewalk directly on clay subgrade soils rather than on unbound granular base course materials.

GENERAL COMMENTS

Our analysis and opinions are based upon our understanding of the project, the geotechnical conditions in the area, and the data obtained from our site exploration. Natural variations will occur between exploration point locations or due to the modifying effects of construction or weather. The nature and extent of such variations may not become evident until during or after construction. Terracon should be retained as the Geotechnical Engineer, where noted in this report, to provide observation and testing services during pertinent construction phases. If variations appear, we can provide further evaluation and supplemental recommendations. If variations are noted in the absence of our observation and testing services on-site, we should be immediately notified so that we can provide evaluation and supplemental recommendations.

Our Scope of Services does not include either specifically or by implication any environmental or biological (e.g., mold, fungi, bacteria) assessment of the site or identification or prevention of pollutants, hazardous materials or conditions. If the owner is concerned about the potential for such contamination or pollution, other studies should be undertaken.

Our services and any correspondence or collaboration through this system are intended for the sole benefit and exclusive use of our client for specific application to the project discussed and are accomplished in accordance with generally accepted geotechnical engineering practices with no third-party beneficiaries intended. Any third-party access to services or correspondence is solely for information purposes to support the services provided by Terracon to our client. Reliance upon the services and any work product is limited to our client, and is not intended for third parties. Any use or reliance of the provided information by third parties is done solely at their own risk. No warranties, either express or implied, are intended or made.

Site characteristics as provided are for design purposes and not to estimate excavation cost. Any use of our report in that regard is done at the sole risk of the excavating cost estimator as there may be variations on the site that are not apparent in the data that could significantly impact excavation cost. Any parties charged with estimating excavation costs should seek their own site characterization for specific purposes to obtain the specific level of detail necessary for costing. Site safety, and cost estimating including, excavation support, and dewatering requirements/design are the responsibility of others. If changes in the nature, design, or location of the project are planned, our conclusions and recommendations shall not be considered valid unless we review the changes and either verify or modify our conclusions in writing.

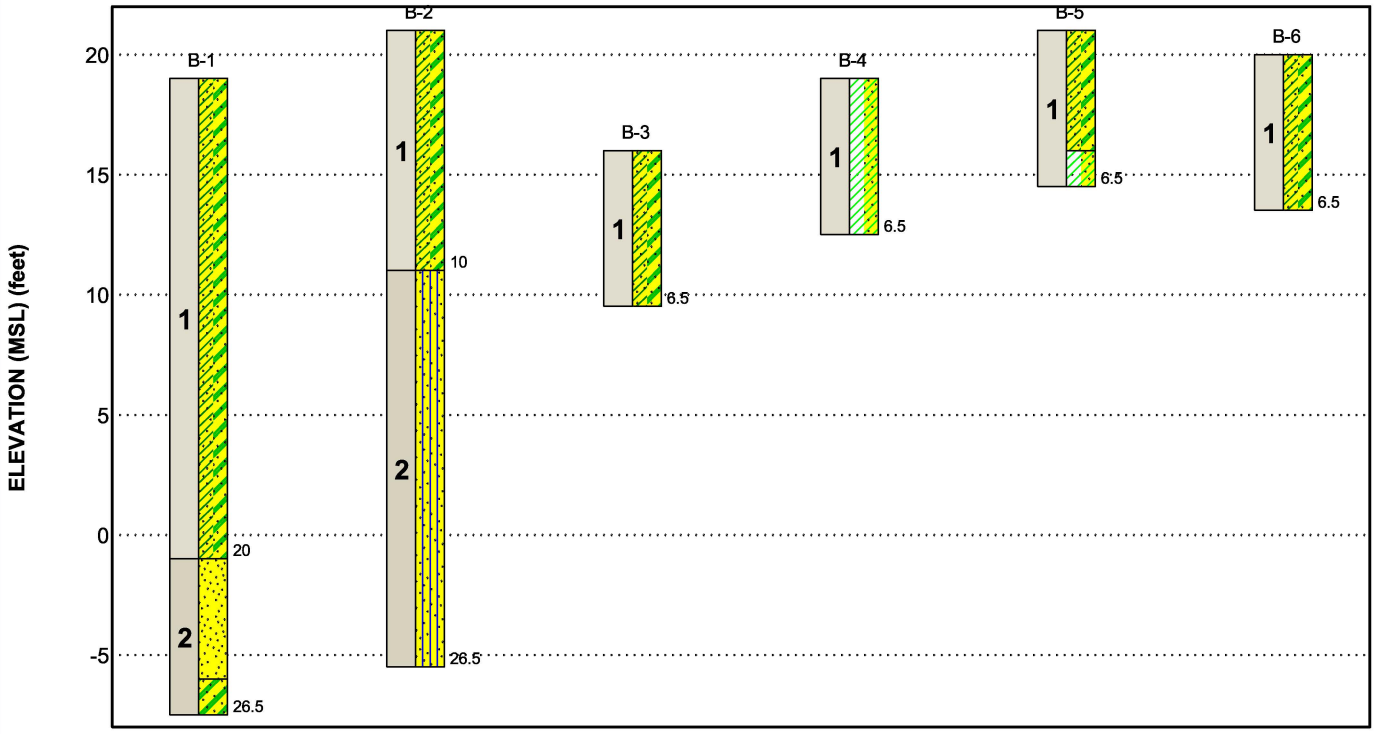
FIGURES

Contents:

GEOMODEL

Morse Park Recreation Center ■ Elk Grove, CA
Terracon Project No. NB215008

Terracon GeoReport



This is not a cross section. This is intended to display the Geotechnical Model only. See individual logs for more detailed conditions.

Model Layer	Layer Name	General Description
1	Lean Clay	varying sand content, low to medium plasticity, very stiff to hard, moderate cementation
2	Sand	varying fines content, varying cementation, medium dense to very dense

LEGEND

- Sandy Lean Clay/Clayey Sand
- Silty Sand
- Poorly-graded Sand
- Lean Clay with Sand
- Clayey Sand

NOTES:
Layering shown on this figure has been developed by the geotechnical engineer for purposes of modeling the subsurface conditions as required for the subsequent geotechnical engineering for this project. Numbers adjacent to soil column indicate depth below ground surface.

ATTACHMENTS

EXPLORATION AND TESTING PROCEDURES

Preliminary Field Exploration

Number of Borings	Boring Depth (feet)	Planned Location
2	26.5	proposed building area
4	6.5	proposed pavement areas

Boring Layout and Elevations: BRS provided the boring layout. Coordinates were obtained with a handheld GPS unit (estimated horizontal accuracy of about ±10 feet) and approximate elevations were obtained from Google Earth. If a more precise boring layout and elevations are desired, we recommend borings be surveyed.

Subsurface Exploration Procedures: We advanced the borings with a truck-mounted rotary drill rig using continuous flight augers (solid stem and/or hollow stem, as necessary, depending on soil conditions). Four samples were obtained in the upper 10 feet of each boring and at intervals of 5 feet thereafter. In the split-barrel sampling procedure, a standard 2-inch outer diameter split-barrel sampling spoon was driven into the ground by a 140-pound automatic hammer falling a distance of 30 inches. The number of blows required to advance the sampling spoon the last 12 inches of a normal 18-inch penetration is recorded as the Standard Penetration Test (SPT) resistance value. The SPT resistance values, also referred to as N-values, are indicated on the boring logs at the test depths. A 2.5-inch O.D. split-barrel sampling spoon with 2.0-inch I.D. ring lined sampler was also used for sampling. Ring-lined, split-barrel sampling procedures are similar to standard split spoon sampling procedure; however, blow counts are typically recorded for 6-inch intervals for a total of 12 inches of penetration. For safety purposes, all borings were backfilled with auger cuttings after their completion.

The sampling depths, penetration distances, and other sampling information was recorded on the field boring logs. The samples were placed in appropriate containers and taken to our soil laboratory for testing and classification by an Engineer. Our exploration team prepared field boring logs as part of the drilling operations. These field logs included visual classifications of the materials encountered during drilling and our interpretation of the subsurface conditions between samples. Final boring logs were prepared from the field logs. The final boring logs represent the Engineer's interpretation of the field logs and include modifications based on observations and tests of the samples in our laboratory.

Laboratory Testing

The project engineer reviewed the field data and assigned laboratory tests to understand the engineering properties of the various soil strata, as necessary, for this project. Procedural standards noted below are for reference to methodology in general. In some cases, variations to

methods were applied because of local practice or professional judgment. Standards noted below include reference to other, related standards. Such references are not necessarily applicable to describe the specific test performed.

- ASTM D2216 Standard Test Methods for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass
- ASTM D4318 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
- ASTM D1140 Standard Test methods for Determining the Amount of Material Finer than 75-µm (No. 200) Sieve in Soils by Washing
- ASMT D4829 Standard Test Method for Expansion Index of Soils
- ASTM D2166/D2166M Standard Test Method for Unconfined Compressive Strength of Cohesive Soil
- ASTM D2844 Standard Test Method for Resistance R-Value and Expansion Pressure of Compacted Soils
- Corrosivity Testing including pH, chlorides, sulfates, sulfides, Redox potential, and electrical lab resistivity

The laboratory testing program often included examination of soil samples by an engineer. Based on the material's texture and plasticity, we described and classified the soil samples in accordance with the Unified Soil Classification System.

SITE LOCATION AND EXPLORATION PLANS

Contents:

Site Location Plan
Exploration Plan

Note: All attachments are one page unless noted above.

SITE LOCATION

Morse Park Recreation Center ■ Elk Grove, CA
Terracon Project No. NB215008

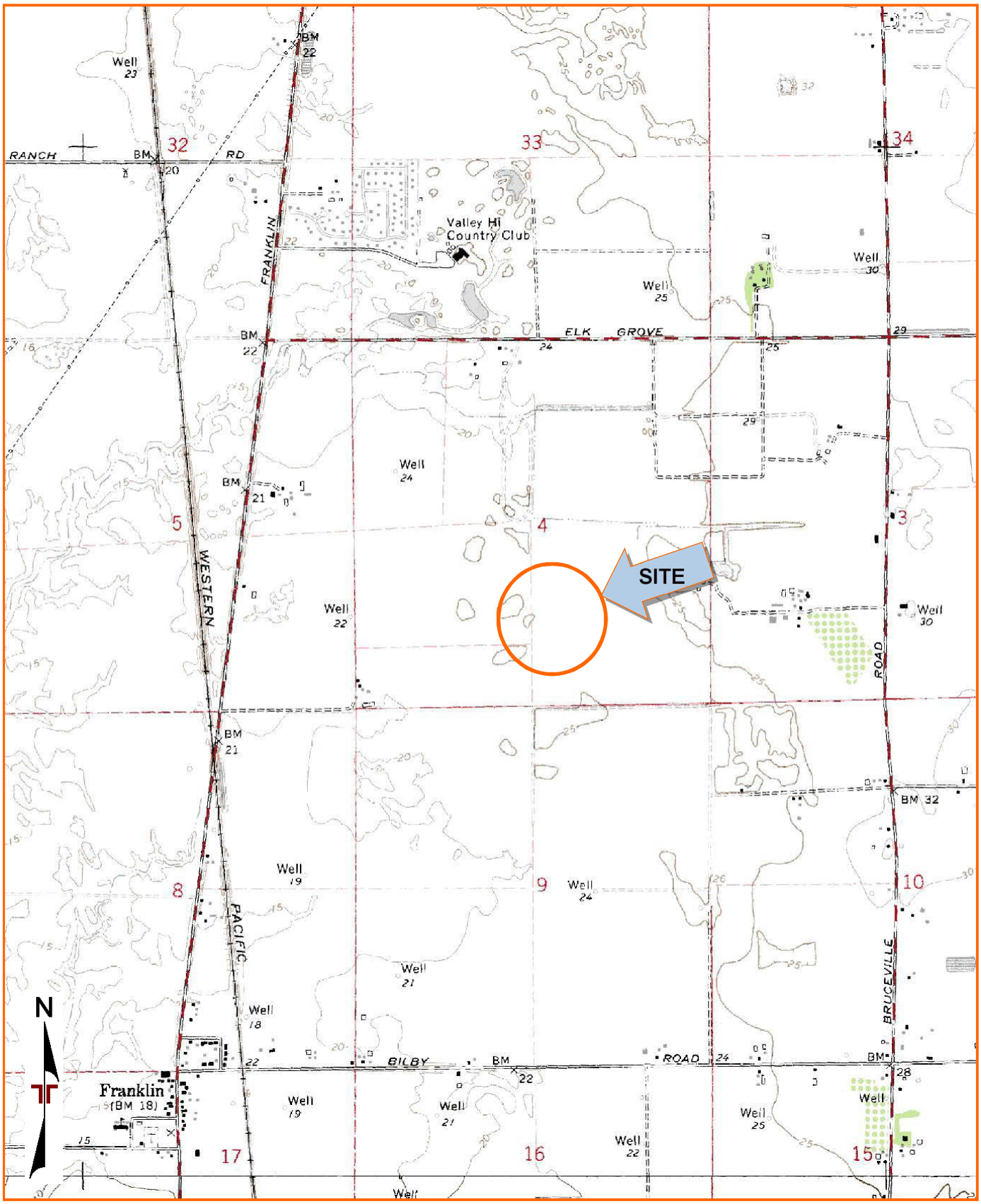


DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

TOPOGRAPHIC MAP IMAGE COURTESY OF THE U.S. GEOLOGICAL SURVEY
QUADRANGLES INCLUDE: FLORIN, CA (1/1/1980) and BRUCEVILLE, CA (1/1/1980).

EXPLORATION PLAN

Morse Park Recreation Center ■ Elk Grove, CA
Terracon Project No. NB215008

DIAGRAM IS FOR GENERAL LOCATION ONLY, AND IS NOT INTENDED FOR CONSTRUCTION PURPOSES

AERIAL PHOTOGRAPHY PROVIDED BY MICROSOFT BING MAPS

EXPLORATION RESULTS

Contents:

Note: All attachments are one page unless noted above.

BORING LOG NO. B-1

PROJECT: Morse Park Recreation Center

CLIENT: Barker Rinker Seacat Architecture
Denver, CO

SITE: 5540 Bellatera Dr
Elk Grove, CA

LOCATION See Exploration Plan

Latitude: 38.3982° Longitude: -121.4385°

Approximate Surface Elev.: 19 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1			**SANDY LEAN CLAY (CL)**, sand fine to medium grained, low to medium plasticity, orange-brown to olive, very stiff to hard										
										8.5			
							15-16-7 N=23	4.5 (HP)		6.8			
			moderate cementation	5			30-38-41	4.5+ (HP)		15.5	116		
							7-20-26 N=46	4.5+ (HP)		20.3			
				10			5-8-16		2.56	30.0	96		
				15			16-21-36 N=57	4.5+ (HP)		15.8			
		20.0	-1+/-	20									
2			**POORLY GRADED SAND (SP)**, fine to medium grained, orange-brown, medium dense				9-14-14			3.8			
		25.0	-6+/-	25									
			CLAYEY SAND (SC), fine to medium grained, olive, dense				11-16-20 N=36			11.5			
		26.5	-7.5+/-										
			Boring Terminated at 26.5 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" solid steam auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
50 Golden Land Ct Ste 100
Sacramento, CA

Boring Started: 04-16-2021 | Boring Completed: 04-16-2021

Drill Rig: D-120 | Driller: Taber Drilling

Project No.: NB215008

BORING LOG NO. B-2

PROJECT: Morse Park Recreation Center

CLIENT: Barker Rinker Seacat Architecture
Denver, CO

SITE: 5540 Bellatera Dr
Elk Grove, CA

LOCATION See Exploration Plan

Latitude: 38.3982° Longitude: -121.4380°

Approximate Surface Elev.: 21 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1			**SANDY LEAN CLAY (CL)**, sand fine to medium grained, orange-brown to yellow-brown, very stiff, cemented inclusions										
										9.5		33-20-13	63
							5-7-10 N=17			13.4			
			hard, moderate cementation	5			15-32-50/4"	4.5+ (HP)		18.7			
							10-23-40 N=63	4.5+ (HP)		14.5			53
		10.0											
2			**SILTY SAND (SM)**, fine to medium grained, orange-brown to yellow-brown, dense to very dense, moderate cementation	10			27-24-22			15.3	102		
				15			17-26-39 N=65			15.5			
			medium dense	20			13-14-23			15.4			
			very dense	25			23-20-32 N=52						
		26.5											
			Boring Terminated at 26.5 Feet										

11+/-

-5.5+/-

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" solid steam auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
50 Golden Land Ct Ste 100
Sacramento, CA

Boring Started: 04-16-2021 | Boring Completed: 04-16-2021

Drill Rig: D-120 | Driller: Taber Drilling

Project No.: NB215008

BORING LOG NO. B-3

PROJECT: Morse Park Recreation Center

CLIENT: Barker Rinker Seacat Architecture
Denver, CO

SITE: 5540 Bellatera Dr
Elk Grove, CA

LOCATION See Exploration Plan

Latitude: 38.3986° Longitude: -121.4382°

Approximate Surface Elev.: 16 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1													
						X	5-7-6 N=13	4.5+ (HP)		13.3			
				5									
						X	20-30-48 N=78	4.5 (HP)		16.5			

SANDY LEAN CLAY (CL), sand fine grained, low to medium plasticity, orange-brown, hard, moderate cementation

6.5 9.5+/-

Boring Terminated at 6.5 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" solid steam auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
50 Golden Land Ct Ste 100
Sacramento, CA

Boring Started: 04-16-2021 Boring Completed: 04-16-2021

Drill Rig: D-120 Driller: Taber Drilling

Project No.: NB215008

BORING LOG NO. B-4

PROJECT: Morse Park Recreation Center

CLIENT: Barker Rinker Seacat Architecture
Denver, CO

SITE: 5540 Bellatera Dr
Elk Grove, CA

LOCATION See Exploration Plan

Latitude: 38.3984° Longitude: -121.4383°

Approximate Surface Elev.: 19 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1													
							9-10-7 N=17			5.3			
				5									
							25-37-36 N=73			14.4			

LEAN CLAY WITH SAND (CL), sand fine grained, low plasticity, orange-brown, very stiff, moderate cementation

hard

6.5 12.5+/-

Boring Terminated at 6.5 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" solid steam auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
50 Golden Land Ct Ste 100
Sacramento, CA

Boring Started: 04-16-2021 | Boring Completed: 04-16-2021

Drill Rig: D-120 | Driller: Taber Drilling

Project No.: NB215008

BORING LOG NO. B-5

PROJECT: Morse Park Recreation Center

CLIENT: Barker Rinker Seacat Architecture
Denver, CO

SITE: 5540 Bellatera Dr
Elk Grove, CA

LOCATION See Exploration Plan

Latitude: 38.3980° Longitude: -121.4383°

Approximate Surface Elev.: 21 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1			**SANDY LEAN CLAY (CL)**, sand fine grained, low to medium plasticity, orange-brown, hard, moderate cementation, cemented inclusions				5-6-6 N=12	4.5+ (HP)		10.4			
		5.0	16+/-	5									
			LEAN CLAY WITH SAND (CL), sand fine grained, orange-brown, hard				4-4-5 N=9	4.5+ (HP)		9.6		45-21-24	71
		6.5	14.5+/-										
			Boring Terminated at 6.5 Feet										

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" solid steam auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
50 Golden Land Ct Ste 100
Sacramento, CA

Boring Started: 04-16-2021 | Boring Completed: 04-16-2021

Drill Rig: D-120 | Driller: Taber Drilling

Project No.: NB215008

BORING LOG NO. B-6

PROJECT: Morse Park Recreation Center

CLIENT: Barker Rinker Seacat Architecture
Denver, CO

SITE: 5540 Bellatera Dr
Elk Grove, CA

LOCATION See Exploration Plan

Latitude: 38.3977° Longitude: -121.4379°

Approximate Surface Elev.: 20 (Ft.) +/-

MODEL LAYER	GRAPHIC LOG	DEPTH	ELEVATION (Ft.)	DEPTH (Ft.)	WATER LEVEL OBSERVATIONS	SAMPLE TYPE	FIELD TEST RESULTS	LABORATORY HP (tsf)	UNCONFINED COMPRESSIVE STRENGTH (tsf)	WATER CONTENT (%)	DRY UNIT WEIGHT (pcf)	ATTERBERG LIMITS LL-PL-PI	PERCENT FINES
1													
							5-7-11 N=18	4.5+ (HP)		12.8			
				5			10-15-20 N=35	4.5+ (HP)		12.8			
		6.5	13.5+/-										

SANDY LEAN CLAY (CL), low to medium plasticity, orange-brown, hard, moderate cementation

trace gravel

Boring Terminated at 6.5 Feet

Stratification lines are approximate. In-situ, the transition may be gradual.

Hammer Type: Automatic

Advancement Method:
4" solid steam auger

Abandonment Method:
Boring backfilled with auger cuttings upon completion.

See Exploration and Testing Procedures for a description of field and laboratory procedures used and additional data (If any).

See Supporting Information for explanation of symbols and abbreviations.

Notes:

WATER LEVEL OBSERVATIONS

Groundwater not encountered

Terracon
50 Golden Land Ct Ste 100
Sacramento, CA

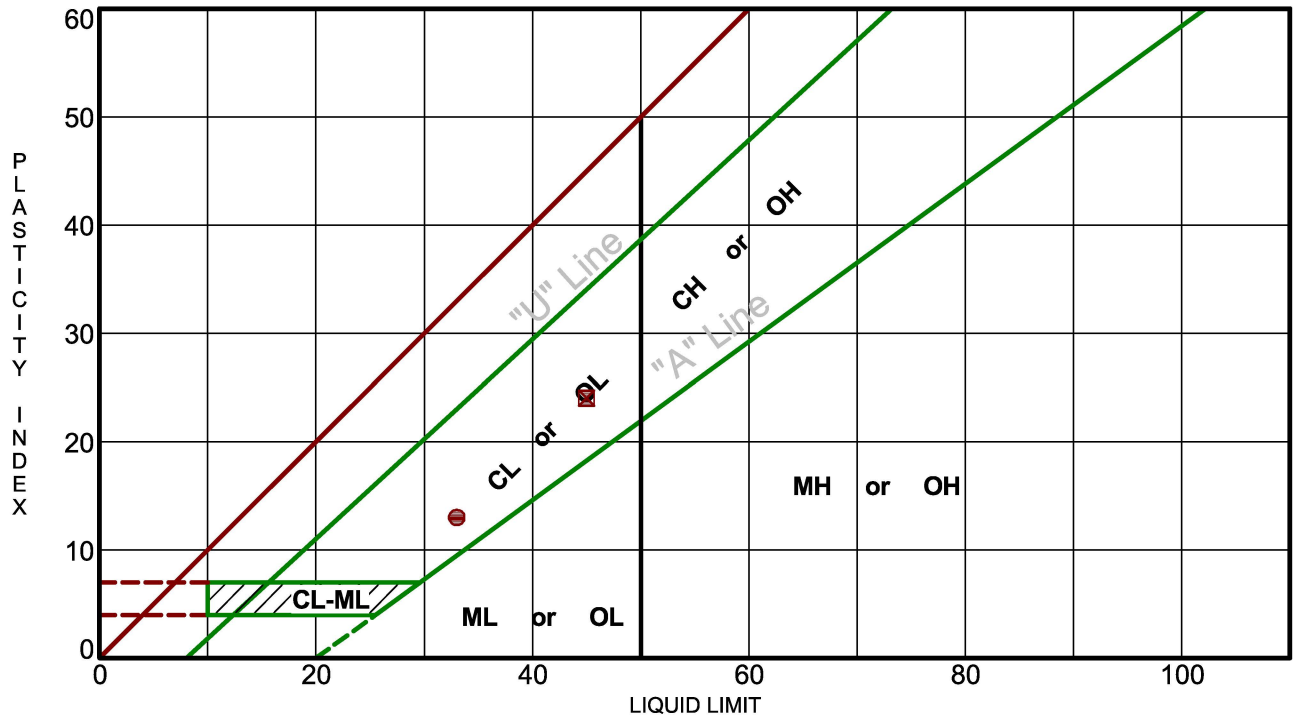
Boring Started: 04-16-2021 | Boring Completed: 04-16-2021

Drill Rig: D-120 | Driller: Taber Drilling

Project No.: NB215008

ATTERBERG LIMITS RESULTS

ASTM D4318



Boring ID		Depth	LL	PL	PI	Fines	USCS	Description
⊖	B-2	1 - 2.5	33	20	13	62.7	CL	SANDY LEAN CLAY
⊠	B-5	5 - 6.5	45	21	24	71.1	CL	LEAN CLAY with SAND

PROJECT: Morse Park Recreation Center

PROJECT NUMBER: NB215008

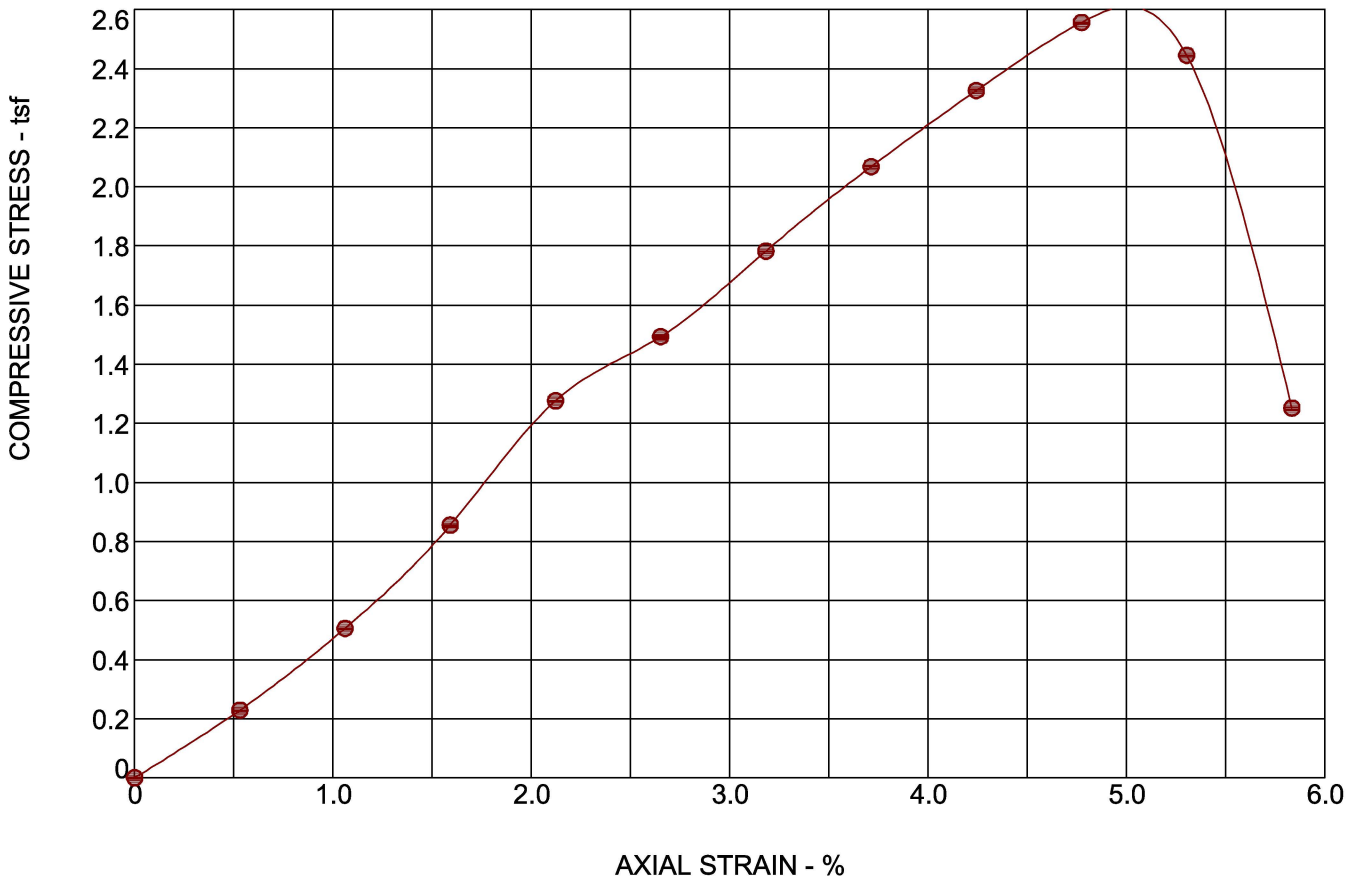
SITE: 5540 Bellatera Dr
Elk Grove, CA

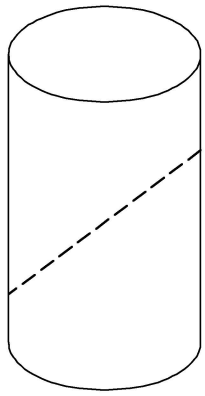
Terracon
50 Golden Land Ct Ste 100
Sacramento, CA

CLIENT: Barker Rinker Seacat Architecture
Denver, CO

UNCONFINED COMPRESSION TEST

ASTM D2166



SPECIMEN FAILURE MODE	SPECIMEN TEST DATA		
 Failure Mode: Shear (dashed)	Moisture Content:	%	30.0
	Dry Density:	pcf	96
	Diameter:	in.	1.89
	Height:	in.	3.77
	Height / Diameter Ratio:		1.99
	Calculated Saturation:	%	107.21
	Calculated Void Ratio:		0.76
	Assumed Specific Gravity:		2.7
	Failure Strain:	%	4.77
	Unconfined Compressive Strength	(tsf)	2.56
	Undrained Shear Strength:	(tsf)	1.28
	Strain Rate:	in/min	
	Remarks:		

SAMPLE TYPE: CARS	SAMPLE LOCATION: B-1 @ 10 - 11.5 feet			
DESCRIPTION: SANDY LEAN CLAY	LL	PL	PI	Percent < #200 Sieve

PROJECT: Morse Park Recreation Center

PROJECT NUMBER: NB215008

SITE: 5540 Bellatera Dr
Elk Grove, CA

Terracon
50 Golden Land Ct Ste 100
Sacramento, CA

CLIENT: Barker Rinker Seacat Architecture
Denver, CO

Terracon

Expansion Index of Soils

ASTM D 4829

JOB NUMBER	NB215008	DATE RECEIVED	4/22/2021
JOB NAME	Morse Park Recreation Center	DATE TESTED	4/23/2021
SAMPLE ID	B-2	TECHNICIAN	L. Wirkkala
SAMPLE INFO	1-3 ft	PROJ. MANAGER	B. Donaldson

As Rec'd Moisture Specimen	
Tare #	
Tare Wt. (gms)	101.3
Tare + Wet Soil (gms)	748.5
Tare + Dry Soil (gms)	692.4
% Moisture	9.5

Expansion Index Sample Moisture Adjustment	
Original Sample Wt. Wet (gms)	1000
Original Sample Wt. Dry (gms)	913.3
Final Sample Wt. Wet (gms)	1020
Test Sample % Moisture	11.7

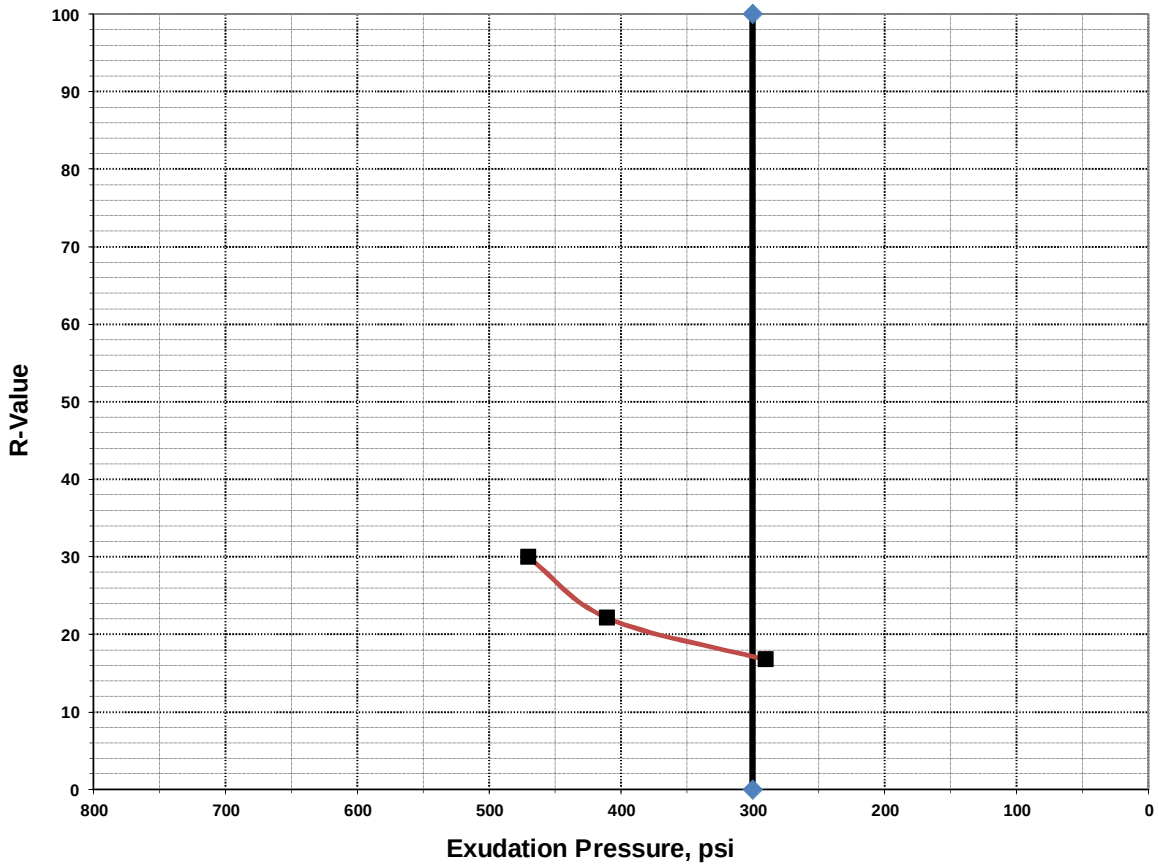
Expansion Index Sample Test Data	
Specimen Height (in)	1.00
Exp. Ring Wt. (gms)	200.8
Ring + Specimen (gms)	585.0
Wet Density of Specimen (lbs/cf)	116.5
Dry Density of Specimen (lbs/cf)	104.3
% Saturation	51.5

Potential Expansion Based on EI	
Expansion Index	Potential Exp.
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
>130	Very High

Expansion Test Data				
Reading #	Time	Date	Dial Reading (in)	Δ In Height (in)
Initial	9:30	4/23/2021	0.0000	
10 min	9:40	4/23/2021	0.0100	0.0100
30 min	10:00	4/23/2021	0.0145	0.0045
60 min	10:30	4/23/2021	0.0205	0.0060
120 min	11:30	4/23/2021	0.0205	
180 min	12:30	4/23/2021	0.0205	
Final	9:30	4/24/2021	0.0263	0.0263

Post Expansion Moisture	
Tare #	420
Tare Wt. (gms)	278.3
Exp. Ring Wt. (gms)	200.8
Tare + Exp. Ring + Wet Soil (gms)	914.5
Tare + Exp. Ring + Dry Soil (gms)	831.6
% Moisture	23.5

Expansion Index	26
Exp Ind. Corrected	27



Specimen Identification	Compaction Pressure (psi)	R-Value at 300 psi
B6 @ 1 to 4 feet	**153.3**	**17**

R-Value Test

Client:	Barker Rinker Seacat Architecture
Project:	Morse Park Recreation Center
Site:	5540 Bellatera Dr, Elk Grove CA
Project No.:	NB215008

CHEMICAL LABORATORY TEST REPORT

Project Number: NB215008
Service Date: 04/30/21
Report Date: 05/03/21

Terracon
10400 State Highway 191
Midland, Texas 79707
432-684-9600

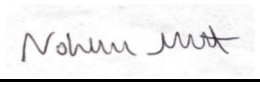
Client

Barker Rinker Seacat Architecture
3457 Ringsby Ct, Unit 200
Denver, CO 80216-4910

Project

Morse Park Recreation Center
5540 Bellatera Dr
Elk Grove, CA 95757

Sample Location	B-1
Sample Depth (ft.)	1-2.5
pH Analysis, ASTM - G51-18	7.60
Water Soluble Sulfate (SO4), ASTM C 1580 (%)	0.01
Sulfides, ASTM - D4658-15, (mg/kg)	nil
Chlorides, ASTM D 512 , (mg/kg)	11
RedOx, ASTM D-1498, (mV)	+360
Total Salts, ASTM D1125-14, (mg/kg)	342
Resistivity, ASTM G187, (ohm-cm)	2,272

Analyzed By: 

Nohelia Monasterios
Field Engineer

SUPPORTING INFORMATION

Contents:

Note: All attachments are one page unless noted above.

GENERAL NOTES

DESCRIPTION OF SYMBOLS AND ABBREVIATIONS

Morse Park Recreation Center ■ Elk Grove, CA

Terracon Project No. NB215008

Terracon GeoReport

SAMPLING	WATER LEVEL	FIELD TESTS
Modified California Ring Sampler Grab Sample Standard Penetration Test	**Water Initially Encountered** **Water Level After a Specified Period of Time** **Water Level After a Specified Period of Time** **Cave In Encountered** Water levels indicated on the soil boring logs are the levels measured in the borehole at the times indicated. Groundwater level variations will occur over time. In low permeability soils, accurate determination of groundwater levels is not possible with short term water level observations.	**N** Standard Penetration Test Resistance (Blows/Ft.) **(HP)** Hand Penetrometer **(T)** Torvane **(DCP)** Dynamic Cone Penetrometer **UC** Unconfined Compressive Strength **(PID)** Photo-Ionization Detector **(OVA)** Organic Vapor Analyzer

DESCRIPTIVE SOIL CLASSIFICATION

Soil classification as noted on the soil boring logs is based Unified Soil Classification System. Where sufficient laboratory data exist to classify the soils consistent with ASTM D2487 "Classification of Soils for Engineering Purposes" this procedure is used. ASTM D2488 "Description and Identification of Soils (Visual-Manual Procedure)" is also used to classify the soils, particularly where insufficient laboratory data exist to classify the soils in accordance with ASTM D2487. In addition to USCS classification, coarse grained soils are classified on the basis of their in-place relative density, and fine-grained soils are classified on the basis of their consistency. See "Strength Terms" table below for details. The ASTM standards noted above are for reference to methodology in general. In some cases, variations to methods are applied as a result of local practice or professional judgment.

LOCATION AND ELEVATION NOTES

Exploration point locations as shown on the Exploration Plan and as noted on the soil boring logs in the form of Latitude and Longitude are approximate. See Exploration and Testing Procedures in the report for the methods used to locate the exploration points for this project. Surface elevation data annotated with +/- indicates that no actual topographical survey was conducted to confirm the surface elevation. Instead, the surface elevation was approximately determined from topographic maps of the area.

Strength Terms

Relative Density of Coarse-Grained Soils (More than 50% retained on No. 200 sieve) Density determined by Standard Penetration Resistance			Consistency of Fine-Grained Soils (50% or more passing the No. 200 sieve) Consistency determined by laboratory shear strength testing, field visual0manual procedures or standard penetration resistance			
Descriptive Term (Density)	**Standard Penetration or N-Value Blows/Ft.**	**2.5-inch California Modified Sampler Blows/Ft.**	**Descriptive Term (Consistency)**	**Unconfined Compressive Strength Qu, (tsf)**	**Standard Penetration or N-Value Blows/Ft.**	**2.5-inch California Modified Sampler Blows/Ft.**
Very Loose	0 to 3	0 to 5	Very Soft	less than 0.25	< 2	< 3
Loose	4 to 10	5 to 12	Soft	0.25 to 0.50	2 to 4	3 to 5
Medium Dense	10 to 30	19 to 58	Medium Stiff	0.50 to 1.00	5 to 8	6 to 11
Dense	31 to 50	36 to 60	Stiff	1.00 to 2.00	9 to 15	12 to 21
Very Dense	> 50	> 60	Very Stiff	2.00 to 4.00	16 to 30	22 to 42
			Hard	> 4.00	> 30	> 42

RELEVANCE OF SOIL BORING LOG

The soil boring logs contained within this document are intended for application to the project as described in this document. Use of these soil boring logs for any other purpose may not be appropriate.

UNIFIED SOIL CLASSIFICATION SYSTEM

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [A]					Soil Classification	
					Group Symbol	Group Name [B]
Coarse-Grained Soils: More than 50% retained on No. 200 sieve	**Gravels:** More than 50% of coarse fraction retained on No. 4 sieve	**Clean Gravels:** Less than 5% fines [C]	$Cu \geq 4$ and $1 \leq Cc \leq 3$ [E]		GW	Well-graded gravel [F]
			$Cu < 4$ and/or [$Cc<1$ or $Cc>3.0$] [E]		GP	Poorly graded gravel [F]
		Gravels with Fines: More than 12% fines [C]	Fines classify as ML or MH		GM	Silty gravel [F, G, H]
			Fines classify as CL or CH		GC	Clayey gravel [F, G, H]
	Sands: 50% or more of coarse fraction passes No. 4 sieve	**Clean Sands:** Less than 5% fines [D]	$Cu \geq 6$ and $1 \leq Cc \leq 3$ [E]		SW	Well-graded sand [I]
			$Cu < 6$ and/or [$Cc<1$ or $Cc>3.0$] [E]		SP	Poorly graded sand [I]
		Sands with Fines: More than 12% fines [D]	Fines classify as ML or MH		SM	Silty sand [G, H, I]
			Fines classify as CL or CH		SC	Clayey sand [G, H, I]
Fine-Grained Soils: 50% or more passes the No. 200 sieve	**Silts and Clays:** Liquid limit less than 50	**Inorganic:**	PI > 7 and plots on or above "A"		CL	Lean clay [K, L, M]
			PI < 4 or plots below "A" line [J]		ML	Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OL	Organic clay [K, L, M, N]
			Liquid limit - not dried			Organic silt [K, L, M, O]
	Silts and Clays: Liquid limit 50 or more	**Inorganic:**	PI plots on or above "A" line		CH	Fat clay [K, L, M]
			PI plots below "A" line		MH	Elastic Silt [K, L, M]
		Organic:	Liquid limit - oven dried	< 0.75	OH	Organic clay [K, L, M, P]
			Liquid limit - not dried			Organic silt [K, L, M, Q]
Highly organic soils:	Primarily organic matter, dark in color, and organic odor				PT	Peat

[A] Based on the material passing the 3-inch (75-mm) sieve.

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name.

[C] Gravels with 5 to 12% fines require dual symbols: GW-GM well-graded gravel with silt, GW-GC well-graded gravel with clay, GP-GM poorly graded gravel with silt, GP-GC poorly graded gravel with clay.

[D] Sands with 5 to 12% fines require dual symbols: SW-SM well-graded sand with silt, SW-SC well-graded sand with clay, SP-SM poorly graded sand with silt, SP-SC poorly graded sand with clay.

[E] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[F] If soil contains ≥ 15% sand, add "with sand" to group name.

[G] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM.

[H] If fines are organic, add "with organic fines" to group name.

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name.

[J] If Atterberg limits plot in shaded area, soil is a CL-ML, silty clay.

[K] If soil contains 15 to 29% plus No. 200, add "with sand" or "with gravel," whichever is predominant.

[L] If soil contains ≥ 30% plus No. 200 predominantly sand, add "sandy" to group name.

[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name.

[N] PI ≥ 4 and plots on or above "A" line.

[O] PI < 4 or plots below "A" line.

[P] PI plots on or above "A" line.

[Q] PI plots below "A" line.