Environmental Checklist Form

Project title: Twentynine Palms Pioneer Park		
Lead agency name and address:	City of Twentynine Palms 6136 Adobe Road Twentynine Palms, CA 92277	
Contact person and phone number:	Travis Clark, Community Development Director 760-367-6799 X 1008 tclark@29palms.org	
Project location: The project site is located at the southwest corner of Adobe Road and Sullivan Road in the City of Twentynine Palms.		
Project sponsor's name and address:	City of Twentynine Palms 6136 Adobe Road Twentynine Palms, CA 92277	
Existing General Plan designation: Public (P) and Service Commercial (CS)		Existing Zoning: Public (P) and Service Commercial (CS)

Description of project: (Describe the whole action involved, including but not limited to later phases of the project, and any secondary, support, or off-site features necessary for its implementation. Attach additional sheets if necessary.)

The City proposes the development of a City park, to include renovation and expansion of the existing Theatre 29 building and parking lot, and addition of sports and soccer field, trails, an amphitheater, play areas and other park facilities on an area estimated to total 21.59 acres. The City currently owns the bulk of the site (17.7 acres, APN 061628117), and is purchasing adjacent privately owned parcels to "square off" the park. The City has confirmed two “willing seller” parcels, a 0.9-acre parcel on the northwest (APN 061628103) and another 2.98-acre parcel (APN 061628110) on the southeast. For purposes of this analysis, the entire block from Sullivan Road to Foothill Drive and from Adobe Road to the western boundary of the City’s parcel has been considered in this analysis. Should willing sellers be identified in the future, the park design would be modified to include these parcels as well.

Most of the proposed project site is undeveloped except for the Theatre 29 building and parking lot located within the northeast corner of the project, a few occupied residential homes in the northwest corner, south of the theatre and on the south border of the parcel. The project will result in an art-themed park that serves both daily recreational uses for all ages and events including indoor/outdoor performances and fairs. The proposed park will center around a multi-use field, with walking trails connecting various features and facilities. Table 1 provides a list of the proposed facilities and features.

The park will manage stormwater onsite with a central arroyo. The arroyo is a stormwater swale with dry-stacked stone walls and check dams at roughly every 100 feet to slow the stormwater flow and allow it to recharge the aquifer through a series of biofiltration demonstration gardens of native plants. The arroyo meanders from the southwest corner to the northeast corner, roughly in line with the existing drainages onsite. A larger infiltration area is proposed at the toe of the arroyo in the low-point (northeast corner) of the project to ensure stormwater remains on site and does not increase runoff in downstream, off-site locations.

A key component of this project is the renovation and expansion of Theatre 29. The renovation consists of partial demolition of, and an addition to, the theatre building, new landscaping and paving onsite, and restriping of the parking lot. Within a net addition of 3,122 square feet, the proposed theatre will add 61 seats to the existing 99-seat capacity, and expand areas including the stage, front-of-house (lobby & concessions), back-of-house, operations, and storage. A parking lot is proposed in the southeast corner of the project site. Spaces in the theatre parking lot will be reduced from 49 to 40; to compensate, an overflow parking area will be provided in the southeast corner of the park. Reciprocal parking is expected between the theatre and the park.

Table 1
Pioneer Park Facilities

Park Components	Features	Map Location Key
Multi-Use Field	Regulation soccer field Three 7 v. 7 soccer fields Viewing area for stage pavilion events	9
Picnic and BBQ Pavilion	Shade structure with picnic tables	11
Sand Volleyball Court	Sand court and seating area	10
Inter-Generational Playground	Group swings and exercise equipment	4
Children's Playground	5-12-year-old play structures 2-5-year-old play structures	3
Amphitheatre and Stage	Stage with power and lighting for concerts, theatre and fitness courses	6
Theatre 29 (Renovation)	Increased seating capacity Expanded stage, lobby, dressing rooms, and production facilities	5
Arroyo Nature Trail	Educational nature trail with educational material describing stormwater management and habitat	15

Table 1
Pioneer Park Facilities

Park Components	Features	Map Location Key
Bike Path and Flow Course	Range of technical bike courses to all-ability - level trails	12
Walking Trails/Running Loop	Paved walking path with shade structures and benches	1 & 2
Public Art	Site-specific artworks along an accessible walking path with seating and shade	14
Demonstration/Educational Gardens	Native planting and pollinator habitat along the arroyo trail with seating and shade	15
Kite-Flying Hill	Winding path to top of hill with art and sculpture installations	13
Tennis Court/Basketball Court	One regulation tennis court One regulation basketball court and one half-court	7 & 8

Uses bordering the project area include:

- Single-family residential, vacant lots and limited commercial uses to the north;
- Vacant lots to the west;
- Vacant lots to the east, and;
- Vacant lots and single-family residential use to the south.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

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

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.
X	I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
	I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
	I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature

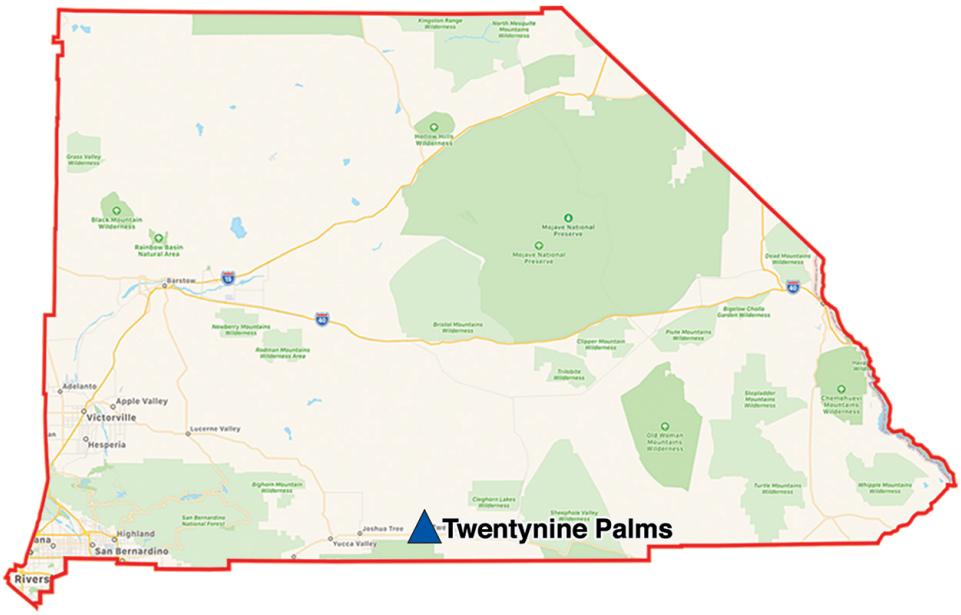
11/02/2020
Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).
5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a) Earlier Analysis Used. Identify and state where they are available for review.
    b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
    c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
9) The explanation of each issue should identify:
    a) the significance criteria or threshold, if any, used to evaluate each question; and
    b) the mitigation measure identified, if any, to reduce the impact to less than significance.



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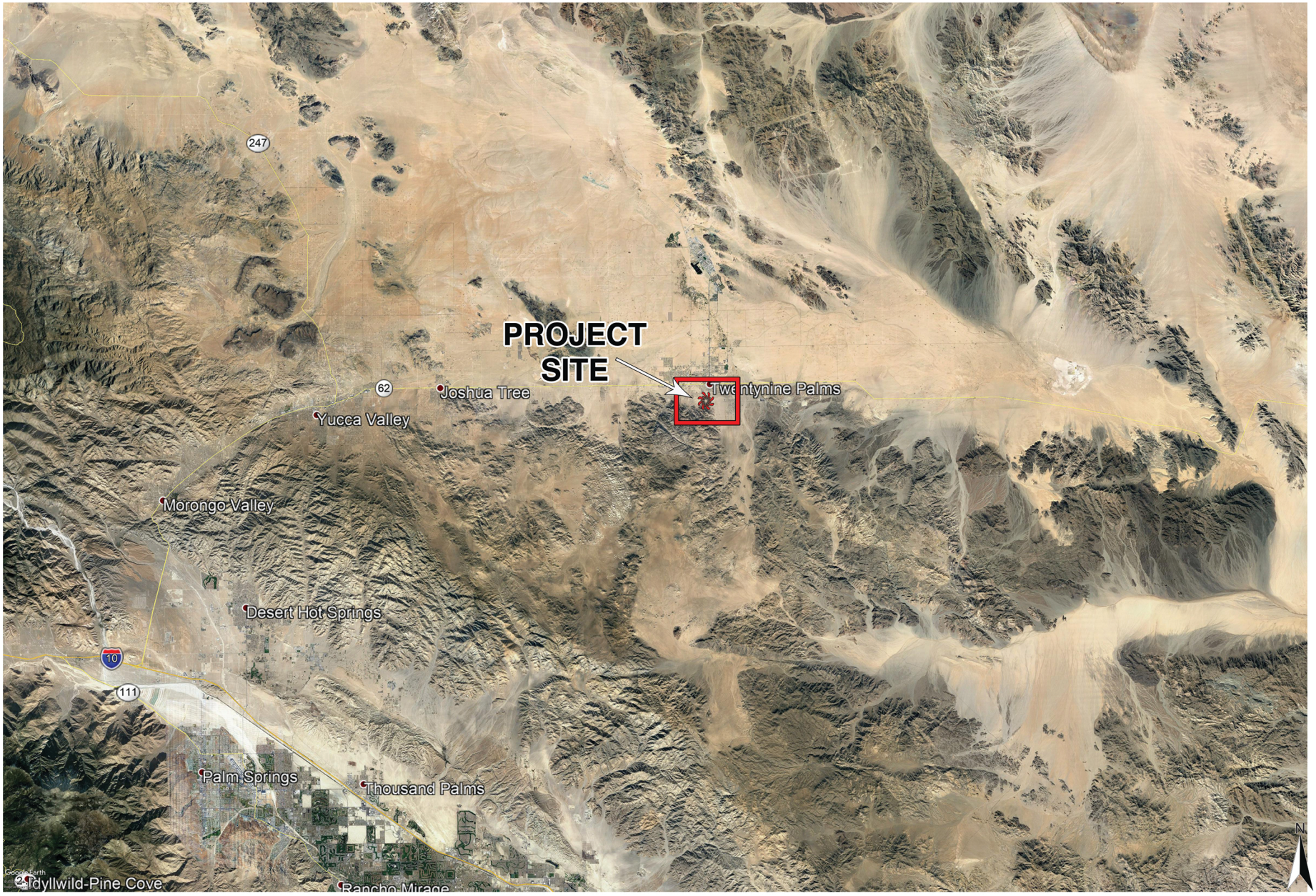
Twentynine Palms Pioneer Park
Project Location Map
Twentynine Palms, California

Exhibit

1



Source: Google Earth 2020

10.28.20

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Twentynine Palms Pioneer Park
Vicinity Map
Twentynine Palms, California

Exhibit
2

Source: Google Earth 2020

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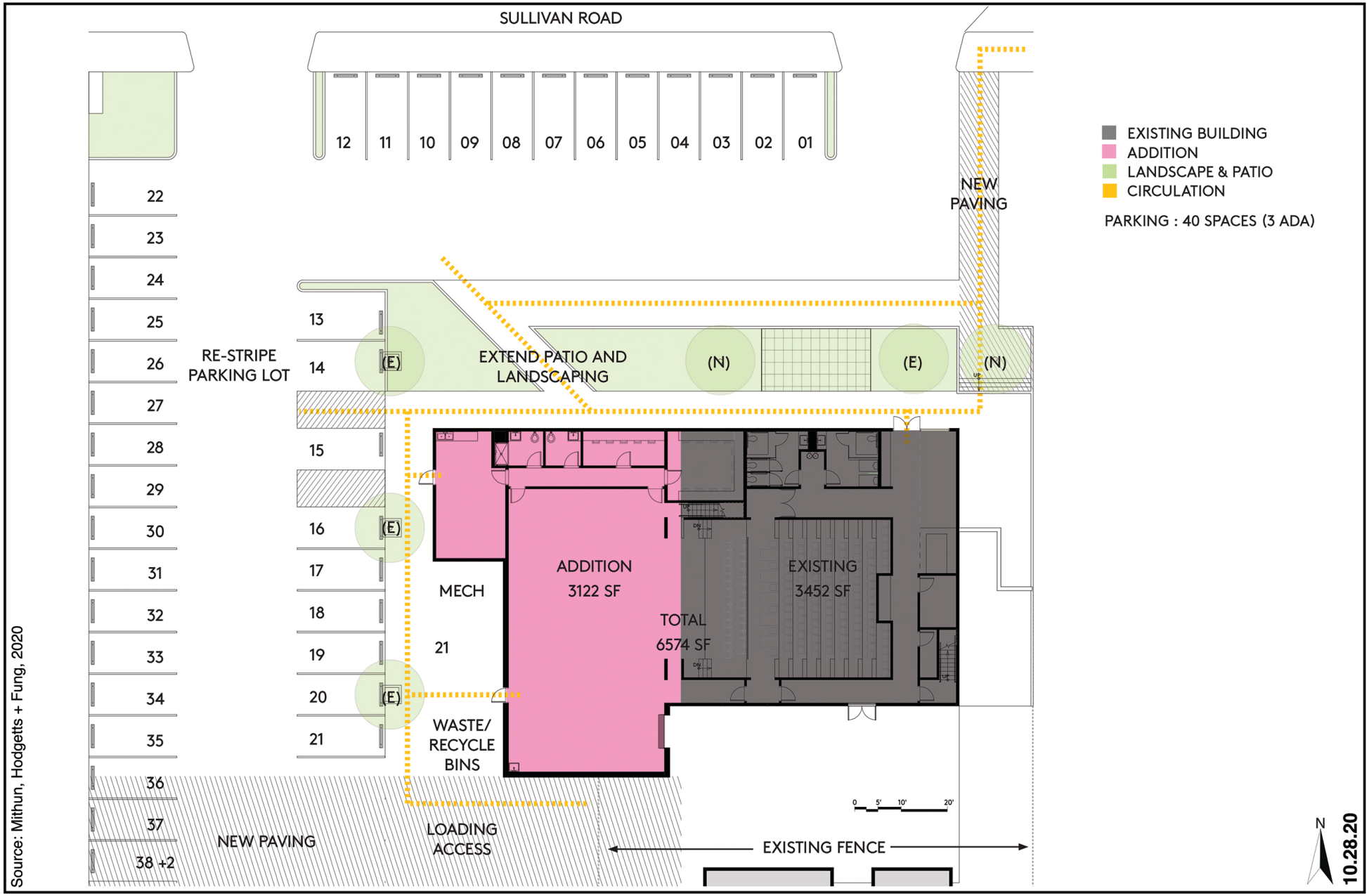
Twentynine Palms Pioneer Park
Project Location Map
Twentynine Palms, California

Exhibit
3



Source: Mithun, Hodgetts + Fung, 2020

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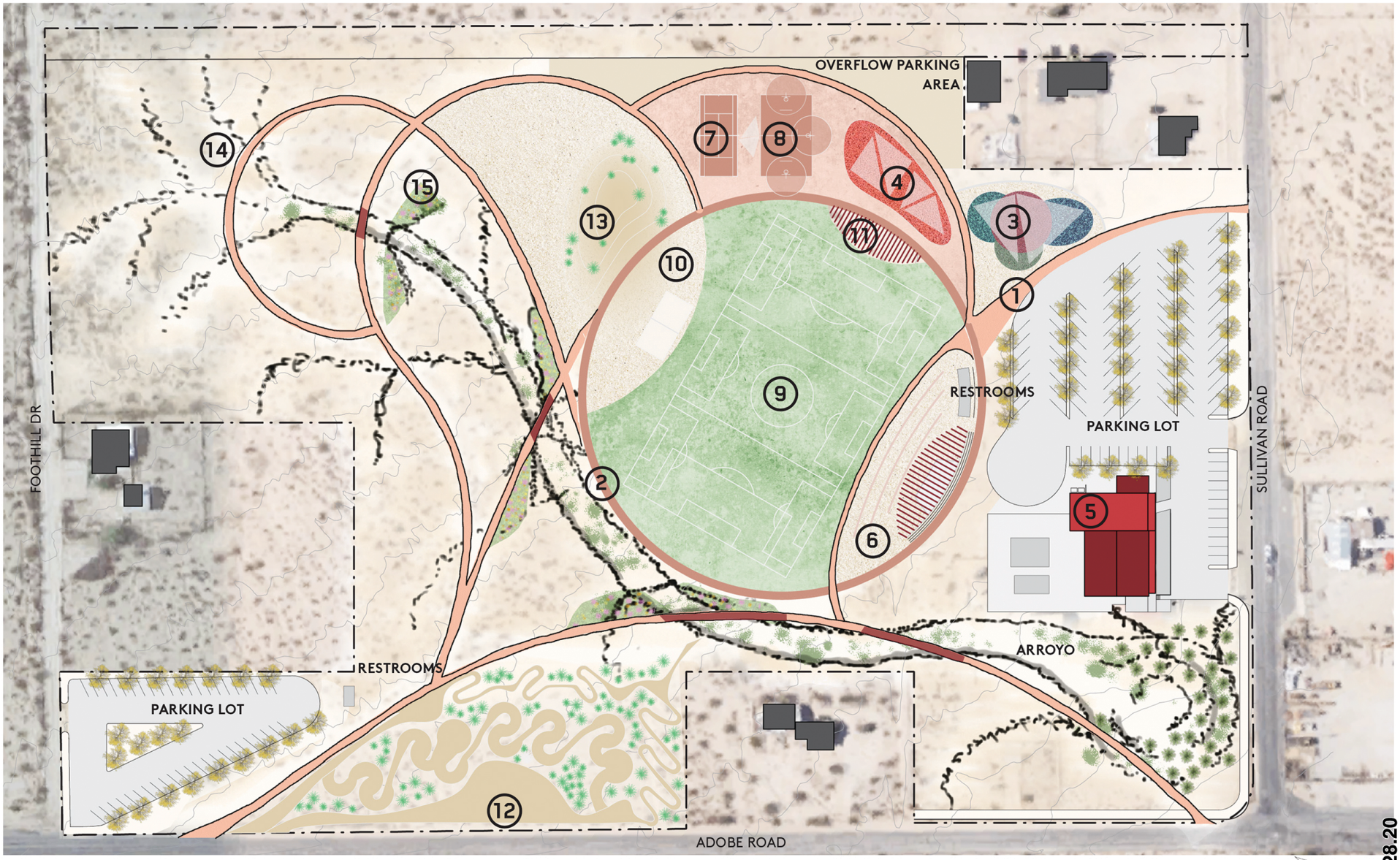
Twentynine Palms Pioneer Park
Theatre 29 Proposed Site Plan
Twentynine Palms, California

Exhibit
4



Source: Mithun, Hodgetts + Fung, 2020

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Twentynine Palms Pioneer Park
Project Site Plan
Twentynine Palms, California

Exhibit
5

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
I. AESTHETICS -- Would the project:				
a) Have a substantial adverse effect on a scenic vista?			X	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				X
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?			X	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X	

Sources: City of Twentynine Palms Development Code; Google Earth; City of Twentynine Palms General Plan.

Environmental Setting

The City of Twentynine Palms is located in the Morongo Basin which forms the southwestern corner of the Mojave Desert. In the basin, Joshua Tree National Park lies to the south of the City and the Marine Corps Ground Air Combat Center to the north. The Mojave Desert is separated from the Sonoran Desert to the south by the Little San Bernardino and Eagle Mountains, which are extensions of the Transverse Range. The western Mojave Desert is a flat, sparsely vegetated region interspersed with mountain ranges and dry lakes.

The subject site is located south of the downtown area and near the southerly City boundary. The surrounding area consists of primarily vacant land and sparse residential and commercial uses in single-story structures. The development of the park and renovation of Theatre 29 are expected to enhance the views and appearance of the project area, as described below.

Discussion of Impacts

a, c) Less Than Significant Impact. The City of Twentynine Palms is situated in the Mojave Desert on the north of Joshua Tree National Park (Exhibit 1, 2, and 3). Properties in the project vicinity enjoy close-up views of the Little San Bernardino

Mountains located approximately a half mile to the south. Distant mountain views in all other directions are partially obstructed by intervening development, especially to the north where only the mountain ridge is visible; therefore, the immediate scenic value is diminished in these directions.

The proposed project will result in the development of a city park and renovation of Theatre 29, a one-story live community theater. The park will have limited vertical structures such as restrooms, shade structures for trails, amphitheater and picnic area, artworks and sports/exercise equipment. The park will be primarily flat with limited low-key grading features including the kite-flying hill and bike flow courses. The maximum height of the theater building is proposed to not exceed 43 feet, which is not a significant increase compared to the existing 25-feet tall building and the height increase applies to the addition portion only (see Exhibit 4). Given the limited scale and size of new vertical structures, the park and renovated theater will have less than significant impacts on scenic vistas in the project area.

The renovated theater will have a new modern appearance while retaining its original features, including the roof panel, and incorporating local inspirations such as adobe architecture and colors, city signage color scheme, red and orange hues used by local artists, and unique tones similar to desert plants. Therefore, the theatre will be consistent with the current surrounding area and future development in the area and contribute to the distinct local character.

The majority of the site is designated as Public (P) on the City's Land Use & Zoning Map, the two small parcels to be purchased from private owners and part of the northeast corner are designated as Service Commercial (CS). The development of a park and renovation of the existing theatre will have a beneficial impact on the scenic quality and visual character of the project area and will not conflict with applicable zoning and other regulations governing scenic quality.

b) **No Impact.** Currently the subject site is vacant except for Theatre 29 in the northeast corner. Theatre 29 has been in operation since 1999. No significant trees, historic buildings or rock outcroppings are located on-site.

According to the California Department of Transportation, Twentynine Palms Highway (State Highway 62) is an "eligible State Scenic Highway." In the City's General Plan, a small portion of Highway 62 is designated as a scenic highway (excluding that portion of the Highway 62 between Sunrise Road and Wilshire Avenue). The project site is located approximately a half mile south of the portion of Highway 62 within the downtown area, where Highway 62 is not designated a scenic highway. Given the project's distance to the highway and its consistency with surrounding uses as described in a), views along the highway are not expected to change and no impact to this scenic highway would occur.

d) **Less Than Significant Impact.** Buildout of the proposed project will result in the development of a ±22-acre park and renovation of a live community theatre. Lighting will be generated by the theatre building, park safety and security lights, landscaping lighting, and automobile traffic. There will be increased light and glare compared to existing conditions. However, there will be limited use and lighting at the park during the nighttime, other than show times at the theatre. As required by the City Development Code, Section 19.78, lighting for the proposed project will be subject to the city's lighting standards, which require proper shielding of light sources and prohibit light spillage on adjacent properties. A lighting plan will be submitted and approved prior to development, and all required conditions of approval would be applied to the proposed project. Compliance with City lighting standards will ensure that lighting impacts associated with the proposed project will be less than significant.

Mitigation Measures: None required.

Monitoring: None required.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
II. AGRICULTURE AND FOREST 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. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. -- Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
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))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
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?				X

Sources: Farmland Mapping and Monitoring Program, 1984-2018, CA Dept. of Conservation; General Plan Land Use Map; Google Earth.

Environmental Setting

Agricultural production is generally not active in the Morongo Basin, nor in the City of Twentynine Palms. Commercial farming has not occurred in the City for decades, likely due to its arid environment. Neither the General Plan nor the Development Code contain agricultural or forestry designations or districts, but in certain districts agricultural and related uses are allowed with a Conditional/Administrative Use Permit or other restrictions.

Discussion of Impacts

a) **No Impact.** According to the California Department of Conservation, the City and its surrounding communities were not mapped in the Farmland Mapping and Monitoring Program (FMMP). The subject property is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, according to the California Dept. of Conservation, nor is it used for agricultural purposes. The project site and surrounding area are mostly vacant and sparsely developed for commercial and residential uses. The proposed project will not result in any changes to lands designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance by the California Dept. of Conservation, nor to lands used for agricultural purposes.

b) **No Impact.** There are no Williamson Act contracts on the subject property or properties in the immediate vicinity. The subject property is designated for Public and Service Commercial uses. The proposed project will have no impact on lands designated for agricultural use.

c-d) **No Impact.** The subject site does not contain forest land, timberland or timberland zoned for timberland production. Therefore, the Project would not rezone forest land or timberland as defined by the Public Resources Code and Government Code. There will be no loss of forest land or conversion of forest land to non-forest use.

e) **No Impact.** As discussed above, the City does not have any agricultural or forest land, nor any land in active agricultural or timberland production uses. The development of the proposed Project will not impact any agricultural or forest land. Given the absence of active farmlands in the City, there would be no indirect impact, due to the location or nature, on conversion of Farmland to non-agricultural use. Given the absence of forest land in the City, the proposed Project would have no indirect impact on conversion of forest land to non-forest use.

Mitigation Measures: None required.

Monitoring: None required.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	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?			X	
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?			X	
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

Sources: City of Twentynine Palms General Plan; MDAQMD CEQA and Federal Conformity Guidelines; CalEEMod Version 2016.3.2; project materials.

Environmental Setting

The City of Twentynine Palms, including the project site, lies within the Mojave Desert Air Basin (MDAB), and is under the jurisdiction of the Mojave Desert Air Quality Management District (MDAQMD). MDAQMD is geographically the second largest of the 35 air districts in the State of California. All development within the City is subject to MDAQMD's 2016 "California Environmental Quality Act (CEQA) and Federal Conformity Guidelines." MDAQMD operates and maintains six regional air quality monitoring stations in different cities throughout its jurisdiction. The nearest monitoring station to the project site is located in Twentynine Palms, on Adobe Road.

Criteria air pollutants are contaminants for which state and federal air quality standards (California Ambient Air Quality Standards (CAAQS) and National Ambient Air Quality Standards (NAAQS)) have been established. MDAQMD exceeds state and federal standards for ozone (O_3) and PM_{10}. As a result, MDAQMD has adopted federal attainment plans for ozone and PM_{10} under the Federal Clean Air Act. Ambient air quality in the MDAQMD, including the project site, does not exceed state and federal standards for carbon monoxide, nitrogen dioxides, sulfur dioxide, lead, sulfates, hydrogen sulfide, or visibility reducing particles.

The project will contribute to an incremental increase in regional ozone and PM_{10} emissions primarily during construction. The California Emissions Estimator Model (CalEEMod) Version 2016.3.2 was used to project air quality emissions that will be generated by the proposed project (Appendix A) and are discussed below.

Discussion of Impacts

a) **Less than Significant Impact.** According to MDAQMD's 2016 CEQA and Federal Conformity Guidelines, a project is considered non-conforming if it conflicts with or delays implementation of any applicable attainment or maintenance plan. A project is conforming if it complies with all applicable District rules and regulations, complies with all proposed control measures that are not yet adopted from the applicable plan(s), and is consistent with the growth forecasts in the applicable plan(s) (or is directly included in the applicable plan). Conformity with growth forecasts can be established by demonstrating that the project is consistent with the land use plan that was used to generate the growth forecast.

MDAQMD works directly with the San Bernardino County Association of Governments (SANBAG), San Bernardino County Transportation Authority (SBCTA), and local governments, and cooperates actively with all State and Federal government agencies. SBCTA adopted the 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (2012 RTP/SCS) to comply with Metropolitan Planning Organization (MPO) requirements under the Sustainable Communities and Climate Protection Act. The Growth Management chapter of the RTP/SCS forms the basis of land use and transportation controls of air quality management plans. An example of a non-conforming project would be one that increases the gross number of dwelling units, increases the number of trips, and/or increases the overall vehicle miles traveled in an affected area relative to the applicable land use plan.

The project proposes a City park on currently vacant land and renovation/ expansion of the existing theater. The subject property is designated for Public and Service Commercial uses in the City's General Plan. The project would not induce population growth and is less intense than the uses allowable under the General Plan land use designations. Therefore, the project is not expected to result in significantly higher number of trips and vehicle miles traveled compared to General Plan buildout in the project area, nor result in emissions higher than those anticipated in land use-based growth forecasts. As demonstrated below, the project will not generate emissions that exceed thresholds for criteria pollutants including pollutants for which the District is in nonattainment. In addition, the 2019 California Green Building Code will reduce air quality impacts during project operation by imposing more stringent energy efficiency standards. The proposed project will also be subject to rules and guidelines set forth by MDAQMD. Overall impacts with regard to conformity with applicable air quality plans and guidelines will be less than significant.

b) **Less Than Significant Impact.** The California Emissions Estimator Model (CalEEMod) Version 2016.3.2 was used to project air quality emissions that will be generated by the proposed project (Appendix A). Criteria air pollutants will be released during both the construction and operation phases of the proposed project, as shown in Tables 2 and 3. Table 2 summarizes short-term construction-related emissions, and Table 3 summarizes ongoing emissions generated during operation.

Construction Emissions

For purposes of analysis, it is assumed that construction will occur over a 10-month period starting January 2022 with buildout in the same year. The construction period includes all aspects of project development, including site preparation, grading, paving, building construction, and application of architectural coatings.

As shown in Table 2, emissions generated by construction activities will not exceed MDAQMD thresholds for any criteria pollutant during construction. The data reflect average daily unmitigated emissions over the 10-month construction period, including summer and winter weather conditions. The analysis assumes cut of 7,337 cubic yards and fill of 7,963 cubic yards of dirt/soil materials based on project design estimates. Applicable standard requirements and best management practices include, but are not limited to, the implementation of a dust control and management plan in conformance with MDAQMD Rule 403.2, phased application of architectural coatings and the use of low-polluting architectural paint and coatings per MDAQMD Rule 1113. Given that criteria pollutant thresholds will not be exceeded, and standard best management practices will be applied during construction, impacts will be less than significant.

Table 2
Maximum Daily Construction-Related Emissions Summary (pounds per day)

Construction Emissions[1]	**CO**	**NO_x**	**ROG**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Daily Maximum	31.76	39.10	8.90	0.11	19.85	11.46
MDAQMD Thresholds	**548.00**	**137.00**	**137.00**	**137.00**	**82.00**	**65.00**
Exceeds?	**No**	**No**	**No**	**No**	**No**	**No**

[1] Average of winter and summer emissions.
Emission Source: CalEEMod model, version 2016.3.2.

Operational Emissions

Operational emissions are ongoing emissions that will occur over the life of the project. They include area source emissions, emissions from energy demand (electricity), and mobile source (vehicle) emissions.

According to the Institute of Transportation Engineers (ITE) Trip Generation (9th Edition, 2012), the proposed Project will generate approximately 41 daily trips (see Section XVII). Table 3 provides a summary of projected emissions during operation of the proposed project at build out. As shown below, operational emissions will not exceed MDAQMD thresholds of significance for any criteria pollutants for operations. Impacts related to operational emissions will be less than significant.

Table 3 Maximum Daily Operational-Related Emissions Summary (pounds per day)						
Operational Emissions[1]	**CO**	**NO_x**	**ROG**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Daily Maximum	1.13	1.02	0.35	0.005	0.30	0.08
MDAQMD Thresholds	**548.00**	**137.00**	**137.00**	**137.00**	**82.00**	**65.00**
Exceeds?	**No**	**No**	**No**	**No**	**No**	**No**

[1] Average of winter and summer emissions.
Emission Source: CalEEMod model, version 2016.3.2.

Cumulative Contribution: Non-Attainment Criteria Pollutants

A significant impact could occur if the Project would make a considerable cumulative contribution to federal or State non-attainment pollutants. The Mojave Desert portion of the MDAB is classified as a "non-attainment" area for PM_{10} and ozone. Cumulative air quality impacts are evaluated on a regional scale (rather than a neighborhood scale or city scale, for example) given the dispersing nature of pollutant emissions and aggregate impacts from surrounding jurisdictions and air management districts. Any development project or activity resulting in emissions of PM_{10}, ozone, or ozone precursors will contribute, to some degree, to regional non-attainment designations of ozone and PM_{10}.

Cumulative impacts are similar to direct and indirect impacts of the project, which the project contributes to. In the case of a park and community theater project, the proposed project has a cumulative impact with all other development projects, from the standpoint of each type of impact (cumulative construction emissions, operational energy consumption, solvent use, transportation emissions, congestion, etc.). No similar cumulative projects are identified in the project area at this time.

Currently MDAQMD's approach to assessing cumulative impacts is based on the fact that the MDAQMD Attainment Plan forecasts attainment of ambient air quality standards in accordance with the requirements of the California Clean Air Act (CCAA), which takes into account the SANBAG forecasted future regional growth. Therefore, if all projects are individually consistent with the growth assumptions within the MDAQMD's Attainment Plan, future development would not impede the attainment of ambient air quality standards.

As indicated under a), above, the proposed project is not growth-inducing and is less intense than the uses allowed by the General Plan land use designations. Therefore, the project is expected to be consistent with the growth assumptions within the MDAQMD's Attainment Plan. As discussed above, the proposed project would not generate construction or operational emissions that exceed the MDAQMD's recommended regional thresholds of significance. Specifically, buildout of the project would not exceed thresholds for PM_{10} and ozone precursors for which the Basin is in nonattainment. Therefore, the proposed Project will result in incremental, but not cumulatively considerable impacts on regional PM_{10} and ozone levels.

Summary

As shown above, both construction and operation of the proposed Project will result in criteria emissions below the MDAQMD significance thresholds, and neither would violate any air quality standard or contribute substantially to an existing or projected air quality violation. Overall, impacts related to construction and operation will be less than significant and are not cumulatively considerable from a non-attainment standpoint.

c) Less Than Significant Impact. According to the MDAQMD CEQA and Federal Conformity Guidelines, residences, schools, daycare centers, playgrounds and medical facilities are considered sensitive receptor land uses. The following project types proposed for sites within the specified distance to an existing or planned (zoned) sensitive receptor land use must be evaluated:

- Any industrial project within 1,000 feet;
- A distribution center (40 or more trucks per day) within 1,000 feet:
- A major transportation project (50,000 or more vehicles per day) within 1,000 feet;
- A dry cleaner using perchloroethylene within 500 feet;
- A gasoline dispensing facility within 300 feet.

The project does not propose any of the above land uses, and therefore further evaluation is not required. As demonstrated above, the proposed project would not generate construction or operational emissions that exceed the MDAQMD's recommended regional thresholds of significance. Therefore, impacts to sensitive receptors will be less than significant.

d) Less Than Significant Impact. In general, typical land use development that pose potential odor problems include wastewater treatment plants, refineries, landfills, composting facilities and transfer stations. The occurrence and severity of odor impacts depend on such factors as the nature, frequency, and intensity of the source, wind speed and direction, and the sensitivity of the receptors. While offensive odors rarely cause physical harm, they can be unpleasant and raise public concern.

The proposed project consists of a City park and renovation of a community theater and is not expected to generate objectionable odors at project buildout. Short-term odors associated with paving and construction activities could be generated; however, any such odors would be localized and quickly disperse below detectable levels as distance from the construction site increases. Therefore, impacts from objectionable odors are expected to be less than significant.

Mitigation Measures: None required.

Monitoring: None required.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	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?		X		
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 US Fish and Wildlife Service?			X	
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?			X	
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? (General Plan)			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
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?				X

Sources: Pioneer Park Project Delineation of Jurisdictional Waters, prepared by Wood Environment & Infrastructure Solutions, Inc., August 2020; Biological Resources Assessment Report - Pioneer Park Project, prepared by Wood Environment & Infrastructure Solutions, Inc., August 2020; Google Earth; City of Twentynine Palms General Plan; City of Twentynine Palms General Plan Update Draft Environmental Impact Report (2010).

Environmental Setting

The City of Twentynine Palms is located within the Mojave Desert biome in a portion of the western Mojave Desert in San Bernardino County, California. The City participates in the West Mojave Plan, which, once adopted, will serve as a habitat conservation plan for both public and private entities in the West Mojave Desert in California. It will encompass approximately 3.6 million acres of public land and 2.8 million acres of private land that will

include deserts throughout San Bernardino, Kern, Inyo, and Los Angeles Counties. Portions of the plan include requiring focused surveys for Special Status Species, burrowing owl, and sensitive plants where suitable habitat is present.

The project area is characterized by patches of undeveloped, relatively natural open space, rural residential dwellings, and a network of paved and unimproved roadways. The project site remains largely undeveloped.

The following analysis on potential impacts to biological resources associated with the proposed development is based on the project-specific Biological Resources Assessment and Delineation of Jurisdictional Waters conducted by Wood Environment & Infrastructure Solutions, Inc (Appendix B & C), City of Twentynine Palms General Plan and its draft EIR.

Discussion of Impacts

a) **Less Than Significant Impact with Mitigation Incorporated.** The majority of the project site is undeveloped, with a theater and paved parking lot in the northeast corner. Adjacent to the site are a few occupied homes on the northwest, an abandoned home south of the theater, and a vacant residence along the south boundary. The area is generally flat, sandy with some rocky substrates interspersed throughout the site and intermittent small wash rivulets running through the site.

The paved and unimproved roadways bordering and bisecting the project site include Sullivan Road, Adobe Road, Foothill Drive, Tamarisk/Yucca Avenue, and Boling Drive. Other than adjacent habitat fragmentation resulting from the development of the existing residential dwellings, paved and unimproved roads; the undeveloped portion of the site has received relatively minor disturbance, primarily from off-road vehicular use, dumping and edge effects including vegetation clearing/weed abatement, establishment of dirt trails, and use by domestic pets.

The dominant vegetation community on the property is *Larrea tridentata* Shrubland Alliance (Creosote bush scrub), also referred to as “Mojave creosote bush scrub”. No special status vegetation communities were observed on the site during the field assessment.

During the site survey, fifteen vertebrates were detected and identified to species, except rodents that were identified to class through the presence of burrows. Vertebrate species detected included three reptile, eight bird, and four mammal species; no fish or amphibians were detected.

No special status species were observed during the field survey on 31 July 2020. Based on literature review and consultation with experts, the project biological report identified 26 special status biological resources known to occur in the vicinity (within an approximate 1-mile radius) of the project site, including 16 plants, two reptiles, two birds, five mammals, and one sensitive habitat. These include federal

and state-listed species, species of special concern, Bureau of Land Management (BLM) sensitive species and plant species designated as rare and/or imperiled by the California Native Plant Society (CNPS).

Of the 26 special status biological resources reported in the project vicinity, 18 species and one habitat are considered to be absent from the site due to a lack of suitable habitats and/or the location of the property outside of the species' geographic range. Seven special status species have a low potential to occur on the project site and are discussed below.

There is a low potential for parish's club-cholla (*Grusonia parishii*) and jackass-clover (*Wislizenia refracta ssp. refracta*) to occur on-site based on presence of marginally suitable habitat. Both species are not state or federally listed, but are designated by CNPS as LIST 2B (plants rare, threatened, or endangered in California, but more common elsewhere). Parish's club-cholla prefers sandy soils in desert scrub habitat and the nearest recorded occurrence is seven miles south of the site. Jackass-clover has the potential to occur in a wide variety of desert habitats including creosote bush scrub but also occurs in desert dunes or wetland areas (neither of these habitats occur on the proposed project site); the nearest occurrence record is ¼ mile northeast of the site.

There is a very low potential for the desert tortoise (federally/state threatened) and red-diamond rattlesnake (state species of special concern) to occur on the proposed project site. Marginally suitable habitat is present on-site for both species; however, the nearest recorded occurrence for the desert tortoise and red-diamond rattlesnake is 11 miles northwest and 5.5 miles north of the site, respectively. Avoidance measures should be taken to minimize any potential impacts to the desert tortoise. Focused surveys for this species are recommended prior to development of the parcel, as provided in Mitigation Measure BIO-1 below.

There is marginally suitable habitat present on-site for burrowing owl (*Athene cunicularia*) and Bendire's thrasher (*Toxostoma bendirei*). Burrowing owl is a state species of special concern and take of this species is prohibited under the Migratory Bird Treaty Act (MBTA). No natural burrows with owls and/or owl sign were observed during the assessment; however, other small mammal burrows and man-made structures suitable for the owl were observed on-site and nearby. Burrowing owls are sensitive to excessive noise and activities such as grading and operation of heavy equipment up to 500 feet away and may abandon nests or burrows if/when such activities occur. Therefore, potential impacts to burrowing owls from adjacent off-site areas must also be considered. In order to assure that this impact is mitigated, Mitigation Measure BIO-2 is provided below, which requires pre-construction burrowing owl surveys.

Bendire's thrasher was not observed during the field assessment. This species is associated with a variety of desert scrub habitats including creosote bush scrub, particularly areas providing creosote bush, yuccas and cholla cactus. There is at

least a low potential for Bendire's thrasher to nest and occur on the property. Bendire's thrasher is listed as state species of special concern, and like the burrowing owl, is afforded protection under the MBTA. To avoid impacting nesting birds, avoidance of disturbance during the nesting season (generally February 1st through August 31st) is recommended. If avoidance of the nesting season is not feasible, a pre-construction survey for nesting birds will be required to avoid impacts to any active nests within the project site, as provided in Mitigation Measure BIO-3 below.

Pallid San Diego pocket mouse (*Chaetodipus fallax pallidus*) is a state species of special concern and has a low probability to occur on-site due to marginally suitable habitat (desert scrub) present. However, the nearest occurrence was recorded in 1946, ½ miles north of the site in a now developed area.

With implementation of the mitigation measures (BIO-1 through BIO-3), project impacts to special status or sensitive species are expected to be less than significant.

b-c) Less Than Significant Impact.

The dominant vegetation community on the property is Creosote bush scrub. The field survey identified a variety of shrub, succulent and annual plant species, as well as several nonnative and introduced species associated with existing development in the project area. The site survey did not identify any hydric soils, sand dunes, hummocks, clay lenses, springs, seeps, or natural bodies of water on the subject property.

A jurisdictional delineation was conducted for the proposed project in August 2020. Seven small, dry, braided desert washes were identified within the project site that contained both bed and bank and ordinary high-water mark (OHWM). Table 4 summarizes the waterways identified in the project area, and Exhibit 6 shows their mapped location on the project site. The washes onsite did not show differentiation of changes in vegetation indicating areas of inundations. The majority of washes contained little or no vegetation within the OHWM, and no hydric indicator plants or riparian habitats were identified.

All drainages onsite are ephemeral. Under the Navigable Waters Protection Rule in effect on June 22, 2020, ephemeral drainages would not be considered Waters of the United States (WUS). Therefore, none of the onsite drainages are expected to be jurisdictional to the U.S. Army Corps of Engineers.

Based on the delineation, all seven drainages onsite meet the requirements for California Department of Fish and Wildlife (CDFW) and Regional Water Quality Control Board (RWQCB) jurisdiction as Waters of the State of California (WSC). The proposed project will have temporary and permanent impacts to jurisdictional drainages and need to obtain authorizations from the RWQCB and CDFW. With

0.43 acres of project area under CDFW jurisdiction, a 1602 Streambed Alteration Agreement is required for all activities that alter streams and their associated riparian habitat (absent on the subject property). The project proponent shall obtain a Streambed Alteration Agreement by submitting a copy of this Initial Study in addition to the formal application materials and fee. The project may need to comply with CDFW's "no net loss" policy regarding impacts to streams and waterways and replace any lost habitats on at least a 1:1 ratio.

The project area is located in the Colorado River RWQCB (Region 7). The RWQCB regulates impacts on WSC under the Porter Cologne Water Quality Control Act through issuance of a Construction General Permit, State General Waste Discharge Order, or Waste Discharge Requirements, depending upon the level of impact and properties of the waterway. The project proponent would need to obtain a Water Quality Certification by submitting a copy of this Initial Study in addition to the formal application materials and fee.

The proposed park design seeks to retain natural features at the site through maximizing permeable areas and managing stormwater with a central arroyo and a series of biofiltration gardens with native plants. The proposed arroyo will roughly align with the existing drainages onsite (D2a and D2b that merge into D2, and D3), and consist of a stormwater swale with dry-stacked stone walls and check dams at roughly every 100 feet to slow the stormwater flow and allow it to recharge the aquifer through the biofiltration gardens with native plants.

Table 4
Summary of Jurisdictional Areas

Drainage ID/ Survey Area	Waters of the US	RWQCB Jurisdiction (acres)	RWQCB Length (feet)	CDFW Jurisdiction (acres)	CDFW Length (feet)	Cowardin Class	Latitude/ Longitude	Class of Aquatic Resource
D-1	N/A	0.043	1,242	0.086	1,242	R4SBJ[1]	34.128009/-116.055896	non-section 10-non wetland
D-2A	N/A	0.006	1,387	0.011	1,387	R4SBJ	34.126261/-116.056539	non-section 10-non wetland
D-2B	N/A	0.035	1,025	0.071	1,025	R4SBJ	34.126254/-116.056002	non-section 10-non wetland
D-3	N/A	0.047	1,532	0.094	1,532	R4SBJ	34.162388/-116.055123	non-section 10-non wetland
D-4	N/A	0.050	1,443	0.099	1,443	R4SBJ	34.125810/-116.055052	non-section 10-non wetland

Table 4
Summary of Jurisdictional Areas

Drainage ID/ Survey Area	Waters of the US	RWQCB Jurisdiction (acres)	RWQCB Length (feet)	CDFW Jurisdiction (acres)	CDFW Length (feet)	Cowardin Class	Latitude/ Longitude	Class of Aquatic Resource
D-5	N/A	0.010	292	0.020	292	R4SBJ	34.125488/-116.054896	non-section 10-non wetland
D-6	N/A	0.011	323	0.022	323	R4SBJ	34.125449/-116.054928	non-section 10-non wetland
D-7	N/A	0.013	387	0.027	387	R4SBJ	34.124962/-116.054737	non-section 10-non wetland

[1] R4SBJ – Riverine, Intermittent, Streambed, Intermittently Flooded based on Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et. al., 1979).

As described above, the project has the potential to impact waters of the State. This would represent a significant impact, if not mitigated. In order to mitigate the impacts to waters of the State, a 1602 permit and a 404 certification, which will include mitigation measures to reduce impacts to less than significant levels, will be required, as provided below in mitigation measure BIO-4. With the implementation of this mitigation measure, impacts to waters of the State will be less than significant.

d) **Less Than Significant Impact.** The project area is located south of the downtown area in a suburban setting. The project site is surrounded/bisected by roadways and subject to edge effects resulting from adjacent development, dumping, and off-road vehicle use. As discussed above, wildlife observed at the site is not abundant or diverse. Although it is used by common species and may provide marginal habitat for migratory birds and some special status species, it is not identified as a nursery site.

Wildlife corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. Fragmentation of open space areas by urbanization creates isolated “islands” of wildlife habitat. As a result of a state interagency workshop, the Joshua Tree-Twentynine Palms Connection was designated within and near the City. The connection occurs in an ecological transition zone between the Mojave and Sonoran Desert eco-regions. The linkage connects areas of open space in Joshua Tree National Park and the Marine Base. The connection includes 307,807 acres, of which approximately 71 percent currently receives some level of conservation protection. The majority of the City is outside the connection area (General Plan Exhibit CO-3). Generally, four linkages occur across the City: two in the west, one

in the north, and one in the east. The project area is not designated as or near any Wildlife Linkage Areas. Less than significant impacts are expected as a result of the project regarding wildlife corridors and nursery sites.

e-f) **No Impact.** As noted, the West Mojave Plan is still in development. The City of Twentynine Palms General Plan establishes goals and policies to ensure that natural resources including the Oasis of Mara and desert tortoise within the Mesquite Dunes are protected. The San Bernardino County General Plan designates portions of the City's Sphere of Influence (SOI) as in the RC (Resource Conservation) land use zoning district. The County's General Plan also includes a Biotic Resources (BR) Overlay to identify areas that include habitat for sensitive species.

Development of the proposed project will occur within the City of Twentynine Palms (not SOI) and will follow mitigation measures specified in the project-specific biological report; therefore, it will have no impact on the overlay districts nor any conflict with City or county regulations and plans.

Mitigation Measures:

BIO-1 Focused surveys for desert tortoise should be conducted by a qualified biologist prior to construction. Based on the survey findings, additional actions may be required but not limited to: 1) implementation of a Worker Environmental Awareness Program (WEAP), 2) pre-construction clearance surveys, 3) relocation (where necessary and authorized by the USFWS, CDFW and/or BLM, where applicable), 4) construction monitoring.

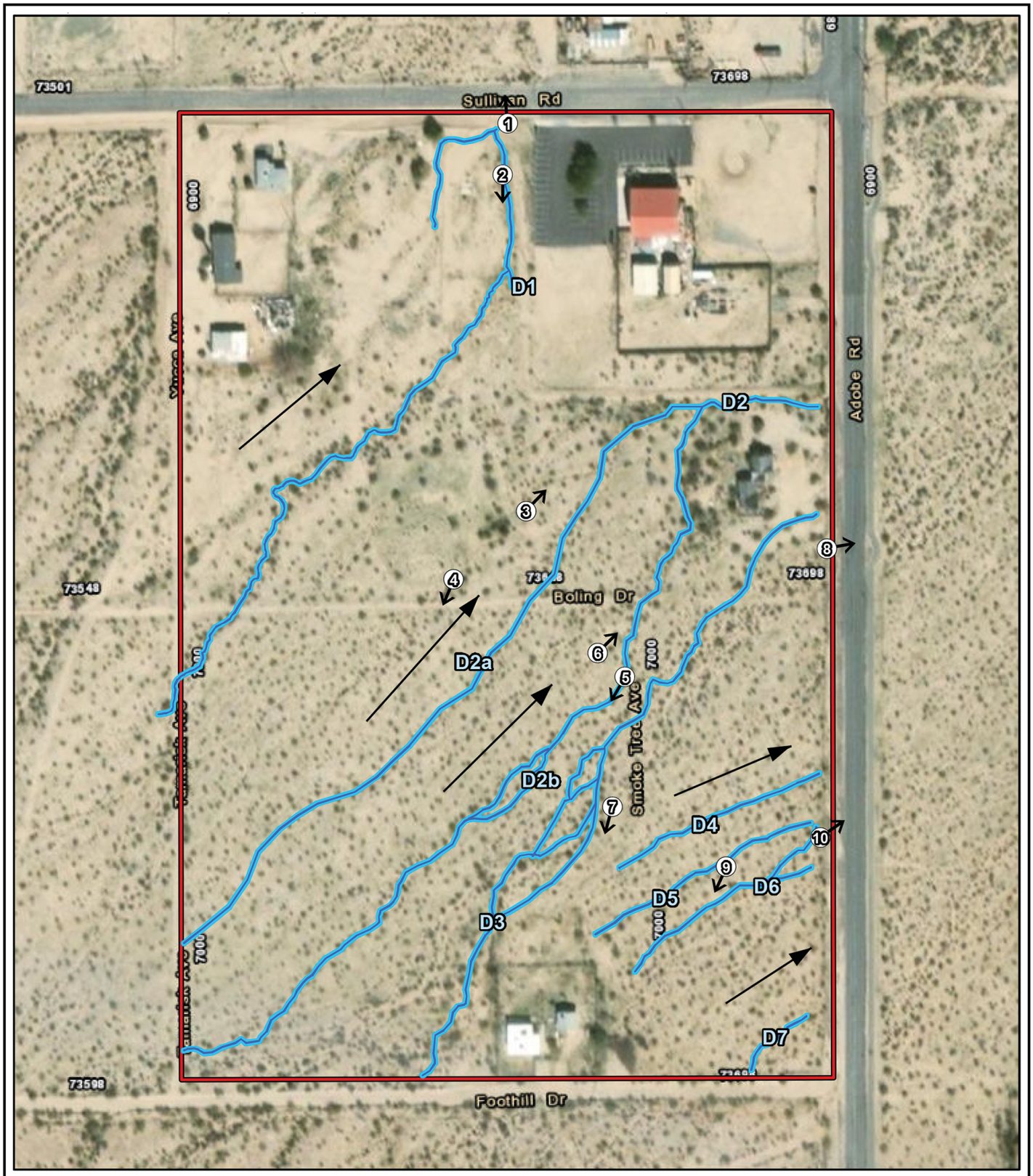
BIO-2 A pre-construction survey of all on-site rodent burrows will be conducted by an experienced burrowing owl biologist and confirmed as not having any owls in them, not more than 5 days before earth disturbance (construction). The surveys will be conducted as close to the actual construction initiation date as possible.

BIO-3 If construction is to occur during the MBTA nesting cycle (February 1-August 31), a nesting bird survey should be conducted by a qualified biologist. Active bird nests should be mapped utilizing a hand-held global positioning system (GPS) and a 300' buffer will be flagged around the nest (500' buffer for raptor nests). Construction should not be permitted within the buffer areas while the nest continues to be active (eggs, chicks, etc.).

BIO-4 Prior to any ground disturbance on the site, the City shall secure a 1602 agreement from the CDFW and a 404 certification from the RWQCB. The permits will include mitigation measures to reduce the impacts of the 0.43 acres of waters of the State on the project site. These measures could include the restoration of native plants in the planned arroyo, the purchase of land off-site, or other measures as determined by the CDFW and the RWQCB.

Monitoring:

BIO-A Prior to the issuance of any permit to allow ground disturbance on the site, the City will receive and file all technical surveys and permits in the project file.
Responsible Parties: Project applicant, project biologist, Planning Department, City Engineer.



TERRA NOVA®
PLANNING & RESEARCH, INC.

Twentynine Palms Pioneer Park
Jurisdictional Delineation
Twentynine Palms, California

Exhibit

6

	Potentially Significant Impact	Less Than Significant w/ Mitigation	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 as defined in '15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to '15064.5?		X		
c) Disturb any human remains, including those interred outside of formal cemeteries?		X		

Source: Twentynine Palms General Plan (2012); Historical/Archaeological Resources Survey Report - Pioneer Park Project, prepared by CRM TECH, October 25, 2020.

Environmental Setting

The City is located in the Mojave Desert. Archaeologists generally divide prehistory in the Mojave Desert region into five periods marked by changes in archaeological remains that date back to 12,000 years ago. The Lake Mojave period (ca. 8000-5500 B.C.), is associated with small mobile groups of hunters and gatherers who inhabited the Mojave Desert. These groups continued to inhabit the region during the Pinto Period (ca. 5500-2500 B.C.), and relied more on ground foods, small and large game animals, and the collection of plants. Distinct cultural changes occurred during the Newberry Period (ca. 1500 B.C.-500 A.D.), when small residential groups moved between select localities, established a geographically expansive land-use pattern and engaged in long-distance trade. The two ensuing periods, Saratoga (ca. 500-1200 A.D.) and Tecopa (ca. 1200-1770s A.D.), are characterized by seasonal group settlements near accessible food sources and the intensification of the use of plant foods, as evidenced by groundstone artifacts and the evolution of pottery.

The City is located in an area historically occupied by two Native American groups, the Serrano and the Chemehuevi. The Serrano's homeland was centered in the nearby San Bernardino Mountains but also included lowlands along both flanks of the mountain range. The Chemehuevi, a subgroup of the Southern Paiute, traditionally occupied the Mojave Desert east to the Colorado River. The Serrano settled mostly near where flowing water emerged from the mountains, while the Chemehuevi, with fewer people spread over a much wider area, cultivated, gathered, and hunted in the open deserts, but were also known for their agricultural practices. Members of each tribe gathered at important base camps or villages for annual ceremonies and tribal interaction with neighboring groups.

In the Twentynine Palms area, the Serrano and the Chemehuevi relied on the waters of a desert oasis located roughly a half-mile to the east of the project location. The Serrano first settled in the oasis and named it *Maara*, "the place of little springs and much grass". The Chemehuevi began to settle around the oasis in the mid-19th century.

While European contact may have occurred as early as 1771 or 1772, direct European influence on Serrano and Chemehuevi lifeways did not begin until the mission system expanded to the edge of Serrano territory in the 1810s. By the early 20th century, the majority of the Serrano and Chemehuevi population was incorporated into the reservation system. Today, most Serrano descendants live on the San Manuel and the Morongo Indian Reservations, while the Chemehuevi are divided among the Chemehuevi, the Colorado River, and the Morongo Reservations.

Non-Native settlement first occurred in the Twentynine Palms area by the late 1800s, when prospectors sought their fortunes in nearby gold camps. The first pioneer homesteaders came in 1910, and a small community started to grow. In 1952, the U.S. Defense Department established a marine base north of the oasis for glider training, now known as the U.S. Marine Corps Air Ground Combat Center. The City of Twentynine Palms was incorporated March 23, 1987.

Discussion of Impacts

a) **No Impact.** Between July and October 2020, CRM TECH performed a cultural resources study on the project site to determine whether the project would cause a substantial adverse change to any "historical resources," as defined by CEQA, that may exist in or around the project area. The study included a historical/archaeological resources records search, historical background research, consultation with Native American representatives, and an intensive field survey.

The records search was conducted at the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System. According to SCCIC records, the project area has not been surveyed for cultural resources in the past, and no historical or archaeological resources have been recorded within or adjacent to the project boundaries. SCCIC records identified 46 historical/archaeological resources within a one-mile radius, including ten Native American resources, 35 resources from the historic period, and one with both prehistoric and historical components. Two of these resources, Sites 36-002052 and 36-004199, were found in close proximity to the project area. All other resources were recorded at least 1,000 feet from the project boundaries, and therefore would not require further consideration for project-related impacts.

Site 36-002052 is designated as a Point of Historical Interest, centered on the Oasis of Maara and located approximately 200 feet to the northeast of the project area at its closest point. Site 36-002052 contains extensive archaeological remains (discussed below in b)) and an extensive historic-period component, consisting primarily of the remnants of early mining, farming, and settlement activities but also including the historic 29 Palms Inn, roughly 0.3 mile east of the project. Site 36-004199, also designated as a Point of Historical Interest, represents the Chemehuevi Cemetery and is located approximately 200 feet from the northeastern corner of the project.

Starting from the 1920s, residential and small commercial properties were established in the project area; all but three properties were removed before 2008. The three remaining residential properties in the project area were all developed between 1940 and 1960, one of them with three separate residences and another with a detached garage. The field survey identified the three properties (five buildings in total) on the project area and recorded them into the California Historical Resources Inventory, along with four historic-period archaeological sites, a prehistoric isolate, and a historic-period isolate (see Table 5).

Table 5
Historical/Archaeological Resources in the Project Area

Temporary Site Designation	Description
3644-1H	Single dump of construction nails
3644-2	Quartz blade tool
3644-3H	Refuse deposit with cans
3644-4H	Refuse scatter with cans and bottles
3644-5H	Glass bottle base
3644-6H	Concrete slab foundation
3644-7H	Residence at 73646 Foothill Drive
3644-8H	Abandoned duplex at 6976 Adobe Road
3644-9H	Three residences at 73591 Sullivan Road and 6943-6955 Yucca Avenue

These nine resources were evaluated in accordance with CEQA statutory and regulatory guidelines. Sites 3644-1H, 3644-3H, and 3644-4H consist of small refuse deposits of unknown historical background, which constitute the most common type of historic-period sites in the southern California desert region. In the absence of any documented association and exceptional quantity or quality of the artifacts, these sites do not hold the potential for any important archaeological data and thus do not appear to meet any of the criteria for listing in the California Register of Historical Resources, nor qualify as “historical resources” under CEQA. Isolates 3644-2 and 3644-5H do not qualify as archaeological sites due to the lack of contextual integrity and thus are not considered potentially eligible for listing in the California Register of Historical Resources. Site 3644-6H lacks integrity to relate to any persons or events in the history of the property and does not constitute a substantial artifact deposit and does not appear eligible for the California Register of Historical Resources. The five residences recorded at Sites 3644-7H to 3644-9H were all constructed in the mid-20th century, are not associated with any historic theme or event, or with any prominent architects, designers, or builders. Sites 3644-7H to 3644-9H do not appear eligible for listing in the California Register of Historical Resources

In conclusion, none of the nine historical/archaeological resources recorded within the project area meet the definition of "historical resources," as provided by CEQA. Therefore, the project will have no impact on any historical resource as defined in CEQA Section 15064.5.

b) **Less Than Significant Impact with Mitigation Incorporated.** On July 23, 2020, CRM TECH submitted a written request to the State of California Native American Heritage Commission (NAHC) for a records search in the Commission's Sacred Lands File. NAHC reported unspecified Native American cultural resource(s) in the project vicinity. Following the NAHC's recommendations and previously established consultation protocol, CRM TECH contacted a total of eight Native American representatives in the region in writing for additional information on potential Native American cultural resources in the project vicinity. CRM TECH also included the Twenty-Nine Palms and Morongo Bands of Mission Indians in the field survey.

Four of the tribes responded to CRM Tech's request for information. The Quechan Tribe had no comments on this project. The Agua Caliente Band of Cahuilla Indians requested tribal review of all cultural resource documentation generated for the project and Native American monitoring during ground-disturbing activities. The Twenty-Nine Palms Band confirmed that the tribe considered the project location to be culturally sensitive due to its location between the Twenty-Nine Palms Indian Reservation and the burial grounds. The San Manuel Band stated that the project area overlapped a Sacred Lands File for the Oasis of Maara, which the tribe considers to be the creation site of all Serrano people. The tribe further noted the location of the cemetery near the project location, which contains both Serrano and Chemehuevi burials. The Tribe pointed out that there are numerous unmarked burials that have not been located and may potentially be present beyond the current limits of the cemetery and expressed concern about the impacts of the project.

As noted, the project area lies in close proximity to the Oasis of Maara (Site 36-002052) and the Chemehuevi Cemetery (Site 36-004419), both of which are designated as Points of Historical Interest by the State of California. The Oasis of Maara is one of the most important prehistoric sites in the Mojave Desert region with a long history of Native American activities throughout the prehistoric, protohistoric, and historic periods, including as the creation site in Serrano legends. The cemetery contains known burials of both Chemehuevi and Serrano tribal members, and human remains are always of the utmost cultural significance to the local Native American community. In light of the presence of these sites in close proximity to the project, the project area is considered to be highly sensitive for subsurface deposits of Native American cultural remains. In order to assure that these impacts are mitigated, the project archaeologist recommended several mitigation measures, which are provided below. Mitigation Measure CUL-1 requires that non-invasive investigations be conducted in undisturbed areas of the project site, in consultation with the San Manuel and other Serrano and

Chemehuevi Tribal members. Mitigation Measure CUL-2 requires that the project's ground disturbing activities be monitored by an archaeologist and Tribal monitors. Mitigation Measure CUL-3 requires that educational displays be incorporated into the park's design, to highlight the cultural history of the area. These measures, together with the findings and recommendations that result from measure CUL-1, will reduce the impacts associated with archaeological resources to less than significant levels.

Additionally, the City has undertaken independent consultation under AB 52, which is ongoing (see Section XVII). The City to date has received email correspondence in response to this consultation from the San Manuel Band of Mission Indians.

c) Less Than Significant Impact with Mitigation Incorporated. Given the project's close proximity to the Chemehuevi Cemetery (Site 36-004419) and that unknown or unmarked burials may be located outside the current cemetery boundary, the project would have the potential to disturb human remains. Further archaeological investigations as detailed in Mitigation Measure CUL-1 should reveal the likelihood of the presence of human remains on the project site and determine if additional steps should be taken to avoid and/or mitigate any potential impacts. In addition, should human remains be found on the site during monitored ground disturbing activities, California law requires that all activity stop, that the coroner be notified to determine the nature of the remains and whether Native American consultation is needed. Compliance with requirements of law and incorporation of Mitigation Measures CUL-1 and CUL-2 will ensure any potential impact to human remains will be less than significant.

Mitigation Measures:

CUL-1 Non-invasive archaeological investigations utilizing such techniques as ground-penetrating radar or LiDAR (light detection and ranging; laser imaging, detection, and ranging) should be completed in the project area prior to any ground disturbances. The scope of these investigations should be focused on relatively undisturbed areas that will be subject to substantial ground disturbance during the proposed project, and should be determined in cooperation and collaboration with the San Manuel Band of Mission Indians and other interested Native American groups of Serrano and/or Chemehuevi heritage. The recommendations resulting from this investigation will be implemented in project design and grading plans as needed.

CUL-2 An archaeological and a Tribal monitor shall be on site for all earth moving activities on the project site, including grubbing, grading, trenching and scraping. The monitors shall be empowered to temporarily stop construction activities, or redirect them to another part of the site while the resource(s) is investigated. The monitors shall promptly assess the resource, determine its significance, and record each resource as required. All resources shall be documented and curated with a cultural resource repository acceptable to the Serrano or Chemehuevi Tribal members participating in monitoring.

CUL-3 The design of the park's educational displays shall include display(s) relating to the cultural history of the Serrano or Chemehuevi, the importance of the area to these peoples, and the history of the area.

Monitoring:

CUL-A Prior to any ground disturbing activity on the site, the City shall prepare and implement a plan for non-invasive investigations of portions of the site, in cooperation with consulting Tribes. The results of the investigation, and any recommendations associated with it, will be incorporated into grading, trenching and excavation plans. A report of findings shall be provided to the City and consulting Tribes within 30 days of completion of the on-site investigation.
Responsible Parties: Project archaeologist, Consulting Tribes, Planning Department.

CUL-B Prior to the issuance of a grading permit for the project site, an archaeological monitoring program shall be provided to and approved by the City, and representatives of the consulting Tribes and implemented during earthmoving operations. Within 30 days of the completion of ground disturbing activities on the project site, a report of findings shall be filed with the City.
Responsible Parties: Project archaeologist, Consulting Tribes, Planning Department.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	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?			X	
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			X	

Source: Twentynine Palms General Plan (2012).

Environmental Setting

Nuclear energy, fossil fuels (e.g. oil, coal and natural gas) and renewable sources (e.g. wind, solar, geothermal and hydropower) are various sources of energy. The electrical energy to the City is provided by Southern California Edison (SCE). Natural gas service is provided to the City by Southern California Gas Company (SoCalGas). Natural gas is mainly utilized for water heaters and heating of homes, as well as a broad range of commercial and industrial equipment. In areas where natural gas is not available, propane gas, stored in on-property tanks, is also utilized. Both SCE and SoCalGas offers various programs and incentives for all users to help reduce energy consumption.

Discussion of Impacts

a, b) Less Than Significant Impact. The proposed project will utilize energy resources during both construction and operational activities. Construction related energy demand comes from operation of construction equipment and manufacturing of construction materials. The proposed project consists of a City park and renovation/expansion of a community theater that will be used occasionally for performances. Therefore, operational energy demand will be limited, primarily from building and site lighting, HVAC systems, and theater and stage equipment. Because of the limited number of structures involved in the park project, use of energy is also expected to be limited.

Park structures and addition to the theater building will be constructed in accordance with the Building Code, California Green Building Code, and Energy Code in effect at the time that development occurs, to ensure the most efficient construction/building technologies are used, which will benefit overall park and theater operations, ensure energy efficiency, and reduce wasteful and unnecessary consumption of energy resources. These requirements of law assure that the renovated theater building and park structures on the site will not waste energy.

SCE has actively engaged in renewable power generation and procurement, administers a variety of energy efficiency programs, and encourages rooftop solar energy. The City's General Plan promotes sustainable practices in land use, use of buildings and for development and construction. The project will comply with the zero net energy requirement by 2030 for new commercial buildings in the 2019 California Building Code and will not interfere with any state or local plan that promotes renewable energy or energy efficiency.

Adherence to the applicable state standards enforced by SCE and SoCalGas will ensure the development is consistent with current energy standards and conservation goals laid out in the City's General Plan (2012). Therefore, impacts related to energy will be less than significant.

Mitigation Measures: None required.

Monitoring: None required.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
VII. GEOLOGY AND SOILS -- Would the project:				
a) Expose people or structures to 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?			X	
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?			X	
iv) Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?			X	
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?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X	
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?			X	
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X	

Sources: Twentynine Palms General Plan Update (2012); City of Twentynine Palms General Plan Update Draft Environmental Impact Report (2010).

Environmental Setting

The City is located within a wedge-shaped fault block known as the “Mojave Block.” The Mojave Block is located at the junction of two district geomorphic provinces: the Eastern Transverse Ranges Province, a region of low to moderately high mountains that include Joshua Tree National Park, the Little San Bernardino Mountains, the Pinto Mountains, and several ranges to the southeast; and the Mojave Desert Province, an arid region of alluvial fans, expansive desert plains, dry lakebeds and scattered mountain ranges. The

Mojave Block is bounded by the Garlock Fault to the north, the San Andreas fault system to the west and southwest, and the southern Death Valley fault zone, Granite Mountains, and Packard Well faults to the east.

In the Twentynine Palms area, the trace of the Pinto Mountain Fault is recognized by a pressure ridge and divides into two splays. The northern splay of this fault is mostly buried by Quaternary valley fill but emerges where it joins the west splay of the Mesquite Lake Fault east of the City limits.

The region is susceptible to a range of geologic hazards, including ground rupture, major ground shaking, slope instability, and collapsible and expansive soils.

Soils

Soils in the City range from wind-blown sand and Playa sands on the valley floor, to igneous and metamorphic rock in the surrounding mountains. The project site contains coarse sandy soils typical of alluvial fans, which in this case have been transported by wind and storm sheet flow from the nearby mountains to the south. The project area is relatively flat, and occurs at an elevation of about 2,020 feet above mean sea level.

Discussion of Impacts

a) i) **Less Than Significant Impact.** In the City of Twentynine Palms, two main faults and several secondary faults are identified by the State of California under the criteria of the Alquist-Priolo Act. The two main fault zones bisect the City: Pinto Mountain fault in a westerly direction and Mesquite Lake fault in a southeasterly direction. Secondary faults to these include several short traces both north and south of the main trace of the Pinto Mountain fault, and the Airfield and East Airfield faults to the east of the Mesquite Lake fault. All of these faults are potential sources of strong ground shaking and surface fault rupture.

According to the General Plan Safety Element and Land Use Element (Exhibit LU-6), Pinto Mountain fault runs north of the project site within a distance of approximately 1,000 feet, and the Alquist-Priolo Fault Zone is just north of the project site. Since the project site is not located within any fault zone, fault rupture is not expected on the site. Any potential impacts associated with fault rupture from the nearest Pinto Mountain Fault Zone are expected to be less than significant on the project site.

ii) **Less Than Significant Impact**. The project site is located in a seismically active region where local and regional faults can produce severe ground shaking. The two main faults crossing the City, Pinto Mountain fault and Mesquite Lake fault, have the potential of generating earthquakes of up to 7.3 magnitude on the Richter scale. The project proposes a City park and renovation of a community theater, which consist of primarily open area serving outdoor uses except for the one-story theater and restrooms in the park. The proposed park restrooms and expansion of the theater building will be required to be constructed in accordance with the most

recent edition of the California Building Code (CBC) and City's Municipal Code Section 18.01.020 to provide collapse-resistant design. The Municipal Code includes modifications to the CBC adopted by the City in accordance with local geology. Compliance with the CBC and City regulations will ensure that project-related impacts associated with seismic ground shaking will be less than significant.

iii) **Less Than Significant Impact with Mitigation Incorporated**. Earthquake shaking can cause several types of ground failure including liquefaction and related hazards, collapse and slope failure (see subsection (iv) below).

Liquefaction typically occurs within 50 feet of the ground surface, in areas where fine- to medium-grained sandy to silty soils and shallow groundwater occur together. Lateral spreading, a type of liquefaction-induced failure, is the lateral displacement of surficial blocks of soil atop a liquefied layer often described as shallow landslides. The General Plan has identified areas where ground failure could occur in the Liquefaction Susceptibility Overlay (Exhibit LU-6) and requires that site-specific geotechnical studies to assess the potential for ground failure be provided prior to project approval in this overlay. The northeast portion of the site is located at the south end of the Liquefaction Susceptibility Overlay, which identifies areas where local geological and groundwater conditions suggest a potential for liquefaction (Exhibit SF-1). This portion of the site currently includes the existing theater and parking lot, and is proposed with the addition to the theater building, future park restrooms, children's playground, part of the walking trails/running loop, as well as part of the arroyo and a large filtration area. In order to assure that structures and facilities are designed to mitigate for potential liquefaction hazards, a site-specific geotechnical study will be prepared as part of the preparation of grading and engineering plans, and the project will be designed and constructed following the recommendations in the study (Mitigation Measure GEO-1). Incorporation of the mitigation measure will ensure that impacts associated with ground failure including liquefaction will be reduced to less than significant levels.

iv) **No Impact.** Landslides generally occur in loosely consolidated, wet soil and/or rocks on steep sloping terrain. The project site is located approximately one half mile north of the Queen Mountain foothills. The project site and surrounding area are characterized by relatively flat topography with minimally sloping terrain. The project area is not located within the Hillside Overlay or designated as areas susceptible to hazards associated with slope instability (GP EIR Exhibit 4.6-6). The project proposes grading features including a kite-flying hill (graded mound with average 6.5-feet height) and a bike flow course; however, no steep slopes are proposed, and these graded slopes will meet the minimum engineering standards as required in the Safety Element of the General Plan, and the City Engineer's standards. Given the limited size and area of the proposed grading features, compliance with the standard requirements will ensure that no impact associated with landslides would occur.

b) **Less Than Significant Impact.** The dry, loose, sandy soils forming the alluvial fans occurring in the City is susceptible to erosion from high wind and flooding due to infrequent thunderstorms. This area is impacted, on average, by two to seven windstorm events per year. At buildout, the site will contain additional landscaping, pavement, and buildings, thus minimizing long-term wind erosion potential.

Grading and construction may require removal of the topsoil; however, project-related impacts are expected to be less than significant because the project will be required to implement measures to control fugitive dust (see Air Quality, Section III), which will minimize potential adverse impacts associated with wind erosion. The City requires the implementation of best management practices associated with stormwater flows on the project site, through compliance with NPDES standards as part of the Project-specific Water Quality Management Plan (WQMP, see Section X, Hydrology and Water Quality). These standard requirements assure that erosion resulting from storm flows are controlled on and off site. Overall impacts associated with soil erosion will be less than significant.

c) **Less Than Significant Impact with Mitigation Incorporated.**

Landslide
See response to VII.a.iv, above.

Lateral Spreading
See response to VII.a.iii, above.

Subsidence
Ground subsidence is mostly caused by human activities such as water or oil extraction by pumping. In the Twentynine Palms region, groundwater has been naturally recharged by infiltration of stormwater runoff that percolates into the alluvial sediments. During the last few decades, the rate of groundwater extraction has exceeded natural replenishment, resulting in declining water levels and overdraft of the groundwater supply in more densely populated areas. To remedy this condition, local artificial recharge has been developed; the closest recharge sites to Twentynine Palms are percolation ponds in the Yucca Valley-Joshua Tree area. Subsidence has not been studied or detected as of 2012. The City's General Plan adopted policies to support active recharge of groundwater basins, cooperation with water districts, and water conservation to help maintain groundwater levels and reduce the need to extract from them. Implementation of these City policies will reduce impacts associated with subsidence by maintaining adequate groundwater levels, thereby reducing the potential for subsidence. The General Plan EIR concludes that impacts associated with subsidence will be less than significant in the City.

Liquefaction
See response to VII.a.iii, above.

Collapse

Soil collapse (or hydroconsolidation) typically occurs in Holocene-age soils deposited in an arid or semi-arid environment. When saturated, collapsible soils undergo a rearrangement of their grains and a loss of cementation, resulting in substantial and rapid settlement under relatively light loads. The young alluvial fan and aeolian sediments in the Twentynine Palms area are susceptible to this hazard. General soil stabilization techniques can be applied to mitigate collapsible soil, including over-excavation and soil recompaction. As described above, a site-specific geotechnical study will be prepared (Mitigation Measure GEO-1) as part of the project's engineering plans. Implementation of project-specific recommendations in the study will ensure that impacts associated with collapse or collapsible soils will be reduced to less than significant levels.

d) **Less Than Significant Impact with Mitigation Incorporated.** The majority of the Twentynine Palms area is underlain by silty sand, sand and gravel. Such soils typically have a low expansion potential, although pockets of fine-grained expansive soils may occur. According to the General Plan EIR Geologic and Engineering Soil Types Maps (Exhibit 4.6-2 & 4.6-3), the project site is underlain by young alluvium, which is classified as Site Class E (soft soil profile). The City administers CBC regulations including the requirement of soil testing to determine expansive characteristics for new development and mitigation of expansive conditions. The site-specific geotechnical study will include soil testing and determine if additional measures are needed to mitigate soil conditions (Mitigation Measure GEO-1). Implementation of project-specific recommendations will ensure that impacts associated with expansive soils will be less than significant.

e) **No Impact.** There are currently no sewer facilities in the project area. The project will use septic tanks for wastewater disposal. Restrooms in the theater and at the park will be used intermittently at the theatre, as they currently are, and regularly by park visitors. The project site is underlain by Quaternary Alluvium, as in most of the City, which provides good percolation and is capable of adequately supporting the use of septic tanks and systems. The City requires all development to conduct and submit soils inspections for approval by the Building and Safety Division prior to permit issuance. The inspection is used to evaluate soil capabilities to support the septic system per the California Building Code. In addition, installation of septic tanks and systems for new commercial projects requires soils percolation reports to be submitted, reviewed and approved by the San Bernardino County Department of Environmental Health Services and the Colorado River Basin Regional Water Quality Control Board. Compliance with these standard requirements will ensure that no impact would occur as related to septic tanks.

f) **Less Than Significant Impact with Mitigation Incorporated.** According to the City's General Plan, San Bernardino County, in general, has an extensive record of fossil life starting in Jurassic time, 150 million years ago. Fossilized remains are expected to occur within areas containing finer-grained fluvial, lacustrine, or aeolian deposits. Excavation and other earthmoving activities on the project site within surface and subsurface exposures of Quaternary Alluvium could disturb a

unique paleontological resource. Mitigation Measure GEO-2 requires a paleontological survey before grading, consistent with General Plan Implementation Policy CO-2.10. Therefore, impacts to paleontological resources will be reduced to less than significant levels.

Mitigation Measures:

GEO-1 Prior to issuance of a grading permit, a site-specific geotechnical study should be prepared by a professional geologist to address site-specific soil and geotechnical conditions, including but not limited to liquefaction assessment, soil testing for expansive and other characteristics, and soil inspection and evaluation for capabilities to support the use of septic tanks.

GEO-2 A field survey shall be conducted by a qualified paleontological professional before grading to determine the need for paleontological monitoring. If paleontological resources are discovered during site development, qualified paleontologic personnel shall prepare recovered specimens to a point of identification and permanent preservation. Appropriate specimens shall be identified and curated into the collections of the Division of Geological Sciences, San Bernardino County Museum, in accordance with the Museum's policies.

Monitoring:

GEO-A The Building and Safety Division and the City Engineer shall review and approve the project geotechnical study and ensure that all recommendations therein are incorporated in the project design.
Responsible Parties: Project geotechnical engineer, Building and Safety Division, City Engineer.

GEO-B The City shall review and approve the pre-construction paleontology study prior to the issuance of grading permits, and implement monitoring if determined necessary.
Responsible Parties: Project paleontologist, Planning Department.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	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?			X	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

Sources: City of Twentynine Palm General Plan; San Bernardino County Regional Greenhouse Gas Reduction Plan (March 2014); MDAQMD CEQA and Federal Conformity Guidelines; CalEEMod Version 2016.3.2; project materials.

Environmental Setting

Certain gases in the earth's atmosphere, classified as greenhouse gases (GHGs), play a critical role in determining the earth's surface temperature. The principal GHGs contributing to the greenhouse effect are CO_2, methane (CH_4), nitrous oxide (N_2O), and fluorinated compounds. GHG sources include both natural and anthropogenic processes. Anthropogenic GHG emissions in excess of natural ambient concentrations are responsible for intensifying the greenhouse effect and have led to an overall trend of unnatural warming of the earth's climate, known as global climate change or global warming.

State laws, such as Assembly Bill 32 (AB 32) and Senate Bill 32 (SB 32), require all cities to reduce greenhouse gas emissions to 1990 levels by the year 2020. SB 32 is the extension of AB 32 which requires the state to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030.

In 2014, SANBAG prepared a Regional Greenhouse Gas Inventory and Reduction Plan (March 2014) which included a greenhouse gas inventory and forecast for Twentynine Palms. The City participated in the plan development and set a goal to reduce its community GHG emissions to a level of 15% below 2008 GHG emissions level by 2020. The City is expected to meet and possibly exceed this goal with joint state and local efforts and reduction measures set forth by AB 32. The City's General Plan includes policies and measures to facilitate GHG emission reduction through encouraging alternative transportation, promoting renewable energy, and implementing energy efficient building technologies.

GHG Thresholds

According to the MDAQMD CEQA and Federal Conformity Guidelines, the annual threshold for greenhouse gases is 100,000 tons CO_2e annually, and 548,000 pounds daily. As described above in Section III, Air Quality, the California Emissions Estimator Model (CalEEMod) Version 2016.3.2 was used to quantify project air quality emission projections, including greenhouse gas emissions (Appendix A).

Discussion of Impacts

a, b) Less Than Significant Impact. The proposed project will generate GHG emissions during both construction and operation.

Construction

Construction activities will result in short-term GHG emissions associated with operation of construction equipment, employee commute, material hauling, and other ground disturbing activities. The MDAQMD daily threshold for GHG emissions is 548,000 pounds per day. According to the CalEEMod outputs, daily construction-related GHG emissions would reach a maximum of 11,348 pounds per day, which is substantially below the established threshold. To determine if construction emissions will result in a cumulative considerable impact, buildout GHG emissions were amortized over a 30-year period and added to annual operational emissions to be compared to applicable GHG thresholds (see Table 6, below).

Operation

At buildout, there are five emission source categories that will be contributing either directly or indirectly to operational GHG emissions, including energy/electricity usage, water usage, solid waste disposal, area emissions (pavement and architectural coating off-gassing), and mobile sources. According to the CalEEMod outputs, daily operational GHG emissions would reach a maximum of 519 pounds per day, which is substantially below the established threshold of 548,000 pounds per day. As shown in Table 6, the project will emit a total of 172.12 tons per year which includes annual operational emissions and amortized construction emissions and is substantially below the established threshold of 100,000 tons per year.

Overall, the proposed project would be consistent with local, regional and statewide goals and policies aimed at reducing the generation of GHGs. The proposed project's GHG emissions would not constitute a cumulatively considerable contribution, or conflict with an applicable plan, policy, or regulation for the purposes of reducing the emissions of greenhouse gasses. Impacts would be less than significant.

Table 6
Projected GHG Emissions Summary
(Metric Tons)

Phase	CO_2e (MT/YR)
Construction (2022)	
Construction Total	461.31
Operation	
Construction: 30 year amortized [1]	15.38
Annual Operation	156.74
Total Operation	**172.12**
MDAQMD Threshold	**100,000.00**

1. Buildout construction GHG emissions were amortized over 30 years then added to buildout operational GHG emissions. 461.31/30 = 15.38

Mitigation Measures: None required.

Monitoring: None required.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	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?			X	
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?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
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?				X
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
g) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?				X

Source: Twentynine Palms General Plan Update (2012).

Environmental Setting

Products as diverse as gasoline, paint, solvents, household cleaning products, refrigerants, and radioactive substances are categorized as hazardous materials. The proper management of hazardous materials is a common concern for all communities. Beginning in the 1970s, governments at the federal, state, and local levels became increasingly concerned about the effects of hazardous materials on human health and the environment. Numerous laws and regulations were developed to investigate and mitigate these effects. As a result, the storage, use, generation, transport, and disposal of hazardous materials are highly regulated by federal, state, and local laws and regulations.

The San Bernardino County Fire Department's Hazardous Materials Division oversees and regulates businesses in the City that transport, story or use hazardous materials in larger quantities. The Department of Toxic Substances Control (DTSC) lists 16 large quantity users in the City, primarily businesses located on or near Highway 62. Sites associated with cleanup of hazardous materials in and near the City have been, and currently are those associated with the military installations at the Marine Corps base, north of the City.

Discussion of Impacts

a, b) **Less Than Significant Impact.** The proposed project will result in the expansion of an existing community theater, and the development of a City park. The project can be expected to use small quantities of oils, chemicals and cleaning products during construction and operation. However, these products would not be transported, stored or used in large quantities sufficient to cause a hazard to the public. The project will not result in the release of hazardous materials, as no such materials will be required for the operation of the theater or the park.

The construction phase would involve the use of heavy equipment, which uses small amounts of oil and fuels and other potential flammable substances. During construction, equipment would require refueling and minor maintenance on site that could lead to fuel and oil spills. Impacts associated with the use of oils and chemicals during the construction process will be regulated by State OSHA requirements, insofar as the contractor will be required to establish, maintain and restore staging areas and work zones throughout the construction period. These requirements also include the preparation of response plans and policies in the event of a spill of oils or other products during construction activities. These regulations, along with the relatively small quantities of cleaning products that will be used during the operation of the theater and park, will result in less than significant impacts associated with the use, transport or storage of hazardous materials.

c) **No Impact.** The closest school to the project site is Palm Vista Elementary School, located approximately 0.95 mile southeast of the site. The project will not result in hazardous emissions, and is not located within ¼ mile of a school. No impact will occur.

d) **No Impact.** With the exception of the existing theater, the project site is currently vacant. Several single family residences occur immediately adjacent to the project area. The project site is not listed on governmental databases as a hazardous materials cleanup site, nor are any such sites located in the vicinity of the proposed project. No impact would occur.

e) **No Impact.** Twentynine Palms Airport is located more than 6 miles northeast of the project site. The project is not located within the boundary of the airport's land use plan, nor is it affected by noise from airport activities. No safety hazard will result, nor will excessive noise be experienced by users of the park or the theater as a result of airport operations. No impact will occur.

g) No Impact. The proposed project includes the expansion of an existing community theater, and the development of a new public park. The theater currently takes access from Sullivan Road, and will continue to do so after its expansion. The park will use the theater parking area and a parking lot at the southeast corner of the project for vehicle parking and access. Sullivan Road is a paved City roadway which connects to the City's primary north-south roadway, Adobe Road. Neither the theater expansion nor the park will affect the City's street grid, and as a result will not impact emergency response or evacuation plans. No impact would occur.

g) No Impact. The General Plan identifies the project site as being in a Local Responsibility Area and a Moderate Fire Hazard Zone. The site is not located adjacent to forested areas, and the slopes of the mountains to the south of the project site do not support significant vegetation. The site is not in a High Severity Fire Zone, and will therefore not be impacted by wildfires.

Mitigation Measures: None required.

Monitoring: None required.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	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?			X	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	
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;			X	
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site;			X	
(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			X	
(iv) impede or redirect flood flows?			X	
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			X	
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?				X

Sources: Twentynine Palms General Plan; Amended Final Urban Water Management Plan for Twentynine Palms Water District (TPWD), December 2016; U.S. Department of the Navy and U.S. Marine Corps, 2015; Twentynine Palms Wastewater Master Plan (2014).

Environmental Setting

Domestic Water

Twentynine Palms Water District (TPWD) manages and distributes the local ground water supply in the City of Twentynine Palms and portions of the surrounding unincorporated areas of San Bernardino County. The District's water service area spans 87 square miles, maintaining 200 miles of pipeline and 17 million gallons of water storage capacity. The

District's water supply source is 100 percent local groundwater extracted from four sub-basins south of the Pinto Mountain Fault, which are fed by rainfall in the Pinto Mountains. The District overlays portions of the Indian Cove, Eastern and Fortynine Palms sub-basins of the Joshua Tree Basin, and part of the Twentynine Palms Valley Basin.

As an urban water supplier, TPWD is mandated to prepare an Urban Water Management Plan (UWMP) per the California Water Code, undertaking water supply planning over a 20-year period in five year increments by analyzing existing and projected water supply opportunities including recycled water for existing and future demands, in normal, single-dry and multiple-dry years, and implementing conservation and efficient use of urban water supplies.

The project will result in a 21.59-acre city park and expansion of a community theater. State Water Code Section 10910(a) states that any city or county that determines that a "Project," as defined in Water Code Section 10912, shall prepare a water supply assessment. The threshold defined by the Water Code is 500 dwelling units, 500,000 square feet of commercial development, or any project with a water demand in the equivalent of 500 dwelling units. The project water demand is analyzed below, and does not require the preparation of a water supply assessment.

Wastewater Treatment

The only Wastewater Treatment Plant (WWTP) in the region is located at the Marine Corps Air Ground Combat Center (MCAGCC). The facility treats all wastewater generated from the Mainside area of the MCAGCC. The City, including the project area, does not have a sanitary sewer system and currently operates with septic tanks.

In 2014, the City prepared a Wastewater Master Plan to identify and describe the potential facilities that would be required for a centralized sewer collection system and wastewater treatment plant to replace the septic systems in use. A new centralized system is envisioned to include the City and surrounding unincorporated areas. The City is currently initiating the planning and layout of the sewer system, but sanitary sewage in the City will not be available to the project area in the near term. As a result, the proposed project will operate on septic tanks.

Flood Control/Drainages

The City, including the project site, is located in the southern Mojave Desert. With an average precipitation of 5 inches per year, the area sees infrequent thunderstorms that can cause flooding in the City.

Twentynine Palms Channel, the only major drainage structure in the City, was designed and constructed to protect the central business district and downtown area. The natural major drainages of Fortynine Palms Canyon, Twentynine Palms Wash, Indian Cove and Dog Wash, as well as small unnamed drainages in the Pinto Mountains can carry flash floods and impact downstream development in the City.

The San Bernardino County Flood Control District (SBFCD) is responsible for managing regional drainage within and in the vicinity of Twentynine Palms. The City works with SBFCD to manage local drainages in the City, which are divided between well-defined

drainage courses (some have been channelized) and areas of wide sheet flow. Development that may alter the direction of flow onsite are conditioned per standard San Bernardino County practices to maintain the existing site drainage patterns at inlets and outlets.

The project site will be subject to City requirements relating to flood control. The City implements standard requirements for stormwater retention and participates in the National Pollution Discharge Elimination System (NPDES) to protect surface waters from pollution. Development projects must retain the 100-year storm flow onsite.

Water Quality

Water quality is regulated by multiple agencies, depending on the source. The TPWD implements the standards of the Regional Water Quality Control Board (RWQCB) in its distribution of domestic water. The RWQCB also regulates septic tanks, to protect the groundwater basin from pollution from those sources.

Surface water quality in the region is largely under the influence of land uses that affect runoff, such as urban, and industrial uses. Runoff from stormwater can transport pollutants that collect on the ground surface and affect water quality of receiving streams, rivers, and channels.

Description of Impact

a) **Less Than Significant Impact.** All water providers are required to comply with Regional Water Quality Control Board (RWQCB) standards for the protection of water quality and local aquifers. The City and RWQCB impose requirements for surface water protection, including the preparation of site-specific Water Quality Management Plans for surface waters.

The proposed theater expansion will generate demand for domestic water, while the park will generate demand at the proposed restrooms and for limited landscaping irrigation. Construction of on-site connections will be subject to all standard requirements by TPWD. Currently, only the northeast corner of the project site is developed with the existing theater that operates on septic tanks. No sanitary sewer service or infrastructure is available within the site vicinity. Wastewater generated in and around the project will be treated in septic tanks and discharged to the ground, leading to a potential increase of nitrates in groundwater. The proposed park and theater expansion are expected to operate with septic tanks until such time as regional sanitary sewer service becomes available.

The proposed project will be required to comply with TPWD and RWQCB regulations to minimize the polluted load associated with urban activities. By complying with these standards, the proposed project will not violate water quality standards or waste discharge requirements. The imposition of conditions of approval and adherence to local, state and federal requirements will ensure that impacts associated with water quality standards are less than significant.

b) **Less Than Significant Impact.** The proposed addition to the theater will remain connected to existing water infrastructure that serves the existing building. The park will require water for the restrooms and the irrigation of park landscaping, although the design proposes a very low-use landscape palette that is highly drought tolerant. Table 7 provides a conservative analysis of project water demand at buildout, which is approximately 5.03 million gallons per year. As shown in Table 7, the project water demand is significantly lower than that generated by 500 dwelling units (25.19 million gallons per year), and therefore, does not meet the threshold defined by the Water Code Section 10912 for the preparation of a water supply assessment.

In order to prevent overdrafting, the California Department of Water Resources (DWR) has recommended pumping limits for both the Fortynine Palms and Indian Cove subbasins, which results in an overall limited pumping capacity at 6,995 acre-feet per year (AFY). Existing pumping in 2015 (2,404 AFY) represents approximately 30% of the total pumping capacity. The total water demand of the proposed project is 5.03 million gallons per year, equivalent to 15.44 AFY. The project will increase pumping by approximately 0.6% over the 2015 baseline level, and will represent approximately 0.2% of the limited pumping capacity recommended by DWR. The amended 2015 UWMP demonstrates that the District has adequate supplies to meet demands during normal, single-dry, and multiple-dry years throughout the 20-year planning period. In addition, there is sufficient production capacity planned to meet projected future demands with the actions the TNWD is taking to maintain supply availability.

The project will harvest and reuse rainwater using a cistern (underground steel tank) with 30,000-gallon capacity, further reducing water demand. Project impacts on groundwater supplies and recharge are expected to be less than significant.

Table 7
Project Water Demand Projections

Land Use	Area/Quantity[1]	Water Demand Factor[2] (gallons per day per unit area/quantity)	Annual Water Demand (million gallons)
Soccer field (turf)	70,000 square feet	0.163	4.17
Native trees	6,975 square feet (31 trees)	0.053	0.13
Native desert landscaping	17500 square feet	0.053	0.34
Picnic	50 picnickers	20	0.37
Theatre 29 (expansion)	61 Seats	5	0.02
Total	-	-	**5.03**
Residential development	500 dwelling units	138	25.19

[1] Area/Quantity based on project materials and reasonable assumptions to provide a conservative analysis: a) each tree takes up 225 square feet of space, b) the picnic area will have 50 picnickers per day, c) Theatre 29 will hosts a performance each week with a full house.

[2] Water demand factors for irrigation use developed by ACI irrigation. Water demand factors for picnic and Theatre 29 are based on factors developed for similar uses by American Water Works Association. Water demand factor for residential development is developed by The Water Research Foundation.

c i)- iii) Less Than Significant Impact. The project site is generally flat and contains no rivers or streams. The project biological resources study and jurisdictional delineation identified seven small, dry, braided desert washes on the site. Recent road maintenance along Adobe Road added a berm of sand approximately 3 feet tall along the western edge of the road on the easterly project boundary. Because of the berm, the mapped washes do not currently flow off the site.

Development of the proposed park facilities and theater expansion will increase impermeable surfaces onsite, and would have the potential to increase on-site storm flows.

The project is designed to retain the 100-year storm flow on site. A central arroyo—a stormwater swale with dry-stacked stone walls – is proposed roughly in line with the existing desert washes and drainage pattern (generally southwest to northeast). The site will be graded to gather stormwater in the arroyo, along which check dams at roughly every 100 feet will slow the stormwater flow and allow it to recharge the aquifer through a series of biofiltration demonstration gardens of native plants. A larger infiltration area is located at the toe of the arroyo in the northeast corner, the low-point of the site, to ensure stormwater remains on site and does not increase runoff in downstream or off-site locations.

The biofiltration techniques to be applied on the project site will reduce impacts associated with pollutants and polluted runoff to less than significant levels. The park design maximizes permeable areas, and impermeable surfaces are limited to parking lot, restrooms, stage (at amphitheater), basketball/tennis courts, and portions of the trail and playground, which total approximately 2.6 acres, or 12% of the project area. The project will not result in substantial erosion or siltation on- or off-site, nor will it increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site. In addition, the proposed project will be required to comply with the City's requirements as they relate to stormwater retention, including a Water Quality Management Plan. Implementation of these standard requirements will further ensure that project impacts associated with runoff will be less than significant.

iv) Less Than Significant Impact. According to FEMA's Flood Insurance Rate Maps, the southeastern portion of the project site is located within Zone D, which corresponds to unstudied areas where flood hazards are undetermined, but flooding is possible. The remaining bulk of the site is located within Zone X, which corresponds to areas outside of the 100-year flood, areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile, or areas protected by levees from 100-year flood. The project will consist of primarily open area at buildout. As described in subsection (iii) above, the project will be designed to include an arroyo that will direct storm flows through the site in the same area as they currently occur, and infiltration will be implemented at the northeast corner of the site, to control storm flows. As a result, implementation of the proposed onsite drainage retention facilities will further ensure that the project will have less than significant impacts on impeding or redirecting flood flows.

d) **Less Than Significant Impact.** The project site is not located in the vicinity of a water body, a levee or a dam. The City is located inland and would not be subject to tsunami. No hazard from dam failure, tsunami or seiche is possible. As discussed above, the project site is not located within a 100-year floodplain. Impacts due to project inundation would be less than significant given the low likelihood of inundation in the project area.

e) **No Impact.** The proposed project will be required to comply with all applicable water quality standards and will implement a WQMP approved by the City and the Regional Water Quality Control Board for both construction activities and long-term operation of the site. The proposed project is less intense than the uses allowable under the General Plan land use designations and will generate a lower water demand than addressed in the UWMP. Therefore, it will not conflict with a sustainable groundwater management plan. Adherence to the City's standard requirements related to water quality will ensure there will be no impact to a water quality control plan.

Mitigation Measures: None required.

Monitoring: None required.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
XI. LAND USE AND PLANNING - Would the project:				
a) Physically divide an established community?				X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X

Sources: Google Earth; City of Twentynine Palms General Plan; project materials.

Environmental Setting

The City's General Plan designates the project site as Public and Service Commercial. The City operates on a "one map" system, meaning that the General Plan designations are also utilized as zones in the Development Code. The Public designation, which applies to those portions of the site to be developed as a park, allow for a broad range of public facilities, including City parks. The Service Commercial land use designation allows a broad range of commercial and quasi-industrial uses, including theaters.

Discussion of Impacts

a) **No Impact.** The project site is currently vacant, with the exception of the existing theater, which will remain. The City is acquiring parcels adjacent to the City-owned parcel only from willing sellers, and these parcels are vacant. The proposed project will not therefore result in the division of an existing community, and will instead offer a community amenity to the south side of the City and its residents. No impact would occur.

c) **No Impact.** The proposed project will result in the expansion of the existing community theater, and the construction of a new park. Both components of the project are designated for the uses proposed. The park will be developed to include a range of facilities, including courts and fields for multiple sports, passive and active recreation areas, and community events. The theater will be expanded, but will continue to operate as a community theater. The project is consistent with General Plan Implementation Policies LU-3.10 and 3.11, which both encourage the creation, preservation and maintenance of recreational facilities.

Both components of the project will be developed consistent with the City's Development Code, Building Code and engineering standards. The proposed project, therefore, will not conflict with any land use plan, policy or regulation of the City, and will not impact such plans.

Mitigation Measures: None required.

Monitoring: None required.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	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?			X	
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?				X

Sources: Google Earth; City of Twentynine Palms General Plan.

Environmental Setting

The City is not identified as a mineral resource area of significance, although mining has occurred in and around the City in its history. The General Plan uses the State's mineral resource designations to determine the potential for mineral resources to exist in any given area.

Discussion of Impacts

a), b) No Impact. The project site is designated in the General Plan for Public and Service Commercial land uses, and is surrounded by properties identified for urban uses. The project area is not, nor has it been in the past, a mining site. There are no mines located in the vicinity of the project. The use of the project site as a park and community theater will have no impact on mineral resources.

Mitigation Measures: None required.

Monitoring: None required.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
XIII. NOISE - Would the project result in:				
a) Generation of 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?			X	
b) Generation of excessive groundborne vibration or groundborne noise levels?			X	
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?				X

Sources: Google Earth; City of Twentynine Palms General Plan.

Environmental Setting

The main sources of noise in an urban environment include road traffic, aircraft, railroads, construction, industry, noise in buildings, and consumer products. According to the United States Environmental Protection Agency (US EPA), in any city, the main sources of traffic noise are the motors and exhaust systems of autos, trucks, buses, and motorcycles. Temporary noise sources include landscape maintenance activities, home stereo systems, and barking dogs, and are governed by the provisions of the City Noise Ordinance (Chapter 19.74).

The City has established goals, policies, and programs to limit and reduce the effects of noise intrusion on sensitive land uses and set acceptable noise levels for varying types of land uses in its General Plan. The City uses the Community Noise Equivalent Level (CNEL) to guide acceptable noise levels in the community. The CNEL scale establishes acceptable noise levels for low density, single family homes at 50 to 60 dBA, and conditionally acceptable levels at 55 to 70 dBA. For parks, conditionally acceptable noise levels range from 50 to 70 dBA. The CNEL scale represents an average of noise levels over a 24 hour period, and is weighted for the quieter evening and nighttime periods.

The project site occurs in the south end of the City, in an area that currently experiences low noise levels of 60 dBA CNEL or less. The General Plan further determined that at build out, the noise levels will remain in this range in this area.

Discussion of Impacts

a) **Less Than Significant Impact.** With the exception of the existing theater, the site is currently vacant and therefore does not generate significant noise levels. The theater generates periodic noise from rehearsals and theater events, which are primarily associated with the arrival and departure of patrons, since theater activities are conducted indoors. With development of the project, noise levels will increase during construction, and over the life of the project.

Temporary Construction Noise

The development of the park and the expansion of the theater will result in temporary construction noise generated from the site. The highest noise levels can be expected to be generated by heavy equipment, such as graders, bulldozers and similar vehicles during the demolition phase of the theater, and the grading phase of the park. Heavy equipment can generate noise levels ranging from 70 to 90 dBA at a distance of 50 feet from the source. This equipment, however, will be mobile and will not create a source of constant noise at any one location on the site.

The Municipal Code exempts construction activities from short-term, short-duration noise standards when they are conducted during permitted time frames. The project would be required to comply with the City's Municipal Code construction hours, between 7 a.m. to 7 p.m. excluding Sundays and Federal holidays. From May through September, construction activities are allowed to begin at 6 a.m.

The theater is surrounded by vacant land to the west, east and south. A commercial/quasi-industrial business occurs to the north. Two single family homes occur approximately 500 feet west of the theater building. The demolition of a portion of the theater and expansion of the building and parking lot area will therefore occur away from sensitive receptors. Noise attenuation of 6 dB can be expected with doubling of distance, so the single family homes would be expected to experience noise levels of 50 to 60 dBA can be expected at the residential units to the west of the theater during construction activities. Park development will consist primarily of grading, land forming, and some paving or concrete pouring for sports courts, restrooms and other hard surfaces. During park construction activities, the homes to the west, as well as the home located on the south boundary of the project, could experience short term noise levels of up to 80 dB. These noise levels, however, will not be sustained, will occur during the less sensitive daytime hours, and are exempted from the City's noise ordinance.

In conclusion, although the project's construction could generate short term isolated increases in noise to surrounding sensitive receptors, these impacts would be less than significant.

Operational Noise Impacts

The proposed project will result in the expansion of the existing theater, and the development of a community park that will include playgrounds, activity and sports areas, an amphitheater and trails. Theater operations will continue to be indoors, and would be expected to continue to generate primarily traffic noise, from patrons, staff and performers arriving and departing. These noise levels are temporary, periodic, and do not exceed City standards, either for short-duration or CNEL noise levels. The operation of the park will also generate traffic noise from people accessing the park, and noise from park activities. In both cases, because the area currently experiences very low ambient noise levels, because activity levels will be primarily during the daytime hours, and because these noise levels are not expected to increase substantially at build out of the General Plan, the park operational noise levels are not expected to raise the area's noise levels to exceed the City's standard of 65 dBA CNEL for adjacent residential development. Impacts associated with the build out of the project and its ongoing operation are expected to be less than significant.

b) **Less Than Significant Impact.** The operation of the theater and park will not generate groundborne vibration. Construction activities, however, could generate temporary and short term vibration from the use of heavy equipment. Groundborne vibration also produces groundborne noise, described as a rumbling sound, that can be heard and felt by adjacent uses. Construction of the proposed project would not require the use of equipment such as pile drivers, which are known to generate substantial construction vibration levels. The highest degree of groundborne vibration would be generated during the paving phase of construction due to the operation of a vibratory roller.

Based on Federal Transit Administration (FTA) data, vibration velocities from vibratory roller operations are estimated to be approximately 0.1980 inch-per-second PPV at 26 feet from the source of activity. As such, structures located greater than 26 feet from vibratory roller operations would not experience groundborne vibration above the Caltrans significance thresholds (i.e. 0.3 inch-per-second PPV for structures and 0.2 inch-per-second PPV for human annoyance). As the nearest existing structures are located approximately 70 feet from any location within the Project boundary where a vibratory roller may be used (such as in preparation for paving playground areas), the Caltrans significance thresholds would not be exceeded. Therefore, impacts would be less than significant.

c) **No Impact.** The proposed project is located more than 6 miles west of the Twentynine Palms Airport, and well outside the noise contours of the airport. The airport will have no impact on noise levels at the proposed project.

Mitigation Measures: None required.

Monitoring: None required.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
XIV. POPULATION AND HOUSING – Would the project:				
a) Induce substantial 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)?				X
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

Sources: Google Earth; City of Twentynine Palms General Plan.

Environmental Setting

In 2019, the City had an estimated population of 28,958 persons, up from 25,048 on 2010 – a 15.6% increase. The City also has 9,431 housing units, consisting primarily of single family homes.

The project area occurs in the south end of the City, near the boundary of Joshua Tree National Park. Development densities proposed for this part of the City will result in single family homes on 1 and 2 acre lots to the east and south, and service commercial uses to the north and west.

Discussion of Impacts

a-b) No Impact. The project site is currently vacant, with the exception of the existing theater, which will be expanded as a result of the project. The project will result in a new park in the City, which is consistent with the General Plan's goal to improve and expand recreational facilities and parks for City residents. The proposed project will not require the expansion of existing utilities, or the creation of new roads in the area. The park and theater both will provided added community-oriented services to existing residents, and to new residents as the City grows.

The project will not induce growth, insofar as it provides an amenity to residents, but does not encourage or necessitate additional development.

The proposed project will not induce growth or displace existing people or housing. No impacts associated with population or housing will result from the proposed project's implementation.

Mitigation Measures: None required.

Monitoring: None required.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	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?			X	
Police protection?			X	
Schools?				X
Parks?				X
Other public facilities?				X

Sources: City of Twentynine Palms General Plan; Google Earth Pro 7.3.2.5491; Online Resources; Project materials.

Environmental Setting

Fire Protection

The San Bernardino County Fire Department (SBCoFD) is responsible for fire protection within the City. SBCoFD operates 67 fire stations in 24 cities and covers approximately 19,278 square miles in the County. SBCoFD has a staff of about 1,017 county firefighting personnel and 654 fire suppression personal available during each 24-hour period. The nearest fire station to the project site is Station# 44 at 6560 Adobe Road, approximately ½ mile north of the subject property.

Police Protection

The San Bernardino County Sheriff's Department is responsible for law enforcement in the City. A local police station operates out of City Hall at 6135 Adobe Road, approximately ¾ mile north of the project site. The main police station is located at 6527 White Feather Road in Joshua Tree, approximately 15 miles west of the project site.

Schools

The City and the project site are located within the boundaries of the Morongo Unified School District (MUSD), which provides public school facilities to accommodate students. The MUSD currently operates eighteen schools within its district, which stretches beyond Twentynine Palms to Yucca Valley and Morongo Valley. The nearest school to the project site is Palm Vista Elementary School, located approximately 0.95 miles southeast of the project.

Parks

There are a total of five existing parks (i.e. Bucklin Park, Luckie Park, Knott's Sky Park, Pioneer Park, and Veteran's Park) in the City. The City's other major recreational facilities include Theatre 29, which is part of the proposed project, the Senior Community Center, Parks and Recreation Community Services Building, and Parks and Recreation Administration Building. The proposed project will add a community park to the City's park and recreation opportunities and serve residents in the south of the City.

Discussion of Impacts

Fire Protection

Less Than Significant Impact. The expansion of the theater and development of a community park will marginally impact fire protection services. The theater already exists, and although it will be expanded modestly in terms of capacity, this expansion is not expected to substantially increase fire incidents at the site. The park will include only limited structures, and although an increase in activity has the potential to increase fire department calls, it is not expected that the increase will be significant. In addition, the development plans for the project will be reviewed by the Fire Department to assure that they meet Fire Code, access and circulation requirements to assure that the Department can reach all structures in the park. Impacts associated with fire suppression are expected to be less than significant.

Police Protection

Less Than Significant Impact. The development of the proposed project will marginally increase the need for police services. The expansion of the theater, which already exists, is unlikely to affect police calls to the site. The development of the park will bring more people to the area, but the park's layout and open spaces will facilitate visibility for patrolling officers, and the limited number of structures will result in limited opportunities for mischief. The police department will review the project's development plans to assure that they meet their standards for sight distances and safe operations. Impacts associated with police protection are expected to be less than significant.

Schools:

No Impact. The proposed project will result in the expansion of an existing community theater, and the development of a new City park. No homes or businesses will be created by the project. Therefore, there is no potential for the project to generate new residents, and their associated school aged children. No impact to schools will occur.

Parks

No Impact. The proposed project will increase the park inventory and activities for City residents. The park will add playgrounds, sport fields and activities, and an amphitheater, as well as trails. The project represents a beneficial impact to parks in the City. No impact to parks will occur.

Other Public Facilities

No Impact. The development of the park and expansion of the theater will have no other impact on public facilities. The maintenance of the park will marginally add to the City's operational expenses, but these costs will be offset by increased revenues from population growth over time. No impact to other public facilities will occur.

Mitigation Measures: None required.

Monitoring: None required.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	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?				X
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?				X

Sources: Google Earth; City of Twentynine Palms General Plan.

Environmental Setting

The City currently operates Theater 29, which is part of the proposed project, as well as the Senior Community Center, Parks and Recreation Community Services Building, and Parks and Recreation Administration Building and 5 existing parks.

Discussion of Impacts

a, b) No Impact. The proposed expansion of the community theater and the development of the park will have no negative impact on recreation. As described in this document, impacts to the environment associated with biological and cultural resources will be mitigated to less than significant levels. The proposed project will have no impacts on recreation.

Mitigation Measures: None required.

Monitoring: None required.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
XVII. TRIBAL 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		X		
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		X		

Source: Twentynine Palms General Plan (2012); Historical/Archaeological Resources Survey Report - Pioneer Park Project, prepared by CRM TECH, October 25, 2020.

Environmental Setting

As discussed in the Section V, Cultural Resources, the Mojave Desert, including the City of Twentynine Palms have been home to the Serrano and the Chemehuevi Native Americans for centuries. Today, most Serrano descendants are affiliated with the San Manuel and the Morongo Indian Reservations, while the Chemehuevi are divided among the Chemehuevi, the Colorado River, and the Morongo Reservations.

The City and surrounding areas contain significant cultural resources to the Native American people which are considered non-renewable resources because they provide important information about the past and are of high cultural value to the tribes.

Discussion of Impacts

a, b) Less Than Significant with Mitigation Incorporated. On July 23, 2020, CRM TECH submitted a written request to the State of California Native American Heritage Commission (NAHC) for a records search in the Commission's Sacred Lands File. NAHC reported unspecified Native American cultural resource(s) in the project vicinity. Four of the tribes responded to CRM Tech's request for information. The Quechan Tribe had no comments on this project. The Agua Caliente Band of Cahuilla Indians requested tribal review of all cultural resource documentation generated for the project and Native American monitoring during ground-disturbing activities. The Twenty-Nine Palms Band confirmed that the tribe considered the project location to be culturally sensitive due to its location between the Twenty-Nine Palms Indian Reservation and the burial grounds. The San

Manuel Band stated that the project area overlapped a Sacred Lands File for the Oasis of Maara, which the tribe considers to be the creation site of all Serrano people. The tribe further noted the location of the cemetery near the project location, which contains both Serrano and Chemehuevi burials. The Tribe pointed out that there are numerous unmarked burials that have not been located and may potentially be present beyond the current limits of the cemetery and expressed concern about the impacts of the project. .

The City is conducting Tribal Consultation in conformance with AB 52 requirements and contacted three tribes in writing in early October. As of November 1st, 2020, no responses were received from the Twenty-Nine Palms and Morongo Bands of Mission Indians. The San Manuel Band of Mission Indians responded in email requesting consultation and review of the project cultural report, geotechnical report (if required for the project), and project plans to show the depth of proposed disturbance. The City is scheduling a consultation meeting and will provide the requested materials once they are ready. Once the City receives further response from the San Manuel Band or other tribes, any requests and input from consultation will be included in conditions of approval and/or added to this Initial Study prior to completion of the environmental review process.

Consistent with the findings of the cultural resource study and potential concerns of the tribes, Mitigation Measure CUL-1 requires that non-invasive investigations be conducted in undisturbed areas of the project site, in consultation with the San Manuel and other Serrano and Chemehuevi Tribal members. Mitigation Measure CUL-2 requires that the project's ground disturbing activities be monitored by an archaeologist and Tribal monitors. Mitigation Measure CUL-3 requires that educational displays be incorporated into the park's design, to highlight the cultural history of the area to reduce any potential impacts to Tribal Resources to less than significant levels.

Mitigation Measures: See Section V.

Monitoring: See Section V.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
XVIII. TRANSPORTATION/TRAFFIC -- Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?			X	
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?				X
c) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
d) Result in inadequate emergency access?				X

Sources: City of Twentynine Palms General Plan; Google Earth; Technical Advisory on Evaluating Transportation Impacts in CEQA, State of California Governor's Office of Planning and Research, December 2018; Traffic Study Policy, City Council adoption February 22, 2005.

Environmental Setting

The City's Circulation Plan classifies roadways into the following types: 6-Lane Expressway, Arterial, Secondary, and Collector. Those streets not shown on the Circulation Plan are either local or rural local streets and are classified as Non-General Plan streets and are mostly unimproved dirt roads. The General Plan (2012) established a LOS "C" minimum service standard for all new streets within the city.

Currently, the project site is vacant and undeveloped except for the existing Theatre 29. Existing roadways in the vicinity of the project site include Sullivan Road and Adobe Road, both designated as Secondary roads in the Circulation Plan, as well as unpaved local streets including Tamarisk/Yucca Avenue, Foothill Drive, and Boling Drive.

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, which require all lead agencies to adopt VMT as a replacement for automobile delay-based level of service (LOS) as the new measure for identifying transportation impacts for land use projects. This statewide mandate went into effect July 1, 2020. To aid in this transition, the Governor's Office of Planning and Research (OPR) released a Technical Advisory on Evaluating Transportation Impacts in CEQA (December 2018). Currently, the City of Twentynine Palms has not adopted regulations or thresholds pertaining to vehicle miles traveled (VMT) and the reduction of GHG emissions.

The project VMT analysis is based on OPR's Technical Advisory. The project trip generation rate is based on Institute of Transportation Engineers, Trip Generation Manual, 9th Edition. Land Use Codes 411 (City Park) and 441 (Live Theater) were used for the project trip generation analysis.

Discussion of Impacts

a) **Less Than Significant Impact.** The project is located in a suburban setting near the southern City limits. The project area is characterized by sparse residential and commercial development and a mix of unpaved and paved roadways. Sullivan Road and Adobe Road border the project site on the north and east. In the project area, these two roadways are paved but not improved with curbs, gutters and sidewalks as required along all Secondaries in the City's Circulation Plan. Yucca/Tamarisk Avenue and Foothill Drive border the site on the west and south; both are unpaved local streets and not identified or shown on the Circulation Plan Map. Street improvement is required for industrial or commercial development and in residential zones. The project will apply for a grant to cover the costs, and the grant amount will not be able to cover the expected high cost of road improvements, with the exception of road improvements on Sullivan Road adjacent to the theater and parking area. Given the current few residential lots in the project area, it is not expected that any streets improvements will be constructed in the near future.

Project area intersections are not signalized; they operate with stop signs currently controlling traffic entering from Sullivan Road onto Adobe Road and from Foothill Drive onto Adobe Road in both directions.

The proposed Project will result in the development of a 21.59-acre city park, and expansion of Theatre 29 with an increase in capacity by 61 seats. The project is forecast to generate approximately 41 daily vehicle trips, with 10 trips during the AM peak hour and 8 trips during the PM peak hour. While Theatre 29 is located within the future park, trip generation for the park and theater expansion are accounted separately and added up for conservative analysis; the trip reducing potential of modal split was not incorporated for the same purpose.

The City's Traffic Study Policy (2005) established thresholds for requiring a traffic report. The proposed project would need a traffic report if any of the following applies:

1. A project that could generate 50 directional trips during a peak hour or 500-749 trips during an average day.
2. If a new project's traffic will substantially affect an intersection or a roadway segment already identified as operating at an unacceptable level of service.
3. A project that may create a hazard to public safety.
4. A project that will substantially change the off-site transportation system or connections to it.

Theatre 29 will keep the existing vehicular access on Sullivan Road, and its operations are expected to remain largely unchanged from current conditions. Vehicular access to the park will be limited on the parking lot near the southeast corner of the project site and joint use of the theater parking area. The project will

not create a hazard to public safety, or substantially change the off-site transportation system or connections to it. The project is forecast to generate a maximum of 10 directional trips (AM peak hour), which does not exceed the City threshold of 50 directional trips. Therefore, the project's traffic is not expected to substantially affect the project area intersections or roadway segments, which are not located within the City's Circulation Plan Special Study Areas nor identified as operating at an unacceptable level of service.

The project is not expected to conflict with a program, plan, ordinance or policy addressing the circulation system.

Alternative Transportation Planning

Morongo Basin Transit Authority (MBTA) provides transit service in the Morongo Basin, including the City of Twentynine Palms. Alternative transportation in Twentynine Palms is primarily limited to bus service, as biking and walking are limited to streets with those facilities only. Bus Route 3B (Twentynine Palms Neighborhood) currently serves the project area; the nearest stop is the 29 Palms Transit Center located at Adobe Road & Cactus Drive, from which passengers can transfer to Route 1 (Yucca Valley-Twentynine Palms). The 29 Palms Transit Center is located 0.41 miles northeast of the project site. The proposed park with walking trails/running loop and bike course will encourage multi-modal transportation in the project area.

The proposed project is expected to benefit alternative transportation modes and encourage future street improvements in the area, including bicycle and pedestrian facilities. The project will not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities. No project-related impact is anticipated.

d) No Impact. SB 743 requires amendments to the CEQA Guidelines (pre-2019) to provide an alternative to LOS for evaluating transportation impacts. Particularly within areas served by transit, those alternative criteria must "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." (Public Resources Code Section 21099(b)(1)) Measurements of transportation impacts may include "vehicle miles traveled, vehicle miles traveled per capita, automobile trip generation rates, or automobile trips generated." CEQA Guidelines were amended to require all lead agencies to adopt vehicle miles traveled (VMT) as a replacement for automobile delay-based level of service (LOS) for identifying transportation impacts. This statewide mandate went into effect July 1, 2020.

The City of Twentynine Palms has adopted regulations and thresholds pertaining to VMT and GHG reduction. The City's policy includes thresholds to screen out VMT impacts using project size, maps, transit availability, and provision of affordable housing. In this case, the project qualifies for Project Type Screening under the City's policy, insofar as it will generate less than 250 trips per day. The

project is forecast to generate a total of 41 trips per day based on a conservative analysis, which is under the 250 trips per day threshold. Therefore, under the City's policy, the project is not required to conduct VMT analysis, and is presumed to have a less than significant impact.

The project consists of a city park and renovation of a community theater, which is not expected to generate a potentially significant level of VMT or inconsistency with general plan land use and sustainability policies. The project meets the City's Screening Threshold as a low-trip project, and can be expected to cause a less than significant transportation impact. The project will not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).

c) **No Impact.** The project will be developed in accordance with City design standards and will not create a substantial increase in hazards due to a design feature. The park and theater access points will be sited with adequate sight distances. The park and theater will be accessed on Sullivan Road, and additional park access is proposed on Foothill Drive, both of which operate at acceptable levels of service, thus reducing potential traffic delay and risks. No incompatible uses are proposed for the park and theater expansion project. No project-related impact is anticipated.

d) **No Impact.** Public access to the project site is proposed via Foothill Drive and Sullivan Road. The site will consist primarily of open area upon buildout of the park and renovated theater. Under emergency situations, emergency vehicles may also access the site from Tamarisk/Yucca Avenue and Adobe Road. These roadways are part of the City's existing grid system. Regional access to the project site will be provided via major arterials, secondary arterials and local roads. Prior to construction, both the Fire Department and Sheriff Department will review the project site plan to ensure safety measures are addressed, including emergency access. The proposed project will not result in inadequate emergency access. No impact is anticipated.

Mitigation Measures: None required.

Monitoring: None required.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	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?			X	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X	
c) Result in a determination by the wastewater treatment provider that 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?				X
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?			X	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			X	

Source: Twentynine Palms General Plan.

Environmental Setting

Domestic Water (please also see Hydrology and Water Resources)
The proposed project site is located within the Twentynine Palms Water District (TPWD) boundaries for domestic water services. The District's water supply source is 100 percent groundwater produced from District-owned and operated wells. The District provides water service to approximately 6,800 households in their water service area (Twentynine Palms Water District 2015 Urban Water Management Plan).

Wastewater Treatment
The only Wastewater Treatment Plant (WWTP) in the region is located at the Marine Corps Air Ground Combat Center (MCAGCC). The City, including the project area, does not have a sanitary sewer system and currently operates with septic tanks.

In 2014, the City prepared a Wastewater Master Plan to identify and describe the potential facilities that would be required for a centralized sewer collection system and wastewater treatment plant to replace the septic systems in use. A new centralized system is

envisioned to include the City and surrounding unincorporated areas. The City is currently initiating the planning and layout of the sewer system, but sanitary sewage in the City will not be available to the project area in the near term. As a result, the proposed project will operate on septic tanks.

Flood Control/Drainages

The San Bernardino County Flood Control District (SBFCD) is responsible for managing regional drainage within and in the vicinity of Twentynine Palms. The City works with SBFCD to manage local drainages in the City, which are divided between well-defined drainage courses (some have been channelized) and areas of wide sheet flow. Development that may alter the direction of flow onsite are conditioned per standard San Bernardino County practices to maintain the existing site drainage patterns at inlets and outlets.

Solid Waste

Burrtec Waste Industries provides solid waste pick up and disposal, as well as recycling services in the City. Solid waste disposal and landfill siting is handled by the County of San Bernardino, Solid Waste Management Division. The project will utilize shared trash bins for waste removal.

Other Utilities

The electrical energy to the City is provided by Southern California Edison (SCE). Natural gas service is provided to the City by Southern California Gas Company (SoCalGas). Telephone service is provided by a number of companies, including both land lines and cellular services.

Discussion of Impacts

a) **Less Than Significant Impact.** The proposed project will not require the construction of new water, electric, natural gas or telecommunications facilities, as its need for these facilities will be limited (beyond that already used for the theater) to landscape lighting and security lighting at the park. The project will result in the installation of new septic tanks for the park restrooms, which will be regulated by the Regional Water Quality Control Board. The park's existing drainage pattern will be incorporated into the design, to create an arroyo which will convey flows through the site, and allow for recharge at the northeast corner of the site. As described above, none of the new facilities will result in significant environmental impacts. Overall, impacts associated with relocation or expansion of existing services or facilities are expected to be less than significant.

b) **Less Than Significant Impact.** As described in Section X., Hydrology and Water Resources, the proposed project will have a less than significant impact on water demand. The California Department of Water Resources (DWR) has recommended pumping limits for both the Fortynine Palms and Indian Cove subbasins, which results in an overall limited pumping capacity at 6,995 acre-feet per year (AFY). Existing pumping in 2015 (2,404 AFY) represents approximately

30% of the total pumping capacity. The total water demand of the proposed project is 5.03 million gallons per year, equivalent to 15.44 AFY. The project will increase pumping by approximately 0.6% over the 2015 baseline level, and will represent approximately 0.2% of the limited pumping capacity recommended by DWR. The amended 2015 UWMP demonstrates that the TPWD has adequate supplies to meet demands during normal, single-dry, and multiple-dry years throughout the 20-year planning period. In addition, there is sufficient production capacity planned to meet projected future demands with the actions the TPWD is taking to maintain supply availability.

c) **No Impact.** As described above, the City operates on septic systems, and although it is planning for a sanitary sewer system, none is anticipated to serve the proposed project in the near term. The proposed project will add septic tank to the park area to serve the restrooms, and will otherwise not require sanitary sewage service. No impact is expected.

d), e) **Less Than Significant Impact.** The City's waste disposal service is provided by Burrtec. Trash generated by the project will be hauled to the Twentynine Palms Transfer Station, east of the City, and then transported to Landers Landfill, a regional landfill located approximately 30 mile northwest of the City. Additional capacity will result from either the expansion of the Landers Landfill or the regional landfill in Barstow, approximately 100 miles north of the City. Burrtec is required to meet all local, regional, State and federal standards for solid waste disposal. Impacts associated with solid waste are expected to be less than significant.

Mitigation Measures: None required.

Monitoring: None required.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	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?				X
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?				X
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?				X
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?				X

Sources: Twentynine Palms General Plan; Fire and Resources Assessment Program (FRAP) maps, California Department of Forestry and Fire Protection.

Environmental Setting

Wildfires can occur in undeveloped areas and spread to urban areas where the landscape and structures are not designed and maintained to be ignition resistant. A wildland-urban interface is an area where urban development is located in proximity to open space or “wildland” areas. The potential for wildland fires represents a hazard where development is adjacent to open space or within close proximity to wildland fuels or designated fire severity zones.

The California Department of Forestry and Fire Protection (Cal Fire) has mapped areas of significant fire hazards in the state through its Fire and Resources Assessment Program (FRAP).

The General Plan identifies the project site as being in a Local Responsibility Area and a Moderate Fire Hazard Zone. The site is not located adjacent to forested areas, and the slopes of the mountains to the south of the project site do not support significant vegetation.

Discussion of Impacts

a)-d) No Impact. The project site is not located adjacent to a state responsibility area or a very high fire hazard severity zone. Because the City, including the proposed project, is not at high risk for wildfire, it is also not at risk for spread of wildfire, or for slope instability, flooding or landslides. Finally, there is no need for installation or maintenance of infrastructure that could exacerbate fire risk. No impacts associated with wildfire will result from development of the proposed project.

Mitigation Measures: None required.

Monitoring: None required.

	Potentially Significant Impact	Less Than Significant w/ Mitigation	Less Than Significant Impact	No Impact
XXI MANDATORY FINDINGS OF SIGNIFICANCE --				
a) Does the project have the potential to 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, 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?		X		
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)?			X	
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

Discussion of Impacts

a) **Less Than Significant Impact with Mitigation Incorporated.** As described above, the proposed project has the potential to impact biological (migratory birds and jurisdictional waters) and cultural resources (archaeological and Tribal). The mitigation measures included in this document, however, will assure that the impacts associated with these resources are reduced to less than significant levels.

b) **Less Than Significant Impact.** Where appropriate above, the proposed project's impacts have been considered in relation to General Plan build out. Under those cumulative conditions, the project was found to have less than significant impacts. The proposed project consists of a small expansion to an existing theater, and the development of a City park. The impacts associated with the project, as mitigated, will be less than significant. When considered in the framework of General Plan build out, the project is consistent with the build out plans envisioned in the General Plan, and will provide additional community amenities to City residents, now and into the future. Cumulative impacts are expected to be less than significant.

c) **Less Than Significant Impact.** As described above, the project will not have significant impacts on human beings. Air quality and noise impacts will both be less than significant, and the project will generate only minimal additional vehicle trips.

Appendix A

Air Quality - CalEEMod Output Tables

29 Palms Pioneer Park

Mojave Desert AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	21.59	Acre	18.96	940,460.40	0
Other Asphalt Surfaces	86.56	1000sqft	1.99	86,562.00	0
Other Non-Asphalt Surfaces	27.94	1000sqft	0.64	27,940.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	30
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - The City of 29 Palms proposed a park and expansion of Theatre 29, located south of downtown within City limits.

Land Use - The entire project site is 21.59 acres. The City Park Building Area includes the addition of 3122 SF to Theatre 29, and two restrooms totaled 630 SF in the park.
Asphalt surfaces total 86562 SF, non-asphalt surfaces total 27940 SF.

Construction Phase - Assumes a 10-month construction starting 1/1/2022, ending approximately 10/1/2022.

Grading - Site needs import of 16904 cubic feet, equivalent to 626 cubic yards, assume material import occurs in both site preparation and grading phases.

Demolition - Demolition includes 1200 SF exterior wall, 272 SF concrete slab, 3477 SF asphalt paving at Theatre 29.

On-road Fugitive Dust - Access to the site will be from Sullivan and Adobe Rd, which are paved in the project area.

Vehicle Trips - According to ITE 9th edition, the park will generate 41 daily trips on weekdays, assume increase usership on weekends.

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	370.00	50.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	PhaseEndDate	10/27/2023	9/9/2022
tblConstructionPhase	PhaseEndDate	9/1/2023	6/17/2022
tblConstructionPhase	PhaseEndDate	1/28/2022	1/7/2022
tblConstructionPhase	PhaseEndDate	4/1/2022	4/8/2022
tblConstructionPhase	PhaseEndDate	9/29/2023	8/12/2022
tblConstructionPhase	PhaseEndDate	2/11/2022	2/18/2022
tblConstructionPhase	PhaseStartDate	9/30/2023	8/13/2022
tblConstructionPhase	PhaseStartDate	4/2/2022	4/9/2022
tblConstructionPhase	PhaseStartDate	2/12/2022	2/19/2022
tblConstructionPhase	PhaseStartDate	9/2/2023	6/18/2022
tblConstructionPhase	PhaseStartDate	1/29/2022	1/8/2022
tblGrading	AcresOfGrading	87.50	22.00
tblGrading	MaterialImported	0.00	313.00
tblGrading	MaterialImported	0.00	313.00
tblLandUse	LandUseSquareFeet	86,560.00	86,562.00
tblLandUse	LotAcreage	21.59	18.96
tblVehicleTrips	ST_TR	22.75	3.00
tblVehicleTrips	SU_TR	16.74	3.00
tblVehicleTrips	WD_TR	1.89	2.16

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	0.3293	2.2938	1.9934	5.1100e-003	0.5246	0.0895	0.6141	0.2448	0.0829	0.3277	0.0000	459.0900	459.0900	0.0889	0.0000	461.3119
Maximum	**0.3293**	**2.2938**	**1.9934**	**5.1100e-003**	**0.5246**	**0.0895**	**0.6141**	**0.2448**	**0.0829**	**0.3277**	**0.0000**	**459.0900**	**459.0900**	**0.0889**	**0.0000**	**461.3119**

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	0.3293	2.2938	1.9934	5.1100e-003	0.5246	0.0895	0.6141	0.2448	0.0829	0.3277	0.0000	459.0897	459.0897	0.0889	0.0000	461.3116
Maximum	**0.3293**	**2.2938**	**1.9934**	**5.1100e-003**	**0.5246**	**0.0895**	**0.6141**	**0.2448**	**0.0829**	**0.3277**	**0.0000**	**459.0897**	**459.0897**	**0.0889**	**0.0000**	**461.3116**

	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**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2022	3-31-2022	1.2496	1.2496
2	4-1-2022	6-30-2022	1.0803	1.0803
3	7-1-2022	9-30-2022	0.2967	0.2967
		Highest	1.2496	1.2496

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	0.0393	1.0000e-005	1.2500e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.4300e-003	2.4300e-003	1.0000e-005	0.0000	2.5900e-003
Energy	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
Mobile	0.0166	0.1514	0.1594	6.9000e-004	0.0423	4.1000e-004	0.0427	0.0113	3.8000e-004	0.0117	0.0000	64.2814	64.2814	5.5300e-003	0.0000	64.4197
Waste						0.0000	0.0000		0.0000	0.0000	0.3776	0.0000	0.3776	0.0223	0.0000	0.9354
Water						0.0000	0.0000		0.0000	0.0000	0.0000	91.0603	91.0603	3.7600e-003	7.8000e-004	91.3860
Total	**0.0559**	**0.1514**	**0.1606**	**6.9000e-004**	**0.0423**	**4.1000e-004**	**0.0427**	**0.0113**	**3.8000e-004**	**0.0117**	**0.3776**	**155.3441**	**155.7216**	**0.0316**	**7.8000e-004**	**156.7437**

2.2 Overall Operational

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	0.0393	1.0000e-005	1.2500e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.4300e-003	2.4300e-003	1.0000e-005	0.0000	2.5900e-003
Energy	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
Mobile	0.0166	0.1514	0.1594	6.9000e-004	0.0423	4.1000e-004	0.0427	0.0113	3.8000e-004	0.0117	0.0000	64.2814	64.2814	5.5300e-003	0.0000	64.4197
Waste						0.0000	0.0000		0.0000	0.0000	0.3776	0.0000	0.3776	0.0223	0.0000	0.9354
Water						0.0000	0.0000		0.0000	0.0000	0.0000	91.0603	91.0603	3.7600e-003	7.8000e-004	91.3860
Total	**0.0559**	**0.1514**	**0.1606**	**6.9000e-004**	**0.0423**	**4.1000e-004**	**0.0427**	**0.0113**	**3.8000e-004**	**0.0117**	**0.3776**	**155.3441**	**155.7216**	**0.0316**	**7.8000e-004**	**156.7437**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2022	1/7/2022	5	5	
2	Site Preparation	Site Preparation	1/8/2022	2/18/2022	5	30	
3	Grading	Grading	2/19/2022	4/8/2022	5	35	
4	Building Construction	Building Construction	4/9/2022	6/17/2022	5	50	
5	Paving	Paving	6/18/2022	8/12/2022	5	40	
6	Architectural Coating	Architectural Coating	8/13/2022	9/9/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 22

Acres of Paving: 2.63

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 5,628; Non-Residential Outdoor: 1,876; Striped Parking Area: 6,870 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	23.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	39.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	39.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	443.00	173.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	89.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 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					2.4700e-003	0.0000	2.4700e-003	3.7000e-004	0.0000	3.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6000e-003	0.0643	0.0515	1.0000e-004		3.1100e-003	3.1100e-003		2.8900e-003	2.8900e-003	0.0000	8.4976	8.4976	2.3900e-003	0.0000	8.5572
Total	**6.6000e-003**	**0.0643**	**0.0515**	**1.0000e-004**	**2.4700e-003**	**3.1100e-003**	**5.5800e-003**	**3.7000e-004**	**2.8900e-003**	**3.2600e-003**	**0.0000**	**8.4976**	**8.4976**	**2.3900e-003**	**0.0000**	**8.5572**

3.2 Demolition - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	2.2000e-003	2.8000e-004	1.0000e-005	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	6.0000e-005	0.0000	0.8526	0.8526	5.0000e-005	0.0000	0.8538
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	1.4000e-004	1.0000e-004	9.6000e-004	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2387	0.2387	1.0000e-005	0.0000	0.2389
Total	**1.9000e-004**	**2.3000e-003**	**1.2400e-003**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**1.0913**	**1.0913**	**6.0000e-005**	**0.0000**	**1.0927**

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					2.4700e-003	0.0000	2.4700e-003	3.7000e-004	0.0000	3.7000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.6000e-003	0.0643	0.0515	1.0000e-004		3.1100e-003	3.1100e-003		2.8900e-003	2.8900e-003	0.0000	8.4976	8.4976	2.3900e-003	0.0000	8.5572
Total	**6.6000e-003**	**0.0643**	**0.0515**	**1.0000e-004**	**2.4700e-003**	**3.1100e-003**	**5.5800e-003**	**3.7000e-004**	**2.8900e-003**	**3.2600e-003**	**0.0000**	**8.4976**	**8.4976**	**2.3900e-003**	**0.0000**	**8.5572**

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	2.2000e-003	2.8000e-004	1.0000e-005	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	6.0000e-005	0.0000	0.8526	0.8526	5.0000e-005	0.0000	0.8538
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	1.4000e-004	1.0000e-004	9.6000e-004	0.0000	3.0000e-004	0.0000	3.0000e-004	8.0000e-005	0.0000	8.0000e-005	0.0000	0.2387	0.2387	1.0000e-005	0.0000	0.2389
Total	**1.9000e-004**	**2.3000e-003**	**1.2400e-003**	**1.0000e-005**	**5.0000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**1.0913**	**1.0913**	**6.0000e-005**	**0.0000**	**1.0927**

3.3 Site Preparation - 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					0.2710	0.0000	0.2710	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0476	0.4963	0.2955	5.7000e-004		0.0242	0.0242		0.0223	0.0223	0.0000	50.1591	50.1591	0.0162	0.0000	50.5647
Total	**0.0476**	**0.4963**	**0.2955**	**5.7000e-004**	**0.2710**	**0.0242**	**0.2952**	**0.1490**	**0.0223**	**0.1712**	**0.0000**	**50.1591**	**50.1591**	**0.0162**	**0.0000**	**50.5647**

3.3 Site Preparation - 2022

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	9.0000e-005	3.7300e-003	4.8000e-004	2.0000e-005	3.4000e-004	1.0000e-005	3.4000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	1.4457	1.4457	9.0000e-005	0.0000	1.4478
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.8000e-004	7.4000e-004	6.9100e-003	2.0000e-005	2.1800e-003	1.0000e-005	2.1900e-003	5.8000e-004	1.0000e-005	5.9000e-004	0.0000	1.7187	1.7187	5.0000e-005	0.0000	1.7200
Total	**1.0700e-003**	**4.4700e-003**	**7.3900e-003**	**4.0000e-005**	**2.5200e-003**	**2.0000e-005**	**2.5300e-003**	**6.7000e-004**	**2.0000e-005**	**6.9000e-004**	**0.0000**	**3.1644**	**3.1644**	**1.4000e-004**	**0.0000**	**3.1678**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2710	0.0000	0.2710	0.1490	0.0000	0.1490	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0476	0.4963	0.2955	5.7000e-004		0.0242	0.0242		0.0223	0.0223	0.0000	50.1590	50.1590	0.0162	0.0000	50.5646
Total	**0.0476**	**0.4963**	**0.2955**	**5.7000e-004**	**0.2710**	**0.0242**	**0.2952**	**0.1490**	**0.0223**	**0.1712**	**0.0000**	**50.1590**	**50.1590**	**0.0162**	**0.0000**	**50.5646**

3.3 Site Preparation - 2022

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	9.0000e-005	3.7300e-003	4.8000e-004	2.0000e-005	3.4000e-004	1.0000e-005	3.4000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	1.4457	1.4457	9.0000e-005	0.0000	1.4478
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.8000e-004	7.4000e-004	6.9100e-003	2.0000e-005	2.1800e-003	1.0000e-005	2.1900e-003	5.8000e-004	1.0000e-005	5.9000e-004	0.0000	1.7187	1.7187	5.0000e-005	0.0000	1.7200
Total	**1.0700e-003**	**4.4700e-003**	**7.3900e-003**	**4.0000e-005**	**2.5200e-003**	**2.0000e-005**	**2.5300e-003**	**6.7000e-004**	**2.0000e-005**	**6.9000e-004**	**0.0000**	**3.1644**	**3.1644**	**1.4000e-004**	**0.0000**	**3.1678**

3.4 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					0.1171	0.0000	0.1171	0.0592	0.0000	0.0592	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0634	0.6798	0.5082	1.0900e-003		0.0286	0.0286		0.0263	0.0263	0.0000	95.4356	95.4356	0.0309	0.0000	96.2072
Total	**0.0634**	**0.6798**	**0.5082**	**1.0900e-003**	**0.1171**	**0.0286**	**0.1457**	**0.0592**	**0.0263**	**0.0855**	**0.0000**	**95.4356**	**95.4356**	**0.0309**	**0.0000**	**96.2072**

3.4 Grading - 2022

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	9.0000e-005	3.7300e-003	4.8000e-004	2.0000e-005	3.4000e-004	1.0000e-005	3.4000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	1.4457	1.4457	9.0000e-005	0.0000	1.4478
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	1.2700e-003	9.5000e-004	8.9600e-003	2.0000e-005	2.8200e-003	2.0000e-005	2.8400e-003	7.5000e-004	2.0000e-005	7.7000e-004	0.0000	2.2280	2.2280	7.0000e-005	0.0000	2.2296
Total	**1.3600e-003**	**4.6800e-003**	**9.4400e-003**	**4.0000e-005**	**3.1600e-003**	**3.0000e-005**	**3.1800e-003**	**8.4000e-004**	**3.0000e-005**	**8.7000e-004**	**0.0000**	**3.6736**	**3.6736**	**1.6000e-004**	**0.0000**	**3.6774**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1171	0.0000	0.1171	0.0592	0.0000	0.0592	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0634	0.6798	0.5082	1.0900e-003		0.0286	0.0286		0.0263	0.0263	0.0000	95.4354	95.4354	0.0309	0.0000	96.2071
Total	**0.0634**	**0.6798**	**0.5082**	**1.0900e-003**	**0.1171**	**0.0286**	**0.1457**	**0.0592**	**0.0263**	**0.0855**	**0.0000**	**95.4354**	**95.4354**	**0.0309**	**0.0000**	**96.2071**

3.4 Grading - 2022

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	9.0000e-005	3.7300e-003	4.8000e-004	2.0000e-005	3.4000e-004	1.0000e-005	3.4000e-004	9.0000e-005	1.0000e-005	1.0000e-004	0.0000	1.4457	1.4457	9.0000e-005	0.0000	1.4478
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	1.2700e-003	9.5000e-004	8.9600e-003	2.0000e-005	2.8200e-003	2.0000e-005	2.8400e-003	7.5000e-004	2.0000e-005	7.7000e-004	0.0000	2.2280	2.2280	7.0000e-005	0.0000	2.2296
Total	**1.3600e-003**	**4.6800e-003**	**9.4400e-003**	**4.0000e-005**	**3.1600e-003**	**3.0000e-005**	**3.1800e-003**	**8.4000e-004**	**3.0000e-005**	**8.7000e-004**	**0.0000**	**3.6736**	**3.6736**	**1.6000e-004**	**0.0000**	**3.6774**

3.5 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	0.0427	0.3904	0.4091	6.7000e-004		0.0202	0.0202		0.0190	0.0190	0.0000	57.9313	57.9313	0.0139	0.0000	58.2783
Total	**0.0427**	**0.3904**	**0.4091**	**6.7000e-004**		**0.0202**	**0.0202**		**0.0190**	**0.0190**	**0.0000**	**57.9313**	**57.9313**	**0.0139**	**0.0000**	**58.2783**

3.5 Building Construction - 2022

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	0.0118	0.3817	0.0873	1.2500e-003	0.0289	5.2000e-004	0.0294	8.3400e-003	5.0000e-004	8.8400e-003	0.0000	118.4553	118.4553	9.7800e-003	0.0000	118.6996
Worker	0.0403	0.0302	0.2836	7.8000e-004	0.0894	5.4000e-004	0.0899	0.0237	5.0000e-004	0.0242	0.0000	70.4986	70.4986	2.0600e-003	0.0000	70.5500
Total	**0.0521**	**0.4118**	**0.3709**	**2.0300e-003**	**0.1183**	**1.0600e-003**	**0.1193**	**0.0321**	**1.0000e-003**	**0.0331**	**0.0000**	**188.9538**	**188.9538**	**0.0118**	**0.0000**	**189.2497**

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	0.0427	0.3904	0.4091	6.7000e-004		0.0202	0.0202		0.0190	0.0190	0.0000	57.9312	57.9312	0.0139	0.0000	58.2782
Total	**0.0427**	**0.3904**	**0.4091**	**6.7000e-004**		**0.0202**	**0.0202**		**0.0190**	**0.0190**	**0.0000**	**57.9312**	**57.9312**	**0.0139**	**0.0000**	**58.2782**

3.5 Building Construction - 2022

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	0.0118	0.3817	0.0873	1.2500e-003	0.0289	5.2000e-004	0.0294	8.3400e-003	5.0000e-004	8.8400e-003	0.0000	118.4553	118.4553	9.7800e-003	0.0000	118.6996
Worker	0.0403	0.0302	0.2836	7.8000e-004	0.0894	5.4000e-004	0.0899	0.0237	5.0000e-004	0.0242	0.0000	70.4986	70.4986	2.0600e-003	0.0000	70.5500
Total	**0.0521**	**0.4118**	**0.3709**	**2.0300e-003**	**0.1183**	**1.0600e-003**	**0.1193**	**0.0321**	**1.0000e-003**	**0.0331**	**0.0000**	**188.9538**	**188.9538**	**0.0118**	**0.0000**	**189.2497**

3.6 Paving - 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	0.0221	0.2225	0.2916	4.6000e-004		0.0114	0.0114		0.0105	0.0105	0.0000	40.0551	40.0551	0.0130	0.0000	40.3790
Paving	2.6100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0247**	**0.2225**	**0.2916**	**4.6000e-004**		**0.0114**	**0.0114**		**0.0105**	**0.0105**	**0.0000**	**40.0551**	**40.0551**	**0.0130**	**0.0000**	**40.3790**

3.6 Paving - 2022

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	1.0900e-003	8.2000e-004	7.6800e-003	2.0000e-005	2.4200e-003	1.0000e-005	2.4300e-003	6.4000e-004	1.0000e-005	6.6000e-004	0.0000	1.9097	1.9097	6.0000e-005	0.0000	1.9111
Total	**1.0900e-003**	**8.2000e-004**	**7.6800e-003**	**2.0000e-005**	**2.4200e-003**	**1.0000e-005**	**2.4300e-003**	**6.4000e-004**	**1.0000e-005**	**6.6000e-004**	**0.0000**	**1.9097**	**1.9097**	**6.0000e-005**	**0.0000**	**1.9111**

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	0.0221	0.2225	0.2916	4.6000e-004		0.0114	0.0114		0.0105	0.0105	0.0000	40.0551	40.0551	0.0130	0.0000	40.3789
Paving	2.6100e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0247**	**0.2225**	**0.2916**	**4.6000e-004**		**0.0114**	**0.0114**		**0.0105**	**0.0105**	**0.0000**	**40.0551**	**40.0551**	**0.0130**	**0.0000**	**40.3789**

3.6 Paving - 2022

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	1.0900e-003	8.2000e-004	7.6800e-003	2.0000e-005	2.4200e-003	1.0000e-005	2.4300e-003	6.4000e-004	1.0000e-005	6.6000e-004	0.0000	1.9097	1.9097	6.0000e-005	0.0000	1.9111
Total	**1.0900e-003**	**8.2000e-004**	**7.6800e-003**	**2.0000e-005**	**2.4200e-003**	**1.0000e-005**	**2.4300e-003**	**6.4000e-004**	**1.0000e-005**	**6.6000e-004**	**0.0000**	**1.9097**	**1.9097**	**6.0000e-005**	**0.0000**	**1.9111**

3.7 Architectural Coating - 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					
Archit. Coating	0.0833					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**0.0853**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

3.7 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2400e-003	2.4200e-003	0.0228	6.0000e-005	7.1800e-003	4.0000e-005	7.2200e-003	1.9100e-003	4.0000e-005	1.9500e-003	0.0000	5.6654	5.6654	1.7000e-004	0.0000	5.6695
Total	**3.2400e-003**	**2.4200e-003**	**0.0228**	**6.0000e-005**	**7.1800e-003**	**4.0000e-005**	**7.2200e-003**	**1.9100e-003**	**4.0000e-005**	**1.9500e-003**	**0.0000**	**5.6654**	**5.6654**	**1.7000e-004**	**0.0000**	**5.6695**

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	0.0833					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.0500e-003	0.0141	0.0181	3.0000e-005		8.2000e-004	8.2000e-004		8.2000e-004	8.2000e-004	0.0000	2.5533	2.5533	1.7000e-004	0.0000	2.5574
Total	**0.0853**	**0.0141**	**0.0181**	**3.0000e-005**		**8.2000e-004**	**8.2000e-004**		**8.2000e-004**	**8.2000e-004**	**0.0000**	**2.5533**	**2.5533**	**1.7000e-004**	**0.0000**	**2.5574**

3.7 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.2400e-003	2.4200e-003	0.0228	6.0000e-005	7.1800e-003	4.0000e-005	7.2200e-003	1.9100e-003	4.0000e-005	1.9500e-003	0.0000	5.6654	5.6654	1.7000e-004	0.0000	5.6695
Total	**3.2400e-003**	**2.4200e-003**	**0.0228**	**6.0000e-005**	**7.1800e-003**	**4.0000e-005**	**7.2200e-003**	**1.9100e-003**	**4.0000e-005**	**1.9500e-003**	**0.0000**	**5.6654**	**5.6654**	**1.7000e-004**	**0.0000**	**5.6695**

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	0.0166	0.1514	0.1594	6.9000e-004	0.0423	4.1000e-004	0.0427	0.0113	3.8000e-004	0.0117	0.0000	64.2814	64.2814	5.5300e-003	0.0000	64.4197
Unmitigated	0.0166	0.1514	0.1594	6.9000e-004	0.0423	4.1000e-004	0.0427	0.0113	3.8000e-004	0.0117	0.0000	64.2814	64.2814	5.5300e-003	0.0000	64.4197

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	46.63	64.77	64.77	110,620	110,620
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	46.63	64.77	64.77	110,620	110,620

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	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.542047	0.035396	0.174897	0.107230	0.017469	0.005327	0.008901	0.094756	0.001421	0.002157	0.008671	0.000709	0.001020
Other Asphalt Surfaces	0.542047	0.035396	0.174897	0.107230	0.017469	0.005327	0.008901	0.094756	0.001421	0.002157	0.008671	0.000709	0.001020
Other Non-Asphalt Surfaces	0.542047	0.035396	0.174897	0.107230	0.017469	0.005327	0.008901	0.094756	0.001421	0.002157	0.008671	0.000709	0.001020

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	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	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
NaturalGas Unmitigated	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

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
Other Asphalt Surfaces	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
Other Non-Asphalt Surfaces	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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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
Other Asphalt Surfaces	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
Other Non-Asphalt Surfaces	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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.0393	1.0000e-005	1.2500e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.4300e-003	2.4300e-003	1.0000e-005	0.0000	2.5900e-003
Unmitigated	0.0393	1.0000e-005	1.2500e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.4300e-003	2.4300e-003	1.0000e-005	0.0000	2.5900e-003

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	8.3300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0309					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.2000e-004	1.0000e-005	1.2500e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.4300e-003	2.4300e-003	1.0000e-005	0.0000	2.5900e-003
Total	**0.0393**	**1.0000e-005**	**1.2500e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.4300e-003**	**2.4300e-003**	**1.0000e-005**	**0.0000**	**2.5900e-003**

6.2 Area by SubCategory

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	8.3300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0309					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.2000e-004	1.0000e-005	1.2500e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.4300e-003	2.4300e-003	1.0000e-005	0.0000	2.5900e-003
Total	**0.0393**	**1.0000e-005**	**1.2500e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.4300e-003**	**2.4300e-003**	**1.0000e-005**	**0.0000**	**2.5900e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	91.0603	3.7600e-003	7.8000e-004	91.3860
Unmitigated	91.0603	3.7600e-003	7.8000e-004	91.3860

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 25.7241	91.0603	3.7600e-003	7.8000e-004	91.3860
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**91.0603**	**3.7600e-003**	**7.8000e-004**	**91.3860**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
City Park	0 / 25.7241	91.0603	3.7600e-003	7.8000e-004	91.3860
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**91.0603**	**3.7600e-003**	**7.8000e-004**	**91.3860**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.3776	0.0223	0.0000	0.9354
Unmitigated	0.3776	0.0223	0.0000	0.9354

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.86	0.3776	0.0223	0.0000	0.9354
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.3776**	**0.0223**	**0.0000**	**0.9354**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
City Park	1.86	0.3776	0.0223	0.0000	0.9354
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Total		**0.3776**	**0.0223**	**0.0000**	**0.9354**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

29 Palms Pioneer Park

Mojave Desert AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	21.59	Acre	18.96	940,460.40	0
Other Asphalt Surfaces	86.56	1000sqft	1.99	86,562.00	0
Other Non-Asphalt Surfaces	27.94	1000sqft	0.64	27,940.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	30
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

29 Palms Pioneer Park - Mojave Desert AQMD Air District, Summer

Project Characteristics - The City of 29 Palms proposed a park and expansion of Theatre 29, located south of downtown within City limits.

Land Use - The entire project site is 21.59 acres. The City Park Building Area includes the addition of 3122 SF to Theatre 29, and two restrooms totaled 630 SF in the park.
Asphalt surfaces total 86562 SF, non-asphalt surfaces total 27940 SF.

Construction Phase - Assumes a 10-month construction starting 1/1/2022, ending approximately 10/1/2022.

Grading - Site needs import of 16904 cubic feet, equivalent to 626 cubic yards, assume material import occurs in both site preparation and grading phases.

Demolition - Demolition includes 1200 SF exterior wall, 272 SF concrete slab, 3477 SF asphalt paving at Theatre 29.

On-road Fugitive Dust - Access to the site will be from Sullivan and Adobe Rd, which are paved in the project area.

Vehicle Trips - According to ITE 9th edition, the park will generate 41 daily trips on weekdays, assume increase usership on weekends.

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	370.00	50.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	PhaseEndDate	10/27/2023	9/9/2022
tblConstructionPhase	PhaseEndDate	9/1/2023	6/17/2022
tblConstructionPhase	PhaseEndDate	1/28/2022	1/7/2022
tblConstructionPhase	PhaseEndDate	4/1/2022	4/8/2022
tblConstructionPhase	PhaseEndDate	9/29/2023	8/12/2022
tblConstructionPhase	PhaseEndDate	2/11/2022	2/18/2022
tblConstructionPhase	PhaseStartDate	9/30/2023	8/13/2022
tblConstructionPhase	PhaseStartDate	4/2/2022	4/9/2022
tblConstructionPhase	PhaseStartDate	2/12/2022	2/19/2022
tblConstructionPhase	PhaseStartDate	9/2/2023	6/18/2022
tblConstructionPhase	PhaseStartDate	1/29/2022	1/8/2022
tblGrading	AcresOfGrading	87.50	22.00
tblGrading	MaterialImported	0.00	313.00
tblGrading	MaterialImported	0.00	313.00
tblLandUse	LandUseSquareFeet	86,560.00	86,562.00
tblLandUse	LotAcreage	21.59	18.96
tblVehicleTrips	ST_TR	22.75	3.00
tblVehicleTrips	SU_TR	16.74	3.00
tblVehicleTrips	WD_TR	1.89	2.16

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	8.9102	39.1040	32.7988	0.1125	18.2384	1.6363	19.8524	9.9764	1.5054	11.4613	0.0000	11,319.4792	11,319.4792	1.9539	0.0000	11,347.5014
Maximum	**8.9102**	**39.1040**	**32.7988**	**0.1125**	**18.2384**	**1.6363**	**19.8524**	**9.9764**	**1.5054**	**11.4613**	**0.0000**	**11,319.4792**	**11,319.4792**	**1.9539**	**0.0000**	**11,347.5014**

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	8.9102	39.1040	32.7988	0.1125	18.2384	1.6363	19.8524	9.9764	1.5054	11.4613	0.0000	11,319.4792	11,319.4792	1.9539	0.0000	11,347.5014
Maximum	**8.9102**	**39.1040**	**32.7988**	**0.1125**	**18.2384**	**1.6363**	**19.8524**	**9.9764**	**1.5054**	**11.4613**	**0.0000**	**11,319.4792**	**11,319.4792**	**1.9539**	**0.0000**	**11,347.5014**

	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**

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	0.2160	1.3000e-004	0.0139	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0298	0.0298	8.0000e-005		0.0318
Energy	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
Mobile	0.1403	1.0346	1.1786	5.0600e-003	0.2957	2.7900e-003	0.2985	0.0791	2.6100e-003	0.0817		517.7742	517.7742	0.0407		518.7924
Total	**0.3563**	**1.0347**	**1.1925**	**5.0600e-003**	**0.2957**	**2.8400e-003**	**0.2985**	**0.0791**	**2.6600e-003**	**0.0818**		**517.8040**	**517.8040**	**0.0408**	**0.0000**	**518.8241**

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	0.2160	1.3000e-004	0.0139	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0298	0.0298	8.0000e-005		0.0318
Energy	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
Mobile	0.1403	1.0346	1.1786	5.0600e-003	0.2957	2.7900e-003	0.2985	0.0791	2.6100e-003	0.0817		517.7742	517.7742	0.0407		518.7924
Total	**0.3563**	**1.0347**	**1.1925**	**5.0600e-003**	**0.2957**	**2.8400e-003**	**0.2985**	**0.0791**	**2.6600e-003**	**0.0818**		**517.8040**	**517.8040**	**0.0408**	**0.0000**	**518.8241**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2022	1/7/2022	5	5	
2	Site Preparation	Site Preparation	1/8/2022	2/18/2022	5	30	
3	Grading	Grading	2/19/2022	4/8/2022	5	35	
4	Building Construction	Building Construction	4/9/2022	6/17/2022	5	50	
5	Paving	Paving	6/18/2022	8/12/2022	5	40	
6	Architectural Coating	Architectural Coating	8/13/2022	9/9/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 22

Acres of Paving: 2.63

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 5,628; Non-Residential Outdoor: 1,876; Striped Parking Area: 6,870 (Architectural Coating – sqft)

OffRoad Equipment

29 Palms Pioneer Park - Mojave Desert AQMD Air District, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	23.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	39.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	39.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	443.00	173.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	89.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 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					0.9865	0.0000	0.9865	0.1494	0.0000	0.1494			0.0000			0.0000
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553		3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**	**0.9865**	**1.2427**	**2.2291**	**0.1494**	**1.1553**	**1.3047**		**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

3.2 Demolition - 2022

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	0.0203	0.8712	0.1003	3.6400e-003	0.0807	1.8800e-003	0.0826	0.0221	1.7900e-003	0.0239		381.6699	381.6699	0.0210		382.1940
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
Worker	0.0637	0.0371	0.4504	1.1700e-003	0.1232	7.3000e-004	0.1240	0.0327	6.7000e-004	0.0334		116.2392	116.2392	3.4500e-003		116.3254
Total	**0.0839**	**0.9083**	**0.5507**	**4.8100e-003**	**0.2039**	**2.6100e-003**	**0.2065**	**0.0548**	**2.4600e-003**	**0.0573**		**497.9090**	**497.9090**	**0.0244**		**498.5194**

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					0.9865	0.0000	0.9865	0.1494	0.0000	0.1494			0.0000			0.0000
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553	0.0000	3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**	**0.9865**	**1.2427**	**2.2291**	**0.1494**	**1.1553**	**1.3047**	**0.0000**	**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

3.2 Demolition - 2022

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	0.0203	0.8712	0.1003	3.6400e-003	0.0807	1.8800e-003	0.0826	0.0221	1.7900e-003	0.0239		381.6699	381.6699	0.0210		382.1940
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
Worker	0.0637	0.0371	0.4504	1.1700e-003	0.1232	7.3000e-004	0.1240	0.0327	6.7000e-004	0.0334		116.2392	116.2392	3.4500e-003		116.3254
Total	**0.0839**	**0.9083**	**0.5507**	**4.8100e-003**	**0.2039**	**2.6100e-003**	**0.2065**	**0.0548**	**2.4600e-003**	**0.0573**		**497.9090**	**497.9090**	**0.0244**		**498.5194**

3.3 Site Preparation - 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					18.0677	0.0000	18.0677	9.9309	0.0000	9.9309			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**18.0677**	**1.6126**	**19.6803**	**9.9309**	**1.4836**	**11.4145**		**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

3.3 Site Preparation - 2022

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	5.7300e-003	0.2462	0.0284	1.0300e-003	0.0228	5.3000e-004	0.0233	6.2600e-003	5.1000e-004	6.7600e-003		107.8632	107.8632	5.9300e-003		108.0114
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
Worker	0.0764	0.0446	0.5404	1.4000e-003	0.1479	8.7000e-004	0.1487	0.0392	8.1000e-004	0.0400		139.4870	139.4870	4.1400e-003		139.5905
Total	**0.0821**	**0.2908**	**0.5688**	**2.4300e-003**	**0.1707**	**1.4000e-003**	**0.1721**	**0.0455**	**1.3200e-003**	**0.0468**		**247.3502**	**247.3502**	**0.0101**		**247.6018**

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					18.0677	0.0000	18.0677	9.9309	0.0000	9.9309			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**18.0677**	**1.6126**	**19.6803**	**9.9309**	**1.4836**	**11.4145**	**0.0000**	**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

3.3 Site Preparation - 2022

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	5.7300e-003	0.2462	0.0284	1.0300e-003	0.0228	5.3000e-004	0.0233	6.2600e-003	5.1000e-004	6.7600e-003		107.8632	107.8632	5.9300e-003		108.0114
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
Worker	0.0764	0.0446	0.5404	1.4000e-003	0.1479	8.7000e-004	0.1487	0.0392	8.1000e-004	0.0400		139.4870	139.4870	4.1400e-003		139.5905
Total	**0.0821**	**0.2908**	**0.5688**	**2.4300e-003**	**0.1707**	**1.4000e-003**	**0.1721**	**0.0455**	**1.3200e-003**	**0.0468**		**247.3502**	**247.3502**	**0.0101**		**247.6018**

3.4 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					6.6899	0.0000	6.6899	3.3824	0.0000	3.3824			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**6.6899**	**1.6349**	**8.3248**	**3.3824**	**1.5041**	**4.8865**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

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	4.9100e-003	0.2110	0.0243	8.8000e-004	0.0195	4.5000e-004	0.0200	5.3600e-003	4.3000e-004	5.8000e-003		92.4542	92.4542	5.0800e-003		92.5812
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
Worker	0.0849	0.0495	0.6005	1.5600e-003	0.1643	9.7000e-004	0.1653	0.0436	9.0000e-004	0.0445		154.9856	154.9856	4.6000e-003		155.1005
Total	**0.0898**	**0.2605**	**0.6248**	**2.4400e-003**	**0.1838**	**1.4200e-003**	**0.1853**	**0.0489**	**1.3300e-003**	**0.0503**		**247.4398**	**247.4398**	**9.6800e-003**		**247.6817**

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					6.6899	0.0000	6.6899	3.3824	0.0000	3.3824			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**6.6899**	**1.6349**	**8.3248**	**3.3824**	**1.5041**	**4.8865**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

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	4.9100e-003	0.2110	0.0243	8.8000e-004	0.0195	4.5000e-004	0.0200	5.3600e-003	4.3000e-004	5.8000e-003		92.4542	92.4542	5.0800e-003		92.5812
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
Worker	0.0849	0.0495	0.6005	1.5600e-003	0.1643	9.7000e-004	0.1653	0.0436	9.0000e-004	0.0445		154.9856	154.9856	4.6000e-003		155.1005
Total	**0.0898**	**0.2605**	**0.6248**	**2.4400e-003**	**0.1838**	**1.4200e-003**	**0.1853**	**0.0489**	**1.3300e-003**	**0.0503**		**247.4398**	**247.4398**	**9.6800e-003**		**247.6817**

3.5 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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

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
Vendor	0.4607	15.2459	3.1349	0.0511	1.1732	0.0207	1.1940	0.3379	0.0198	0.3577		5,332.2154	5,332.2154	0.4071		5,342.3928
Worker	1.8800	1.0970	13.3006	0.0345	3.6391	0.0215	3.6607	0.9653	0.0198	0.9851		3,432.9302	3,432.9302	0.1019		3,435.4764
Total	**2.3407**	**16.3429**	**16.4354**	**0.0855**	**4.8124**	**0.0423**	**4.8546**	**1.3032**	**0.0396**	**1.3428**		**8,765.1456**	**8,765.1456**	**0.5090**		**8,777.8692**

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

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
Vendor	0.4607	15.2459	3.1349	0.0511	1.1732	0.0207	1.1940	0.3379	0.0198	0.3577		5,332.2154	5,332.2154	0.4071		5,342.3928
Worker	1.8800	1.0970	13.3006	0.0345	3.6391	0.0215	3.6607	0.9653	0.0198	0.9851		3,432.9302	3,432.9302	0.1019		3,435.4764
Total	**2.3407**	**16.3429**	**16.4354**	**0.0855**	**4.8124**	**0.0423**	**4.8546**	**1.3032**	**0.0396**	**1.3428**		**8,765.1456**	**8,765.1456**	**0.5090**		**8,777.8692**

3.6 Paving - 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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.1303					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2332**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.6 Paving - 2022

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
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
Worker	0.0637	0.0371	0.4504	1.1700e-003	0.1232	7.3000e-004	0.1240	0.0327	6.7000e-004	0.0334		116.2392	116.2392	3.4500e-003		116.3254
Total	**0.0637**	**0.0371**	**0.4504**	**1.1700e-003**	**0.1232**	**7.3000e-004**	**0.1240**	**0.0327**	**6.7000e-004**	**0.0334**		**116.2392**	**116.2392**	**3.4500e-003**		**116.3254**

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.1303					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2332**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.6 Paving - 2022

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
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
Worker	0.0637	0.0371	0.4504	1.1700e-003	0.1232	7.3000e-004	0.1240	0.0327	6.7000e-004	0.0334		116.2392	116.2392	3.4500e-003		116.3254
Total	**0.0637**	**0.0371**	**0.4504**	**1.1700e-003**	**0.1232**	**7.3000e-004**	**0.1240**	**0.0327**	**6.7000e-004**	**0.0334**		**116.2392**	**116.2392**	**3.4500e-003**		**116.3254**

3.7 Architectural Coating - 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					
Archit. Coating	8.3279					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**8.5325**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

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
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
Worker	0.3777	0.2204	2.6721	6.9300e-003	0.7311	4.3300e-003	0.7354	0.1939	3.9800e-003	0.1979		689.6858	689.6858	0.0205		690.1973
Total	**0.3777**	**0.2204**	**2.6721**	**6.9300e-003**	**0.7311**	**4.3300e-003**	**0.7354**	**0.1939**	**3.9800e-003**	**0.1979**		**689.6858**	**689.6858**	**0.0205**		**690.1973**

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	8.3279					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**8.5325**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

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
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
Worker	0.3777	0.2204	2.6721	6.9300e-003	0.7311	4.3300e-003	0.7354	0.1939	3.9800e-003	0.1979		689.6858	689.6858	0.0205		690.1973
Total	**0.3777**	**0.2204**	**2.6721**	**6.9300e-003**	**0.7311**	**4.3300e-003**	**0.7354**	**0.1939**	**3.9800e-003**	**0.1979**		**689.6858**	**689.6858**	**0.0205**		**690.1973**

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	0.1403	1.0346	1.1786	5.0600e-003	0.2957	2.7900e-003	0.2985	0.0791	2.6100e-003	0.0817		517.7742	517.7742	0.0407		518.7924
Unmitigated	0.1403	1.0346	1.1786	5.0600e-003	0.2957	2.7900e-003	0.2985	0.0791	2.6100e-003	0.0817		517.7742	517.7742	0.0407		518.7924

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	46.63	64.77	64.77	110,620	110,620
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	46.63	64.77	64.77	110,620	110,620

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	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.542047	0.035396	0.174897	0.107230	0.017469	0.005327	0.008901	0.094756	0.001421	0.002157	0.008671	0.000709	0.001020
Other Asphalt Surfaces	0.542047	0.035396	0.174897	0.107230	0.017469	0.005327	0.008901	0.094756	0.001421	0.002157	0.008671	0.000709	0.001020
Other Non-Asphalt Surfaces	0.542047	0.035396	0.174897	0.107230	0.017469	0.005327	0.008901	0.094756	0.001421	0.002157	0.008671	0.000709	0.001020

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	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

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
Other Asphalt Surfaces	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
Other Non-Asphalt Surfaces	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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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
Other Asphalt Surfaces	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
Other Non-Asphalt Surfaces	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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.2160	1.3000e-004	0.0139	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0298	0.0298	8.0000e-005		0.0318
Unmitigated	0.2160	1.3000e-004	0.0139	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0298	0.0298	8.0000e-005		0.0318

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	0.0456					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1691					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2900e-003	1.3000e-004	0.0139	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0298	0.0298	8.0000e-005		0.0318
Total	**0.2160**	**1.3000e-004**	**0.0139**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0298**	**0.0298**	**8.0000e-005**		**0.0318**

6.2 Area by SubCategory

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	0.0456					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1691					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2900e-003	1.3000e-004	0.0139	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0298	0.0298	8.0000e-005		0.0318
Total	**0.2160**	**1.3000e-004**	**0.0139**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0298**	**0.0298**	**8.0000e-005**		**0.0318**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

29 Palms Pioneer Park

Mojave Desert AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
City Park	21.59	Acre	18.96	940,460.40	0
Other Asphalt Surfaces	86.56	1000sqft	1.99	86,562.00	0
Other Non-Asphalt Surfaces	27.94	1000sqft	0.64	27,940.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	30
Climate Zone	10			**Operational Year**	2022
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

29 Palms Pioneer Park - Mojave Desert AQMD Air District, Winter

Project Characteristics - The City of 29 Palms proposed a park and expansion of Theatre 29, located south of downtown within City limits.

Land Use - The entire project site is 21.59 acres. The City Park Building Area includes the addition of 3122 SF to Theatre 29, and two restrooms totaled 630 SF in the park.
Asphalt surfaces total 86562 SF, non-asphalt surfaces total 27940 SF.

Construction Phase - Assumes a 10-month construction starting 1/1/2022, ending approximately 10/1/2022.

Grading - Site needs import of 16904 cubic feet, equivalent to 626 cubic yards, assume material import occurs in both site preparation and grading phases.

Demolition - Demolition includes 1200 SF exterior wall, 272 SF concrete slab, 3477 SF asphalt paving at Theatre 29.

On-road Fugitive Dust - Access to the site will be from Sullivan and Adobe Rd, which are paved in the project area.

Vehicle Trips - According to ITE 9th edition, the park will generate 41 daily trips on weekdays, assume increase usership on weekends.

Energy Use -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	370.00	50.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	NumDays	20.00	40.00
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	PhaseEndDate	10/27/2023	9/9/2022
tblConstructionPhase	PhaseEndDate	9/1/2023	6/17/2022
tblConstructionPhase	PhaseEndDate	1/28/2022	1/7/2022
tblConstructionPhase	PhaseEndDate	4/1/2022	4/8/2022
tblConstructionPhase	PhaseEndDate	9/29/2023	8/12/2022
tblConstructionPhase	PhaseEndDate	2/11/2022	2/18/2022
tblConstructionPhase	PhaseStartDate	9/30/2023	8/13/2022
tblConstructionPhase	PhaseStartDate	4/2/2022	4/9/2022
tblConstructionPhase	PhaseStartDate	2/12/2022	2/19/2022
tblConstructionPhase	PhaseStartDate	9/2/2023	6/18/2022
tblConstructionPhase	PhaseStartDate	1/29/2022	1/8/2022
tblGrading	AcresOfGrading	87.50	22.00
tblGrading	MaterialImported	0.00	313.00
tblGrading	MaterialImported	0.00	313.00
tblLandUse	LandUseSquareFeet	86,560.00	86,562.00
tblLandUse	LotAcreage	21.59	18.96
tblVehicleTrips	ST_TR	22.75	3.00
tblVehicleTrips	SU_TR	16.74	3.00
tblVehicleTrips	WD_TR	1.89	2.16

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	8.8901	39.1027	30.7224	0.1058	18.2384	1.6363	19.8524	9.9764	1.5054	11.4613	0.0000	10,641.5728	10,641.5728	1.9539	0.0000	10,670.5891
Maximum	**8.8901**	**39.1027**	**30.7224**	**0.1058**	**18.2384**	**1.6363**	**19.8524**	**9.9764**	**1.5054**	**11.4613**	**0.0000**	**10,641.5728**	**10,641.5728**	**1.9539**	**0.0000**	**10,670.5891**

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	8.8901	39.1027	30.7224	0.1058	18.2384	1.6363	19.8524	9.9764	1.5054	11.4613	0.0000	10,641.5728	10,641.5728	1.9539	0.0000	10,670.5891
Maximum	**8.8901**	**39.1027**	**30.7224**	**0.1058**	**18.2384**	**1.6363**	**19.8524**	**9.9764**	**1.5054**	**11.4613**	**0.0000**	**10,641.5728**	**10,641.5728**	**1.9539**	**0.0000**	**10,670.5891**

	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**

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	0.2160	1.3000e-004	0.0139	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0298	0.0298	8.0000e-005		0.0318
Energy	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
Mobile	0.1178	1.0118	1.0571	4.5900e-003	0.2957	2.8300e-003	0.2985	0.0791	2.6500e-003	0.0818		470.0642	470.0642	0.0438		471.1593
Total	**0.3338**	**1.0120**	**1.0710**	**4.5900e-003**	**0.2957**	**2.8800e-003**	**0.2986**	**0.0791**	**2.7000e-003**	**0.0818**		**470.0940**	**470.0940**	**0.0439**	**0.0000**	**471.1910**

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	0.2160	1.3000e-004	0.0139	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0298	0.0298	8.0000e-005		0.0318
Energy	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
Mobile	0.1178	1.0118	1.0571	4.5900e-003	0.2957	2.8300e-003	0.2985	0.0791	2.6500e-003	0.0818		470.0642	470.0642	0.0438		471.1593
Total	**0.3338**	**1.0120**	**1.0710**	**4.5900e-003**	**0.2957**	**2.8800e-003**	**0.2986**	**0.0791**	**2.7000e-003**	**0.0818**		**470.0940**	**470.0940**	**0.0439**	**0.0000**	**471.1910**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2022	1/7/2022	5	5	
2	Site Preparation	Site Preparation	1/8/2022	2/18/2022	5	30	
3	Grading	Grading	2/19/2022	4/8/2022	5	35	
4	Building Construction	Building Construction	4/9/2022	6/17/2022	5	50	
5	Paving	Paving	6/18/2022	8/12/2022	5	40	
6	Architectural Coating	Architectural Coating	8/13/2022	9/9/2022	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 22

Acres of Paving: 2.63

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 5,628; Non-Residential Outdoor: 1,876; Striped Parking Area: 6,870 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Demolition	Excavators	3	8.00	158	0.38
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Grading	Excavators	2	8.00	158	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Paving	Pavers	2	8.00	130	0.42
Paving	Rollers	2	8.00	80	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Paving	Paving Equipment	2	8.00	132	0.36
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Grading	Scrapers	2	8.00	367	0.48
Building Construction	Welders	1	8.00	46	0.45

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	23.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	39.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	39.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	443.00	173.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	89.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 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					0.9865	0.0000	0.9865	0.1494	0.0000	0.1494			0.0000			0.0000
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553		3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**	**0.9865**	**1.2427**	**2.2291**	**0.1494**	**1.1553**	**1.3047**		**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

3.2 Demolition - 2022

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	0.0218	0.8602	0.1285	3.5100e-003	0.0807	1.9000e-003	0.0826	0.0221	1.8200e-003	0.0240		367.9930	367.9930	0.0238		368.5884
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
Worker	0.0603	0.0381	0.3582	1.0200e-003	0.1232	7.3000e-004	0.1240	0.0327	6.7000e-004	0.0334		102.0916	102.0916	2.9600e-003		102.1655
Total	**0.0821**	**0.8984**	**0.4866**	**4.5300e-003**	**0.2039**	**2.6300e-003**	**0.2065**	**0.0548**	**2.4900e-003**	**0.0573**		**470.0846**	**470.0846**	**0.0268**		**470.7539**

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					0.9865	0.0000	0.9865	0.1494	0.0000	0.1494			0.0000			0.0000
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553	0.0000	3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**	**0.9865**	**1.2427**	**2.2291**	**0.1494**	**1.1553**	**1.3047**	**0.0000**	**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

3.2 Demolition - 2022

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	0.0218	0.8602	0.1285	3.5100e-003	0.0807	1.9000e-003	0.0826	0.0221	1.8200e-003	0.0240		367.9930	367.9930	0.0238		368.5884
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
Worker	0.0603	0.0381	0.3582	1.0200e-003	0.1232	7.3000e-004	0.1240	0.0327	6.7000e-004	0.0334		102.0916	102.0916	2.9600e-003		102.1655
Total	**0.0821**	**0.8984**	**0.4866**	**4.5300e-003**	**0.2039**	**2.6300e-003**	**0.2065**	**0.0548**	**2.4900e-003**	**0.0573**		**470.0846**	**470.0846**	**0.0268**		**470.7539**

3.3 Site Preparation - 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					18.0677	0.0000	18.0677	9.9309	0.0000	9.9309			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**18.0677**	**1.6126**	**19.6803**	**9.9309**	**1.4836**	**11.4145**		**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

3.3 Site Preparation - 2022

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	6.1600e-003	0.2431	0.0363	9.9000e-004	0.0228	5.4000e-004	0.0233	6.2600e-003	5.1000e-004	6.7700e-003		103.9980	103.9980	6.7300e-003		104.1663
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
Worker	0.0723	0.0458	0.4298	1.2300e-003	0.1479	8.7000e-004	0.1487	0.0392	8.1000e-004	0.0400		122.5099	122.5099	3.5500e-003		122.5986
Total	**0.0785**	**0.2889**	**0.4661**	**2.2200e-003**	**0.1707**	**1.4100e-003**	**0.1721**	**0.0455**	**1.3200e-003**	**0.0468**		**226.5079**	**226.5079**	**0.0103**		**226.7649**

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					18.0677	0.0000	18.0677	9.9309	0.0000	9.9309			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**18.0677**	**1.6126**	**19.6803**	**9.9309**	**1.4836**	**11.4145**	**0.0000**	**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

3.3 Site Preparation - 2022

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	6.1600e-003	0.2431	0.0363	9.9000e-004	0.0228	5.4000e-004	0.0233	6.2600e-003	5.1000e-004	6.7700e-003		103.9980	103.9980	6.7300e-003		104.1663
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
Worker	0.0723	0.0458	0.4298	1.2300e-003	0.1479	8.7000e-004	0.1487	0.0392	8.1000e-004	0.0400		122.5099	122.5099	3.5500e-003		122.5986
Total	**0.0785**	**0.2889**	**0.4661**	**2.2200e-003**	**0.1707**	**1.4100e-003**	**0.1721**	**0.0455**	**1.3200e-003**	**0.0468**		**226.5079**	**226.5079**	**0.0103**		**226.7649**

3.4 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					6.6899	0.0000	6.6899	3.3824	0.0000	3.3824			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041		6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**6.6899**	**1.6349**	**8.3248**	**3.3824**	**1.5041**	**4.8865**		**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

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	5.2800e-003	0.2084	0.0311	8.5000e-004	0.0195	4.6000e-004	0.0200	5.3600e-003	4.4000e-004	5.8000e-003		89.1412	89.1412	5.7700e-003		89.2854
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
Worker	0.0804	0.0509	0.4776	1.3700e-003	0.1643	9.7000e-004	0.1653	0.0436	9.0000e-004	0.0445		136.1221	136.1221	3.9400e-003		136.2207
Total	**0.0856**	**0.2592**	**0.5087**	**2.2200e-003**	**0.1838**	**1.4300e-003**	**0.1853**	**0.0489**	**1.3400e-003**	**0.0503**		**225.2633**	**225.2633**	**9.7100e-003**		**225.5061**

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					6.6899	0.0000	6.6899	3.3824	0.0000	3.3824			0.0000			0.0000
Off-Road	3.6248	38.8435	29.0415	0.0621		1.6349	1.6349		1.5041	1.5041	0.0000	6,011.4105	6,011.4105	1.9442		6,060.0158
Total	**3.6248**	**38.8435**	**29.0415**	**0.0621**	**6.6899**	**1.6349**	**8.3248**	**3.3824**	**1.5041**	**4.8865**	**0.0000**	**6,011.4105**	**6,011.4105**	**1.9442**		**6,060.0158**

3.4 Grading - 2022

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	5.2800e-003	0.2084	0.0311	8.5000e-004	0.0195	4.6000e-004	0.0200	5.3600e-003	4.4000e-004	5.8000e-003		89.1412	89.1412	5.7700e-003		89.2854
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
Worker	0.0804	0.0509	0.4776	1.3700e-003	0.1643	9.7000e-004	0.1653	0.0436	9.0000e-004	0.0445		136.1221	136.1221	3.9400e-003		136.2207
Total	**0.0856**	**0.2592**	**0.5087**	**2.2200e-003**	**0.1838**	**1.4300e-003**	**0.1853**	**0.0489**	**1.3400e-003**	**0.0503**		**225.2633**	**225.2633**	**9.7100e-003**		**225.5061**

3.5 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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

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
Vendor	0.4945	14.9169	3.7804	0.0486	1.1732	0.0213	1.1945	0.3379	0.0203	0.3582		5,072.1342	5,072.1342	0.4614		5,083.6685
Worker	1.7801	1.1264	10.5786	0.0303	3.6391	0.0215	3.6607	0.9653	0.0198	0.9851		3,015.1051	3,015.1051	0.0873		3,017.2884
Total	**2.2745**	**16.0433**	**14.3590**	**0.0789**	**4.8124**	**0.0428**	**4.8552**	**1.3032**	**0.0402**	**1.3433**		**8,087.2393**	**8,087.2393**	**0.5487**		**8,100.9569**

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

3.5 Building Construction - 2022

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
Vendor	0.4945	14.9169	3.7804	0.0486	1.1732	0.0213	1.1945	0.3379	0.0203	0.3582		5,072.1342	5,072.1342	0.4614		5,083.6685
Worker	1.7801	1.1264	10.5786	0.0303	3.6391	0.0215	3.6607	0.9653	0.0198	0.9851		3,015.1051	3,015.1051	0.0873		3,017.2884
Total	**2.2745**	**16.0433**	**14.3590**	**0.0789**	**4.8124**	**0.0428**	**4.8552**	**1.3032**	**0.0402**	**1.3433**		**8,087.2393**	**8,087.2393**	**0.5487**		**8,100.9569**

3.6 Paving - 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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225		2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.1303					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2332**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**		**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.6 Paving - 2022

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
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
Worker	0.0603	0.0381	0.3582	1.0200e-003	0.1232	7.3000e-004	0.1240	0.0327	6.7000e-004	0.0334		102.0916	102.0916	2.9600e-003		102.1655
Total	**0.0603**	**0.0381**	**0.3582**	**1.0200e-003**	**0.1232**	**7.3000e-004**	**0.1240**	**0.0327**	**6.7000e-004**	**0.0334**		**102.0916**	**102.0916**	**2.9600e-003**		**102.1655**

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	1.1028	11.1249	14.5805	0.0228		0.5679	0.5679		0.5225	0.5225	0.0000	2,207.6603	2,207.6603	0.7140		2,225.5104
Paving	0.1303					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2332**	**11.1249**	**14.5805**	**0.0228**		**0.5679**	**0.5679**		**0.5225**	**0.5225**	**0.0000**	**2,207.6603**	**2,207.6603**	**0.7140**		**2,225.5104**

3.6 Paving - 2022

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
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
Worker	0.0603	0.0381	0.3582	1.0200e-003	0.1232	7.3000e-004	0.1240	0.0327	6.7000e-004	0.0334		102.0916	102.0916	2.9600e-003		102.1655
Total	**0.0603**	**0.0381**	**0.3582**	**1.0200e-003**	**0.1232**	**7.3000e-004**	**0.1240**	**0.0327**	**6.7000e-004**	**0.0334**		**102.0916**	**102.0916**	**2.9600e-003**		**102.1655**

3.7 Architectural Coating - 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					
Archit. Coating	8.3279					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**8.5325**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

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
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
Worker	0.3576	0.2263	2.1253	6.0800e-003	0.7311	4.3300e-003	0.7354	0.1939	3.9800e-003	0.1979		605.7435	605.7435	0.0175		606.1821
Total	**0.3576**	**0.2263**	**2.1253**	**6.0800e-003**	**0.7311**	**4.3300e-003**	**0.7354**	**0.1939**	**3.9800e-003**	**0.1979**		**605.7435**	**605.7435**	**0.0175**		**606.1821**

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	8.3279					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**8.5325**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.7 Architectural Coating - 2022

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
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
Worker	0.3576	0.2263	2.1253	6.0800e-003	0.7311	4.3300e-003	0.7354	0.1939	3.9800e-003	0.1979		605.7435	605.7435	0.0175		606.1821
Total	**0.3576**	**0.2263**	**2.1253**	**6.0800e-003**	**0.7311**	**4.3300e-003**	**0.7354**	**0.1939**	**3.9800e-003**	**0.1979**		**605.7435**	**605.7435**	**0.0175**		**606.1821**

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	0.1178	1.0118	1.0571	4.5900e-003	0.2957	2.8300e-003	0.2985	0.0791	2.6500e-003	0.0818		470.0642	470.0642	0.0438		471.1593
Unmitigated	0.1178	1.0118	1.0571	4.5900e-003	0.2957	2.8300e-003	0.2985	0.0791	2.6500e-003	0.0818		470.0642	470.0642	0.0438		471.1593

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
City Park	46.63	64.77	64.77	110,620	110,620
Other Asphalt Surfaces	0.00	0.00	0.00		
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Total	46.63	64.77	64.77	110,620	110,620

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	9.50	7.30	7.30	33.00	48.00	19.00	66	28	6
Other Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Other Non-Asphalt Surfaces	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
City Park	0.542047	0.035396	0.174897	0.107230	0.017469	0.005327	0.008901	0.094756	0.001421	0.002157	0.008671	0.000709	0.001020
Other Asphalt Surfaces	0.542047	0.035396	0.174897	0.107230	0.017469	0.005327	0.008901	0.094756	0.001421	0.002157	0.008671	0.000709	0.001020
Other Non-Asphalt Surfaces	0.542047	0.035396	0.174897	0.107230	0.017469	0.005327	0.008901	0.094756	0.001421	0.002157	0.008671	0.000709	0.001020

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	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	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

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
Other Asphalt Surfaces	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
Other Non-Asphalt Surfaces	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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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
Other Asphalt Surfaces	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
Other Non-Asphalt Surfaces	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
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

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	0.2160	1.3000e-004	0.0139	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0298	0.0298	8.0000e-005		0.0318
Unmitigated	0.2160	1.3000e-004	0.0139	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0298	0.0298	8.0000e-005		0.0318

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	0.0456					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1691					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2900e-003	1.3000e-004	0.0139	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0298	0.0298	8.0000e-005		0.0318
Total	**0.2160**	**1.3000e-004**	**0.0139**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0298**	**0.0298**	**8.0000e-005**		**0.0318**

6.2 Area by SubCategory

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	0.0456					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.1691					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	1.2900e-003	1.3000e-004	0.0139	0.0000		5.0000e-005	5.0000e-005		5.0000e-005	5.0000e-005		0.0298	0.0298	8.0000e-005		0.0318
Total	**0.2160**	**1.3000e-004**	**0.0139**	**0.0000**		**5.0000e-005**	**5.0000e-005**		**5.0000e-005**	**5.0000e-005**		**0.0298**	**0.0298**	**8.0000e-005**		**0.0318**

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B

Biological Resources Report

and

Delineation of Jurisdictional Waters

BIOLOGICAL RESOURCES ASSESSMENT REPORT
Pioneer Park Project

Twentynine Palms
San Bernardino County
California

Submitted to:

Terra Nova Planning and Research, Inc.
42635 Melanie Place, Suite 101
Palm Desert, CA 92211
Tel: (760) 341-4800
Fax: (760) 341-4455
Contact: Nicole Criste, Principal

Submitted by:

Wood Environment & Infrastructure Solutions, Inc.
1845 Chicago Avenue, Suite D
Riverside, CA 92507
Tel: (951) 369-8060
Fax: (951) 369-8035

Contact: Lisa Wadley
Project Coordinator/Senior Wildlife Biologist
lisa.wadley@woodplc.com

28 August 2020

BIOLOGICAL RESOURCES ASSESSMENT REPORT
Pioneer Park Project

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BIOLOGICAL RESOURCES ASSESSMENT REPORT
Pioneer Park Project

1.0 INTRODUCTION

Wood Environment & Infrastructure Solutions, Inc. (Wood) was contracted by Terra Nova Planning and Research Inc., (Terra Nova/client) to conduct a biological resources assessment and report for an approximately 20-acre project site located in the city of Twentynine Palms, San Bernardino County, California. The proposed project involves the development of the existing parcel that is generally located at southwest corner of the intersection of Sullivan Road and Adobe Road, in the city of Twentynine Palms, San Bernardino County, California.

The city of Twentynine Palms requires a biological resources assessment in compliance with the California Environmental Quality Act (CEQA) requirements.

2.0 PROJECT LOCATION

The approximately 20-acre area parcel of land is generally located south of Twentynine Palms Highway and west of Utah Trail (Figure 1). The biological survey area (BSA) is generally located at the southwest corner of Sullivan Road and Adobe Road, Twentynine Palms, California (Figure 2). Specifically, the BSA is located within Section 32, Township 1 North, Range 9 East, as shown on Twentynine Palms and Queen Mountain California quadrangles.

The elevational range of the BSA is from approximately 2,020 feet (615 meters) above mean sea level (ASML) along the northeast boundary (i.e., Sullivan Road), to approximately 2,050 feet (625 meters) ASML along the southwestern boundary (i.e., Foothill Drive). The geographic coordinates for the approximate center of the BSA (i.e., Boling Drive) are 34°7'35.40" North latitude and 116°3'26.19" West longitude.

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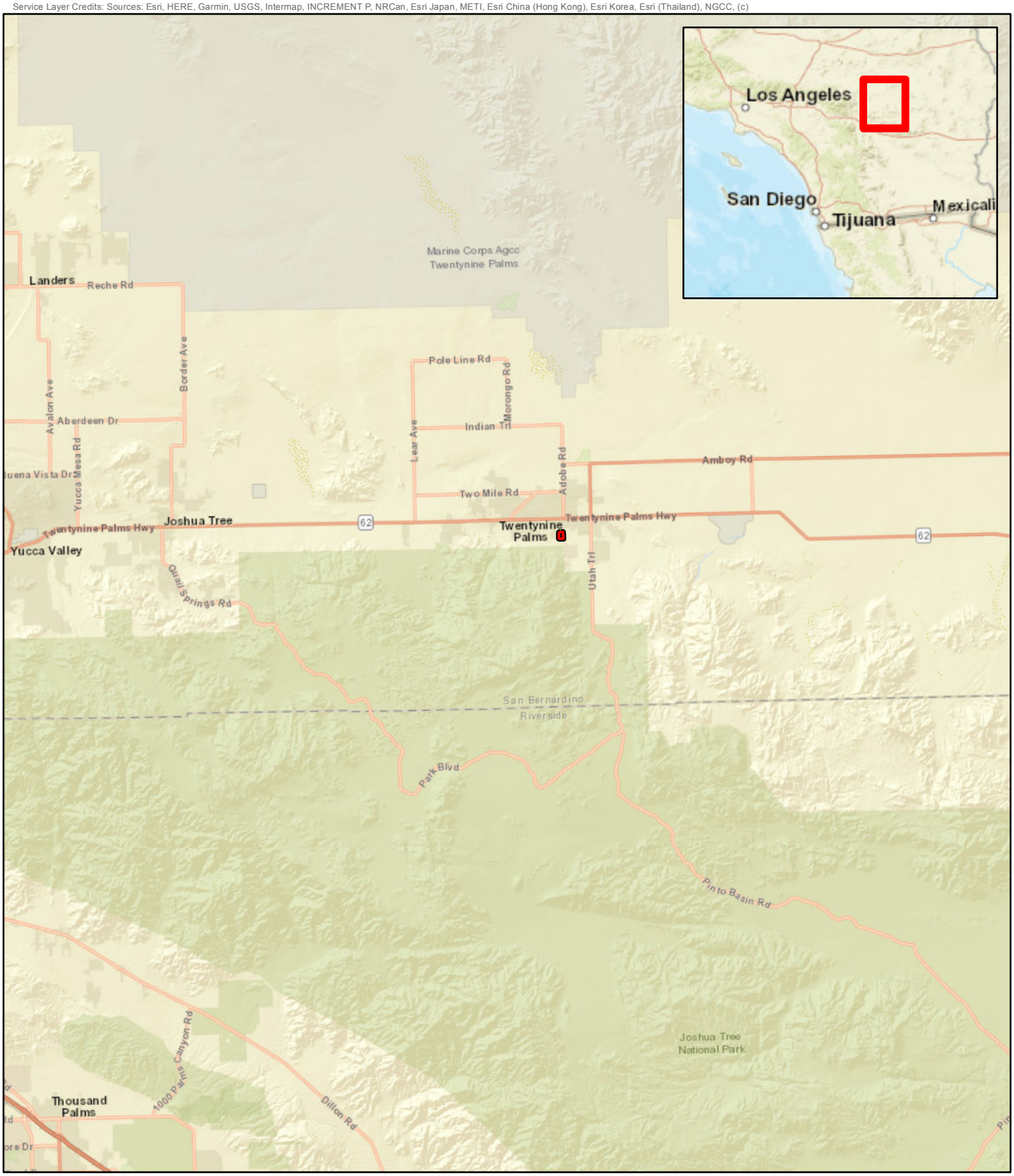

Path: Q:\3554_NaturalResources\PioneerPark_322520103\MXD\ReportFigures\Bio\Fig1_Regional.mxd, chris.nixon 7/29/2020

1 inch = 5 miles
0 2.5 5 Miles

wood.

Project Boundary

FIGURE 1

Vicnity and Location
General Biological Assessment
Pioneer Park Project
Twentynine Palms, CA.

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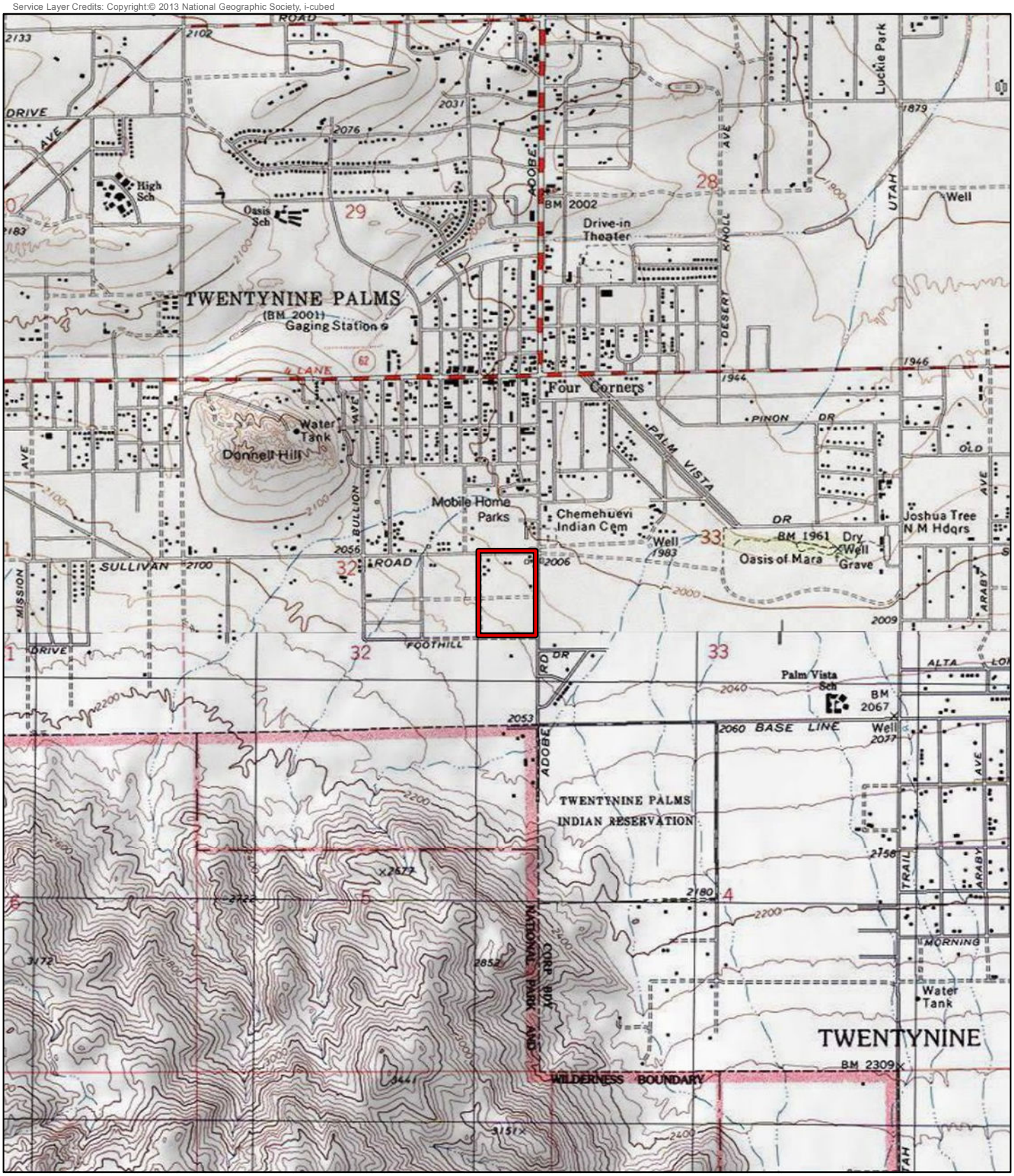

Path: Q:\3554_NaturalResources\PioneerPark_322520103\MXD\ReportFigures\Bio\Fig2_USGS.mxd, chris.nixon 7/29/2020

1 inch = 2,000 feet
0 1,000 2,000 Feet

wood.

Project Boundary

FIGURE 2

Project Location on USGS Topo
General Biological Assessment
Pioneer Park Project
Twentynine Palms, CA.

3.0 PROJECT DESCRIPTION & BACKGROUND

3.1 Project Description

Most of the proposed project site is undeveloped except for a theater that is located within the northeast corner of the parcel, occupied residential homes in the northwest corner, and south border of the parcel. Currently there is no definitive site plan and proposed plans include the development of the entire parcel.

4.0 METHODS

4.1 Literature Review

In preparation of the field assessment, a literature search was conducted to identify special status biological resources known from the vicinity of the BSA. In the context of, and for the purpose of this report, vicinity is defined as areas within a one-mile radius of the BSA.
The literature search included a review of the following documents:

- California Natural Diversity Data Base (CNDDB) RareFind 5 (CDFW 2020a)
- Special Animals List (CDFW 2020b)
- California Native Plant Society's (CNPS) Inventory of Rare, Threatened, and Endangered Plants of California (CNPS 2020a)
- Twentynine Palms Plan (Twentynine Palms General Plan (2012)
- USDA, NRCS. Web Soil Survey (USDA, NRCS 2020a)
- United States Geological Survey (USGS) 7.5' *Twentynine Palms, Queen Mountain, Sunfair, and Valley Mountain, California quadrangles* (USGS 2020)

Scientific nomenclature for this document follows standard reference sources: For plant communities, Sawyer et al (2009) and/or Holland (1986); for flora, Jepson eFlora (2020) and the USDA NRCS PLANTS Database (2020); for amphibians, reptiles, and mammals, CDFW (2020); and for birds, American Ornithologists Union (2020).

4.2 Twentynine Palms General Plan

The Twentynine Palms General Plan describes the existing environment, provides a town history, and establishes a hierarchy for land use policies, programs, goals, standards and guidelines for the development of the lands. The general plan also sets the guiding principles for residential, commercial, and industrial structures; circulation; recreation; open space and conservation; safety; air quality; noise; and community design. More specifically, the Twentynine Palms General Plan Land Use Map designates and distributes land use for parks and recreation purposes, biological resources, natural resources (i.e., energy and water), and areas worthy of special protection, in addition to lands available for future development.

4.3 The West Mojave Plan

The West Mojave Plan is a habitat conservation plan that has not been adopted yet. The West Mojave Plan will serve as a habitat conservation plan for both public and private entities in the West Mojave Desert in California. It will encompass approximately 3.6 million acres of public land and 2.8 million acres of private land that will include deserts throughout San Bernardino, Kern, Inyo, and Los Angeles Counites. Once the plan is drafted the City (of Twentynine Palms) will consider whether to implement or be a party to the plan. Portions of the plan include the requiring focused surveys for Special Status Species, burrowing owl, and sensitive plants where suitable habitat is present.

4.4 Field Assessment

The field assessment of the BSA was conducted on 31 July 2020 by Wood senior Wildlife biologist Lisa Wadley. On-site suitable habitats were assessed based on the presence or absence of habitat components (e.g., soils, vegetation, and topography) characteristic of the potentially occurring special status biological resources determined by the literature review. The BSA was surveyed on foot to record pertinent field data and current site conditions. All flora and fauna observed or otherwise detected (e.g., through vocalizations, presence of scat, tracks, bones and/or remains) during the course of this assessment were identified and recorded in field notes and are included in Appendices 1 and 2. Dominant, co-dominant and co-occurring plant species observed were recorded in field notes and used in the determination of the on-site vegetation communities. Printed aerial photographs were used to aid in locating parcel boundaries and edges of plant communities. General weather and site conditions were also recorded at the beginning and end of the survey. Temperatures and wind speeds were recorded with a handheld Kestrel 2000 anemometer. Percent cloud cover was estimated.

5.0 RESULTS

5.1 Weather Conditions

Weather conditions during the assessment were mild for this area at this time of year. Skies were clear with no cloud cover. Temperatures ranged from 93 to 98 degrees Fahrenheit. Winds were calm with wind speeds of mostly 1 to 3 mph.

5.2 Topography and Soils

The elevational range of the BSA is from approximately 2,020 feet (615 meters) above mean sea level (ASML) along the northeast boundary (i.e., Sullivan Road), to approximately 2,050 feet (625 meters) ASML along the southwestern boundary (i.e., Foothill Drive).

A review of the on-site soils (based on the San Bernardino County, California, Mojave River Area, Soil Survey [USDA, NRCS Soil Survey Staff 2020b]) found that there is no digital data available for the BSA.

Soils and substrates on the BSA the soils are typical course sandy desert soil with low organic content. No hydric soils were observed onsite. Existing disturbed and developed areas consisted of paved and unimproved public and private roads (Appendix 3, Photographic Exhibits). Areas of illegal dumping were also observed. No sand dunes, hummocks, clay lenses, springs, seeps, or natural bodies of water were evident in the BSA.

5.3 National Wetland Inventory

Review of the National Wetlands Inventory (NWI) indicated that approximately one drainage, which is a blue-line streams, that traverses the south half of the BSA. The NWI mapper online shows one desert wash flowing through the survey area classified as Riverine, Intermittent, Streambed, Intermittently Flooded (R4SBJ). A jurisdictional delineation was conducted in the BSA for the proposed project. Results of the jurisdictional delineation are included in a separate report.

5.4 Habitat Description and Environmental Setting

The BSA is located within the Mojave Desert biome in a portion of the western Mojave Desert in San Bernardino County, California. The surrounding area is characterized by a patchwork-like distribution of undeveloped, relatively natural open space, rural residential dwellings, and a network of paved and unimproved roadways, the BSA remains largely undeveloped. A few occupied homes are in the northwest corner, a theater with paved parking lot in the northeast corner of the parcel, and an occupied residence along the south boundary. The remaining portions of the parcel are undeveloped. The area is generally flat, sandy with some rocky substrates interspersed throughout the site and intermittent small wash rivulets running north/south through the site.

The paved and unimproved roadways bordering and bisecting the BSA include, but are not limited to Sullivan Road, Adobe Road, Foothill Drive, and Tamarisk/Yucca Avenue. With the exception of adjacent habitat fragmentation resulting from the development of the existing residential dwellings, paved and unimproved roads; the open space within the BSA have received only relatively minor levels of disturbance, primarily as a result of off-road vehicular use, dumping and anthropogenic “edge effects”. These “edge effects” include some vegetation clearing/weed abatement, establishment of dirt trails, trash deposition/accumulation and use by domestic pets (sign of domestic dogs observed).

The dominant vegetation community within the BSA is Larrea tridentata Shrubland Alliance (Creosote bush scrub) (Sawyer et. al 2009). Holland (1986) refers to these vegetation communities as "Mojave creosote bush scrub" (Figure 3).

Dominant perennial shub species observed included: creosote bush (Larrea tridentata), white bur-sage (*Ambrosia dumosa*), cheesebush (*Ambrosia salsola*), catclaw (*Senegalia greggii*), and fourwing saltbush (*Atriplex canescens*). Perennial succulent species observed include Mojave yucca (*Yucca schidigera*), silver cholla (*Cylindropuntia echinocarpa*), pencil cholla (*Cylindropuntia ramosissima*), Englemann's hedgehog cactus (*Echinocereus engelmannii*), beavertail prickleypear (*Opuntia basilaris*). Dominant annual plant species observed included: devil's spineflower (*Chorizanthe rigida*), flat topped buckwheat (*Eriogonum deflexum*), desert trumpet (*Eriogonum inflatum*), Thomas' buckwheat (*Eriogonum thomasii*), and downy chess (Bromus tectorum). Other annuals observed include Russian thistle (*Salsola tragus*), ripgut brome (*Bromus diandrus*), Arabian schismus (Schismus arabicus), big galleta grass (*Hilaria ridigda*), redstem filaree (Erodium cicutarium), cryptantha (*Cryptantha* sp.), clavate fruited primrose (*Chylismia claviformis*), , common Mediterranean grass (Schismus barbatus), and desert sand mat (*Chamaesyce polycarpa*). Sparse Mexican palo verde (*Parkinsonia aculeata*), honey mesquite (Prosopis glandulosa), desert willow (*Chilopsis linearis*), and athel (*Tamarix aphylla*) were also observed and were associated with the development within the BSA. No special status vegetation communities were observed within the BSA. A list of the plant species (scientific and common names) observed is appended to this report (Appendix 1).

5.5 Wildlife

Wildlife directly observed and/or detected otherwise (e.g., scat, bones, prints, feathers, burrows, etc.) within the BSA was not abundant or diverse, possibly due to the inclement (i.e., rainy) weather present during the assessment. A total of fifteen (15) vertebrates were detected. Most were identified to species; except for some rodents, which were identified to class through the presence of burrows. Identification of the species of rodents occurring on the site would require a live trapping effort. Vertebrate fauna detected included: three (3) reptile, eight (8) birds and four (4) mammals. No fish or amphibians were detected. See Appendices 2 & 3 for a complete list of all wildlife species detected.

Common side-blotched lizard (*Uta stansburiana*), western zebra-tailed lizard (*Callisaurus draconoides rhodostictus*), and Great Basin whiptail (*Aspidoscelis tigris tigris*) were the only reptile species detected during the field surveys. A variety of other species are expected to occur, however. These include, but are not limited to: desert banded gecko (*Coleonyx variegatus variegatus*), yellow-backed spiny lizard (Sceloporus uniformis), northern desert horned lizard (*Phrynosoma platyrhinos platyrhinos*), glossy snake (*Arizona elegans eburnata*), Great Basin

gopher snake (*Pituophis catenifer deserticola*), red racer (*Coluber flagellum piceus*) and northern Mojave rattlesnake (*Crotalus scutulatus scutulatus*).

The eight (8) common species of birds observed on-site included: mourning dove (*Zenaida macroura*), rock pigeon (*Columba livia*), common raven (*Corvus corax*), Cooper's hawk (*Accipiter cooperii*), Gambell's quail (*Callipepla gambelii*), greater roadrunner (*Geococcyx californianus*), verdin (*Auriparus flaviceps*), and cactus wren (*Campylorhynchus brunneicapillus*).

Representative examples of other common bird species that are expected to occur include, but are not limited to: loggerhead shrike (*Lanius ludovicianus*), American kestrel (*Falco sparverius*), horned lark (*Eremophila alpestris*), European starling (*Sturnus vulgaris*), house finch (*Haemorhous mexicanus*) and Costa's hummingbird (*Calypte costae*).

The four (4) mammals detected included: black-tailed jackrabbit (*Lepus californicus*), desert cottontail (*Sylvilagus audubonii*), coyote (*Canis latrans*), white-tailed antelope squirrel (*Ammospermophilus leucurus*) and other small rodents (species undetermined but rodent burrows present). Other small mammals, particularly rodents, occur on the site as small mammal burrows were observed; however, the species that are present cannot be conclusively determined without a more intensive trapping effort. Although not observed, bats also are likely foraging over the site as suitable roosting habitat is present nearby within the abandon buildings or rocky hillsides. Domestic mammals (i.e., dogs, cats and livestock) are also likely kept by residents surrounding the BSA. Larger carnivores such as the kit fox (*Vulpes macrotis*), gray fox (*Urocyon cinereoargenteus*) and bobcat (*Lynx rufus*) were not detected but have the potential to occur in the BSA as well.

It should be noted that relatively short-term biological studies of this nature are often limited by the timing of field surveys, the seasonality of annual plants, the migratory habits of many birds, the fossorial and nocturnal habits of many invertebrates, reptiles and mammals. Knowledge of habitat associations, natural history, seasonality, and distribution is essential in the assessment of the potential for occurrence of the various sensitive plants and animals known to occur throughout the various areas of San Bernardino County. For these reasons, other common and special status species that were not observed on-site may also have the potential to occur based on their geographic distribution, habitat preferences, and the regional location of the site. Tables 1 through 5 below summarize information on sensitive species known to occur in the vicinity of the BSA, including the status of each species based on the best available information and the collective expertise of Wood biologists.

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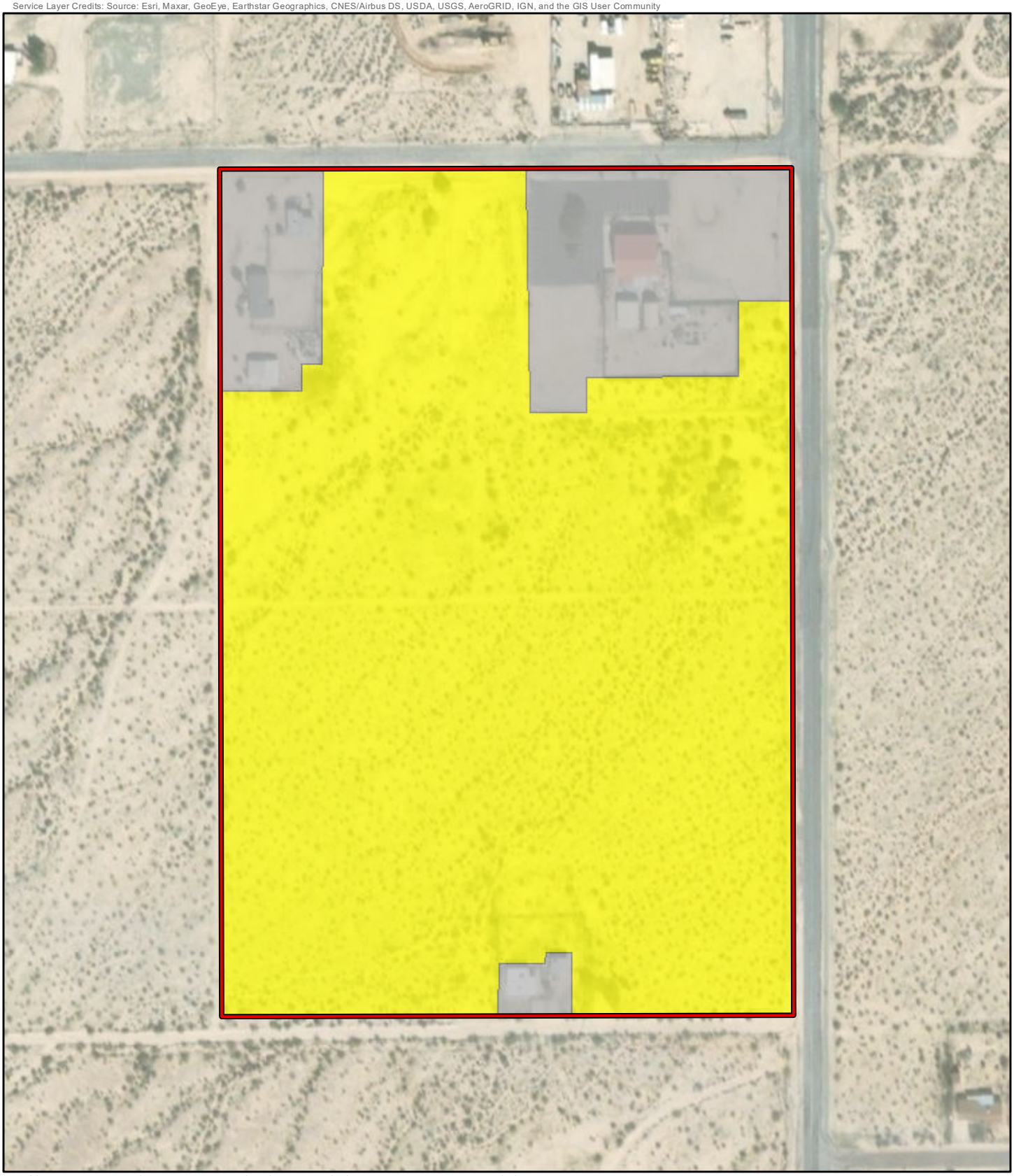
Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



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1 inch = 200 feet

0 100 200 Feet

wood.

Project Boundary

Creosote Bush Scrub

Developed/Disturbed

FIGURE 3

Vegetation
General Biological Assessment
Pioneer Park Project
Twentynine Palms, CA.

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5.6 Special Status Species

Plant or animal taxa may be considered "sensitive" or as having “special status” due to declining populations, vulnerability to habitat change, or because they have restricted ranges. Some are listed as threatened or endangered by the USFWS or by the CDFW and are protected by the federal and state Endangered Species acts and the NPPA. Others have been identified as sensitive or as special status species by the USFWS, the BLM, the CDFW, or by private conservation organizations, including the CNPS.

The review of the CNDDB, CNPS Online Inventory of Rare Plants, draft MSHCP documents, other biological reports from the vicinity and consultation with other experienced biologists/naturalists resulted in the identification of twenty-six (26) special status biological resources known to occur in the vicinity (within an approximate 1-mile radius) of the BSA. These included: sixteen (16) plants, two (2) reptiles, two (2) birds, five (5) mammals, and one (1) sensitive habitat. These include federal and state-listed species, SSCs, BLM sensitive species and plant species designated as rare and/or imperiled by the CNPS. Tables 1 through 7 provide a complete list of the special status species, their associated legal status, habitat associations and their respective on-site occurrence potentials.

No special status species were observed during field survey on 31 July 2020.

Table 1. Special Status Plants

Species	Status	Habitat	Probability
Astragalus bernardinus **San Bernardino milk-vetch**	F: None C: None CNPS: List 1B.2 Global rank: G3 State rank: S3 BLM: Sensitive USFWS: Sensitive	Perennial herb found in 2,950 to 6,562 elevation in Joshua tree woodland and pinyon and juniper woodland, usually on granitic or carbonates (e.g. limestone).	**Absent.** Suitable habitat (Joshua tree woodland, pinyon and juniper woodland) is not present on-site for this species.
Ayenia compacta **California ayenia**	F: None C: None CNPS: List 2B.3 Global rank: G4 State rank: S3 BLM: Sensitive USFWS: Sensitive	Rocky canyons and sandy and gravelly washes from 150 to 1,095 meters (500 to 3,600 feet) elevation. In California, occurs in Providence Mountains, Eagle Mountains, and west edge of Sonoran Desert.	**Absent.** Suitable habitat (rocky canyons) is not present on-site for this species.

Table 1. Special Status Plants

Species	Status	Habitat	Probability
Calochortus striatus **Alkali mariposa lily**	F: None C: CSC CNPS RPR: 1B	Alkaline soils in meadows and ephemeral washes in chaparral, chenopod scrub, and Mojavean Desert scrub at 70 to 1,600 meters (200 to 5,200 feet). Known from Kern, Los Angeles, San Bernardino, and Tulare Counties. Also occurs in Nevada.	**Absent.** Suitable habitat (alkaline soils in meadows, ephemeral washes in chaparral or chenopod scrub) is not present on-site for this species.
Erigeron parishii **Parish's daisy**	F: Threatened C: CSC CNPS RPR: 1B	Generally found on or near carbonates (e.g. limestone); usually on steep rocky slopes, or in washes or on adjacent benches in canyons; usually in pinyon woodland, pinyon-juniper woodland, or Mojavean desert scrub at 800 to 2,000 meters (2,600 to 6,600 feet) elevation (usually above 3,600 feet). Known only from San Bernardino and Riverside Counties.	**Absent.** Project site is below elevational for this species and suitable habitat (steep rocky slopes, washes, canyons) is not present on-site for this species.
Grusonia parishii **Parish's club-cholla**	F: None C: None CNPS RPR: 2B	Occurs in sandy, rocky soils in Joshua tree woodland, Mojavean desert scrub, and Sonoran Desert scrub at 300 to 1,524 meters (984 to 5,000 feet) elevation.	**Low.** Suitable habitat (sandy soils in desert scrub) is present on-site for this species. Nearest recorded occurrence approximately 7 miles south of the project site.
Jaffueliobryum wrightii **Wright's jaffuelliobryum moss**	F: None C: None CNPS RPR: 2B	Found in dry opening, rock crevices, usually carbonite soils at 160 to 2,500 meters (525 to 8,2020 feet) elevation in Alpine dwarf scrub, Mojavean desert scrub, and Pinyon and juniper woodland.	**Absent.** Suitable habitat (dry opening, rock crevices) is not present on-site for this species.

Table 1. Special Status Plants

Species	Status	Habitat	Probability
Lasthenia glabrata ssp. *coulteri* **Coulter's goldfields**	F: None C: CSC CNPS RPR: 1B	Annual herb usually found on alkaline soils in marshes, playas, vernal pools, and valley and foothill grassland below 1,400 meters (4,600 feet) elevation. Known from Kern, Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, San Diego, San Luis Obispo, and Ventura Counties. Also occurs on Santa Rosa Island and Baja California, Mexico.	**Absent.** Suitable habitat (marshes, playas, vernal pools, valley or foothill grasslands) is not present on-site for this species.

Table 1. Special Status Plants

Species	Status	Habitat	Probability
Linanthus maculatus (Gilia maculata) **Little San Bernardino Mountains linanthus**	F: None C: CSC CNPS RPR: 1B	Loose, well-aerated sand on wash-margin benches with few or no competing species and void of large shrubs or trees, in areas of desert dune, desert scrub, and Joshua tree woodland at 195 to 2,075 meters (600 to 6,800 feet) elevation. Loosely associated shrubs include creosote bush (Larrea tridentata), brittle bush (*Encelia farinosa*), burro bush (*Ambrosia dumosa*), cheesebush (*Hymenoclea salsola*) and desert catalpa (*Chilopsis linearis*). Not found in loose sands away from washes, nor in dense stands of weedy annuals. Known only from Riverside and San Bernardino Counties. Known only from edges of washes associated with the San Bernardino Mountains (north and east sides), the Little San Bernardino Mountains, and the northern part of the Coachella Valley.	**Absent.** Suitable habitat (wash-margin benches) is not present on-site for this species.
Matelea parvifolia **Spear-leaf matelea**	F: None C: None CNPS RPR: 2B	Rocky ledges and slopes in Mojavean and Sonoran desert scrub at 430 to 1,095 meters (1,400 to 3,600 feet) elevation. In California, known only from Riverside, San Bernardino, and San Diego Counties.	**Absent.** Suitable habitat (rocky ledges and slopes) is not present on-site for this species.

Table 1. Special Status Plants

Species	Status	Habitat	Probability
Menodora spinescens var. mohavensis **Mojave menodora**	F: None C: None CNPS RPR: 1B	Perennial shrub found in andesite gravel, rocky hillsides, canyons in Mojavean desert scrub at 690 to 2,000 meters (2,264 to 6,562 feet) elevation.	**Absent.** Suitable habitat (gravel, rocky hillsides, canyons) is not present on-site for this species.
Monardella robisonii **Robinson's monardella**	F: None C: CSC CNPS RPR: 1B	Rocky, granitic slopes often among boulders in pinyon-juniper woodland and Joshua tree woodland at 610 to 1,525 meters (2,000 to 5,000 feet) elevation. In California, known only from the immediate vicinity of the Little San Bernardino Mountains in Riverside and San Bernardino Counties.	**Absent.** Suitable habitat (gravel, rocky hillsides, canyons) is not present on-site for this species.
Saltugilia latimeri **Latimer's woodland gilia**	F: None S: CSC CNPS RPR: 1B	Herb of rocky or sandy substrates in chaparral and Mojavean desert scrub at 400 to 1,900 meters (1300 to 6200 feet) elevation.	**Absent.** Suitable habitat (rocky or sandy substrates in chaparral) is not present on-site for this species.
Sidalcea neomexicana **Salt spring checkerbloom**	F: None S: CSC CNPS RPR: 2	Alkaline springs and marshes below 1,530 meters (5,000 feet) elevation. In California, known only from Los Angeles, Orange, Riverside, Santa Barbara, San Bernardino, and Ventura Counties.	**Absent.** Suitable habitat (alkaline springs and marshes) is not present on-site for this species.
Sphaeralcea rusbyi var. eremicola **Rusby's desert-mallow**	F: None S: None CNPS RPR: 1B	Perennial herb found in 975 to 1,645-meter (3,200 to 5,397 feet) elevation in Joshua tree woodland and Mojavean desert scrub. Known only from Death Valley (Inyo County) and near Clark Mountain (San Bernardino County).	**Absent.** Suitable habitat (Joshua tree woodland) is not present on-site for this species. Project site is also not within known area of occupation (i.e. Death Valley or near Clark Mountain).

Table 1. Special Status Plants

Species	Status	Habitat	Probability
Streptanthus bernardinus **Laguna Mountains jewel-flower**	F: None S: None CNPS RPR: 1B	Chaparral and lower montane coniferous forest; 1,440 (670?) to 2,500 meters (4,700 [2,200?] to 8,200 feet) elevation; Transverse and Peninsular ranges of Southern California; possibly in Baja California.	**Absent.** Suitable habitat (montane coniferous forest) is not present on-site for this species.
Wislizenia refracta ssp. refracta **jackass-clover**	F: None S: None CNPS RPR: 2B	Annual herb found in desert dunes, Mojavean desert scrub, creosote bush scrub, playas, and Sonoran Desert scrub at 600 to 800 meters (1,968 to 2,625 feet) elevation.	**Low:** Suitable habitat (desert scrub) is present on-site for this species. Nearest recorded occurrence is ¼ mile northeast of the project site.

Table 2. Special Status Reptiles

Species	Status	Habitat	Probability
Crotalus ruber **Red-diamond rattlesnake**	F: None S: CSC Global: G4 State: S3	Desert scrub, thorn scrub, open chaparral, and woodland; occasional in grassland and cultivated areas. Prefers rocky areas and dense vegetation. Morongo Valley in San Bernardino and Riverside Counties to the west and south to Baja California.	**Low** Marginal suitable habitat (desert scrub) is present on-site for this species. Nearest recorded occurrence is 5.5 miles north of the site.
Gopherus agassizi **desert tortoise**	F: **THR** S: **THR** Global: G3 State: S2S3	Various desert communities and habitats (Mojavean creosote bush scrub, Joshua tree woodland, saltbush scrub); washes, arroyos, bajadas, rocky hillsides, open flat desert	**Low** (Marginally suitable habitat (creosote bush scrub) is present on-site for this species.). However nearest recorded occurrence is 11 miles northwest of the site.

Table 3. Special Status Birds

Species	Status	Habitat	Probability
Athene cunicularia **burrowing owl** (nesting & wintering)	F: MBTA, BCC C: SSC Global: G4 State: S3 Other: BLM sensitive	Open, dry annual or perennial grassland, deserts & scrublands characterized by low-growing vegetation. Burrow sites essential.	**Nesting: Low** (Marginally suitable habitat (low-growing vegetation with a few suitable burrows observed.) **Foraging: Low** (Suitable habitat is present on-site for this species and species may also nest on adjacent properties and forage on-site.)
Toxostoma bendirei **Bendire's thrasher**	F: MBTA, BCC C: SSC Global Rank: G4G5 State Rank: S3 Other: BLM Sensitive	Desert, especially areas of tall vegetation, scattered cholla cactus, creosote bush yucca, mesquite, palo verde, acacia, agave, and Joshua tree woodland. Rarely found above 8,000 feet. Preferred nesting habitat includes: shrubs, trees, or cacti, especially cholla, mesquite, juniper, yucca, and Joshua tree.	**Nesting**: **Low** (Marginally suitable habitat is present on-site and adjacent to the site for this species. **Foraging**: **Low** (same as above)

Table 6. Special Status Mammals

Species	Status	Habitat	Probability
Chaetodipus fallax pallidus **pallid San Diego pocket mouse**	F: None C: CSC Global: G5T3T4 State: S3S4	Desert border areas in San Diego County in desert wash, desert scrub, desert succulent scrub, and pinon-juniper woodlands. Sandy herbaceous areas usually in association with rocks or coarse gravel.	**Low** Marginally suitable habitat (desert scrub) is present on-site for this species. However, nearest historical (1946) occurrence is ½ mile north of site in now developed area.

Table 6. Special Status Mammals

Species	Status	Habitat	Probability
Euderma maculatum **Spotted bat**	F: None C: CSC Global: G4 State: S3 WBWG:H	Preferable habitat includes arid regions, desert scrub, and open forest in rugged landscapes. Roost sites found on vertical cliffs and in open canyons. Habitats seem to be associated with a water source (i.e. spring, creek, river, or lake. Wanders widely and through varied habitats when foraging.	**Roosting: Absent** Suitable habitat is not present on-site. **Foraging**: **Absent** (Suitable habitat near a water source is not present on-site for this species.)
Lasiurus cinereus **Hoary bat**	F: None C: None Global: G5 State: S4 WBWG: M	Prefers open habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for foraging. Roosts in dense foliage of medium to large tree	**Roosting: Absent** Suitable habitat is not present on-site. **Foraging**: **Absent** (same as above)
Lasiurus xanthinus **Western yellow bat**	F: None C: None Global: G5 State: S3 WBWG: H	Occurs in southern California in palm oases and in residential areas with untrimmed palm trees. Roosts primarily in trees, especially the dead fronds of palm trees. Forages over water and among trees.	**Roosting: Absent** Suitable habitat is not present on-site. **Foraging**: **Absent** (same as above).
Ovis canadensis nelsoni **Nelson's bighorn sheep**	F: None C: FP Global: G4T4 State: S3	Occurs in open, rocky, steep areas with available water and herbaceous forage; widely distributed from the White Mountains in Mono County to the Chocolate Mountains in Imperial County.	**Absent**: Suitable habitat (open, rocky steep areas) not present on-site or adjacent to the site for this species.

Table 7. Special Status Habitat

Species	Status	Habitat	Probability
Desert Fan Palm Oasis Woodland	F: None C: None Global: G3 State: S3.2	A desert woodland alliance habitat found along canyon waterways.	**Absent** This habitat does not occur within or adjacent to the site.

* Species proposed to be conserved and covered under the MSHCP/NCCP.

Definitions of status designations and occurrence probabilities for Tables 1-7

Definitions of occurrence probability:

Occurs*:* Observed in the BSA by Wood personnel or recently reported by another credible source.

High:Observed in similar habitat in region by qualified biologists, or habitat on the BSA is a type often utilized by the species and the BSA is within the known range of the species.

Moderate:Reported sightings in surrounding region, or BSA is within the known range of the species and habitat on the BSA is a type occasionally used by the species.

Low:PPA/APE is within the known range of the species but habitat on the BSA is rarely used by the species

Very Low:Habitat is of marginal suitability and/or BSA is at the edge of species known range or distribution.

Absent:A focused study failed to detect the species, suitable habitat not present, or BSA is outside the geographic distribution of the species.

Unknown:No focused surveys have been performed in the region, and the species' distribution and habitat are poorly known.

Federal designations: (F = federal Endangered Species Act or USFWS designations)
END: Federally listed, Endangered
THR: Federally listed, Threatened
CAN: Candidate for Federal listing
MBTA: Migratory Bird Treaty Act
BGEPA: Bald & Golden Eagle Protection Act
BCC: Birds of Conservation Concern
BLM sensitive: Bureau of Land Management Sensitive
USFS sensitive: U.S. Forest Service Sensitive
None: No designation

***State designations*:** (C = California Endangered Species Act or CDFW designations)
END: State listed, Endangered
THR: State listed, Threatened
CAN: Candidate for State listing
RARE: State listed, Rare
FP: Fully Protected Species
SSC: Species of Special Concern
WL: Watch List Species

CDFW State (S) Rankings are a reflection of the overall condition of a resource throughout its range in California. The number after the decimal point represents a threat designation attached to the assigned rank:

S1 = Critically Imperiled. Less than (<) 6 Element Occurrences (EOs) OR < 1,000 individuals OR < 2,000 acres
- **S1.1** = very threatened
- **S1.2** = threatened
- **S1.3** = no current threats known

S2 = Imperiled. 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres

S2.1 = very threatened
S2.2 = threatened
S2.3 = no current threats known

S3 = Vulnerable. 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres
S3.1 = very threatened
S3.2 = threatened
S3.3 = no current threats known

S4 = Apparently Secure. Uncommon but not rare in the state; some cause for long-term concern.
S5 = Secure. Common, widespread, and abundant in the state.
SH = All known California sites are historical, not extant

CDFW *Global (G) Rankings* are a reflection of the overall status of an element throughout its global range. Both Global and State rankings are represented with a letter and number score that reflects a combination of Rarity, Threat, and Trend factors, with weighting being heavier on Rarity than the other two.

Species or Natural Community Levels:

G1 = Critically Imperiled. At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.

G2 = Imperiled. At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.

G3 = Vulnerable. At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.

G4 = Apparently Secure. Uncommon but not rare; some cause for long-term concern due to declines or other factors.
G5 = Secure. Common; widespread and abundant.

Subspecies Levels: Taxa which are subspecies or varieties receive a taxon rank (T-rank) attached to their G-rank. Where the G-rank reflects the condition of the entire species, the T-rank reflects the global situation of just the subspecies.

California Native Plant Society (CNPS) designations:

Primary Categories
LIST 1A: Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere
LIST 1B: Plants Rare, Threatened, or Endangered in California and Elsewhere
LIST 2A: Plants Presumed Extirpated in California, But Common Elsewhere
LIST 2B: Plants Rare, Threatened, or Endangered in California, But More Common Elsewhere
LIST 3: Plants About Which More Information is Needed - A Review List
LIST 4: Plants of Limited Distribution - A Watch List
Subdivisions within Categories
0.1: Seriously threatened in California
0.2: Moderately threatened in California
0.3: Not very threatened in California

6.0 DISCUSSION

6.1 Discussion of the Special Status Species Tables

Of the twenty-five (25) special status species reported from the vicinity of, nineteen (19) are considered to be absent from the site due to a lack of suitable habitats and/or the location of the BSA outside of the species geographic range (Tables 1 through 7). These include: San Bernardino milk-vetch California ayeni, alkali mariposa lily, parish's daisy, Wright's jaffulliobryum moss, Coulter's goldfields, little San Bernardino mountains linanthus, spear-leaf matelea, Mojave menodora, Robinson's monardella, Latimer's woodland gilia, salt spring checkerbloom, rusby's desert-mallow, Laguna Mountains jewel-flower, jackass-clover, Spotted bat, hoary bat, western yellow bat, and Nelson's bighorn sheep, and desert fan palm oasis woodland. These species will not be discussed further.

Seven (7) special status species known from the area have a low potential to occur in the BSA and are discussed below.

6.1.1 Potentially Occurring Plant Species

There is a low potential for the parish's club-cholla and jackass-clover to occur on-site based on presence of marginally suitable habitat. The parish's club-cholla is not a listed species. This species prefers sandy soils in desert scrub habitat and nearest recorded occurrence is seven miles south of the site. The jackass-clover is also not listed federal or state endangered or threatened. This species has the potential to occur in a wide variety of desert habitats including creosote bush scrub but also occurs in desert dunes or wetland areas (neither of these habitats occur on the proposed project site; and nearest record of occurrence is ¼ mile of northeast of the site.

6.1.2 Potentially Occurring Reptile Species

There is a very low potential for the federally/state threatened desert tortoise and red-diamond rattlesnake to occur on the proposed project site. Marginally suitable habitat is present on-site for both species, however, the nearest recorded occurrence for the desert tortoise is eleven (11) miles northwest of the project site. The nearest recorded occurrence for the red-diamond rattlesnake is 5.5 miles north of the site.

Avoidance measures to ensure that impacts to the desert tortoise are avoided where possible and minimized to the maximum extent possible where avoidance is not possible may be required prior to construction of the proposed project. These additional actions may require, but not necessarily be limited to: 1) focused surveys for desert tortoise, 2)implementation of a Worker Environmental Awareness Program (WEAP), 3) pre-construction clearance surveys, 4) relocation (where necessary and authorized by the USFWS, CDFW and/or BLM, where applicable), 5) construction monitoring,

6) exclusion fencing, 7) trash containment and control to avoid or minimize the likelihood of attracting predators, and possibly a common raven management/control plan.

6.1.3 Potentially Occurring Avian Species

There is marginally suitable habitat present on-site for the burrowing owl and Bendire's thrasher.

The burrowing owl is not a listed species, but the species is protected under the Migratory Bird Treaty Act (MBTA) and CDFW code, therefore surveys would likely be required where habitat is present. Burrowing owls are also sensitive to excessive noise and activities such as grading and operation of heavy equipment up to 500 feet away from occupied burrows may result in nest/burrow abandonment if/when such activities occur. No natural burrows with owls and/or owl sign was observed during the assessment, however, other small mammal burrows and man-made structures suitable for the owl were observed on-site, mammal burrows and man-made structures (i.e., drainpipes, piles of broken concrete and wood) suitable for burrowing owl occupation were also observed nearby. Burrowing owls are sensitive to excessive noise and activities such as grading and operation of heavy equipment up to 500 feet away and may cause abandonment of nearby nests or burrows if/when such activities occur. Therefore, impacts to burrowing owls potentially occurring nearby off-site must also be considered and a pre-construction take avoidance survey is recommended.

The Bendire's thrasher was not observed during the assessment conducted in the BSA. This species is associated with a variety of desert scrub habitats, including creosote bush scrub, particularly areas providing creosote bush, yuccas and cholla cactus. For these reasons, there is at least a low potential for Bendire's thrasher to nest and occur in the BSA. Bendire's thrasher is not listed as threatened or endangered by the USFWS or the CDFW. This species is, however, designated as an SSC by the CDFW. Like the burrowing owl above, the Bendire's thrasher is afforded protection under the MBTA and provisions will likely still apply requiring the avoidance of impacts to nesting birds, including Bendire's thrasher. Avoidance of disturbance during the nesting season (generally 1 February through 31 August) is the most affordable and easiest way to avoid potentially impacting nesting birds. Pre-construction clearance surveys during the nesting season, biological monitoring and/or establishment of avoidance buffer zones (where necessary) around nest sites may be required, when avoidance of the nesting season is not possible.

6.1.4 Migratory Bird Treaty Act

A variety of common bird species that have no special status designations but are nevertheless protected by the MBTA. This includes virtually all native migratory and resident bird species, including birds already known to occur or have the potential to occur in the vicinity. Representative examples include but are not limited to common raven, common poorwill, greater roadrunner, and verdin. Avoidance of impacts to all nesting migratory and resident birds will likely be a requirement prior to development of the proposed project site. To avoid impacting nesting birds, avoidance of disturbance during the nesting season (generally 1 February 1 through 31 August) is recommended whenever and wherever possible. If avoidance of the nesting season is not feasible, additional impact avoidance and minimization measures may be required: These measures may include, but not necessarily limited to, the following: 1) attendance of and compliance with a project-specific WEAP, 2) pre-construction clearance surveys, 3) biological monitoring, 4) establishment and observance of no disturbance buffer zones around active bird nests found during the daily pre-construction surveys until the young birds have fledged and 5) trash containment and disposal to avoid attracting potential predators.

If nesting birds are found on a project site, work would not likely be permitted near the nest site (i.e., within the no disturbance buffer zone[s] surrounding nests) until young have fledged. While there is no established protocol for nest avoidance, when consulted the CDFW generally recommends avoidance buffers of about 500 feet for birds-of-prey, and 100–300 feet for songbirds. Routine monitoring of nests would document when the young have fledged and when potentially disruptive project activities in the vicinity could be implemented without impacting nesting birds.

6.1.5 Jurisdictional Areas

The project seven (7) small dry braided desert washes identified within the project survey area that contained both bed and bank and ordinary high water mark (OHWM). There were additional potential washes observed on the 2019 aerial, but upon further investigation in the field those features were found to be lacking bed and bank or OHWM.

The USACE, in combination with the Environmental Protection Agency (EPA), when necessary, reserves the ultimate authority in making the final jurisdictional determination of WUS and the RWQCB reserves the ultimate authority in making the final jurisdictional determination of WSC. Additionally, CDFW has ultimate discretion in the determination of their jurisdiction. Based on our delineation, all 7 drainages identified meet the requirements for CDFW and Regional Water Quality Control Board (RWQCB) jurisdiction. The mapped drainages contain a total of 7,738 linear feet, 0.437 acres of CDFW jurisdictional areas, and 0.219 acres of RWQCB jurisdictional areas. All drainages are ephemeral and under the 2020 Navigable Waters Protection Rule which went into effect June 22, 2020, none of the surveyed drainages would likely be considered jurisdictional to the USACE.

7.0 CONCLUSION

The project site has marginally suitable habitat for one federally and state listed species, the desert tortoise. Focused surveys for this species are recommended prior to development of the parcel.

A jurisdictional delineation was conducted, and results of the jurisdictional delineation are discussed in a separate report. The BSA contains seven dry desert washes. The mapped drainages contain a total of 7,738 linear feet, 0.437 acres of CDFW jurisdictional areas, and 0.219 acres of RWQCB jurisdictional areas. Due to the ephemeral nature of the drainages, they are not USACE jurisdictional. Development of the site would require a 1600 permit from CDFW and a 404 permit from the RWQCB.

The burrowing owl is a species of concern and take of this species under the MBTA is prohibited. Marginally suitable habitat is present on-site and therefore a pre-construction take avoidance surveys is recommended and may be required prior to grading. Burrowing owls are sensitive to excessive noise and activities such as grading and operation of heavy equipment up to 500 feet away and may abandon nests or burrows if/when such activities occur. Therefore, impacts to burrowing owls potentially occurring in adjacent off-site areas must also be considered.

Avoidance of impacts to all nesting migratory and resident birds will likely be a requirement prior to development of the proposed project site. To avoid impacting nesting birds, avoidance of disturbance during the nesting season (generally 1 February 1 through 31 August) is recommended whenever and wherever possible. If avoidance of the nesting season is not feasible, a pre-construction survey for nesting birds will be required to avoid impacts to any active nests within the project site.

8.0 LITERATURE CITED AND REFERENCES

American Ornithologists' Union. 2020. Check-list of North American Birds, 7th edition + supplements. Accessed online at: http://americanornithology.org/content/aou-checklist-north-and-middle-american-birds-7th-edition-and-supplements

California Department of Fish and Wildlife (CDFW). 2020a. California Natural Diversity Data Base, Rarefind 5. Report for the *Twentynine Palms*, *Calif.*, *Queen Mtn. Calif.*, *Sunfair*, *Calif.* and *Valley Mtn.*, *Calif. Quadangles. Accessed online at:* dfg.ca.gov/biogeodata/cnddb/mapsanddata.asp. (accessed 27 July 2020).

California Native Plant Society (CNPS), Rare Plant Program. 2020a. Inventory of Rare and Endangered Plants of California, Reports for *Twentynine Palms, Calif*. and *Queen Mtn., Calif*. quadrangles (online edition, v8-03 0.38). Website http://www.rareplants.cnps.org (accessed 27 July 2020).

CNPS. 2020b. The California Rare Plant Ranking System. Accessed online at: https://www.cnps.org/cnps/rareplants/ranking.php

National Wetlands Inventory. 2020. https://www.fws.gov/wetlands/index.html

Sawyer, J.O., T. Keeler-Wolf, and J.M. Evens. 2009. A manual of California vegetation (2nd ed.). California Native Plant Society, Sacramento, CA.

USDA, NRCS. 2020b. Soil Survey Staff. Web Soil Survey. Available online at https://websoilsurvey.sc.egov.usda.gov/. Accessed [8/25/2017].

USFWS. 2020b. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service, Washington D.C. http://www.fws.gov/wetlands/

United States Geological Survey (USGS). 2020. US Topo and Historical Topographic Map Collection. Accessed online at: http://geonames.usgs.gov/apex/f?p=262:1:0::NO:RP:

APPENDIX 1

PLANTS & WILDLIFE OBSERVED

PLANTS OBSERVED	
Apocynaceae	**Dogbane Family**
*Nerium oleander**	Oleander
Asteraceae	**Sunflower Family**
Ambrosia dumosa	white bur-sage
Ambrosia salsola	cheesebush
Bignoniaceae	**Bigonias Family**
Chilopsis linearis	Desert willow
Boraginaceae	**Borage Family**
Cryptantha sp.	Cryptantha
Brassicaceae	**Mustard Family**
Lepidium fremontii	desert peppergrass
Cactaceae	**Cactus Family**
Cylindropuntia echinocarpa	Silver cholla
Cylindropuntia ramosissima	Pencil cholla
Echinocereus engelmannii	Engelmann's hedgehog cactus
Opuntia basilaris	Beavertail prickleypear
Chenopodiaceae	**Goosefoot Family**
Atriplex canescens	Fourwing saltbush
*Salsola tragus**	Russian thistle
Euphorbiaceae	**Spurge Family**
Chamaesyce polycarpa	desert sand mat
Fabaceae	**Pea family**
*Parkinsonia aculeata**	Mexican palo verde
Prosopis glandulosa	Honey mesquite
Senegalia greggii	Catclaw
Geraniaceae	**Geranium family**
*Erodium cicutarium**	Redstem filaree
Onagraceae	**Evening Primrose Family**
Chylismia claviformis	Clavate fruited primrose
Polygonaceae	**Buckwheat Family**
Chorizanthe rigida	devil's spineflower
Eriogonum deflexum	flat topped buckwheat
Eriogonum inflatum	desert trumpet
Eriogonum thomasii	Thomas' buckwheat
Tamaricaceae	**Tamarisk family**
*Tamarix aphylla**	Athel
Simmondsiaceae	**Jojoba Family**

Simmondsia chinensis	Jojoba
Zygophyllaceace	**Caltrop family**
Larrea tridentata	creosote bush
Agavaceae	**Lily family**
Yucca schidigera	Mojave yucca
Poaceae	**Grass family**
*Bromus diandrus**	Ripgut brome
*Bromus tectorum**	Downy chess
Hilaria rigida	Big galleta grass
*Schismus arabicus**	Arabian schismus
WILDLIFE OBSERVED	
AVES	**BIRDS**
Odontophoridae	**New World Quail**
Callipepla gambelii	Gambel's quail
Accipitridae	**Kites, Hawks, and Eagles**
Accipiter cooperii	Cooper's hawk
Columbidae	**Pigeons and Doves**
Columba livia	Rock pigeon
Zenaida macroura	Mourning dove
Cuculidae	**Cuckoos and Roadrunners**
Geococcyx californianus	Greater roadrunner
Corvidae	**Crows and Ravens**
Corvus corax	Common raven
Remizidae	**Verdin**
Auriparus flaviceps	Verdin
Troglodytidae	**Wrens**
Campylorhynchus brunneicapillus	Cactus wren
MAMMALIA	**MAMMALS**
LAGOMORPHA	***RABBITS, HARES AND PIKA***
Leporidae	**Rabbits and Hares**
Lepus californicus	Black-tailed jackrabbit
Sylvilagus audubonii	Desert cottontail
RODENTIA	***RODENTS***
Sciuridae	**Squirrels**
Ammospermophilus leucurus	White-tailed antelope squirrel
Canidae	**Foxes, Wolves and Dogs**

Canis latrans	Coyote
REPTILIA	**REPTILES**
Phrynosomatidae	**Horned Lizards, Spiny Lizards and Allies**
Callisaurus draconoides rhodostictus	western zebra-tailed lizard
Uta stansburiana	common side-blotched Lizard
Teiidae	**Whiptails and Relatives**
Aspidoscelis tigris tigris	Great Basin whiptail

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APPENDIX 2

PHOTOGRAPHIC EXHIBITS

Pioneer Park Project
Twentynine Palms, San Bernardino County, California

Photo 1. Representative condition of site. View facing south from north boundary.

Photo 2. Representative condition of site. View facing south from the northwest corner of parcel.

Pioneer Park Project
Twentynine Palms, San Bernardino County, California

Photo 3. Representative condition of center of parcel as seen facing east toward Adobe Road.

Photo 4. Representative condition of parcel. As seen facing west from the southeast corner.

Pioneer Park Project
Twentynine Palms, San Bernardino County, California

Photo 5. Representative condition of parcel. As seen facing south from the west boundary.

Photo 6. Representative condition of parcel. As seen facing south at Tamarisk Avenue (west boundary of parcel).

PIONEER PARK PROJECT

DELINEATION OF JURISDICTIONAL WATERS

Twentynine Palms
San Bernardino County, California

Submitted to:
Terra Nova Planning and Research, Inc.
42635 Melanie Place, Suite 101
Palm Desert, CA 92211
Tel: (760) 341-4800
Fax: (760) 341-4455
Contact: Nicole Criste, Principal
Project No. 1855401001

August 2020

Prepared By:
Dale Hameister, Senior Biologist
Wood Environment & Infrastructure Solutions, Inc.
1845 Chicago Avenue, Suite D
Riverside, CA 92507
951-369-8060, Ext. 108

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ACRONYMS AND ABBREVIATIONS

AMSL	above mean sea level
CEQA	California Environmental Quality Act
CDFW	California Department of Fish and Wildlife
CWA	Clean Water Act
EPA	Environmental Protection Agency
FAC	facultative
FACU	facultative upland
FACW	facultative wetland
ft.	Feet
GIS	Geographic Information System
HUC	Hydrologic Cataloging Unit
IP	Individual Permit
M	Meters
NEPA	National Environmental Policy Act
NL	not listed
NWI	National Wetlands Inventory
NWP	Nationwide Permit
OBL	obligate
OHWM	ordinary high-water mark
PM	post mile
Rapanos	Rapanos v. U.S. and Carabell v. U.S.
RPW	relatively permanent waterway
RWQCB	Regional Water Quality Control Board
SWANCC	Solid Waste Agency of Northern Cook County v. USACE
TNW	traditionally navigable waterway
UPL	upland
USACE	U.S. Army Corps of Engineers
USDA	United States Department of Agriculture, Natural Resources Conservation Service
USFWS	United States Fish and Wildlife Service
USGS	U.S. Geological Survey
WSC	Waters of the State of California
WUS	Waters of the United States

1.0 INTRODUCTION

Wood Environment & Infrastructure Solutions, Inc. (Wood) was contracted by Terra Nova Planning and Research Inc., (Terra Nova/client) to conduct a jurisdictional delineation and report for an approximately 20-acre project site located in the city of Twentynine Palms, San Bernardino County, California. This report presents regulatory framework, methods, and results of a delineation of jurisdictional waters, wetlands, and associated riparian habitat potentially impacted by the proposed Pioneer Park Project (project) within the City of Twentynine Palms.

1.1 Purpose

The purpose of the delineation is to determine the extent of state and federal jurisdiction within the project area potentially subject to regulation by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act (CWA), Regional Water Quality Control Board (RWQCB) under Section 401 of the CWA and Porter Cologne Water Quality Control Act, and California Department of Fish and Wildlife (CDFW) under Section 1602 of the California Fish and Game Code.

1.2 Project Description

The City of 29 Palms proposes to develop a city park within the survey area. Most of the proposed project site is undeveloped except for a theater that is located within the northeast corner of the parcel and occupied residential homes in the northwest corner and along the south border of the parcel. Currently there is no definitive site plan and proposed plans include the development of the entire parcel.

1.3 Project Location

The approximately 20-acre survey area is located within the City of 29 Palms, San Bernardino County, California (Figure 1). The survey area is located south of Sullivan Road, west of Adobe Road, east of Tamarisk Avenue, and north of Foothill Drive. The project is located within Section 32, Township 1 North, Range 9 East, as shown on the Twentynine Palms and Queen Mountain California USGS 7.5 minute quadrangles.

The elevational range of the BSA is from approximately 2,020 feet (615 meters) above mean sea level (ASML) along the northeast boundary (i.e., Sullivan Road), to approximately 2,050 feet (625 meters) ASML along the southwestern boundary (i.e., Foothill Drive). The geographic coordinates for the approximate center of the BSA (i.e., Boling Drive) are 34°7'35.40" North latitude and 116°3'26.19" West longitude.

2.0 REGULATORY FRAMEWORK

2.1 U.S. Army Corps of Engineers

The USACE regulates the discharge of dredged or fill material in waters of the United States (WUS) pursuant to Section 404 of the CWA.

2.1.1 Waters of the U.S.

CWA regulations (33 CFR 328.3(a)) define WUS as follows:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
2. All interstate waters including interstate wetlands;
3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters: (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (iii) Which are used or could be used for industrial purpose by industries in interstate commerce;
4. All impoundments of waters otherwise defined as WUS under the definition;
5. Tributaries of WUS;
6. The territorial seas;
7. Wetlands adjacent to WUS (other than waters that are themselves wetlands).

The USACE delineates non-wetland waters in the Arid West Region by identifying the ordinary high-water mark (OHWM) in ephemeral and intermittent channels (USACE 2008a). The OHWM is defined in 33 CFR 328.3(e) as:

> "…that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas."

Identification of OHWM involves assessments of stream geomorphology and vegetation response to the dominant stream discharge. Determining whether any non-wetland water is a jurisdictional WUS involves further assessment in accordance with the regulations, case law, and clarifying guidance as discussed below.

2.1.2 Wetlands and Other Special Aquatic Sites

Wetlands are defined at 33 CFR 328.3(b) as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.”

Special aquatic sites are geographic areas, large or small, possessing special ecological characteristics of productivity, habitat, wildlife protection, or other important and easily disrupted ecological values. These areas are generally recognized as significantly influencing or positively contributing to the general overall environmental health or vitality of the entire ecosystem of a region. Special aquatic sites include sanctuaries and refuges, wetlands, mud flats, vegetated shallows, coral reefs, and riffle and pool complexes. They are defined in 40 CFR 230 Subpart E.

2.1.3 Supreme Court Decisions

2.1.3.1 Solid Waste Agency of Northern Cook County

On January 9, 2001, the Supreme Court of the United States issued a decision on Solid Waste Agency of Northern Cook County v. United States Army Corps of Engineers, et al. with respect to whether the USACE could assert jurisdiction over isolated waters. The Solid Waste Agency of North Cook County (SWANCC) ruling stated that the USACE does not have jurisdiction over “non-navigable, isolated, intrastate” waters.

2.1.3.2 Rapanos/Carabell

In the Supreme Court cases of Rapanos v. United States and Carabell v. United States (herein referred to as Rapanos), the court attempted to clarify the extent of USACE jurisdiction under the CWA. The nine Supreme Court justices issued five separate opinions (one plurality opinion, two concurring opinions, and two dissenting opinions) with no single opinion commanding a majority of the Court. In light of the Rapanos decision, the USACE will assert jurisdiction over a traditional navigable waterway (TNW), wetlands adjacent to TNWs, non-navigable tributaries of TNWs that are a relatively permanent waterway (RPW) where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g., typically three months) and wetlands that directly abut such tributaries. The USACE will decide jurisdiction over the following waters based on a fact-specific analysis to determine whether they have a significant nexus with a TNW: non-navigable tributaries that are not relatively permanent, wetlands adjacent to non-navigable tributaries that are not RPWs, and wetlands adjacent to but that do not directly abut a non-navigable RPW.

Flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary indicate whether they significantly affect the chemical, physical and biological integrity of downstream TNWs. Analysis of potentially jurisdictional

streams includes consideration of hydrologic and ecologic factors. The consideration of hydrological factors includes volume, duration, and frequency of flow, proximity to traditional navigable waters, size of watershed, average annual rainfall, and average annual winter snow pack. The consideration of ecological factors also includes the ability for tributaries to carry pollutants and flood waters to a TNW, the ability of a tributary to provide aquatic habitat that supports a TNW, the ability of wetlands to trap and filter pollutants or store flood waters, and maintenance of water quality.

2.1.4 2015 Clean Water Rule

The federal government issued the Clean Water Rule in 2015 in order to resolve jurisdictional ambiguity resulting from previous Supreme Court decisions (i.e. SWANNC, Rapanos). On June 22, 2015, the USACE and EPA published the *Clean Water Rule: Definition of "Waters of the United States"; Final Rule* (40 CFR Parts 110, 112, 116, 117, 122, 230, 232, 300, 302, and 401). The Clean Water Rule was put on hold by federal injunction in 2015 but was reinstated in California in August 2018. The Clean Water Rule was again put on hold by federal injunction in September 2019. The Clean Water Rule finds waters to be jurisdictional under the CWA as summarized below:

1. Jurisdictional by Rule: TNWs, Interstate Waters, Territorial Seas, and Impoundments of Jurisdictional Waters.
2. Tributaries: Waters characterized by the presence of physical indicators of flow, including bed and bank and OHWM, that contribute flow directly or indirectly to a waters listed in 1) above.
3. Connected Waters: Adjacent or neighboring waters that have a significant nexus to waters listed in 1) above.
4. Other Waters: waters that, individually or as a group, significantly affect the chemical, physical, or biological integrity of waters listed in 1) above.

2.1.5 2020 The Navigable Waters Protection Rule

On January 23, 2020, the Environmental Protection Agency (EPA) and the Department of the Army published a final rule called "The Navigable Water Protection Rule."

In this final rule, the agencies interpret WUS to encompass:

- The territorial seas and traditional navigable waters;
- Perennial and intermittent tributaries that contribute surface water flow to such waters;
- Certain lakes, ponds, and impoundments of jurisdictional waters; and
- Wetlands adjacent to other jurisdictional waters.

The final rule excludes from the definition of WUS all waters or features not mentioned above, specifically clarifying that WUS do not include the following:

- groundwater, including groundwater drained through subsurface drainage systems;
- ephemeral features that flow only in direct response to precipitation, including ephemeral streams, swales, gullies, rills, and pools;
- diffuse stormwater runoff and directional sheet flow over upland;
- ditches that are not traditional navigable waters, tributaries, or that are not constructed in adjacent wetlands, subject to certain limitations;
- prior converted cropland;
- artificially irrigated areas that would revert to upland if artificial irrigation ceases;
- artificial lakes and ponds that are not jurisdictional impoundments and that are constructed or excavated in upland or non-jurisdictional waters;
- water-filled depressions constructed or excavated in upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non-jurisdictional waters for the purpose of obtaining fill, sand, or gravel;
- stormwater control features constructed or excavated in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater run-off;
- groundwater recharge, water reuse, and wastewater recycling structures constructed or excavated in upland or in non-jurisdictional waters; and
- waste treatment systems.

This rule was published in the Federal Register on April 21, 2020 and went into effect 60 days after that date, on June 22, 2020.

2.2 Regional Water Quality Control Board

The RWQCB regulates activities pursuant to Section 401(a)(1) of the CWA. Section 401 of the CWA specifies that certification from the State is required for any applicant requesting a federal license or permit including a Section 404 permit. Through the Porter Cologne Water Quality Control Act, the RWQCB asserts jurisdiction over Waters of the State of California (WSC) which is generally the same as WUS but may also include waters not in federal jurisdiction.

The State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State was adopted in April 2020 and put into effect statewide on May 28, 2020 (State Water Resources Control Board, 2020).

The Water Boards define an area as wetland as follows:

> *An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.*

The Water Code defines WSC broadly to include "any surface water or groundwater, including saline waters, within the boundaries of the state." WSC include all WUS but also includes waters not in federal jurisdiction.

The following wetlands are waters of the state:

1. Natural wetlands,
2. Wetlands created by modification of a surface water of the state, and
3. Artificial wetlands that meet any of the following criteria:
    a. Approved by an agency as compensatory mitigation for impacts to other waters of the state, except where the approving agency explicitly identifies the mitigation as being of limited duration;
    b. Specifically identified in a water quality control plan as a wetland or other water of the state;
    c. Resulted from historic human activity, is not subject to ongoing operation and maintenance, and has become a relatively permanent part of the natural landscape; or
    d. Greater than or equal to one acre in size, unless the artificial wetland was constructed, and is currently used and maintained, primarily for one or more of the following purposes (i.e., the following artificial wetlands are not waters of the state unless they also satisfy the criteria set forth in 2, 3a, or 3b):
        i. Industrial or municipal wastewater treatment or disposal,
        ii. Settling of sediment,
        iii. Detention, retention, infiltration, or treatment of stormwater runoff and other pollutants or runoff subject to regulation under a municipal, construction, or industrial stormwater permitting program,
        iv. Treatment of surface waters,
        v. Agricultural crop irrigation or stock watering,
        vi. Fire suppression,
        vii. Industrial processing or cooling,
        viii. Active surface mining – even if the site is managed for interim wetlands functions and values,
        ix. Log storage,
        x. Treatment, storage, or distribution of recycled water, or
        xi. Maximizing groundwater recharge (this does not include wetlands that have incidental groundwater recharge benefits); or
        xii. Fields flooded for rice growing.

All artificial wetlands that are less than an acre in size and do not satisfy the criteria set forth in 2, 3.a, 3.b, or 3.c are not WSC.

2.3 California Department of Fish and Wildlife

The CDFW regulates water resources under Section 1600-1616 of the California Fish and Game Code. Section 1602 states:

> "An entity may not substantially divert or obstruct the natural flow of, or substantially change or use any material from the bed, channel, or bank of, any river, stream, or lake, or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake (CDFW, 2015)."

Evaluation of CDFW jurisdiction followed guidance in the Fish and Game Code and A Review of Stream Processes and Forms in Dryland Watersheds. In general, under 1602 of the Fish and Game Code, CDFW jurisdiction extends to the maximum extent or expression of a stream on the landscape (CDFW, 2010). It has been the practice of CDFW to define a stream as “a body of water that flows perennially or episodically and that is defined by the area in a channel which water currently flows, or has flowed over a given course during the historic hydrologic course regime, and where the width of its course can reasonably be identified by physical or biological indicators” (Brady and Vyverberg, 2013). Thus, a channel is not defined by a specific flow event, nor by the path of surface water as this path might vary seasonally. Rather, it is CDFW's practice to define the channel based on the topography or elevations of land that confine the water to a definite course when the waters of a creek rise to their highest point.

3.0 METHODS

Prior to conducting delineation fieldwork, the following literature and materials were reviewed:

- Aerial photographs of the survey area at a scale of 1:1800 to determine the potential locations of jurisdictional waters or wetlands;
- USGS topographic map (Figure 2-Appendix A) to determine the presence of any "blue line" drainages or other mapped water features;
- USDA soil mapping data (Figure 3-Appendix A); and
- USFWS National Wetlands Inventory map to identify areas mapped as wetland features (Figure 4-Appendix A).

A field survey of the project site was conducted by Wood delineator Dale Hameister on 7 August 2020. The survey consisted of walking the entire survey area and identifying potentially jurisdictional water features. All accessible portions of the survey areas were walked to determine if the flows associated meet the minimum criteria to be considered under the jurisdiction of USACE, RWQCB, and CDFW. Visual observations of vegetation types and changes in hydrology and culvert locations were used to locate areas for evaluation. Weather conditions during delineation fieldwork was conducive for surveying with clear skies.

USACE regulated WUS, including wetlands, and RWQCB WSC were delineated according to the methods outlined in *A Field Guide to the Identification of the Ordinary High-Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE, 2008a). The extent of WUS was determined based on indicators of an OHWM. The OHWM width was measured at points wherever clear changes in width occurred.

Potential Federally regulated wetlands were identified based on the *Wetlands Delineation Manual* (USACE, 1987) and *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (USACE, 2008b). Additional data was recorded to determine if an area fulfilled the wetland criteria parameters. Three criteria must be fulfilled in order to classify an area as a wetland under the jurisdiction of the USACE: 1) a predominance of hydrophytic vegetation, 2) the presence of hydric soils, and 3) the presence of wetland hydrology.

WSC/CDFW jurisdictional areas were determined by the edge of bankfull and RWQCB were determined by the edge of the OHWM.

All washes identified were typical of dryland fluvial systems with unvegetated, sand bottom channels. Therefore, no soil pits were dug and no wetland data forms were used to collect information.
CDFW jurisdiction is delineated by measuring the elevations of land that confine a stream to a definite course when its waters rise to their highest level and to the extent of associated riparian vegetation. No riparian habitats were detected, and therefore were not required for inclusion within boundaries of CDFW jurisdiction.

To determine jurisdictional boundaries, the surveyor walked the length of the drainage within the project area and recorded the centerline with a Trimble GeoXH global positioning system. The width of the drainage was determined by the OHWM and bankfull width measurements at locations where transitions were apparent. Other data recorded included bank height and morphology, substrate type, and all vegetation within the streambed and riparian vegetation adjacent to the streambed. Areas that lacked evidence of hydrophytic vegetation, lacked evidence of wetland hydrology, and had no recent disturbance, did not require a soil pit since the other wetland indicators were not present. Upon completion of fieldwork, all data collected in the field were incorporated into a Geographic Information System (GIS) along with basemap data. The GIS was then used to quantify the extent of jurisdictional waters and prepare graphical representations of that data.

4.0 ENVIRONMENTAL SETTING

4.1 Existing Conditions

Most of the proposed project site is undeveloped except for a theater that is located within the northeast corner of the parcel, and occupied residential homes located in the northwest corner and along the south border of the parcel. The survey area consists mostly of creosote scrub habitat. The elevational range of the BSA is from approximately 2,020 feet (615 meters) above mean sea level (ASML) along the northeast boundary (i.e., Sullivan Road), to approximately 2,050 feet (625 meters) ASML along the southwestern boundary (i.e., Foothill Drive). Surrounding land use include businesses, residential areas, and open space.

4.2 Hydrology

The average rainfall for the area is 4.24 inches per year (Western Regional Climate Center). Weather data was recorded in the City of Twentynine Palms. The delineation survey was conducted following a year of above average rainfall in the 2019-2020 rain season. The annual rainfall to date within the survey area is 4.95 inches. The annual rainfall for the 2018-2019 season was 6.19 inches. The total thus far for the 2019-2020 season is 5 inches including rain totals of 1.7 inches in March 2020, and 1.2 inches in April 2020 which are both higher than the usual average. (2020- desertweather.com)

There has been recent road maintenance along Adobe Road. A berm of sand approximately 3 feet tall has been created along the western edge of the road. Because of the berm, the mapped washes do not currently flow off the site.

4.3 Vegetation

The dominant vegetation community within the survey area is *Larrea tridentata* Shrubland Alliance (Creosote bush scrub) (Sawyer et. al 2009). Holland (1986) refers to these vegetation communities as “Mojave creosote bush scrub”

Dominant perennial shrub species observed included: creosote bush (*Larrea tridentata*), white bur-sage (*Ambrosia dumosa*), cheesebush (*Ambrosia salsola*), catclaw (*Senegalia greggii*), and fourwing saltbush (*Atriplex canescens*). Perennial succulent species observed include Mojave yucca (*Yucca schidigera*), silver cholla (*Cylindropuntia echinocarpa*), pencil cholla (*Cylindropuntia ramosissima*), Englemann’s hedgehog cactus (*Echinocereus engelmannii*), and beavertail prickleypear (*Opuntia basilaris*). Dominant annual plant species observed included: devil’s spineflower (*Chorizanthe rigida*), flat topped buckwheat (*Eriogonum deflexum*), desert trumpet (*Eriogonum inflatum*), Thomas’ buckwheat (*Eriogonum thomasii*), and downy chess (*Bromus tectorum*). Other annuals observed include Russian thistle (*Salsola tragus*), ripgut brome (*Bromus diandrus*), Arabian schismus (*Schismus arabicus*), big galleta grass (*Hilaria ridigda*), redstem filaree (*Erodium cicutarium*), cryptantha (*Cryptantha* sp.), clavate fruited primrose (*Chylismia claviformis*), common Mediterranean grass (*Schismus barbatus*), and desert sand mat (*Chamaesyce polycarpa*). Several of these plant species are

nonnative, weedy species. Sparse Mexican palo verde (*Parkinsonia aculeata*), honey mesquite (*Prosopis glandulosa*), desert willow (*Chilopsis linearis*)(FAC), and athel (*Tamarix aphylla*) (FAC) were also observed and were associated with the development within the survey area. The washes observed had no differentiation of changes in vegetation indicating areas of inundations. The majority of washes contained little or no vegetation within the OHMW. No hydric indicator plants were observed.

4.4 Soils

No USGS soil data is available for the survey area. Based on observations in the field the soils are typical course sandy desert soil with low organic content. No hydric soils were observed onsite.

4.5 National Wetlands Inventory

The United States Fish and Wildlife Service (USFWS) is the principal Federal agency that provides information to the public on the extent and status of the Nation's wetlands. The USFWS has developed a series of maps, known as the National Wetlands Inventory (NWI) to show wetlands and deep-water habitat. This geospatial information is used by Federal, State, and local agencies, academic institutions, and private industry for management, research, policy development, education, and planning activities. The NWI program was neither designed nor intended to produce legal or regulatory products; therefore, wetlands identified by the NWI program are not the same as wetlands defined by the USACE.

The NWI Mapper (USFWS, 2020) was accessed online to review mapped wetlands within the project study areas. The NWI mapper (Figure 4, Appendix A) shows one desert wash flowing through the survey area classified as Riverine, Intermittent, Streambed, Intermittently Flooded (R4SBJ) (Cowardin, et. al., 1979).

5.0 RESULTS

Seven (7) small, dry, braided desert washes were identified within the project survey area that contained both bed and bank and OHWM. There were additional potential washes observed on the 2019 aerial, but upon further investigation in the field those features were found to be lacking bed and bank or OHWM. The Jurisdictional Delineation Maps (Appendix A) identify all observed on-site jurisdictional drainages. Table 7 includes a list of waterways identified in the project area, their jurisdictional status and area of jurisdiction, and Cowardin classification.

The USACE, in combination with the Environmental Protection Agency (EPA), when necessary, reserves the ultimate authority in making the final jurisdictional determination of WUS and the RWQCB reserves the ultimate authority in making the final jurisdictional determination of WSC. Additionally, CDFW has ultimate discretion in the determination of their jurisdiction. Based on our delineation, all 7 drainages identified meet the requirements for CDFW and RWQCB jurisdiction. All drainages are ephemeral and under the 2020 Navigable Waters Protection Rule going into effect June 22, 2020, none of the surveyed drainages would likely be considered jurisdictional to the USACE.

Table 1. Survey Site Information

Drainage	Latitude	Longitude	Quad	Township	Range	Section
D-1	34.128009	-116.055896	Twentynine Palms	6N	9E	32
D-2A	34.126261	-116.056539	Twentynine Palms/Queen Mountain	6N	9E	32
D-2B	34.126254	-116.056002	Twentynine Palms/Queen Mountain	6N	9E	32
D-3	34.162388	-116.055123	Twentynine Palms/Queen Mountain	6N	9E	32
D-4	34.125810	-116.055052	Twentynine Palms	6N	9E	32
D-5	34.125488	-116.054896	Twentynine Palms	6N	9E	32
D-6	34.125449	-116.054928	Twentynine Palms	6N	9E	32
D-7	34.124962	-116.054737	Twentynine Palms/Queen Mountain	6N	9E	32

Table 2. Photo Point Locations

Photo ID	Survey Area/ Drainage Feature	Latitude	Longitude	Direction	Relevance
Photo 1	D1	34.128249	-116.055877	355° N	View upstream
Photo 2	D1	34.128067	-116.055899	180° S	View downstream
Photo 3	D2A	34.126859	-116.055801	44° NE	View downstream
Photo 4	D2A	34.126615	-116.056114	203° SW	View upstream
Photo 5	D2B	34.126262	-116.055374	210° SW	View upstream
Photo 6	D2B	34.126350	-116.055493	45° NE	View downstream
Photo 7	D3	34.125799	-116.055431	195° SW	View upstream
Photo 8	D3	34.126723	-116.054504	80° NE	View downstream
Photo 9	D6	34.125582	-116.054939	205° SW	View upstream
Photo 10	D6	34.125687	-116.054533	55° NE	View downstream

Table 3. Summary of Jurisdictional Areas

Drainage ID /Survey Area	Watershed	Waters of the US Length (feet)	Waters of the US (acre)	RWQCB Length (Feet)	RWQCB (acre)	CDFW Length (Feet)	CDFW (acre)	Latitude	Longitude	Cowardin Class	Class of Aquatic Resource
D-1	Southern Mojave	0	0	1,242	0.043	1,242	0.086	34.128009	-116.055896	R4SBJ	non-section10-non wetland
D-2A	Southern Mojave	0	0	1,387	0.006	1,387	0.011	34.126261	-116.056539	R4SBJ	non-section10-non wetland
D-2B	Southern Mojave	0	0	1,025	0.035	1,025	0.071	34.126254	-116.056002	R4SBJ	non-section10-non wetland
D-3	Southern Mojave	0	0	1,532	0.047	1,532	0.094	34.162388	-116.055123	R4SBJ	non-section10-non wetland
D-4	Southern Mojave	0	0	1,443	0.050	1,443	0.099	34.125810	-116.055052	R4SBJ	non-section10-non wetland
D-5	Southern Mojave	0	0	292	0.010	292	0.020	34.125488	-116.054896	R4SBJ	non-section10-non wetland
D-6	Southern Mojave	0	0	323	0.011	323	0.022	34.125449	-116.054928	R4SBJ	non-section10-non wetland
D-7	Southern Mojave	0	0	387	0.013	387	0.027	34.124962	-116.054737	R4SBJ	non-section10-non wetland

CDFW – California Department of Fish and Wildlife
– Riverine perennial, streambed, intermittently flooded wetland based on Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et. al., 1979).
R4SBJ – Riverine, Intermittent, Streambed, Intermittently Flooded based on Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et. al., 1979).

6.0 IMPACTS TO JURISDICTIONAL AREAS

Impacts are not currently known. The parcels used for the development of the park by the City are currently under negotiation with the current owners.

6.1 Permitting Requirements

The proposed project requires temporary and permanent impacts to jurisdictional drainages and therefore, authorizations from the RWQCB and CDFW are required as described below.

6.1.1 U.S. Army Corps of Engineers

All drainages onsite are ephemeral. As of June 22, 2020, under the new 2020 USACE ruling, ephemeral drainages would not be considered WUS. USACE would likely not assert jurisdiction. If the USACE did assert jurisdiction over the on-site drainages, or if the applicant decided to use a preliminary determination of jurisdictional status, and permit as jurisdictional status, then a 404 permit would be required as described below.

The two most common types of permits issued by USACE under Section 404 of the CWA to authorize the discharge of dredged or fill material into WUS are: a nation-wide permit (NWP) or an individual permit (IP).

NWPs are general permits for specific categories of activities that result in minimal impacts to aquatic resources.

6.1.2 Regional Water Quality Control Board

The project areas occur in the Colorado River RWQCB (Region 7). Under Section 401 of the CWA, the RWQCB must certify that the discharge of dredged or fill material into WUS does not violate state water quality standards.

The RWQCB also regulates impacts to WSC under the Porter Cologne Water Quality Control Act through issuance of a Construction General Permit, State General Waste Discharge Order, or Waste Discharge Requirements, depending upon the level of impact and the properties of the waterway.

The project proponent would need to obtain a Water Quality Certification. In addition to the formal application materials and fee (based on area of impact), a copy of the appropriate California Environmental Quality Act (CEQA) documentation must be included with the application.

6.1.3 California Department of Fish and Wildlife

A 1602 Streambed Alteration Agreement is required for all activities that alter streams and lakes and their associated riparian habitat, regardless of the extent of impacts. In addition to the formal application materials and fee (based on cost of the project), a copy of the appropriate CEQA documentation must be included with the application.

7.0 REFERENCES

Baldwin, B.G., D.H. Goldman, D.J. Keil, R. Patterson, T.J. Rosatti, and D.H. Wilken, editors. 2012. The Jepson manual: vascular plants of California, second edition. University of California Press, Berkeley.

Brady, Roland H. III, Kris Vyverberg. 2013. Methods to Describe and Delineate Episodic Stream Processes on Arid Landscapes for Permitting Utility-Scale Solar Power Plants. California Energy Commission. Publication Number: CEC-500-2014-013.

California Department of Fish and Wildlife (CDFW). 2010. A Review of Stream Processes and Forms in Dryland Watersheds. Prepared by Kris Vyverberg, Conservation Engineering. 32 p.

CDFW. 2018. Fish and Game Code of California. http://www.leginfo.ca.gov/calaw.html.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior.

desertweather.com, accessed 8/25/2020. Annual and monthly rainfall totals.

Federal Register / Vol. 85, No. 77 / Tuesday, April 21, 2020 / Rules and Regulations (22250)

Gretag/Macbeth. 2000. Munsell color. New Windsor, NY.

Lichvar, R.W., M. Butterwick, N.C. Melvin, and W.N. Kirchner. 2014. *The National Wetland Plant List*: 2014 Update of Wetland Ratings. Phytoneuron 2014-41: 1-42.

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at http://websoilsurvey.nrcs.usda.gov/. Accessed March 2020.

U.S. Army Corps of Engineers (USACE). 1987. Wetlands Delineation Manual, Technical Report Y-8. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 100 pp. + append.

USACE. 2008a. A Field Guide to the Identification of the Ordinary High-Water Mark (OHWM) in the Arid West Region of the Western United States. A Delineation Manual. Lichvar and McColley. August.

USACE. 2008b. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region. September.

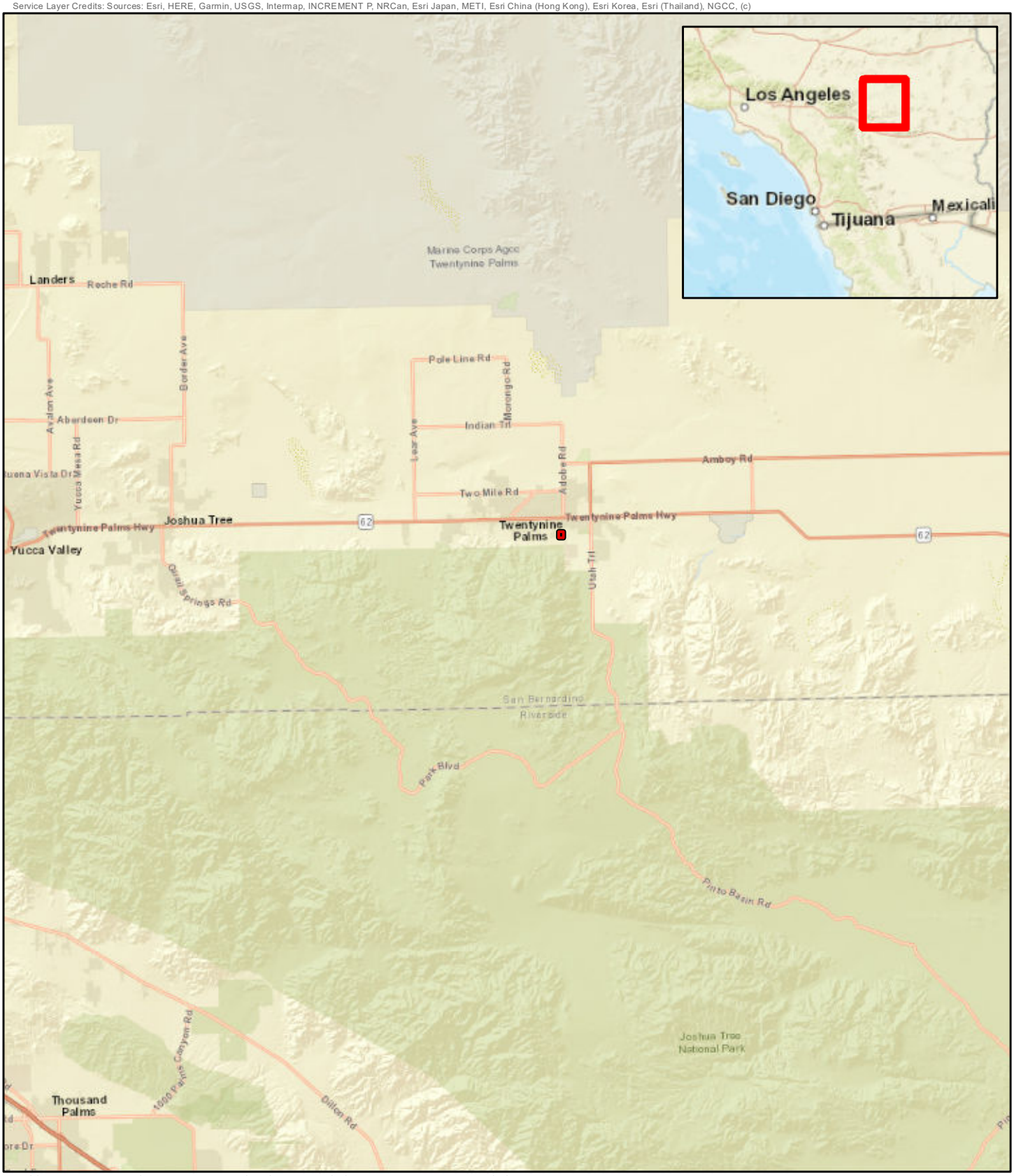
United States Department of Agriculture, Natural Resources Conservation Service (USDA). 2019a. The PLANTS Database. (http://plants.usda.gov, 15 June 2019). National Plant Data Team, Greensboro, NC 27401-4901 USA.

USDA. 2020. List of Hydric Soils. Available online at: http://www.nrcs.usda.gov/wps/PA_NRCSConsumption/download?cid=stelprdb1248596&ext=xlsx

U.S. Fish and Wildlife Service. 2020. National Wetlands Inventory Mapper. Available online at: http://www.fws.gov/wetlands/Data/Mapper.html. Accessed March 2020.

United States Geological Survey (USGS). 1996. 7.5-Minute Series, *San Bernardino North*, California, Topographic Quadrangle. Reston, VA.

APPENDIX A
JURISDICTIONAL MAPS



Path: Q:\3554_NaturalResources\PioneerPark_322520103\MXD\ReportFigures\JD\Fig1_Regional.mxd, chris.nixon 8/24/2020

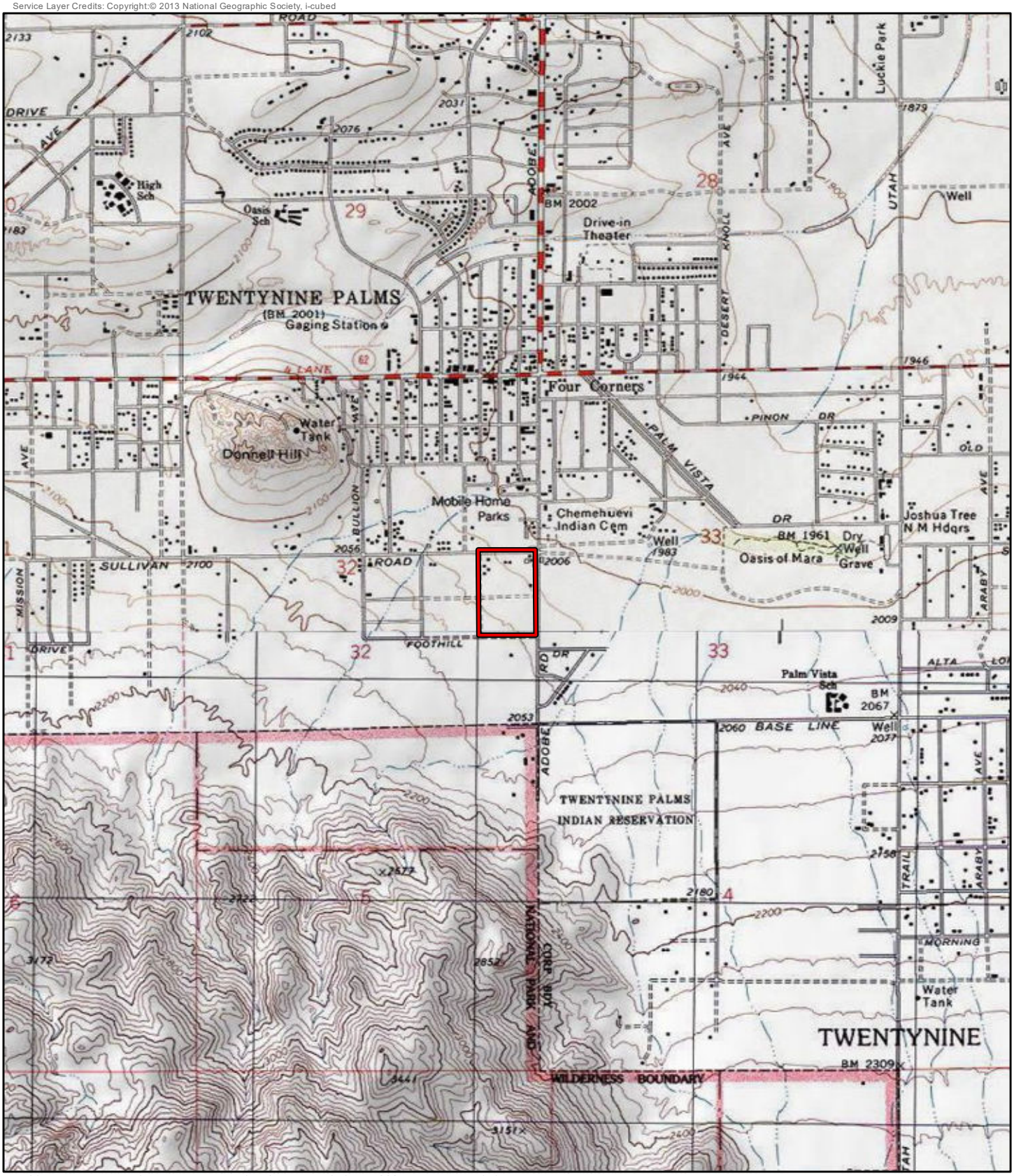
1 inch = 5 miles
0 2.5 5 Miles

wood.

Project Boundary

FIGURE 1

Vicnity and Location
Jurisdictional Delineation
Pioneer Park Project
Twentynine Palms, CA.



Path: Q:\3554_NaturalResources\PioneerPark_322520103\MXD\ReportFigures\JD\Fig2_USGS.mxd, chris.nixon 8/24/2020

1 inch = 2,000 feet

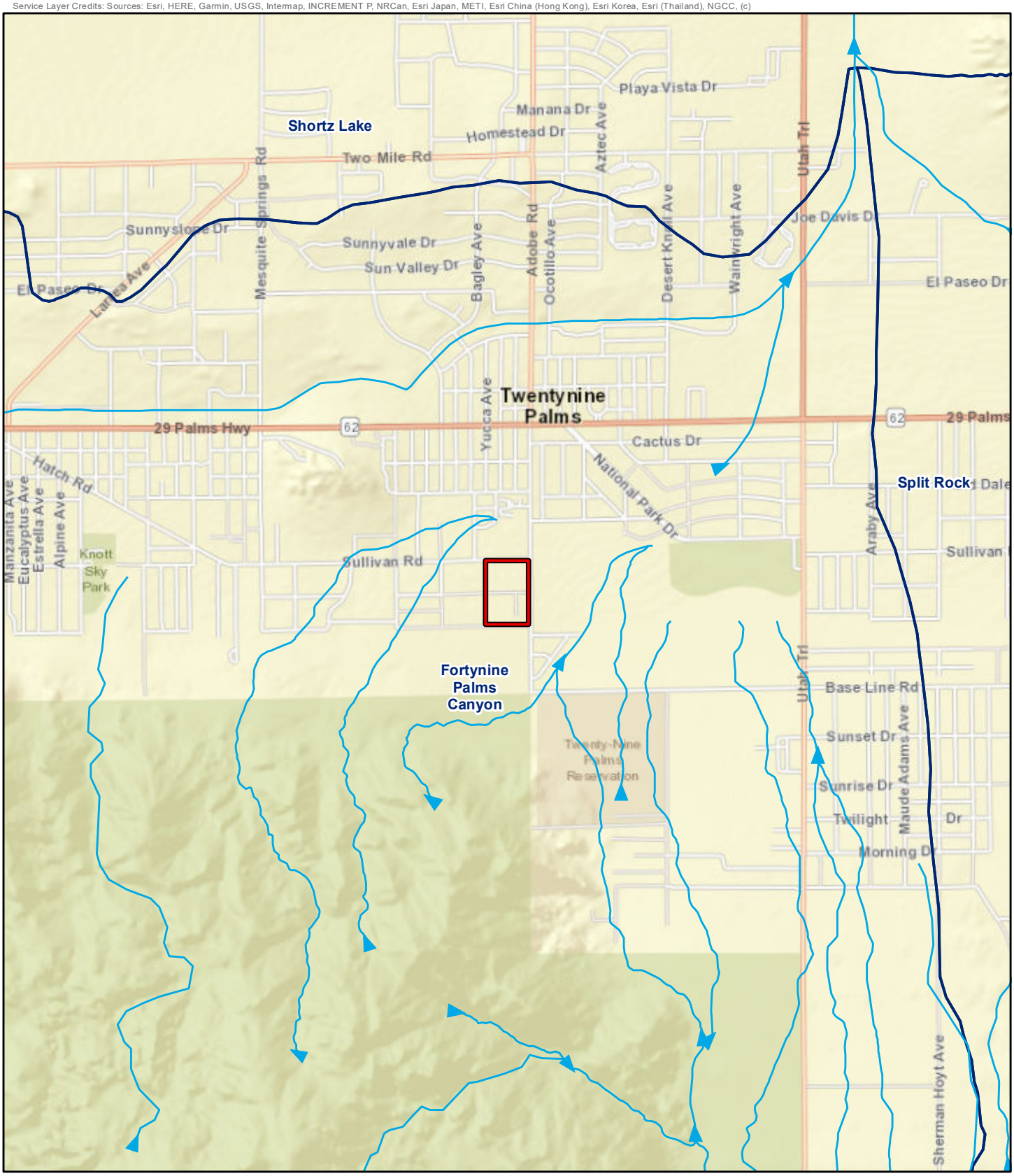
0 1,000 2,000 Feet

wood.

Project Boundary

FIGURE 2

Project Location on USGS Topo
Jurisdictional Delineation
Pioneer Park Project
Twentynine Palms, CA.



Path: Q:\3554_NaturalResources\PioneerPark_322520103\MXD\ReportFigures\JD\Fig3_Hydrology.mxd, chris.nixon 8/24/2020

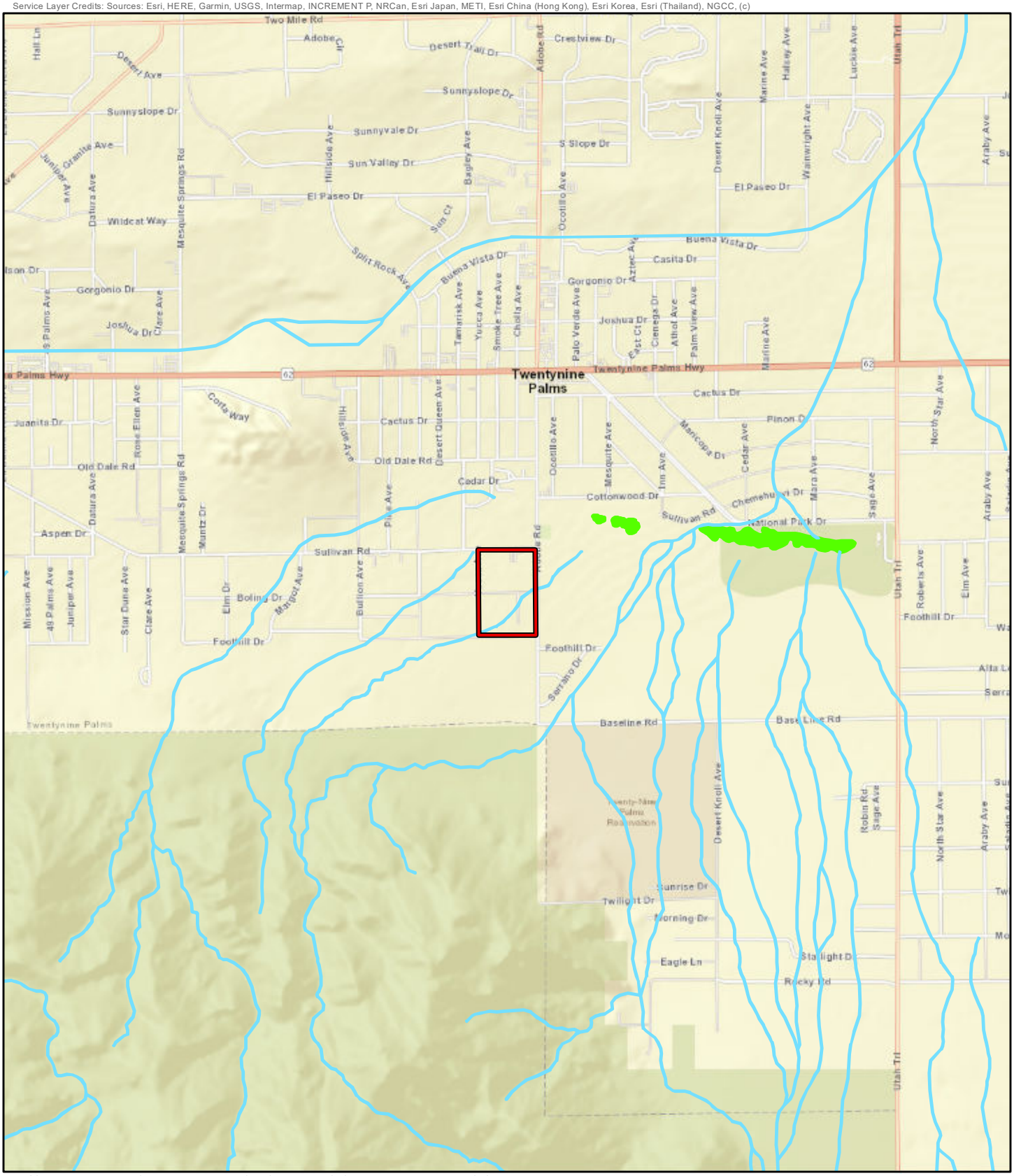
1 inch = 0.5 miles
0 0.25 0.5 Miles

wood.

Project Boundary
Flow Direction
HUC 12 Watershed Boundary

FIGURE 3

Hydrology
Jurisdictional Delineation
Pioneer Park Project
Twentynine Palms, CA.



Path: Q:\3554_NaturalResources\PioneerPark_322520103\MXD\ReportFigures\JD\Fig4_NWI.mxd, chris.nixon 8/25/2020

Project Boundary

National Wetlands Inventory

- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

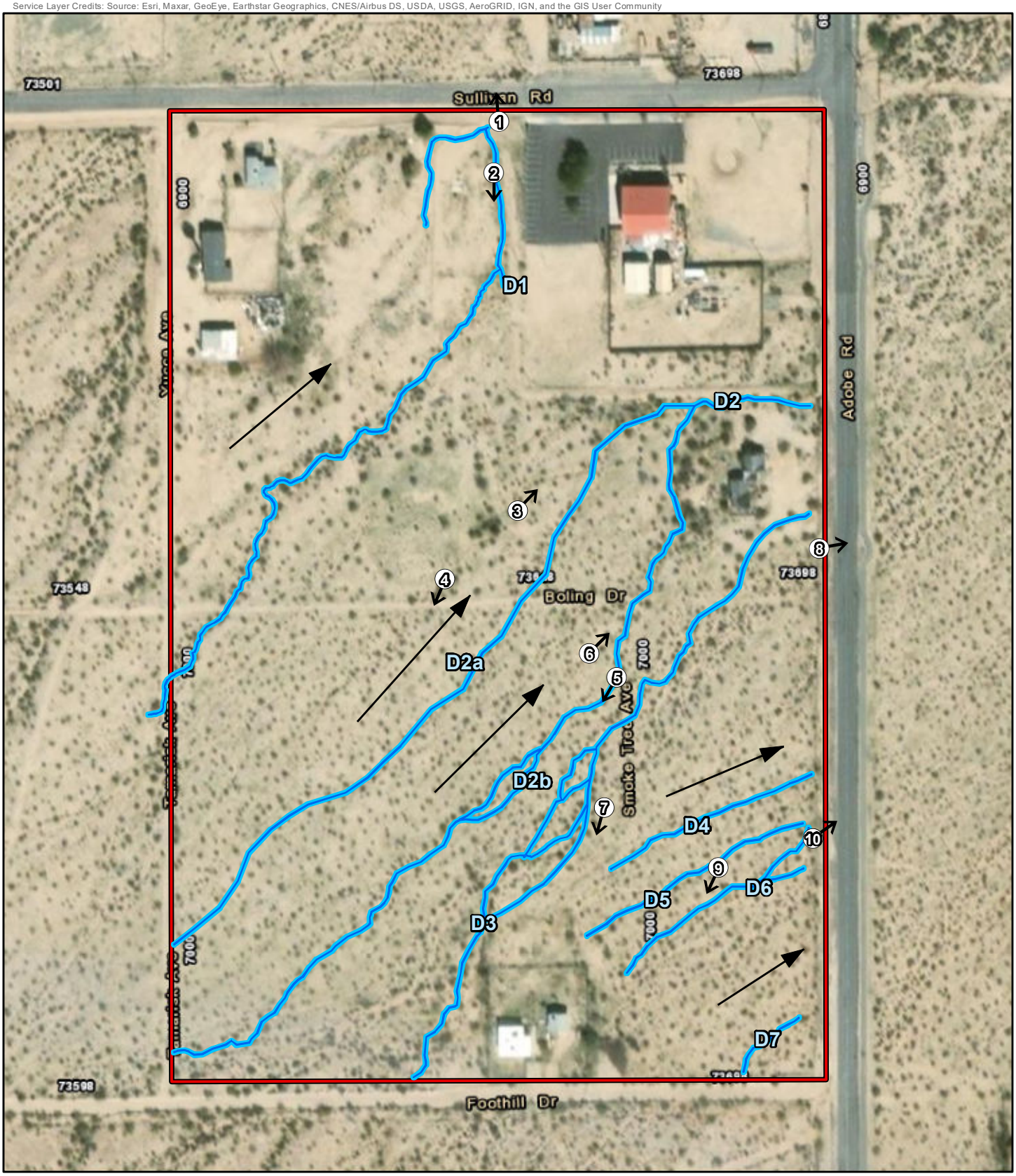
1 inch = 0.4 miles

0 0.25 0.5 Miles

wood.

FIGURE 4

National Wetlands Inventory
Jurisdictional Delineation
Pioneer Park Project
Twentynine Palms, CA.



Path: Q:\3554_NaturalResources\PioneerPark_322520103\MXD\ReportFigures\JD\Fig5_JD.mxd, chris.nixon 8/26/2020

1 inch = 175 feet

0 87.5 175 Feet

Project Boundary

Photo Point

Flowline

RWQCB (Regional Water Quality Control Board)

CDFW (California Department of Fish and Wildlife)

wood.

FIGURE 5

Jurisdictional Areas
Jurisdictional Delineation
Pioneer Park Project
Twentynine Palms, CA.

APPENDIX B
SITE PHOTOGRAPHS

Photo 1. View of Drainage 1 looking south (upstream). Note that the OHWM does not continue past the berm along the south side of Sullivan Road.

Photo 2. View of Drainage 1 looking south (downstream) of Sullivan Road.

Photo 3. Looking northeast (downstream) at Drainage 2A.

Photo 4. Looking southwest (upstream) at Drainage 2A.

Photo 5. View of Drainage 2B looking upstream

Photo 6. View of Drainage 2B looking downstream

Photo 7. Looking southwest (upstream) at Drainage 3.

Photo 8. Looking northeast (downstream) at Drainage 3. Photo shows that this drainage does not currently leave the site and is blocked by a berm on the west side of Adobe Road.

Photo 9. Looking southwest (upstream) at Drainage 6.

Photo 10. Looking northeast (downstream) at Drainage 6. Photo shows that this drainage does not currently leave the site and is blocked by a berm on the west side of Adobe Road.

APPENDIX C

JURISDICTIONAL DELINEATION FORMS

Appendix C

Cultural Resources Survey

HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY REPORT

PIONEER PARK PROJECT

City of Twentynine Palms
San Bernardino County, California

For Submittal to:

Community Development Department, Planning Division
City of Twentynine Palms
6136 Adobe Road
Twentynine Palms, CA 92277

Prepared for:

Terra Nova Planning and Research, Inc.
42635 Melanie Place, Suite 101
Palm Desert, CA 92211

Prepared by:

CRM TECH
1016 East Cooley Drive, Suite A/B
Colton, CA 92324

Bai "Tom" Tang, Principal Investigator
Michael Hogan, Principal Investigator

October 25, 2020
CRM TECH Contract No. 3644

Title: Historical/Archaeological Resources Survey Report: Pioneer Park Project, City of Twentynine Palms, San Bernardino County, California

Author(s): Bai "Tom" Tang, Principal Investigator/Historian
Deirdre Encarnación, Archaeologist/Report Writer
Terri Jacquemain, Historian/Architectural Historian
Daniel Ballester, Archaeologist/Field Director

Consulting Firm: CRM TECH
1016 East Cooley Drive, Suite A/B
Colton, CA 92324
(909) 824-6400

Date: October 25, 2020

For Submittal to: Community Development Department, Planning Division
City of Twentynine Palms
6136 Adobe Road
Twentynine Palms, CA 92277
(760) 367-6799

Prepared for: Nicole Sauviat Criste, Vice President
Terra Nova Planning and Research, Inc.
42635 Melanie Place, Suite 101
Palm Desert, CA 92211
(760) 341-4800

USGS Quadrangle: Twentynine Palms and Queen Mountain, Calif., 7.5' quadrangles (Section 32, T1N R9E, San Bernardino Baseline and Meridian)

Project Size: Approximately 20 acres

Keywords: Southern Mojave Desert; Phase I historical/archaeological resources survey; Assessor's Parcel Nos. 0616-281-02, -03, -10 to -13, and -15 to -17; Sites 3644-1H, -3H, and -4H: historic-period refuse scatters; Isolate 3644-2: prehistoric lithic tool; Isolate 3644-5H: glass bottle base; Site 3644-6H: structural remains; Sites 3644-7H to -9H: residential buildings from circa 1940-1960; no "historical resources" under CEQA; remote-sensing investigation and archaeological/Native American monitoring recommended due to subsurface archaeological sensitivity

MANAGEMENT SUMMARY

Between July and October 2020, at the request of Terra Nova Planning and Research, Inc., CRM TECH performed a cultural resources study on the 20-acre site of the proposed Pioneer Park in the City of Twentynine Palms, San Bernardino County, California. The project area is located at the southwest corner of Adobe Road and Sullivan Road, in the southeast quarter of Section 32, T1N R9E, San Bernardino Baseline and Meridian. The study is part of the environmental review process for the project, which entails the development of a city park to include a stage pavilion, kite-flying hill, walking paths, playgrounds, and basketball and tennis courts among its amenities. The City of Twentynine Palms, as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA).

The purpose of this study is to provide City of Twentynine Palms with the necessary information and analysis to determine whether the project would cause a substantial adverse change to any "historical resources," as defined by CEQA, that may exist in or around the project area. In order to identify such resources, CRM TECH initiated a historical/archaeological resources records search, pursued historical background research, contacted Native American representatives, and carried out an intensive-level field survey. As a result of these research procedures, a total of nine historical/ archaeological resources were identified and recorded within the project boundaries, including three historic-period buildings or groups of buildings, four historic-period archaeological sites, a prehistoric isolate, and a historic-period isolate, as listed below:

Temporary Designation[*]	**Description**
3644-1H	Single dump of construction nails
3644-2	Quartz blade tool
3644-3H	Refuse deposit with cans
3644-4H	Refuse scatter with cans and bottles
3644-5H	Glass bottle base
3644-6H	Concrete slab foundation
3644-7H	Residence at 73646 Foothill Drive
3644-8H	Abandoned duplex at 6976 Adobe Road
3644-9H	Three residences at 73591 Sullivan Road and 6943-6955 Yucca Avenue

Based on findings from further research and analysis, this study concludes that none of these nine historical/archaeological resources appear to meet the definition of "historical resources." However, the project area is known to be located in close proximity to two previously recorded prehistoric (i.e., Native American) sites, the Oasis of Maara (Site 36-002052) and the Chemehuevi Cemetery (Site 36-004419), both of which have been designated Points of Historical Interest by the State of California (Nos. SBr-036 and -037). The Oasis of Maara, one of the most important prehistoric sites in the Mojave Desert region, has a long and rich history of Native American activities throughout the prehistoric, protohistoric, and historic periods and, as the creation site in Serrano legends, holds a much distinguished traditional cultural value. The cemetery contains known burials of both Chemehuevi and Serrano tribal members, and human remains are always of the utmost cultural significance to the local Native American community.

[*] Pending assignment of official numbers in the California Historical Resources Inventory.

In light of the presence of these sites practically across the street, as delineated by existing SCCIC records, the project area is considered to be highly sensitive for subsurface deposits of Native American cultural remains despite the lack of a substantial surface manifestation, especially since the extent of burials may not be confined within the current boundary of the cemetery. Therefore, the San Manuel Band of Mission Indians expressed "a great deal of concern" with the proposed project during this study and requested to participate in further consultation with the City of Twentynine Palms. Based on these considerations, CRM TECH presents the following recommendations to the City of Twentynine Palms:

- Non-invasive archaeological investigations utilizing such techniques as ground-penetrating radar or LiDAR (light detection and ranging; laser imaging, detection, and ranging) should be completed in the project area prior to any ground disturbances.
- The scope of these investigations should be focused on relatively undisturbed areas that are subject to substantial ground disturbance during the proposed project, and should be determined in cooperation and collaboration with the San Manuel Band of Mission Indians and other interested Native American groups of Serrano and/or Chemehuevi heritage.
- An archaeological monitoring program should be designed and implemented during earth-moving operations associated with the project in coordination with the pertinent Native American groups, who may wish to participate.
- The incorporation of educational displays illustrating the cultural history of the project vicinity, including both the prehistoric and the historic period, should be considered in future park planning.
- Further recommendations will be formulated and presented on the basis of the results of the non-invasive archaeological investigations.

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INTRODUCTION

Between July and October 2020, at the request of Terra Nova Planning and Research, Inc., CRM TECH performed a cultural resources study on the 20-acre site of the proposed Pioneer Park in the City of Twentynine Palms, San Bernardino County, California (Fig. 1). The project area is located at the southwest corner of Adobe Road and Sullivan Road, in the southeast quarter of Section 32, T1N R9E, San Bernardino Baseline and Meridian (Figs. 2, 3).

The study is part of the environmental review process for the project, which entails the development of a city park to include a stage pavilion, kite-flying hill, walking paths, playgrounds, and basketball and tennis courts among its amenities. The City of Twentynine Palms, as the lead agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA; PRC §21000, et seq.). The purpose of this study is to provide City of Twentynine Palms with the necessary information and analysis to determine whether the project would cause a substantial adverse change to any "historical resources," as defined by CEQA, that may exist in or around the project area.

In order to identify such resources, CRM TECH initiated a historical/archaeological resources records search, pursued historical background research, contacted Native American representatives, and carried out an intensive-level field survey. The following report is a complete account of the methods, results, and final conclusion of the study. Personnel who participated in the study are named in the appropriate sections below, and their qualifications are provided in Appendix 1.

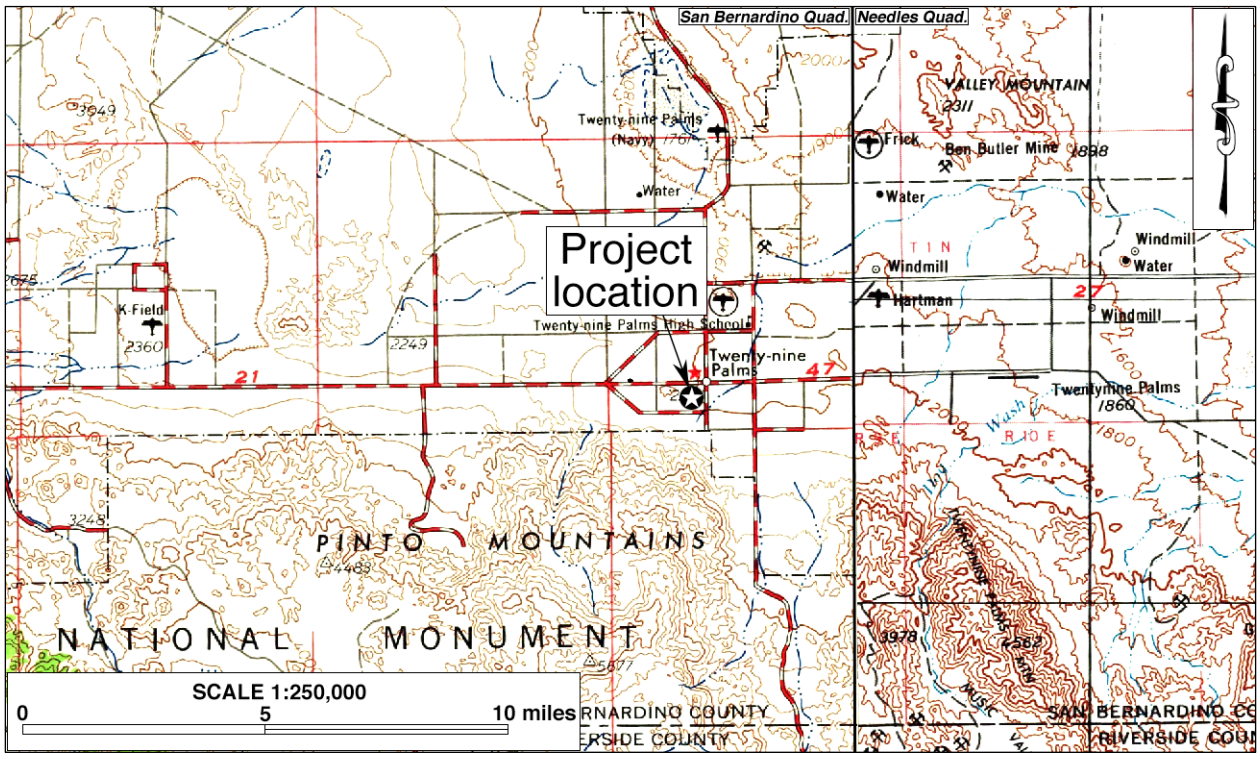

Figure 1. Project vicinity. (Based on USGS San Bernardino, Calif., and Needles, Calif.-Ariz., 120'x60' quadrangles [USGS 1969a; 1969b])

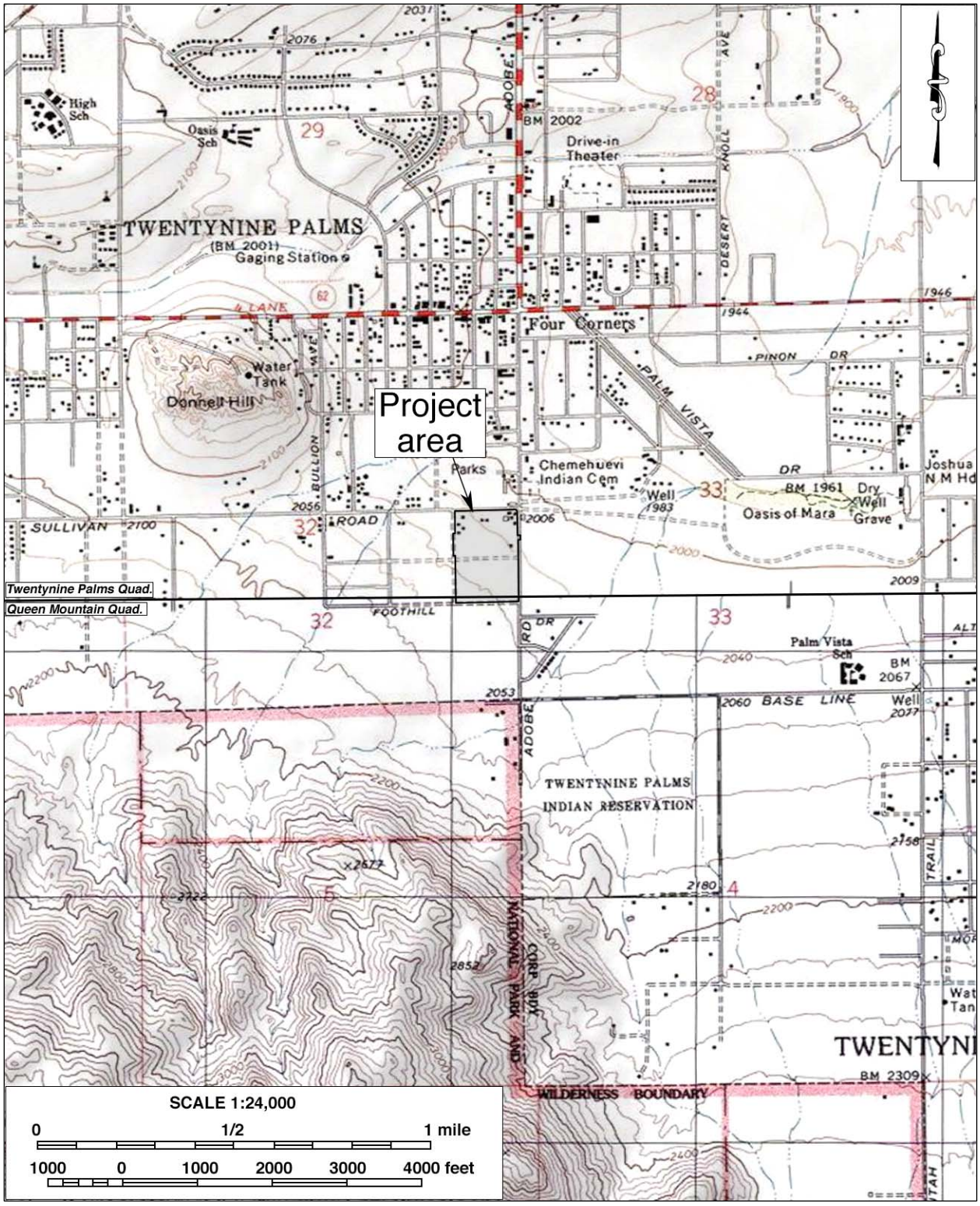

Figure 2. Project area. (Based on USGS Twentynine Palms and Queen Mountain, Calif., 7.5' quadrangles [USGS 1994; 1995])

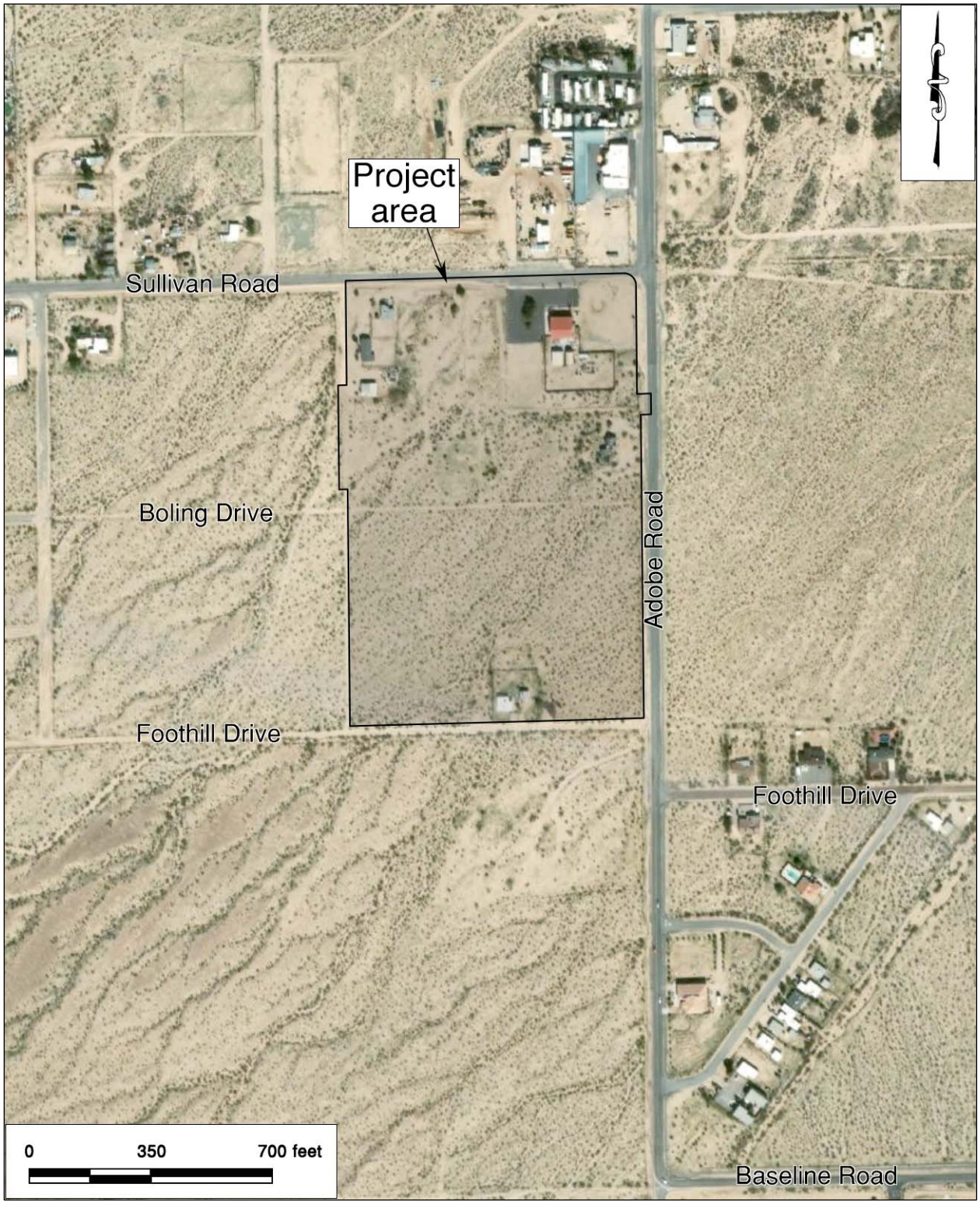

Figure 3. Aerial view of the project area.

SETTING

CURRENT NATURAL SETTING

The City of Twentynine Palms is located on an alluvial fan in the Morongo Basin, at the southern edge of the Mojave Desert, and to the north of the Pinto Mountains. The climate and environment of the area is typical of southern California "high desert" country, so-called because of its higher elevation, especially in relation to the Colorado Desert to the south. The climate is marked by extremes in temperature and aridity, with summer highs reaching well over 110ºF and winter lows dipping below freezing. The average annual precipitation is less than five inches.

Situated on the southern outskirts of the Twentynine Palms city center, the project area is bounded by Adobe Road on the east, Sullivan Road on the north, Yucca Avenue/Tamarisk Avenue on the west, and Foothill Drive on the south, and is bisected by Boling Drive. Elevations range around 2,015 to 2,050 feet above mean sea level, and the terrain is relatively level with a slight incline towards the southwest. There are currently nine buildings in the project area, including a theater with two associated outbuildings, an abandoned duplex, and four single-family residences, one of them with a detached garage (Fig. 3). Outside the developed areas, the ground surface is largely undisturbed, with minor drainages running generally southwest-northeast from mountains in the Joshua Tree National Park, roughly a quarter-mile to the south (Figs. 3, 4).

Vegetation in the vicinity features such native species as creosote, yucca, jojoba, beavertail cactus, cholla, pencil cholla, and mesquite (Fig. 4), with introduced landscaping plants around the developed parcels. In its native state, the project area is a part of the Joshua Tree Woodland Plant Community, which typically features also Joshua tree, juniper, buckwheat, Apache plume, desert alyssum, and various types of cacti. Animals common to the region include small mammals (jackrabbits, desert cottontails, squirrels, rats, and mice), reptiles (lizards, snakes, and desert tortoise), native birds (doves, vultures, raptors, and quail), and arthropods (beetles, desert tarantula, and scorpions).

Figure 4. Typical landscape in the project area, view to the south. (Photograph taken on September 24, 2020)

CULTURAL SETTING

Prehistoric Context

In order to understand the progress of Native American cultures prior to European contact, archaeologists have devised chronological frameworks on the basis of artifacts and site types that date back some 12,000 years. Currently, the chronology most frequently applied in the Mojave Desert divides the region's prehistory into five periods marked by changes in archaeological remains, reflecting different ways in which Native peoples adapted to their surroundings. According to Warren (1984) and Warren and Crabtree (1986), the five periods are as follows: the Lake Mojave Period, 12,000 years to 7,000 years ago; the Pinto Period, 7,000 years to 4,000 years ago; the Gypsum Period, 4,000 years to 1,500 years ago; the Saratoga Springs Period, 1,500 years to 800 years ago; and the Protohistoric Period, 800 years ago to European contact.

More recently, Hall (2000) presented a slightly different chronology for the region, also with five periods: Lake Mojave (ca. 8000-5500 B.C.), Pinto (ca. 5500-2500 B.C.), Newberry (ca. 1500 B.C.-500 A.D.), Saratoga (ca. 500-1200 A.D.), and Tecopa (ca. 1200-1770s A.D.). According to Hall (*ibid.*:14), small mobile groups of hunters and gatherers inhabited the Mojave Desert during the Lake Mojave sequence. Their material culture is represented by the Great Basin Stemmed points and flaked stone crescents. These small, highly mobile groups continued to inhabit the region during the Pinto Period, which saw an increased reliance on ground foods, small and large game animals, and the collection of vegetal resources, suggesting that "subsistence patterns were those of broad-based foragers" (*ibid.*:15). Artifact types found in association with this period include the Pinto points and *Olivella* sp. spire-lopped beads.

Distinct cultural changes occurred during the Newberry Period, in comparison to the earlier periods, including "geographically expansive land-use pattern…involving small residential groups moving between select localities," long-distance trade, and diffusion of trait characteristics (Hall 2000:16). Typical artifacts from this period are the Elko and Gypsum Contracting Stem points and Split Oval beads. The two ensuing periods, Saratoga and Tecopa, are characterized by seasonal group settlements near accessible food resources and the intensification of the exploitation of plant foods, as evidenced by groundstone artifacts (*ibid.*:16).

Hall (2000:16) states that "late prehistoric foraging patterns were more restricted in geographic routine and range, a consequence of increasing population density" and other variables. Saratoga Period artifact types include Rose Spring and Eastgate points as well as Anasazi grayware pottery. Artifacts from the Tecopa Period include Desert Side-notched and Cottonwood Triangular points, buffware and brownware pottery, and beads of the Thin Lipped, Tiny Saucer, Cupped, Cylinder, steatite, and glass types (*ibid.*).

Ethnohistoric Context

The Native American groups living near the project location in recent centuries were the Serrano and the Chemehuevi. The Serrano's homeland was centered in the nearby San Bernardino Mountains but also included lowlands along both flanks of the mountain range. The Chemehuevi, a subgroup of the Southern Paiute, traditionally occupied the portion of the Mojave Desert extending east to the Colorado River. Both groups belong to the larger Shoshonean language stock, which in turn is part

of the Uto-Aztecan linguistic family. The leading anthropological works on the Chemehuevi include Kroeber (1925), Laird (1976), and Kelly and Fowler (1986), while the basic references on the Serrano are Kroeber (1925), Strong (1929), and Bean and Smith (1978). The following ethnohistoric discussion is based primarily on these sources.

Prior to European contact, native subsistence practices were defined by the surrounding landscape and were primarily based on the cultivating and gathering of wild foods and hunting, exploiting nearly all of the resources available. The Serrano settled mostly on elevated terraces, hills, and finger ridges near where flowing water emerged from the mountains, while the Chemehuevi, with fewer people spread over a much wider area, cultivated, gathered, and hunted in the open deserts, but were also known for their agricultural practices, in particular the cultivation of corn, beans, squash, and melons. Social customs brought members of each tribe together at important base camps or villages for annual ceremonies and tribal interaction with neighboring groups.

Both tribal groups had a variety of technological skills that they used to acquire subsistence, shelter, and medicine or to create ornaments and decorations. Common tools included manos and metates, mortars and pestles, hammerstones, fire drills, awls, arrow straighteners, and stone knives and scrapers. These lithic tools were made from locally sourced material as well as materials procured through trade or travel. They also used wood, horn, and bone spoons and stirrers; baskets for winnowing, leaching, grinding, transporting, parching, storing, and cooking; and pottery vessels for carrying water, storage, cooking, and serving food and drink. Much of this material cultural, elaborately decorated, does not survive in the archaeological record. As usual, the main items found archaeologically relate to subsistence activities.

In the Twentynine Palms area, the Serrano and the Chemehuevi relied on the waters of a desert oasis located roughly a half-mile to the east of the project location. The oasis was first settled by the Serrano, who named it Maara, "the place of little springs and much grass" (NPS n.d.). The Serrano moved to the oasis on the advice of a medicine man and were told to plant a palm tree each time a boy was born. In the first year, the Serrano planted 29 palms at the oasis, providing food as well as materials for clothing, cooking implements, and housing (*ibid*.). The Chemehuevi began to settle around the oasis in the mid-19th century (*ibid*.).

Although contact with Europeans may have occurred as early as 1771 or 1772, direct European influence on Serrano and Chemehuevi lifeways began in the 1810s, when the mission system expanded to the edge of Serrano territory. Between then and the end of the mission era in 1834, most of the Serrano were removed to the nearby missions. While less affected by Spanish and Mexican policies due to their more remote location, the Chemehuevi experienced increasing conflict with encroaching Euroamerican prospectors and settlers during the late 19th century. By the early 20th century, the majority of Serrano and Chemehuevi population was incorporated into the reservation system. Today, most Serrano descendants are found on the San Manuel and the Morongo Indian Reservations, while the Chemehuevi are divided among the Chemehuevi, the Colorado River, and the Morongo Reservations.

Historic Context

Because of its harsh, unforgiving environment, non-Native settlement in the Mojave Desert was late to start and slow in subsequent development. Although the Mojave Desert received its first

European visitor, the famed Spanish explorer Francisco Garcés, as early as 1776 (Beck and Haase 1974:15), for the next 70 years the inland regions of Alta California were largely ignored by the Spanish and Mexican authorities in their colonization schemes. During that period, the presence of non-Natives in the Mojave Desert was essentially confined to a few trails that were established over the years, most notably the Old Spanish Trail, a pack-train road established between southern California and Santa Fe, New Mexico, in the 1830s.

Beginning in the early 1860s, as the gold mines in the Mother Lode country of the Sierra Nevada declined in production, groups of former forty-niners embarked on fresh explorations into the desert between California, Nevada, and Arizona. Before long, new mining districts sprang up throughout the Mojave Desert. However, the discovery of these early bonanzas was frequently incidental to travel across the desert to richer diggings elsewhere, as in the case of the La Paz gold rush in Arizona (Warren et al. 1981:96). A few renowned mining towns, such as Ivanpah and Calico, boomed in the 1870s and 1880s, but the first major strike in the Mojave Desert did not occur until the Old Woman Mountains boom of 1898-1901 (Gallegos et al. 1980:133).

In the mid-19th century, a few new trails were developed on the basis of the Old Spanish Trail, such as the Mormon Trail and the Mojave Road, by which many of the legendary wagon trains from the eastern U.S. entered California. Since the 1870s, the Mojave Desert has seen the establishment of a number of modern transportation thoroughfares across its vast reaches, including the Southern Pacific, the Santa Fe, and the Union Pacific Railroads; the fabled U.S. Route 66; and today's Interstate Highways 15 and 40. Several urban centers have gradually emerged along these arteries, mostly along the western and southern rims of the Mojave Desert. The bulk of the region, however, remains sparsely populated and rarely touched by human activities, even to the present time.

On the history of what is now the City of Twentynine Palms, a local history source (DesertUSA n.d.) offers the following summary:

> Twentynine Palms derives its name from the life-giving waters of the lush oasis where 29 native California Fan Palms grew along the Pinto Mountain fault… By the late 1800s, prospectors bivouacked here while seeking their fortunes in nearby gold camps, the most famous of which was the Dirty Sock Camp.
>
> In 1910, Bill and Frances Keys, among the first pioneer homesteaders, settled at the Desert Queen Ranch in what is now Joshua Tree National Park. Dr. James B. Luckie is credited with populating the community after World War I ended in 1918, by sending veterans suffering from the effects of mustard gas here for the pure, healing desert air. This Pasadena doctor became a prominent citizen and a founding father of the city.
>
> One WWI veteran, William Campbell, arrived with his wife Elizabeth in 1924 and began homesteading 160 acres off Joe Davis Road where they built a home of native stone, now a bed and breakfast called Roughly Manor at Campbell Branch. Aligned with the Southwest Museum of Los Angeles, the Campbells discovered thousands of archaeological sites and donated land for the first schoolhouse here, and for Luckie Park.
>
> In 1952, the U.S. Defense Department established a marine base north of the oasis for glider training. Now known as the U.S. Marine Corps Air Ground Combat Center, this vast area of the Mojave Desert encompasses the world's largest marine base, housing 18-20,000 military personnel. The city of Twentynine Palms was incorporated March 23, 1987.

RESEARCH METHODS

RECORDS SEARCH

The historical/archaeological resources records search for this study was conducted by the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System on September 17, 2020. Located on the campus of California State University, Fullerton, the SCCIC is the State of California's official cultural resource records repository for the County of San Bernardino. During the records search, SCCIC staff examined the center's digital maps, records, and databases for previously identified cultural resources and existing cultural resources reports within a one-mile radius of the project area. Due to facility closure during the COVID-19 pandemic, records that had not been digitized were unavailable to SCCIC staff. Therefore, the SCCIC cautions that the records search results "may or may not be complete" (see App. 2).

HISTORICAL RESEARCH

Historical background research for this study was conducted by CRM TECH historian Terri Jacquemain. Sources consulted during the research included published literature in local history, archival records of U.S. Bureau of Land Management (BLM) and the County of San Bernardino, historic maps of the Twentynine Palms area, aerial photographs of the project vicinity, and various online genealogical databases. Among the maps consulted for this study were the U.S. General Land Office's (GLO) land survey plat maps dated 1856-1857 and the U.S. Geological Survey's (USGS) topographic maps dated 1955-1995, which are collected at the Science Library of the University of California, Riverside, and the California Desert District of the BLM, located in Moreno Valley. The aerial photographs, taken in 1970-2019, are available at the Nationwide Environmental Title Research (NETR) Online website and through the Google Earth software.

NATIVE AMERICAN PARTICIPATION

On July 23, 2020, CRM TECH submitted a written request to the State of California Native American Heritage Commission (NAHC) for a records search in the commission's Sacred Lands File. Following the NAHC's recommendations and previously established consultation protocol, CRM TECH further contacted a total of eight Native American representatives in the region in writing on July 30 for additional information on potential Native American cultural resources in the project vicinity. In the meantime, CRM TECH also notified the Twenty-Nine Palms and Morongo Bands of Mission Indians of the upcoming archaeological field survey and invited tribal participation. A record of written correspondence between CRM TECH and the Native American representatives is attached to this report in Appendix 3.

FIELD SURVEY

On September 24, 2020, CRM TECH field director Daniel Ballester and project archaeologist Hunter O'Donnell carried out the field survey of the project area with the assistance of tribal monitors Kelsey Bosch from the Twenty-Nine Palms Band and Michael Ramirez from the Morongo Band. The survey was completed at an intensive level by walking a series of parallel north-south transects spaced 15 meters (approximately 45 feet) apart. In this way, the ground surface in the

entire project area was systematically and carefully examined for any evidence of human activities dating to the prehistoric or historic period (i.e., 50 years ago or older). Ground visibility was fair to good (60% to 75%) depending on the density of vegetation growth.

When archaeological features and artifacts were discovered during the survey, their locations were marked with survey flags. Upon completion of the survey, the features and artifacts were re-visited and photographed. Further recordation procedures, including written descriptions, geographical coordinates, location maps, and scaled sketch maps, were completed as appropriate to document the finds. The field data were then compiled into standard site record forms for submittal to the SCCIC and inclusion in the California Historical Resources Information System.

After the completion of the archaeological survey, Ballester conducted a field inspection of all buildings in the project area and field recording procedures on those that appeared to be more than 50 years old. In order to facilitate the proper recordation and evaluation of the historic-period buildings, Ballester made detailed notations and preliminary photo-documentation of their structural and architectural characteristics and current conditions. Ballester's field observations formed the basis of the building descriptions and integrity assessment presented below.

RESULTS AND FINDINGS

PREVIOUS CULTURAL RESOURCES STUDIES IN THE VICINITY

According to SCCIC records, the project area had not been surveyed for cultural resources prior to this study, and no historical/archaeological resources had been recorded within or adjacent to the project boundaries. Within the one-mile scope of the records search, SCCIC records identify at least 28 previous studies on various tracts of land and linear features, which resulted in the recordation of 46 historical/archaeological resources within the one-mile radius, including 10 prehistoric (i.e., Native American) resources, 35 resources from the historic period, and 1 with both prehistoric and historical components (see Table 1; App. 2).

Due to limitations in accessible records, the SCCIC staff were unable to provide all information on file regarding these previously recorded historical/archaeological resources. However, the available data clearly demonstrate that only two of them, Sites 36-002052 (CA-SBR-2052/H) and 36-004199 (CA-SBR-4199H), were found in close proximity to the project area (see location map in App. 2). All of the other resources were recorded at least 1,000 feet from the project boundaries (see App. 2). Therefore, none of them require further consideration during this study.

Site 36-002052 is centered on the Oasis of Maara, an officially designated Point of Historical Interest (No. SBr-036; State of California 1974a). The site as a whole lies approximately 200 feet to the northeast of the project area at the closest spot and, from there, extends more than a mile to the east (Schneider 2003). Recorded and updated numerous times since 1938, the site has been occupied by the Serrano at least as far back as the early Holocene (Smith 1938; Schneider 2003:1; Vader 2014). The Chemehuevi moved to the oasis in the late 19th century and lived there among the Serrano population (Schneider 2003:1).

Table 1. Previously Recorded Cultural Resources within the Scope of the Records Search
(See App. 2 for resource locations)

Primary #	Trinomial	Type	Age	First Recorded	Description
36-002052	CA-SBR-2052/H	Site	Prehistoric /historical	1938	Oasis of Maara
36-004199	CA-SBR-4199H	Site	Historical	1974	Chemehuevi Cemetery
36-005052	CA-SBR-5052	Site	Prehistoric	1982	Lithic scatter
36-010525	CA-SBR-10525H	Structure	Historical	2000	State Route 62
36-010545	CA-SBR-10545H	Building	Historical	2000	Commercial building
36-010546	CA-SBR-10546H	Building	Historical	2000	Commercial building
36-010547	CA-SBR-10547H	Building	Historical	2000	Commercial building
36-010548	N/A	Building	Historical	2000	Commercial building
36-010549	N/A	Building	Historical	2000	Commercial building
36-010550	N/A	Building	Historical	2000	Commercial building
36-010551	N/A	Building	Historical	2000	Commercial building
36-010552	N/A	Building	Historical	2000	Commercial building
36-010553	N/A	Building	Historical	2000	Commercial building
36-010554	N/A	Building	Historical	2000	Commercial building
36-010555	N/A	Building	Historical	2000	Commercial building
36-010556	N/A	Building	Historical	2000	Commercial building
36-010557	N/A	Building	Historical	2000	Commercial building
36-010558	CA-SBR-10558H	Building	Historical	2000	Commercial building
36-010691	CA-SBR-10691H	Site	Historical	2001	Structural remains, refuse deposit, etc.
36-010692	CA-SBR-10692H	Site	Historical	2001	Structural remains etc.
36-010693	CA-SBR-10693H	Site	Historical	2001	Structural remains, refuse deposit, etc.
36-010694	CA-SBR-10694H	Site	Historical	2001	Landscaping/orchard
36-010695	CA-SBR-10695H	Site	Historical	2001	Structural remains, refuse deposit, etc.
36-020125	N/A	Other	Prehistoric	2003	Ceramic scatter etc.
36-020126	N/A	Other	Prehistoric	2003	Ceramic scatter etc.
36-020127	N/A	Other	Prehistoric	2003	Ceramic scatter etc.
36-020128	N/A	Other	Prehistoric	2003	Lithic scatter
36-020129	N/A	Other	Historical	2003	Landscaping/orchard etc.
36-020130	N/A	Other	Prehistoric	2003	Ceramic scatter etc.
36-020131	N/A	Other	Prehistoric	2003	Ceramic scatter etc.
36-023606	N/A	Building	Historical	2011	Multiple-family residence
36-023607	N/A	Building	Historical	2011	Multiple-family residence
36-023608	N/A	Building	Historical	2011	Commercial building
36-023609	N/A	Building	Historical	2011	Single-family residence
36-023610	N/A	Building	Historical	2011	Multiple-family residence
36-023611	N/A	Building	Historical	2011	Single-family residence
36-023933	N/A	Site	Historical	2011	Wall/fence
36-023936	CA-SBR-15121	Site	Prehistoric	2011	Bedrock milling feature
36-025651	CA-SBR-16192H	Site	Historical	2013	Bedrock milling feature
36-025652	CA-SBR-16193H	Site	Historical	2013	Bedrock milling feature
36-026942	N/A	Other	Prehistoric	2013	Ceramic scatter
36-027104	N/A	Structure	Historical	2005	Donnell Hill Water Tank
36-027160	CA-SBR-17131H	Site	Historical	2014	Refuse deposit
36-027161	CA-SBR-17132H	Site	Historical	2014	Refuse deposit
36-027162	CA-SBR-17133H	Site	Historical	2014	Refuse deposit
36-029786	CA-SBR-29786	Site	Prehistoric	2016	Ceramic scatter

Archaeological remains documented at Site 36-002052 are extensive, including a warehouse full of metates and metate fragments collected by the staff of what was then the Joshua Tree National Monument (Keairns et al. 1979:2). Other features and artifacts observed include widespread surface and subsurface deposits of lithic tools and fragments, midden soil, ceramic sherds, fire-affected rock, faunal remains, and additional groundstone artifacts, while private collecting by visitors and residents is well-known but was never catalogued (Keairns et al. 1979; Schneider 2003; Vader 2014). The site also has an extensive historic-period component, consisting primarily of the remnants of early mining, farming, and settlement activities but also including the historic 29 Palms Inn, roughly 0.3 mile east of the project location.

Encompassed entirely within the boundaries of Site 36-002052 are six of the other historical/ archaeological resources listed in Table 1, including Site 36-004199, which represents the locally well-known Chemehuevi Cemetery, a Point of Historical Interest in its own right (No. SBr-037; State of California 1974b). Located approximately 200 feet from the northeastern corner of the project area, 36-004199 was reported to contain 12 Native American burials in 1974 and 1980, but a later study noted up to 50 burials (*ibid.*; Teal 1980; Schneider 2003:4). As officially designated heritage properties, and given the nature and background of these sites, 36-002052 and 36-004199 are both undoubtedly significant cultural resources.

HISTORICAL OVERVIEW

Historical sources consulted for this study confirmed the prevalence of human activities in the project vicinity in the early historic period. In the mid-1850s, when the U.S. government conducted the first systematic land surveys in the Twentynine Palms area, the surveyors noted a major trail traversing less than a 1,000 feet to the north of the project location and branching off to the Oasis of Maara, which they called "Palm Springs," to the east of the project location (Fig. 5). At that time, however, no man-made features were observed within or immediately adjacent to the project boundaries (Fig. 5).

During the 1920s, the project area became part of a 160-acre homestead that the U.S. government granted in 1925 to Harry Y. Boling, the namesake of Boling Drive (BLM n.d.). A few years later, Clovis and Mary Benito purchased an acre of land in the northeastern corner of the project area from Boling, on which Clovis Benito and two of his sons constructed a building in the winter of 1929-1930 that housed both the Benitos' residence and a grocery store that Mary Benito operated for many years (TPHS n.d.). The store was evidently a success, and Mary Benito added a gasoline pump and a kerosene pump to the business before moving it to the downtown area sometime in the 1930s (*ibid.*).

By the 1950s, several other parcels of land in the project area had been carved out of the Boling homestead, and four more residential properties had been established (County Assessor 1945-1953). At the time, at least ten buildings were present in the project area, as were the forerunners of present-day Sullivan Road, Adobe Road, and Foothill Drive along the project boundaries (Fig. 6). Also worth noting was the confirmed presence of the Chemehuevi Cemetery near this location in the 1950s (Fig. 6). Sometime before 1970, one of the residences, located in the north-central portion of the project area, was removed, followed by the former Benito residence and store in 2008 (NETR Online 1970; Google Earth 2007; 2009; TPHS n.d.).

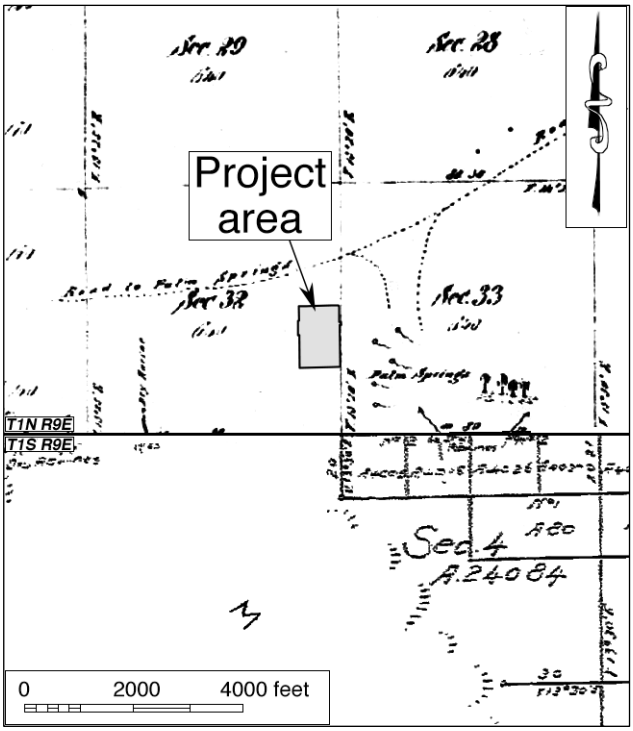

Figure 5. The project area and vicinity in 1855-1857. (Source: GLO 1856; 1857)

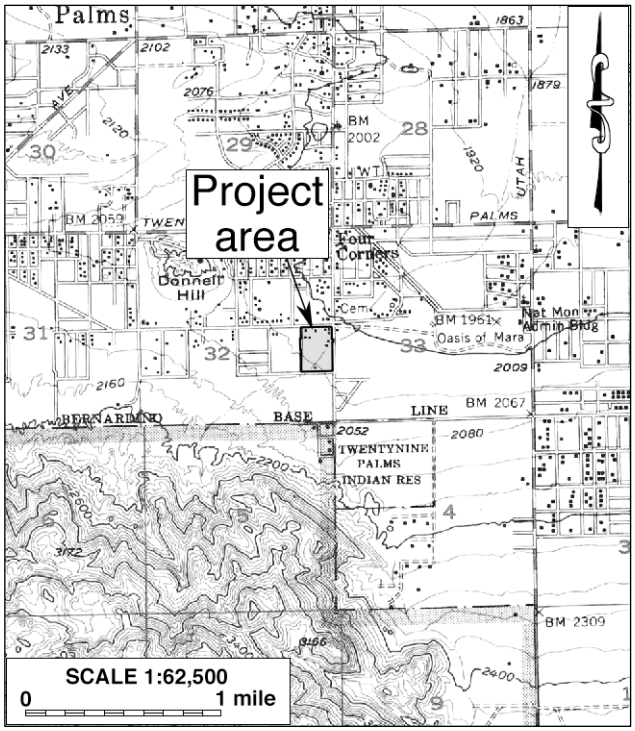

Figure 6. The project area and vicinity in 1937-1952. (Source: USGS 1955)

Meanwhile, the theater building in the project area, currently home to Theater 29, was constructed in 1983, and the two outbuildings behind it were added between 2003 and 2009 (NETR Online 1970; 1983; Google Earth 2003-2009; County Assessor n.d.). No other major changes in land use within the project area were reflected in the historical sources (NETR Online 1970-2016; Google Earth 1995-2019). The three remaining residential properties in the project area, one of them with three separate residences, were all developed in the 1940-1960 era, and as such were deemed eligible for recordation into the California Historical Resources Inventory (see below).

NATIVE AMERICAN INPUT

In response to CRM TECH's inquiry, the NAHC reported in a letter dated July 28, 2020, that the Sacred Lands File identified unspecified Native American cultural resource(s) in the project vicinity. The commission recommended contacting the San Manuel Band of Mission Indians for specific information on such resources and also provided a list of additional Native American contacts in the region (see App. 3). After receiving the NAHC's reply, CRM TECH sent written requests for comments to all seven tribal groups on the referral list (see App. 3). For some of the tribes, the designated spokespersons on cultural resources issues were contacted in lieu of the individuals on the referral list, as recommended in the past by the tribal government staff. In all, eight representatives with the seven tribes were contacted during this study, as listed below:

- Patricia Garcia-Plotkin, Tribal Historic Preservation Officer, Agua Caliente Band of Cahuilla Indians;
- Ann Brierty, Tribal Historic Preservation Officer, Morongo Band of Mission Indians;

- Jill McCormick, Tribal Historic Preservation Officer, Quechan Tribe of the Fort Yuma Indian Reservation;
- Jessica Mauck, Director of Cultural Resources Management, San Manuel Band of Mission Indians;
- Mark Cochrane, Co-Chairperson, Serrano Nation of Indians;
- Wayne Walker, Co-Chairperson, Serrano Nation of Indians;
- Joseph Ontiveros, Tribal Historic Preservation Officer, Soboba Band of Luiseño Indians;
- Anthony Madrigal, Jr., Tribal Historic Preservation Officer, Twenty-Nine Palms Band of Mission Indians.

As of this time, four of the tribes have responded to the request either in writing or by telephone (see App. 3). Among them, the Quechan Tribe had no comments on this project. The Agua Caliente Band requested tribal review of all cultural resources documentation generated for the project and Native American monitoring during ground-disturbing activities. During a telephone call on July 30, 2020, to coordinate tribal participation in the archaeological field survey, Sarah Bliss, Cultural Resources Manager for the Twenty-Nine Palms Band, confirmed that the tribe considered the project location to be culturally sensitive due to its location between the Twenty-Nine Palms Indian Reservation and the burial grounds. As mentioned above, both the Twenty-Nine Palms Band and the Morongo Band participated in the field survey.

The San Manuel Band stated in the reply that the project area overlapped a Sacred Lands File entry that they had on file for the Oasis of Maara, which the tribe considers to be the creation site of all Serrano people. The tribe further noted that the Sacred Lands File entry also included the cemetery near the project location, which contains both Serrano and Chemehuevi interments. According to Jessica Mauck, there are numerous unmarked burials that have not been located and may potentially be present beyond the current perimeters of the cemetery. As such, the San Manuel Band expressed "a great deal of concern" with this project and asked that the information they had provided be forwarded to the City of Twentynine Palms in preparation for further consultation.

POTENTIAL HISTORICAL RESOURCES WITHIN THE PROJECT AREA

As a result of the fieldwork, the five residential buildings extant in the project area, three of them on the same property and another with a detached garage, were recorded into the California Historical Resources Inventory, as were four archaeological sites and two isolates (i.e., localities with fewer than three artifacts) that were discovered during the survey (Fig. 7). These nine localities were temporarily designated as 3644-1H to -9H, pending assignment of official site numbers in the inventory by the SCCIC, and are discussed further in the sections below.

Site 3644-1H: Refuse Scatter

Site 3644-1H consists of a single dump of wire-cut and machine-cut construction nails (Fig. 8). The artifact deposit occupies an approximately 3.5x2.5-feet area and contains some 100 nails, including ten 2.5x0.25-inch rectangular head cut nails as well as an assortment of finish nails, common carpentry nails, drywall nails, and a paperclip. The historical background of the site is unknown, as no development is known to have occurred on the parcel where the artifacts were found, and the

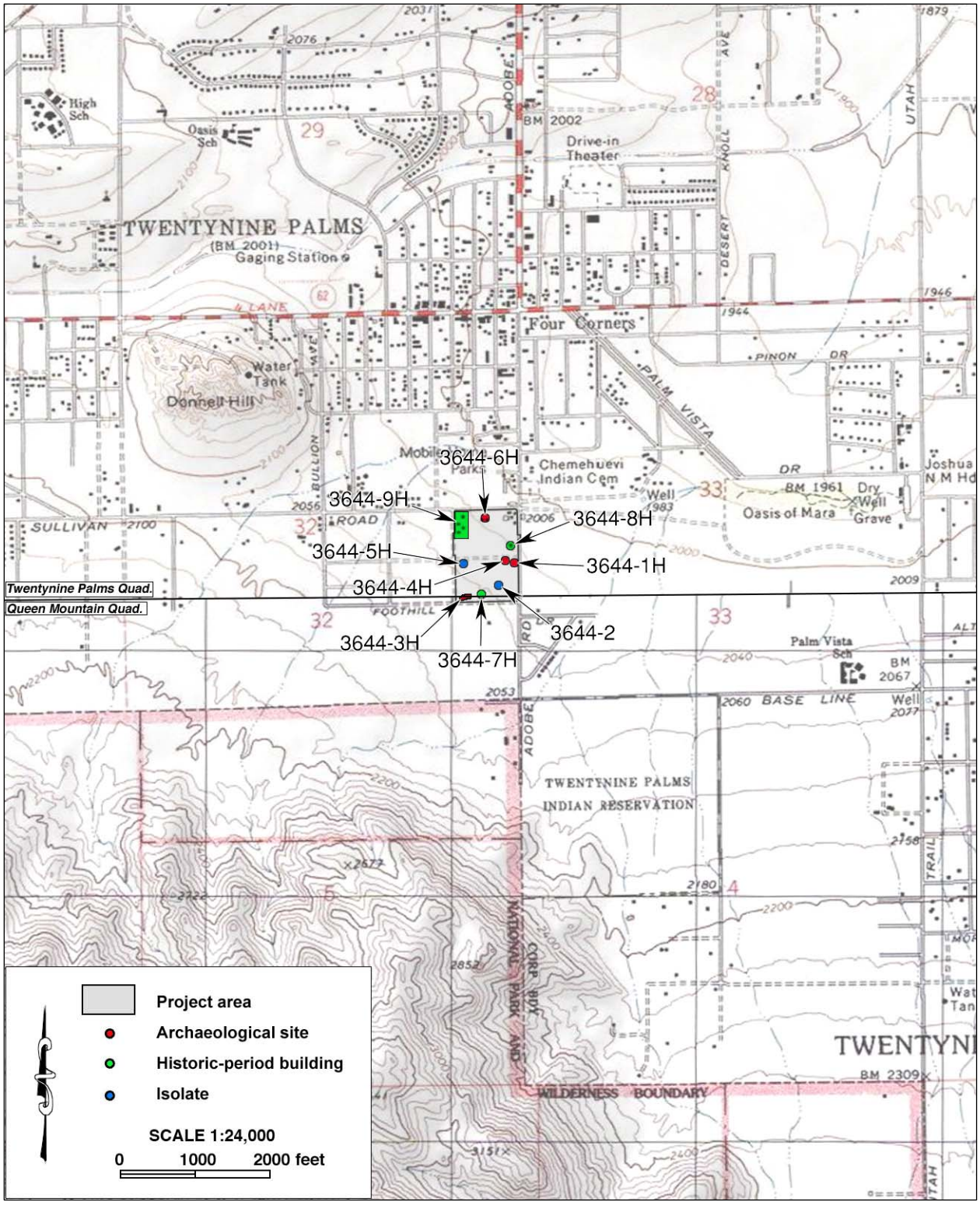

Figure 7. Locations of cultural resources recorded in the project area (confidential). .

Figure 8. Artifacts found during the field survey. *Clockwise from upper left*: nail dump at Site 3644-1H; prehistoric lithic tool at Isolate 3644-2; rusted cans with bullet holes at Site 3644-3H; glass bottle base at Isolate 3644-5H. (Photographs taken on September 24, 2020).

nearest residences are more than 350 feet away (NETR Online 1970-2016; Google Earth 1995-2019; County Assessor n.d.).

Isolate 3644-2: Prehistoric Lithic Tool

This isolate consists of a single unifacially worked quartz blade tool that measures 9.5x8.0x3.0 centimeters, possibly a scraper or chopper (Fig. 8). Three formation flakes were removed to create a cutting edge, while five or six smaller finishing flakes were removed in the previous flake scars. Battering is also present in the flake scars, indicating use.

Site 3644-3H: Refuse Scatter

Site 3644-3H consists of a historic-period refuse scatter with roughly 37 metal cans that are heavily rusted and spread out in moderate density along a roughly southwest-northeast line (Fig. 8). Other isolated cans in nearby drainages may have originated from this deposit. Among the cans at the site are a 3.5x5.0-inch meat canister with a friction lid, a 3.0x4.0-inch coffee can with a friction lid, a

6.5x2.75-inch bi-metal can with a church key opening, 12 3.5x2.75-inch evaporated milk cans with church key openings, and 22 5.0x2.75-inch beverage cans with overlap crimp side seams and church key openings.

Site 3644-4H: Refuse Scatter

Site 3644-4H consists of a small scatter of historic-period refuse, containing a single sanitary can and at least eight bottles, as determined by a bottle base count, that have been broken into approximately 50 fragments. The site appears to be the result of a single deposition event. The materials were located under a creosote bush near Boling Drive, a dirt road. The artifacts include four aqua circular stipled bases with a Duraglas Owens-Illinois maker's mark, two amber circular stipled bases (one with a Duraglas Owens-Illinois maker's mark and one with an Anchor-Hawking maker's mark and a 1944 date code), a circular clear bottle base with a Lummis Glass Co. maker's mark that dates to 1946, and a clear rounded-diamond shaped base.

Isolate 3644-5H: Glass Bottle Base

Isolate 3644-5H is a single pink clear circular glass bottle base broken into three fragments (Fig. 8). The patent number is printed on the bottle base, as well as the text "…KERR GLASS MFG CO. … SPRINGS OKLA…," suggesting that the bottle was manufactured in Kerr's Sand Springs, Oklahoma, plant between 1915 and 1920.

Site 3644-6H: Structural Foundation

Site 3644-6H consists of a 15.5x10.0-foot concrete slab structural foundation with a 16.5x6.0-foot concrete patio adjoining on the north side (Fig. 9). The foundation is framed with six-inch-wide wooden planks, with five anchor bolts embedded in the framing. A square-shaped, 2.5x2.5-foot opening in the northwestern corner of the foundation was likely the location of a septic disposal system. No artifacts were found in the vicinity of this feature. The location of the site, in the north-central portion of the project area, corresponds to a residential property that was present in the 1950s but had been removed prior to 1970 (Fig. 6; NETR Online 1970).

Figure 9. Concrete slab foundation at Site 3644-6H, view to the south. (Photograph taken on September 24, 2020).

Site 3644-7H: 73646 Foothill Drive

Site 3644-7H represents a single-family residence at 73646 Foothill Drive with a detached garage, both of them one-story wood-frame buildings of modest appearance (Fig. 10). The L-shaped residence has a flat roof with narrow eaves and stuccoed exterior walls, and the fenestration consists mostly of aluminum-framed sliding windows, with a few remaining wood-framed double-hungs. The primary façade, facing Foothill Drive to the south,

Figure 10. Residence at 73646 Foothill Drive (Site 3644-7H). *Left*: main entrance to the residence, view to the northwest; *right*: detached garage, view to the north. (Photographs taken on September 24, 2020).

features a recessed entry porch at the eastern end, with two windows occupying the rest of the otherwise blank façade. A lean-to added to the rear partially fills the angle of the L-shaped footprint. The rectangular-shaped garage is surmounted by a low-pitched gable roof with wide eave and rake overhangs. The roof is covered with composition shingles, and the exterior walls are clad with vertical wood boards. A sliding door hanging on metal rails on the south side and a regular door on the west provide access to the interior of the garage.

San Bernardino County real property records indicate that the residence was constructed in 1951, shortly after Minnie Roth acquired the property from Robert S. and Dorothy J. Lake (County Assessor 1945-1953; n.d.). Data gaps in available records prevent the reconstruction of full ownership history since then, and no further information could be found on Roth. By 1973, John Hastie was listed as the property owner before deeding it to James M. and La Villa W. Hughes in that year (County Assessor n.d.).

Site 3644-8H: 6976 Adobe Road

Site 3644-8H represents an abandoned duplex at 6976 Adobe Road, a single-story, wood-frame building that is now boarded-up and covered with graffiti (Fig. 11). The ground plan of the building is generally L-shaped despite minor projections and recesses, and the cross-gable roof is built at different pitches ranging from high to low, with several shed-roofed lean-tos also present both in the front and the rear. The primary façade, facing Adobe Road to the east, is dominated by the two main entries, each set under a small projecting gable resting on triangular braces, and a serious of large windows. All windows and doors are now removed and/or sealed with plywood and

Figure 11. Abandoned duplex at 6976 Adobe Road (Site 3644-8H), view to the west. (Photograph taken on September 24, 2020).

chipboard panels. The composition shingle roof cover and the stucco wall cladding complete the modest appearance of the building.

Archival records indicate that this duplex was built in 1940 (County Assessor n.d.). Archie William Lancaster (1904-1976), a Kansas native who lived and worked in Denver as a mechanic then in Oregon before settling in Twentynine Palms during the 1940s, became the property owner a few years after the construction and remained so, along with his wife Evelyn Marie Lancaster (née Jevnager), until his death in 1976, after which the property was acquired by George T. and Leota A. Hoagland (*ibid.*; County Assessor 1945-1953; Ancestry.com n.d.).

Site 3644-9H: 73591 Sullivan Road and 6943-6955 Yucca Avenue

This property, Assessor's Parcel No. 0616-281-02, contains three single-family residences arranged in a roughly north-south row along Yucca Avenue (also known as Tamarisk Avenue), one facing north toward Sullivan Road and the other two facing west toward Yucca Avenue (Fig. 12). The northerly residence, at 73591 Sullivan Road, is built on an irregular plan and has a very low-pitched cross-hip roof. The one in the middle, at 6943 Yucca Avenue, is rectangular-shaped except for a projecting patio cover attached to the southeastern corner and has a low-pitched side-gable roof. The southerly residence, at 6955 Yucca Avenue, is flat-roofed and nearly square in shape.

All three residences are clad with stucco, and the sloping roofs are covered with composition shingles. The windows are predominantly aluminum-framed sliders or double-hungs, while the various entryways are mostly filled with paneled wood doors, with the notable exception of a pair of French doors on the rear of the middle residence. All of these windows and doors are clearly modern in character and origin. The northerly residence has a shed-roofed entry porch in the front supported by a thin wood post and a similar back porch at the southeastern corner with two wood posts. The southerly residence sports a continuous open veranda wrapped around the western, southern, and eastern sides, which is supported by a series of wood posts and used partially as a

Figure 12. Residences on Assessor's Parcel No. 0616-281-02 (Site 3644-9H). *Left*: 73591 Sullivan Road, view to the south; *upper right*: 6943 Yucca Avenue, view to the southeast; *lower right*: 6955 Yucca Avenue, view to the east. (Photographs taken on September 24, 2020).

carport. The most notable exterior feature of the middle residence is a massive stone chimney placed at the northern end.

According to San Bernardino County records and historical aerial photographs, the residences at 6943 and 6955 Yucca Avenue were once part of a group of three, all of them built in 1950 (NETR Online 1970; County Assessor n.d.). The property owners at the time were Raymond C. Blair (1903-1993) and Frances M. Blair (1905-1972), both of them long-time local residents (County Assessor 1945-1953; Ancestry.com n.d.). The third residence in that group, located behind the surviving two, was evidently removed in 2002-2003 (Google Earth 2002; 2003).

The residence at 73591 Sullivan Road was added in 1960 (NETR Online 1970; County Assessor n.d.). In 1962, Joseph F. Striss, who was born in Colorado in 1940 and served in the U.S. Marine Corps as a private in 1959, was identified as a resident at this address (Ancestry.com n.d.). By the 1970s, when ownership records became available again, the parcel had been acquired by Charles E. and Lois Stout, also long-time local residents (County Assessor n.d.; Ancestry.com n.d.).

DISCUSSION

STATUTORY/REGULATORY FRAMEWORK

CEQA establishes that "a project that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment" (PRC §21084.1). According to PRC §5020.1(j), "'historical resource' includes, but is not limited to, any object, building, 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." "Substantial adverse change," as defined by PRC §5020.1(q), "means demolition, destruction, relocation, or alteration such that the significance of a historical resource would be impaired."

More specifically, CEQA guidelines state that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the lead agency (Title 14 CCR §15064.5(a)(1)-(3)). Regarding the proper criteria for the evaluation of historical significance, CEQA guidelines mandate that "generally a resource shall be considered by the lead agency to be 'historically significant' if the resource meets the criteria for listing on the California Register of Historical Resources" (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any 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. (PRC §5024.1(c))

In summary of the research results presented in this report, a total of nine historical/archaeological resources were identified and recorded within the project area during this study, including three historic-period buildings or groups of buildings, four historic-period archaeological sites, a prehistoric isolate, and a historic-period isolate, as listed below:

Temporary Designation	Description
3644-1H	Single dump of construction nails
3644-2	Quartz blade tool
3644-3H	Refuse deposit with cans
3644-4H	Refuse scatter with cans and bottles
3644-5H	Glass bottle base
3644-6H	Concrete slab foundation
3644-7H	Residence at 73646 Foothill Drive
3644-8H	Abandoned duplex at 6976 Adobe Road
3644-9H	Three residences at 73591 Sullivan Road and 6943-6955 Yucca Avenue

These nine resources were evaluated in accordance with the statutory and regulatory guidelines outlined above, and the results are discussed in the sections below.

SIGNIFICANCE EVALUATION

Sites 3644-1H, 3644-3H, and 3644-4H

These three sites consist of small refuse deposits of unknown historical background, which constitute the most common type of historic-period sites in the southern California desert region, especially those from the late historic period. Like other sites of similar nature, these refuse scatters do not have any documented association, let alone a close association, with a person or an event of recognized significance in national, state, or local history. In the absence of an exceptional quantity or quality of the artifacts, the sites do not hold the potential for any important archaeological data. Therefore, Sites 3644-1H, -3H, and -4H do not appear to meet any of the criteria for listing in the California Register of Historical Resources, and do not qualify as "historical resources" under CEQA provisions.

Isolates 3644-2 and 3644-5H

The isolates discovered during this study consist of a prehistoric unifacially worked quartz blade tool and a pink clear circular glass bottle base broken into three fragments. Such isolates, or localities with fewer than three artifacts, by definition do not qualify as archaeological sites due to the lack of contextual integrity and thus are not considered potentially eligible for listing in the California Register of Historical Resources. As such, they do not constitute potential "historical resources" and require no further consideration.

Site 3644-6H

Site 3644-6H represents a concrete slab foundation with no associated historical artifacts in the immediate vicinity. The feature is evidently associated with a residence at this location that was

removed sometime before 1970, probably from a garage or a shed. With the removal of the residence, and as the remains of a secondary building on the property, the foundation in itself retains no integrity to relate to any persons or events in the history of the property. Additionally, in the absence of a substantial artifact deposit, the site demonstrates little archaeological data potential. Consequently, Site 3644-6H does not appear eligible for the California Register of Historical Resources, and does not meet the definition of a "historical resource."

Sites 3644-7H to 3644-9H

The five residences recorded at these sites were all constructed in the mid-20th century, mostly during the early post-WWII era, from which a large number of similar buildings remain extant in Twentynine Palms and throughout southern California. Their origin coincided with a period of accelerated urban/suburban growth in the region and throughout the U.S., which is arguably a pattern of events that has significantly influenced California's history and cultural heritage, but these residences do not demonstrate a unique or particularly notable association with this pattern of events or with any other historic theme.

The historical background research completed during this study has identified no persons or specific events of recognized historic significance nor any prominent architects, designers, or builders in association with any of these residences. In terms of architectural or aesthetic merits, none of them represents an important example of any style, property type, period, region, or method of construction. As common examples of a property type from the well-documented late historic period, they hold little potential for any important data for the study of history. Based on these considerations, Sites 3644-7H to 3644-9H do not appear eligible for listing in the California Register of Historical Resources, and do not constitute "historical resources" for CEQA-compliance purposes.

SUBSURFACE ARCHAEOLOGICAL SENSITIVITY

The results of the records search have established that the project area lies in close proximity to the Oasis of Maara (Site 36-002052) and the Chemehuevi Cemetery (Site 36-004419), both of which have been designated as Points of Historical Interest by the State of California (Nos. SBr-036 and -037). The Oasis of Maara, one of the most important prehistoric sites in the Mojave Desert region, has a long and rich history of Native American activities throughout the prehistoric, protohistoric, and historic periods and, as the creation site in Serrano legends, holds a much distinguished traditional cultural value. The cemetery contains known burials of both Chemehuevi and Serrano tribal members, and human remains are always of the utmost cultural significance to the local Native American community.

In light of the presence of these sites practically across the street, as delineated by existing SCCIC records, the project area is considered to be highly sensitive for subsurface deposits of Native American cultural remains despite the lack of a substantial surface manifestation, especially since the extent of burials may not be confined within the current boundary of the cemetery, as pointed out by the San Manuel Band of Mission Indians during this study. As stated above, the San Manuel Band has expressed "a great deal of concern" with the proposed project and requested to participate

in further consultation with the City of Twentynine Palms. Meanwhile, the subsurface cultural sensitivity of the project area will need to be addressed through additional archaeological investigations before the CEQA-compliance process can be concluded, as discussed below.

CONCLUSION AND RECOMMENDATIONS

In conclusion, none of the nine historical/archaeological resources recorded within the project area meet the definition of "historical resources," as provided by CEQA and associated regulations, but the project location remains highly sensitive for subsurface deposits of Native American cultural remains. Based on these findings, CRM TECH presents the following recommendations to the City of Twentynine Palms:

- Non-invasive archaeological investigations utilizing such techniques as ground-penetrating radar or LiDAR (light detection and ranging; laser imaging, detection, and ranging) should be completed in the project area prior to any ground disturbances.
- The scope of these investigations should be focused on relatively undisturbed areas that are subject to substantial ground disturbance during the proposed project, and should be determined in cooperation and collaboration with the San Manuel Band of Mission Indians and other interested Native American groups of Serrano and/or Chemehuevi heritage.
- An archaeological monitoring program should be designed and implemented during earth-moving operations associated with the project in coordination with the pertinent Native American groups, who may wish to participate.
- The incorporation of educational displays illustrating the cultural history of the project vicinity, including both the prehistoric and the historic period, should be considered in future park planning.
- Further recommendations will be formulated and presented on the basis of the results of the non-invasive archaeological investigations.

REFERENCES

Ancestry.com
n.d. Genealogical database entries for Raymond C. Blair, Frances M. Blair, Archie W. Lancaster, Evelyn M. Lancaster, Charles E. Stout, Lois Stout, and Joseph F. Striss. http://www.ancestry.com.

Bean, Lowell John, and Charles R. Smith
1978 Serrano. In Robert F. Heizer (ed.): *Handbook of North American Indians*, Vol. 8: *California*; pp. 570-574. Smithsonian Institution, Washington, D.C.

Beck, Warren A., and Ynez D. Haase
1974 *Historical Atlas of California*. University of Oklahoma Press, Norman, Oklahoma.

BLM (Bureau of Land Management, U.S. Department of the Interior)
n.d. The Official Federal Land Records Site. http://www.glorecords.blm.gov.

County Assessor, San Bernardino
1945-1953 Real property tax assessment records, Book 86, Map 49. On file, San Bernardino County Historical Archive, San Bernardino.

n.d. Property Information Management System Internet Site. http://www.sbcounty.gov/assessor/pims/.

DesertUSA

n.d. Twentynine Palms, California: History. http://www.desertusa.com/Cities/ca/29palms.html.

Gallegos, Dennis, John Cook, Emma Lou Davis, Gary Lowe, Frank Norris, and Jay Thesken

1980 Cultural Resources Inventory of the Central Mojave and Colorado Desert Regions, California. U.S. Bureau of Land Management, California Desert District, Riverside.

GLO (General Land Office, U.S. Department of the Interior)

1856 Plat Map: Township No. 1 North Range No. 9 East, San Bernardino Meridian; surveyed in 1855-1856.

1857 Plat Map: Township No. 1 South Range No. 9 East, San Bernardino Meridian; surveyed in 1855-1857.

Google Earth

1995-2019 Aerial photographs of the project vicinity; taken in 1995, 1996, 2002, 2003, 2005-2007, 2009, 2011-2013, and 2015-2019. Available through the Google Earth software.

Hall, M.C.

2000 Archaeological Survey of 2472 Acres in Adjacent Portions of Lava, Lead Mountain, and Cleghorn Pass Training Areas, Marine Corps Air Ground Combat Center, Twentynine Palms, California (Volume I). Report prepared by the Archaeological Research Unit, University of California, Riverside, for the United States Marine Corps Natural Resources and Environmental Affairs Division.

Keairns, P., J. Rossen, W. Rottman, L. Popelish, P. Donelan, and K. Deighan

1979 California Historical Resources Inventory record form, Site 36-002052/CA-SBR-2052/H (update). On file, South Central Coastal Information Center, California State University, Fullerton.

Kelly, Isabel T., and Catherine S. Fowler

1986 Southern Paiute. In Warren L. D'Azevedo (ed.): *Handbook of North American Indians*, Vol. 11: *Great Basin*; pp. 368-397. Smithsonian Institution, Washington, D.C.

Kroeber, Alfred L.

1925 *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Washington, D.C.

Laird, Carobeth

1976 *The Chemehuevis*. Malki Museum Press, Banning, California.

NETR (Nationwide Environmental Title Research) Online

1970-2016 Aerial photographs of the project vicinity; taken in 1970, 1983, 1995, 1996, 2002, 2005, 2009, 2010, 2012, 2014, and 2016. http://www.historicaerials.com.

NPS (National Park Service, U.S. Department of the Interior)

n.d. Joshua Tree National Park, California: Oasis of Mara. https://www.nps.gov/jotr/learn/historyculture/mara.htm.

State of California

1974a Point of Historical Interest No. SBr-036: Oasis of Mara or Twentynine Palms Oasis. On file, South Central Coastal Information Center, California State University, Fullerton.

1974b Point of Historical Interest No. SBr-037: Chemehuevi Cemetery. On file, South Central Coastal Information Center, California State University, Fullerton.

Schneider, Joan S.
2003 California Historical Resources Inventory record form, Site 36-002052/CA-SBR-2052/H (update). On file, South Central Coastal Information Center, California State University, Fullerton.
Smith, G.
1938 California Historical Resources Inventory record form, Site 36-002052/CA-SBR-2052/H. On file, South Central Coastal Information Center, California State University, Fullerton.
Strong, William Duncan
1929 *Aboriginal Society in Southern California*. University of California Publications in American Archaeology and Ethnology 26. Reprinted by Malki Museum Press, Banning, California, 1972.
Teal, Grayce
1980 California Historical Resources Inventory record form, Site 36-004199/CA-SBR-4199/H. On file, South Central Coastal Information Center, California State University, Fullerton.
TPHS (Twentynine Palms Historical Society)
n.d. The Benito Building. https://www.29palmshistorical.com/historicSites/BenitoBldg.php.
USGS (United States Geological Survey, U.S. Department of the Interior)
1955 Map: Twentynine Palms, Calif. (15', 1:62,500); aerial photographs taken in 1937 and 1952.
1969a Map: Needles, Calif.-Ariz. (120'x60', 1:250,000); 1956 edition revised.
1969b Map: San Bernardino, Calif. (120'x60', 1:250,000); 1958 edition revised.
1994 Map: Twentynine Palms, Calif. (7.5', 1:24,000); aerial photographs taken in 1970, photoinspected in 1994.
1995 Map: Queen Mountain, Calif. (7.5', 1:24,000); aerial photographs taken in 1970, photoinspected in 1995.
Vader, M.
2014 California Historical Resources Inventory record form, Site 36-002052/CA-SBR-2052/H (update). On file, South Central Coastal Information Center, California State University, Fullerton.
Warren, Claude N.
1984 The Desert Region. In Michael J. Moratto (ed.): *California Archaeology*; pp. 339-430. Academic Press, Orlando, Florida.
Warren, Claude N., and Robert H. Crabtree
1986 Prehistory of the Southwestern Area. In Warren L. D'Azevedo (ed.): *Handbook of North American Indians*, Vol. 11: *Great Basin*; pp. 183-193. Smithsonian Institution, Washington, D.C.
Warren, Elizabeth von Till, Robert H. Crabtree, Claude N. Warren, Martha Knack, and Richard McCarty
1981 A Cultural Resources Overview of the Colorado Desert Planning Units. U.S. Bureau of Land Management, California Desert District, Riverside.

APPENDIX 1:
PERSONNEL QUALIFICATIONS

PRINCIPAL INVESTIGATOR/HISTORIAN
Bai "Tom" Tang, M.A.

Education

1988-1993	Graduate Program in Public History/Historic Preservation, UC Riverside.
1987	M.A., American History, Yale University, New Haven, Connecticut.
1982	B.A., History, Northwestern University, Xi'an, China.
2000	"Introduction to Section 106 Review," presented by the Advisory Council on Historic Preservation and the University of Nevada, Reno.
1994	"Assessing the Significance of Historic Archaeological Sites," presented by the Historic Preservation Program, University of Nevada, Reno.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1993-2002	Project Historian/Architectural Historian, CRM TECH, Riverside, California.
1993-1997	Project Historian, Greenwood and Associates, Pacific Palisades, California.
1991-1993	Project Historian, Archaeological Research Unit, UC Riverside.
1990	Intern Researcher, California State Office of Historic Preservation, Sacramento.
1990-1992	Teaching Assistant, History of Modern World, UC Riverside.
1988-1993	Research Assistant, American Social History, UC Riverside.
1985-1988	Research Assistant, Modern Chinese History, Yale University.
1985-1986	Teaching Assistant, Modern Chinese History, Yale University.
1982-1985	Lecturer, History, Xi'an Foreign Languages Institute, Xi'an, China.

Cultural Resources Management Reports

Preliminary Analyses and Recommendations Regarding California's Cultural Resources Inventory System (With Special Reference to Condition 14 of NPS 1990 Program Review Report). California State Office of Historic Preservation working paper, Sacramento, September 1990.

Numerous cultural resources management reports with the Archaeological Research Unit, Greenwood and Associates, and CRM TECH, since October 1991.

PRINCIPAL INVESTIGATOR/ARCHAEOLOGIST
Michael Hogan, Ph.D., RPA*

Education

1991	Ph.D., Anthropology, University of California, Riverside.
1981	B.S., Anthropology, University of California, Riverside; with honors.
1980-1981	Education Abroad Program, Lima, Peru.
2002	Section 106—National Historic Preservation Act: Federal Law at the Local Level. UCLA Extension Course #888.
2002	"Recognizing Historic Artifacts," workshop presented by Richard Norwood, Historical Archaeologist.
2002	"Wending Your Way through the Regulatory Maze," symposium presented by the Association of Environmental Professionals.
1992	"Southern California Ceramics Workshop," presented by Jerry Schaefer.
1992	"Historic Artifact Workshop," presented by Anne Duffield-Stoll.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1999-2002	Project Archaeologist/Field Director, CRM TECH, Riverside.
1996-1998	Project Director and Ethnographer, Statistical Research, Inc., Redlands.
1992-1998	Assistant Research Anthropologist, University of California, Riverside
1992-1995	Project Director, Archaeological Research Unit, U. C. Riverside.
1993-1994	Adjunct Professor, Riverside Community College, Mt. San Jacinto College, U.C. Riverside, Chapman University, and San Bernardino Valley College.
1991-1992	Crew Chief, Archaeological Research Unit, U. C. Riverside.
1984-1998	Archaeological Technician, Field Director, and Project Director for various southern California cultural resources management firms.

Research Interests

Cultural Resource Management, Southern Californian Archaeology, Settlement and Exchange Patterns, Specialization and Stratification, Culture Change, Native American Culture, Cultural Diversity.

Cultural Resources Management Reports

Author and co-author of, contributor to, and principal investigator for numerous cultural resources management study reports since 1986.

Memberships

* Register of Professional Archaeologists; Society for American Archaeology; Society for California Archaeology; Pacific Coast Archaeological Society; Coachella Valley Archaeological Society.

PROJECT ARCHAEOLOGIST/REPORT WRITER
Deirdre Encarnación, M.A.

Education

2003	M.A., Anthropology, San Diego State University, California.
2000	B.A., Anthropology, minor in Biology, with honors; San Diego State University, California.

Professional Experience

2004-	Project Archaeologist/Report Writer, CRM TECH, Riverside/Colton, California.
2001-2003	Part-time Lecturer, San Diego State University, California.
2001	Research Assistant for Dr. Lynn Gamble, San Diego State University.
2001	Archaeological Collection Catalog, SDSU Foundation.

Memberships

Society for California Archaeology; Society for Hawaiian Archaeology; California Native Plant Society; Journal of California and Great Basin Anthropology.

PROJECT ARCHAEOLOGIST
Hunter C. O'Donnell, B.A.

Education

2016-	M.A. Program, Applied Archaeology, California State University, San Bernardino.
2015	B.A. (*cum laude*), Anthropology, California State University, San Bernardino.
2012	A.A., Social and Behavioral Sciences, Mt. San Antonio College, Walnut, California.
2011	A.A., Natural Sciences and Mathematics, Mt. San Antonio College, Walnut, California.

Professional Experience

2017-	Project Archaeologist, CRM TECH, Colton, California.
2016-2018	Graduate Research Assistant, Applied Archaeology, California State University, San Bernardino.
2016-2017	Cultural Intern, Cultural Department, Pechanga Band of Luiseño Indians, Temecula, California.
2015	Archaeological Intern, U.S. Bureau of Land Management, Barstow, California.
2015	Peer Research Consultant: African Archaeology, California State University, San Bernardino.

PROJECT ARCHAEOLOGIST/FIELD DIRECTOR
Daniel Ballester, M.S., RPA*

Education

2013	M.S., Geographic Information System (GIS), University of Redlands, California.
1998	B.A., Anthropology, California State University, San Bernardino.
1997	Archaeological Field School, University of Las Vegas and University of California, Riverside.
1994	University of Puerto Rico, Rio Piedras, Puerto Rico.

Professional Experience

2002-	Field Director/GIS Specialist, CRM TECH, Riverside/Colton, California.
2011-2012	GIS Specialist for Caltrans District 8 Project, Garcia and Associates, San Anselmo, California.
2009-2010	Field Crew Chief, Garcia and Associates, San Anselmo, California.
2009-2010	Field Crew, ECorp, Redlands.
1999-2002	Project Archaeologist, CRM TECH, Riverside, California.
1998-1999	Field Crew, K.E.A. Environmental, San Diego, California.
1998	Field Crew, A.S.M. Affiliates, Encinitas, California.
1998	Field Crew, Archaeological Research Unit, University of California, Riverside.

Memberships

*Register of Professional Archaeologists #18037.

PROJECT ARCHAEOLOGIST/NATIVE AMERICAN LIAISON
Nina Gallardo, B.A.

Education

2004	B.A., Anthropology/Law and Society, University of California, Riverside.

Professional Experience

2004-	Project Archaeologist, CRM TECH, Riverside/Colton, California.

Cultural Resources Management Reports

Co-author of and contributor to numerous cultural resources management reports since 2004.

PROJECT HISTORIAN/ARCHITECTURAL HISTORIAN
Terri Jacquemain, M.A.

Education

2004	M.A., Public History and Historic Resource Management, University of California, Riverside.
2002	B.S., Anthropology, University of California, Riverside.
2001	Archaeological Field School, University of California, Riverside.
1991	A.A., Riverside Community College, Norco Campus.

Professional Experience

2003-	Historian/Architectural Historian/Report Writer, CRM TECH, Riverside/Colton, California.
2002-2003	Teaching Assistant, Religious Studies Department, University of California, Riverside.
2002	Interim Public Information Officer, Cabazon Band of Mission Indians.
2000	Administrative Assistant, Native American Student Programs, University of California, Riverside.
1997-2000	Reporter, *Inland Valley Daily Bulletin*, Ontario, California.
1991-1997	Reporter, *The Press-Enterprise*, Riverside, California.

Membership

California Preservation Foundation.

APPENDIX 2

RECORDS SEARCH RESULTS

(Confidential)

APPENDIX 3

CORRESPONDENCE WITH NATIVE AMERICAN REPRESENTATIVES*

* Eight local Native American representatives were contacted during this study; a sample letter is included in the appendix.

SACRED LANDS FILE & NATIVE AMERICAN CONTACTS LIST REQUEST

NATIVE AMERICAN HERITAGE COMMISSION
915 Capitol Mall, RM 364
Sacramento, CA 95814
(916) 653-4082
(916) 657-5390 (fax)
nahc@pacbell.net

Project: Pioneer Park (CRM TECH No. 3644)

County: San Bernardino

USGS Quadrangle Name: Twentynine Palms and Queen Mountain, Calif.

Township 1 North **Range** 9 East SB **BM; Section(s)**: 32

Company/Firm/Agency: CRM TECH

Contact Person: Nina Gallardo

Street Address: 1016 E. Cooley Drive, Suite A/B

City: Colton, CA **Zip:** 92324

Phone: (909) 824-6400 **Fax:** (909) 824-6405

Email: ngallardo@crmtech.us

Project Description: The primary component of the project is the development of a city park on approximately 20 acres of land located along the west side of Adobe Road, between Sullivan Road and Foothill Drive, in the City of Twentynine Palms, San Bernardino County, California.

July 23, 2020

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

July 28, 2020

Nina Gallardo
CRM TECH

Via Email to: ngallardo@crmtech.us

Re: Proposed Pioneer Park Site Project, San Bernardino County

Dear Ms. Gallardo:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were positive. Please contact the San Manuel Band of Mission Indians on the attached list for more information. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
San Bernardino County
7/28/2020

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Road — Cahuilla
Banning, CA, 92220 — Serrano
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Morongo Band of Mission Indians
Denisa Torres, Cultural Resources Manager
12700 Pumarra Road — Cahuilla
Banning, CA, 92220 — Serrano
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Quechan Tribe of the Fort Yuma Reservation
Jill McCormick, Historic Preservation Officer
P.O. Box 1899 — Quechan
Yuma, AZ, 85366
Phone: (760) 572 - 2423
historicpreservation@quechantribe.com

Quechan Tribe of the Fort Yuma Reservation
Manfred Scott, Acting Chairman
Kw'ts'an Cultural Committee
P.O. Box 1899 — Quechan
Yuma, AZ, 85366
Phone: (928) 750 - 2516
scottmanfred@yahoo.com

San Manuel Band of Mission Indians
Jessica Mauck, Director of Cultural Resources
26569 Community Center Drive — Serrano
Highland, CA, 92346
Phone: (909) 864 - 8933
jmauck@sanmanuel-nsn.gov

Serrano Nation of Mission Indians
Mark Cochrane, Co-Chairperson
P. O. Box 343 — Serrano
Patton, CA, 92369
Phone: (909) 528 - 9032
serranonation1@gmail.com

Serrano Nation of Mission Indians
Wayne Walker, Co-Chairperson
P. O. Box 343 — Serrano
Patton, CA, 92369
Phone: (253) 370 - 0167
serranonation1@gmail.com

Soboba Band of Luiseno Indians
Joseph Ontiveros, Cultural Resource Department
P.O. BOX 487 — Cahuilla
San Jacinto, CA, 92581 — Luiseno
Phone: (951) 663 - 5279
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Proposed Pioneer Park Site Project, San Bernardino County.

Soboba Band of Luiseno Indians
Scott Cozart, Chairperson
P. O. Box 487 Cahuilla
San Jacinto, CA, 92583 Luiseno
Phone: (951) 654 - 2765
Fax: (951) 654-4198
jontiveros@soboba-nsn.gov

Twenty-Nine Palms Band of Mission Indians
Darrell Mike, Chairperson
46-200 Harrison Place Chemehuevi
Coachella, CA, 92236
Phone: (760) 863 - 2444
Fax: (760) 863-2449
29chairman@29palmsbomi-nsn.gov

Twenty-Nine Palms Band of Mission Indians
Anthony Madrigal, Tribal Historic Preservation Officer
46-200 Harrison Place Chemehuevi
Coachella, CA, 92236
Phone: (760) 775 - 3259
amadrigal@29palmsbomi-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Proposed Pioneer Park Site Project, San Bernardino County.

From: Nina Gallardo <ngallardo@crmtech.us>
Sent: Thursday, July 30, 2020 1:19 PM
To: 'Jessica Mauck'
Subject: NA Scoping Letter Regarding Positive NAHC Response for the Proposed Pioneer Park Project in the City of Twentynine Palms, San Bernardino Co (CRM TECH #3644)

Hello Ms. Mauck,

I'm emailing you to inform you that CRM TECH will be conducting a cultural study for the proposed Pioneer Park project in the City of Twentynine Palms, San Bernardino County (CRM TECH #3644). We have received the Native American Heritage Commission's (NAHC) Sacred Lands File search results and NA contact list. In a letter dated July 28, 2020, the NAHC states that the results of the Sacred Lands File search were positive and recommends contacting the San Manuel Band of Mission Indians for further information (see attached).

I'm contacting you to see if the San Manuel Band of Mission Indians has any specific information regarding potential sites of traditional cultural value in the project vicinity. I'm also attaching the NA scoping letter with the NAHC's positive results and the project area map. We would appreciate any information that the tribe can provide us. Please feel free to call or email us back with any questions or information.

Thanks for your time and input on this project.

Nina Gallardo
Project Archaeologist/Native American liaison
CRM TECH
1016 E. Cooley Drive Ste. A/B
Colton, CA 92324
(909) 824-6400

July 30, 2020

Anthony Madrigal, Jr., Tribal Historic Preservation Officer
Twenty-Nine Palms Band of Mission Indians
46-200 Harrison Place
Coachella, CA 92236

RE: Proposed Pioneer Park Project
20 Acres in the City of Twentynine Palms
San Bernardino County, California
CRM TECH Contract #3644

Dear Mr. Madrigal,

I am writing to bring your attention to an ongoing CEQA-compliance study for the proposed project referenced above. The project entails the development of a city park on approximately 20 acres of land located along the west side of Adobe Road, between Sullivan Road and Foothill Drive, in the City of Twentynine Palms, San Bernardino County, California. The accompanying map, based on the USGS Twentynine Palms and Queen Mountain, Calif., 7.5' quadrangles, depicts the location of the project area in Section 32, T1N R9E, SBBM.

In a letter dated July 28, 2020, the Native American Heritage Commission reports that the results of the Sacred Lands File search were positive. The commission recommended contacting the San Manuel Band of Mission Indians and provided a list of other nearby Native American tribes to contact for further information (see attached). As part of the cultural resources study for this project, I am writing to request your input on potential Native American cultural resources in or near the project area.

Please respond at your earliest convenience if you have any specific knowledge of sacred/religious sites or other sites of Native American traditional cultural value in or near the project area, or any other information to consider during the cultural resources investigations. Any information or concerns may be forwarded to CRM TECH by telephone, e-mail, facsimile, or standard mail. Requests for documentation or information we cannot provide will be forwarded to our client and/or the lead agency, namely the City of Twentynine Palms.

We would also like to clarify that, as the cultural resources consultant for the project, CRM TECH is not conducting the government-to-government consultations, which will be handled by the lead agency. The purpose of this letter is to seek any information that you may have to help us determine if there are cultural resources in or near the project area that we should be aware of and to help us assess the sensitivity of the project area. Thank you for your time and effort in addressing this important matter.

Respectfully,

Nina Gallardo
Project Archaeologist/Native American liaison
CRM TECH
Email: ngallardo@crmtech.us

Encl.: NAHC response letter and project location map

AGUA CALIENTE BAND OF CAHUILLA INDIANS

TRIBAL HISTORIC PRESERVATION

03-053-2020-001

July 30, 2020

[VIA EMAIL TO:ngallardo@crmtech.us]
CRM TECH
Ms. Nina Gallardo
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

Re: Proposed Pioneer Park, CRM TECH# 3644

Dear Ms. Nina Gallardo,

The Agua Caliente Band of Cahuilla Indians (ACBCI) appreciates your efforts to include the Tribal Historic Preservation Office (THPO) in the Pioneer Park project. The project area is not located within the boundaries of the ACBCI Reservation. However, it is within the Tribe's Traditional Use Area. For this reason, the ACBCI THPO requests the following:

*A copy of the records search with associated survey reports and site records from the information center.

*A cultural resources inventory of the project area by a qualified archaeologist prior to any development activities in this area.

*Copies of any cultural resource documentation (report and site records) generated in connection with this project.

*The presence of an approved Cultural Resource Monitor(s) during any ground disturbing activities (including archaeological testing and surveys). Should buried cultural deposits be encountered, the Monitor may request that destructive construction halt and the Monitor shall notify a Qualified Archaeologist (Secretary of the Interior's Standards and Guidelines) to investigate and, if necessary, prepare a mitigation plan for submission to the State Historic Preservation Officer.

Again, the Agua Caliente appreciates your interest in our cultural heritage. If you have questions or require additional information, please call me at (760)699-6907. You may also email me at ACBCI-THPO@aguacaliente.net.

Cordially,

Patricia Garcia-Plotkin

5401 DINAH SHORE DRIVE, PALM SPRINGS, CA 92264
T 760/699/6800 F 760/699/6924 WWW.AGUACALIENTE-NSN.GOV

AGUA CALIENTE BAND OF CAHUILLA INDIANS

TRIBAL HISTORIC PRESERVATION

Pattie Garcia-Plotkin
Director
Tribal Historic Preservation Office
AGUA CALIENTE BAND
OF CAHUILLA INDIANS

5401 DINAH SHORE DRIVE, PALM SPRINGS, CA 92264
T 760/699/6800 F 760/699/6924 WWW.AGUACALIENTE-NSN.GOV

From: Quechan Historic Preservation <historicpreservation@quechantribe.com>
Sent: Friday, July 31, 2020 7:35 AM
To: ngallardo@crmtech.us
Subject: RE: NA Scoping for the Proposed Pioneer Park Project in the City of Twentynine Palms, San Bernardino County (CRM TECH #3644)

This email is to inform you that we have no comments on this project.

From: Jessica Mauck
To: ngallardo@crmtech.us
Cc: Ryan Nordness; Alexandra McCleary
Subject: RE: NA Scoping Letter Regarding Positive NAHC Response for the Proposed Pioneer Park Project in the City of Twentynine Palms, San Bernardino Co (CRM TECH #3644)
Date: Friday, August 7, 2020 8:33:45 AM

Hi Nina,

This project overlaps with a small SLF that SMBMI has on file for the Oasis of Maara', which is the Creation site of all Serrano people, who were traditionally called the Maara'yam. While the eastern portion of the Oasis is within JTNP, the western portion is on private land, and the SLF extends to include the extent of the Oasis and the cemetery to the northeast of the project area. This cemetery has both Serrano and Chemehuevi human remains, as the Chemehuevi moved into the Oasis at the very end of the 19th century, and is currently owned by the Twentynine Palms Band of Mission Indians. There are also numerous burials that the Tribes and landowners have been unable to successfully located within the cemetery boundary via non-invasive means, and could be just about anywhere within close proximity of the cemetery and Oasis. It may not surprise you that SMBMI has a great deal of concern with this project, so please do send along this information to the applicant and Lead Agency so that they are prepared for consultation.

Best,

Jessica Mauck
DIRECTOR OF CULTURAL RESOURCES MANAGEMENT
O: (909) 864-8933 x3249
M: (909) 725-9054
26569 Community Center Dr Highland California 92346
SAN MANUEL
BAND OF MISSION INDIANS