DOCKETED	
Docket Number:	24-OPT-02
Project Title:	Compass Energy Storage Project
TN #:	258090-1
Document Title:	Data Request Response #1_Part I
Description:	N/A
Filer:	Erin Phillips
Organization:	Dudek
Submitter Role:	Applicant Consultant
Submission Date:	7/26/2024 8:29:44 PM
Docketed Date:	7/29/2024

CEC Data Request Response No. 1

Compass Battery Energy Storage Project

JULY 2024

Prepared for:

CALIFORNIA ENERGY COMMISSION

Prepared by:

COMPASS ENERGY STORAGE LLC

Printed on 30% post-consumer recycled material.

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1 Introduction

On May 13, 2024, Compass Energy Storage LLC and Affiliates (Applicant) received a Determination of Incomplete Application and Request for Information from the California Energy Commission (CEC) for the Compass Battery Energy Storage Project (Project; Docket Number 24-OPT-02) in response to the Applicant's application filed on April 12, 2024. On July 15, 2024, CEC provided a Data Requests Addendum. Table 1 lists the data requests responded to in Response No. 1. The responses are grouped by individual discipline or topic area and are presented in the same order and with the same numbering provided by CEC.

Please note that Data Requests CULT/TRI-1 through CULT/TRI-19 have not been addressed in Response No. 1 as survey work and evaluation is ongoing. A subsequent data request response will be provided to CEC in response to these data requests.

Table 1. Data Responses Included

Data Request Resources Area	Data Request Number
Mandatory Opt-in Requirements	MAND-1 and MAND-2
Air Quality	AQ-1 through AQ-8
Greenhouse Gas Emissions (Climate Change)	GHG-1 through GHG-5
Alternatives	ALT-1
Biological Resources	BIO-1 through BIO-12
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Visual Resources	VIS-1 through VIS-23
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Wildfire	FIRE-1 through FIRE-4
Worker Safety	WS-1 through WS-3

2 Mandatory Opt-In Requirements

2.1 Data Requests DR MAND-1 through DR MAND-2

2.1.1 Data Request DR MAND-1

DR MAND-1: Per California Code of Regulations, title 20, section 1877(f) requirement, please provide:

a. Updated "…preliminary information that demonstrates overall net positive economic benefit to the local government that would have had permitting authority over the site and related facility."

Response: The original Economic & Planning Systems Inc. (EPS) memorandum estimates and documents the positive economic benefits to the local government, including the positive effects on public revenues and economic activity. The response detailed in Attachment 1 explains why the positive economic benefits previously provided represent conservative estimates of net positive economic benefits. For the Project, the investment in battery technology is expected to have substantive additional positive spillover economic effects, not negative ones. More specifically, the development of battery storage facilities increases the utility of renewable energy production projects (e.g., solar facilities), acting as an incentive for additional investment in renewable energy production along with the associated, additional economic benefits. Please see additional details in the supplemental EPS memorandum included as Attachment 1.

DR MAND-1 (continued):

b. The assumptions used to run the economic model updates, including:
    i. A list of specific assumptions (i.e., inputs) for the economic model (e.g., IMPLAN or additional assumptions outside of IMPLAN) that estimates net benefits (including positive and negative economic events); and
    ii. The assumptions for all benefits identified, including employment growth, infrastructure improvements, and property and sales tax revenues.
c. If IMPLAN is utilized, export the IMPLAN project configuration file and provide the downloaded .JSON file.

Response: EPS utilized an Input-Output (I/O) modeling framework to estimate the Project's economic impacts. The analysis was performed using IMPLAN (Impact Analysis for Planning) software, an I/O model that draws on data collected by the IMPLAN Group LLC, from several state and federal sources, including the Bureau of Economic Analysis, the Bureau of Labor Statistics, and the U.S. Census Bureau. More information concerning IMPLAN and notes on I/O modeling are further provided in the original EPS memorandum in the Economic Impact Analysis Methodology section (pages 13–15). To provide greater detail into EPS's modeling inputs and assumptions, the attached supplemental EPS memorandum included as Attachment 1 outlines the list of specific assumptions based on geography, construction, and operational inputs. Each input is summarized and responds to the data requested in DR MAND-1 b(i), per the California Code of Regulations, Title 20, Section 1877(f) requirement.

2.1.2 Data Request DR MAND-2

DR MAND-2: Please include a discussion of the baseline conditions of GHG (definition of, SCAQMD's approach to GHG analysis, GHGs emitted by sources that would be reduced as a result of the project to bring the project into net-zero emissions and beyond, etc.).

Response: A discussion of baseline conditions of greenhouse gases (GHGs) has been added to Section 4.1.5.1, Climate and Meteorology, of the application, and a discussion of GHGs emitted by the Project has been added to Section 4.1.3, Emissions Evaluation, of the application (see Attachment 2). GHG emissions emitted by the Project are primarily a result of energy consumption to power the battery energy storage system (BESS). As San Diego Gas & Electric (SDG&E), the energy provider for the Project, moves towards meeting the state's Renewable Portfolio Standard goals of 100% renewable energy by 2045 as established in Senate Bill 100, GHG emissions from the Project would be reduced. Additionally, the Project would assist SDG&E and the state in meeting the Renewable Portfolio Standard goals by supporting the use of intermittent renewable energy like solar and wind energy generation, which accounted for 94% of SDG&E's renewable energy generation in 2022 by storing excess electricity when demand and costs are low and renewable electricity generation is highest and then discharging during periods of high demand and cost or when renewable energy generation is low. This also has the potential to reduce SDG&E's use of fossil fuels during peak electricity demand. As stated in the California Air Resources Board (CARB) 2022 Scoping Plan, energy storage is a "crucial pillar" in decarbonizing the electricity sector and to the state's GHG emission reduction goals. Therefore, the Project would become net-zero over time as SDG&E's electricity generation sources shift towards renewables, and the Project would assist the state in meeting its renewable energy goals outlined in Senate Bill 100.

3 Air Quality

3.1 Data Requests DR AQ-1 through DR AQ-8

3.1.1 Data Request DR AQ-1

DR AQ-1: Three references (SCAQMD 2023, SCAQMD 2009, EPA 2013) used in the document are not included in Subsection 4.1.8. Please ensure all references are fully provided.

Response: The three references have been revised and/or added to Section 4.1.8, References, of the application. An updated Section 4.1, Air Quality, of the application is included as part of this data response (see Attachment 2).

3.1.2 Data Request DR AQ-2

DR AQ-2: If two internal combustion engines driving emergency generators will be utilized for the project, please include their emission rates and engine manufacturing specification sheets, including the heating value and chemical characteristics of the proposed fuels, the stack height and diameter, and the exhaust velocity and temperature. Please provide a description of the control technologies proposed to limit the emission of criteria pollutants.

Response: During operations, there would be a UPS (uninterruptable power supply) that would be utilized in the event of a grid outage. The UPS would be able to power critical protection devices and relays for 6–12 hours in the event of a grid outage. If the Project is unable to recover power in this timeframe, the Project would then rent and utilize a pre-permitted diesel generator from a local source to power the critical protection equipment to maintain safety and security of the Project.

3.1.3 Data Request DR AQ-3

DR AQ-3: Please provide an air dispersion modeling analysis demonstrating that the engines' operation would comply with ambient air quality standards. Please provide the associated modeling files and results.

Response: During operations, there would be a UPS that would be utilized in the event of a grid outage. The UPS would be able to power critical protection devices and relays for 6–12 hours in the event of a grid outage. If the Project is unable to recover power in this timeframe, the Project would then rent and utilize a pre-permitted diesel generator from a local source to power the critical protection equipment to maintain safety and security of the Project. Since the emergency generator during operation would already be permitted and accounted for, air dispersion modeling would not be required.

3.1.4 Data Request DR AQ-4

DR AQ-4: Please provide a cumulative air quality modeling impacts analysis of the project's emergency engines in combination with other stationary emissions sources within a 6-mile radius that have received construction permits but are not yet operational or are in the permitting process. Otherwise, provide justification for why a cumulative modeling analysis is not needed, considering things such as, engine emission rates, location of maximum impacts, distance from sensitive receptors and distance from other permitted sources.

Response: During operations, there would be a UPS that would be utilized in the event of a grid outage. The UPS would be able to power critical protection devices and relays for 6–12 hours in the event of a grid outage. If the Project is unable to recover power in this timeframe, the Project would then rent and utilize a pre-permitted diesel generator from a local source to power the critical protection equipment to maintain safety and security of the Project. Since the emergency generator during operation would already be permitted and accounted for, cumulative air dispersion modeling would not be required.

3.1.5 Data Request DR AQ-5

DR AQ-5: Please provide a detailed description of the mitigation the applicant plans on utilizing to reduce construction related impacts.

Response: As discussed in Section 4.1.3.5, Construction Emissions, of the application, the proposed Project would not require any mitigation measures since the Project would not exceed any established thresholds from the South Coast Air Quality Management District (SCAQMD) as shown in Section 4.1.3 of the application. However as discussed in Section 4.1.3.5, the proposed Project would be required to incorporate reduction measures as required by SCAQMD Rule 403 and Rule 1113. SCAQMD Rule 403, Fugitive Dust, requires the implementation of measures to control the emission of visible fugitive/nuisance dust, such as wetting soils that would be disturbed. It was assumed that the active sites would be watered at least twice daily or as needed to maintain compliance. Rule 1113, Architectural Coatings, requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce volatile organic compound (VOC) emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

3.1.6 Data Request DR AQ-6

DR AQ-6: If two internal combustion engines driving emergency generators will be used, please provide a completeness determination letter from the SCAQMD confirming that the application submitted to the District has been deemed complete.

Response: During operations, there would be a UPS that would be utilized in the event of a grid outage. The UPS would be able to power critical protection devices and relays for 6–12 hours in the event of a grid outage. If the Project is unable to recover power in this timeframe, the Project would then rent and utilize a pre-permitted diesel generator from a local source to power the critical protection equipment to maintain safety and security of the Project. Since the emergency generator during operation would already be permitted and accounted for, a SCAQMD Permit to Construct/Operate is not required.

3.1.7 Data Request DR AQ-7

DR AQ-7: Please provide tables that identify each agency with jurisdiction to issue applicable permits, leases, and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies that would have permit approval or enforcement authority, but for the exclusive authority of the Commission to certify sites and related facilities.

Response: Please refer to Section 9.1.6, Data Request DR LAND-6, below for a comprehensive laws, ordinances, regulations, and standards (LORS) table, which includes the requested information as it relates to air quality.

3.1.8 Data Request DR AQ-8

DR AQ-8: Please provide the name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and provide the name of the official who will serve as a contact person for CEC staff.

Response: This data request is not applicable because the Project does not require any state or local air quality permit that would have been issued from SCAQMD.

4 Greenhouse Gas Emissions (Climate Change)

4.1 Data Requests DR GHG-1 through DR GHG-5

4.1.1 Data Request DR GHG-1

DR GHG-1: Has the project applicant explored the procurement of renewable diesel for the emergency backup generators as a means of demonstrating consistency with the State of California's goal of carbon neutrality? If not, why not?

Response: The applicant has already provided for a non-diesel source for emergency backup generation during operations. There would be a UPS that would be utilized in the event of a grid outage. The UPS would be able to power critical protection devices and relays for 6–12 hours in the event of a grid outage. If the Project is unable to recover power in this timeframe, the Project would then rent and utilize a pre-permitted diesel generator from a local source to power the critical protection equipment to maintain safety and security of the Project. Power from the grid will be used by the applicant in non-emergency situations subject to the state's Renewable Portfolio Standard.

4.1.2 Data Request DR GHG-2

DR GHG-2: Please confirm whether or not the project would use SF_6 in the circuit breakers and/or gas-insulated switchgear.

Response: The Project would not use sulfur hexafluoride (SF_6) breakers and switchgear.

4.1.3 Data Request DR GHG-3

DR GHG-3: If the project is proposing to use SF_6, please describe how the project would comply with the phase-out provisions.

Response: The Project would not use SF_6 breakers and switchgear.

4.1.4 Data Request DR GHG-4

DR GHG-4: Please provide the loss in round-trip efficiency for the charging/discharging cycle, and the GHG emission intensity factor during charging.

Response: The round-trip efficiency (RTE) of the Project will be 89.3% in the first year of operation. At Year 20, the RTE will be 87.4%. The GHG emission intensity factors utilized in the GHG analysis are based on California Emissions Estimator Model (CalEEMod) defaults for SDG&E and are 45 pounds per megawatt-hour (lbs/MWh) for carbon dioxide (CO_2), 0.033 lbs/MWh for methane (CH_4) and 0.004 lbs/MWh for nitrous oxide (N_2O). These intensity factors represent a conservative estimate for the purposes of calculating GHG emissions from the Project. These intensity

factors are representative of an annual average GHG intensity for SDG&E. However, it is important to note that these GHG intensity factors do not consider the anticipated charging and discharging schedule of the system. This schedule is expected to charge the system predominantly when prices and demand are low, typically during the day, a time when electricity generation is likely to be sourced from photovoltaic solar or other renewable energy sources and discharge during peak demand in when electricity costs are high and the GHG intensity factors are higher from the use of natural gas peaking power plants. Therefore, the actual GHG emissions may be lower than our conservative estimates suggest due to the potential for increased used of renewables during charging compared to what was modeled.

4.1.5 Data Request DR GHG-5

DR GHG-5: Please clarify whether GHG emissions will be associated with the BESS cooling. If the emissions are expected, please provide the estimated amounts of these GHG emissions.

Response: As mentioned above in Section 4.1.4, Data Request DR GHG-4, and in Section 4.1.3.6, Operational Emissions, of the application, the total energy demand for the Project is 10,950 megawatt-hours per year. This estimate includes all energy demand to power heating, ventilation, and air conditioning (HVAC) equipment associated with BESS cooling. Energy demand related to the BESS is discussed in Section 4.1.3.6 of the application.

5 Alternatives

5.1 Data Request DR ALT-1

DR ALT-1: California Code of Regulations, title 20, Division 2, Chapter 5, Appendix B (f)(1) requires that in accordance with Public Resources Code section 25540.6(b), the application shall include a discussion of the applicant's site selection criteria, any alternative sites considered for the project, and the reasons why the applicant chose the proposed site. Section 5, Alternatives, describes 17 sites that were considered in the analysis. The site selection discussion describes 17 potential sites. However, the two figures included in the section (Figures 5-1A and 5-1B) only include 15 sites, with site 14 being shown twice. Please revise the figures showing the location of all 17 sites.

Response: As shown in Figures 1 and 2 of this document, Figures 5-1A and 5-1B have been revised to accurately show the location of all 17 sites considered in the alternatives analysis. Alternative Site 16 (east of Interstate [I] 5, uphill from Rancho Viejo Road, designated Public Institutional) was incorrectly labeled as Alternative Site 14 in the prior iteration and has now been correctly identified as Alternative Site 16 in the figures. Alternative Site 17 (Prima Descheca Landfill) has also been added to the figures.

6 Biological Resources

6.1 Data Requests DR BIO-1 through DR BIO-12

6.1.1 Data Request DR BIO-1

DR BIO-1: Please provide copies of the following reports, if previously produced: rare plant survey report(s), least Bell's vireo report(s), jurisdictional delineation report(s). Staff is primarily interested in the full survey methodologies and survey areas used for each, the specific list of rare plants that were targeted in the rare plant survey, and the delineation data sheets completed for the jurisdictional delineation surveys.

Response: The methods and results of the rare plant survey and least Bell's vireo survey were included in the Biological Resources section of application (see Section 4.2.1.5, Biological Surveys); no separate standalone reports were prepared for these surveys. The Project's jurisdictional delineation report is included herein as Attachment 3.

6.1.2 Data Request DR BIO-2

DR BIO-2: Please provide reasoning for not including the following federally and/or state listed or delisted species from the assessment:

a. California Orcutt grass (*Orcuttia californica*) FE/SE/1B.1 – from CNPS query
b. American Peregrine falcon (*Falco peregrinus anatum*) FD/SD – NCCP/HCP species
c. Quino checkerspot butterfly (*Euphydryas editha quino*) FE – NCCP/HCP species

Response: The Potential to Occur tables in Appendix 4.2A of the application have been updated to include an analysis of the three abovementioned species (see Attachments 4 and 5).

6.1.3 Data Request DR BIO-3

DR BIO-3: The following in-text citations do not appear to be included in the references list. Please provide the full reference for each of the following citations:

- CPA 2024 - California Protected Area Database and California Conservation Easement Database mapping tools, cited in Section 4.2.1.2 p. 4.2-2
- Dudek 2021 - JD report, cited in Section 4.2.1.2.1 p. 4.2-2
- Dudek 2023 - JD report, cited in Section 4.2.1.2.1, p. 4.2-2
- CPAD 2024 - California Protected Area Database, cited in Section 4.2.1.2.2, p. 4.2-3
- CCED 2024 - California Conservation Easement Database, cited in Section 4.2.1.2.2, p. 4.2-3
- USFWS 1979 - Federal Endangered Species Act, cited in Section 4.2.1.4, p. 4.2-8
- USFWS 2000 - Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants, cited in Section 4.2.1.7.1, p. 4.2-15

- CDFG 2005 - regarding yellow-breasted chat, cited in Section 4.2.1.7.2. p. 4.2-16
- Snyder 2012 - Cota de Caza in-lieu fee program, Section 4.2.5.3.3, p. 4.2-36
- CDFW 2021 - App C1 and App C2, throughout
- CCH 2021 - App C1 throughout

Response: Section 4.2.8, References, of the Biological Resources section of the application has been updated to include the full reference for the abovementioned in-text citations. In some cases, the in-text citation has been updated (see Attachment 6).

6.1.4 Data Request DR BIO-4

DR BIO-4: The presence of Critical Habitat and potential for impacts to southern steelhead (an Endangered Species Act and California Endangered Species Act (CESA) listed species) half a mile downstream was not discussed. Please provide a discussion of southern steelhead and its critical habitat.

Response: A discussion of the abovementioned species and their designated critical habitat is now included in Sections 4.2.1.3.2, Critical Habitat, and 4.2.1.7.6, California Endangered Species Act, of the updated Biological Resources section of the application (see Attachment 6).

6.1.5 Data Request DR BIO-5

DR BIO-5: Does Figure 4.2-1 include data from both the 2021 jurisdictional survey and the 2023 survey? The source notes on the figure only cite Dudek 2021. Please clarify.

Response: Figure 4.2-1 includes data from both the 2021 and 2023 jurisdictional delineations. As shown in Figure 3 of this document, Figure 4.2-1, Jurisdictional Delineation Results, has been revised to cite Dudek 2021 and 2023 and is included herein.

6.1.6 Data Request DR BIO-6

DR BIO-6: Please specify the extent of riparian habitat that will need to be removed to allow for the installation of overhead lines traversing Oso Creek and describe whether equipment would need to be operated within the California Department of Fish and Wildlife (CDFW) jurisdictional limits of the stream. California Fish and Game Code section 1602 requires CDFW to be notified prior to beginning any activity that may do one or more of the following:

- Divert or obstruct the natural flow of any river, stream, or lake;
- Change the bed, channel, or bank of any river, stream, or lake;
- Use material from any river, stream, or lake; or
- Deposit or dispose of material into any river, stream or lake.

Please note that ”any river, stream, or lake” includes those that are dry for periods of time as well as those that flow year-round. A CDFW Lake and Streambed Agreement (LSAA) covers bank to bank, which is typically beyond the standard of the Army Corps of Engineers (beyond ordinary high-water mark).

Please notify CDFW to determine if an LSAA will be required, and if so, provide the information necessary for issuance of the LSAA by the CEC as part of the project's certification (per Cal. Code Regs., tit. 20, § 1877 (a)).

Response: No riparian habitat will be removed as part of the Project during construction or operation. All new and replacement poles and their respective work zones would be located outside of the California Department of Fish and Wildlife (CDFW) jurisdictional boundary of Oso Creek. The crossing of Oso Creek to install the overhead lines would be completed by transferring the lead rope using a drone. The conductor would be connected to a structure attachment location at or near the install elevation of the structure on the east side of the creek. The lead rope would then be used to guide the conductor into the pulling equipment on the west side of the creek. The conductor would then be guided into the attachment point located on the structure on the west side of the creek, and design tension would then be set. During this stringing process, the conductor would not touch the ground while equipment would maintain a minimum 50-foot setback from the creek embankment. The minimum height above ground for the creek bed and edge of the embankment for the installed conductor would be 76 and 34 feet respectively when the conductor is at its most sag condition. Sag in a transmission line is defined as the vertical distance between the highest points of support and the lowest point of the conductor. During operation of the Project and to maintain and operate the loop-in transmission lines, no riparian habitat is expected to be removed or require trimming (Section 4.2.2.3.3, Effects of Operation on Special-Status Species, of the Biological Resources section of the application has been updated accordingly). The existing vegetation within Oso Creek is located no more than 10 feet above the creek embankment; therefore, when the transmission lines are in their most sag condition of 34 feet above the edge of embankment, there would be no impact to riparian habitat.

Elevation drawings of the overhead line are included as Attachment 13. As shown in the elevation drawings, it should be noted that poles 22A, 22B, and 22C would be new transmission poles required to support the Project. Poles 23 and 24 are existing but would require replacement to support the Project. All remaining poles shown on the elevation drawings are existing and would not require any alteration to support the Project.

6.1.7 Data Request DR BIO-7

DR BIO-7: [Reserved]

6.1.8 Data Request DR BIO-8

DR BIO-8: The application is unclear as to whether backup power generators would be included as part of the project. If the project would include backup power generators, please provide the following:

a. Aerial map of the isopleth graphic depicting modeled nitrogen deposition rates per Appendix B (g) (13) (B) (ii).
    i. The geographical extent of the nitrogen deposition map(s) should include the entire plume from the source, specifically identifying acres of sensitive habitat(s) within each isopleth Modeling parameters and please provide the GIS shapefiles.
b. Nitrogen deposition modeling and the complete citations for references used in determining deposition rates and locations per Appendix B (g) (13) (C) (iii).
c. Amount of total annual nitrogen deposition in kilograms of nitrogen per hectare per year (kg N/ha/yr) in special status species habitats and vegetation types for wet and dry deposition.
d. Description of habitat and species potentially affected.

Response: The Project will not include backup power generators. Please refer to Section 3.1.2, Data Request DR AQ-2, above for additional information.

6.1.9 Data Request DR BIO-9

DR BIO-9: If seeking an incidental take authorization, please provide the following information as outlined by CDFW (https://wildlife.ca.gov/Conservation/CESA/Permitting/Incidental-Take-Permits) including, but not limited to:

a. Common and scientific names of the species to be covered by the incidental take permit (ITP) and the species' status under CESA.
b. A complete description of the project or activity for which the permit is sought.
c. The location where the project or activity is to occur or to be conducted.
d. An analysis of whether and to what extent the project or activity for which the permit is sought could result in the taking of species to be covered by the permit.
e. An analysis of the impacts of the proposed taking on the species.
f. An analysis of whether issuance of the ITP would jeopardize the continued existence of the species. A complete, responsive jeopardy analysis shall include consideration of the species' capability to survive and reproduce, and any adverse impacts of the taking on those abilities in light of:
    i. Known population trends;
    ii. Known threats to the species; and
    iii. Reasonably foreseeable impacts on the species from other related projects and activities.
g. Proposed measures to minimize and fully mitigate the impacts of the proposed taking.
h. A proposed plan to monitor compliance with the minimization and mitigation measures and the effectiveness of the measures.
i. A description of the funding sources and the level of funding available for implementation of the minimization and mitigation measures.

Response: The Project is not seeking an incidental take permit.

6.1.10 Data Request DR BIO-10a

DR BIO-10a: Please provide vegetation trimming impact calculations of each of the sensitive habitat types and CDFW-jurisdictional riparian habitat along Oso Creek and provide an appropriate mitigation measure(s) to address impacts to sensitive habitat types and special-status species that are present or may occur there.

Response: No vegetation trimming of riparian habitat will be required during construction or operation of the Project. Refer to Section 6.1.6, Data Request DR BIO-6, above for additional details. No significant direct permanent impacts would occur to federally or state-defined wetlands or non-wetland waters as a result of Project activities. Short-term and long-term indirect impacts to jurisdictional waters relating to construction activities (edge effects) and trash/pollution would not likely result in significant impacts, especially with the application of the standard best management practices (BMPs) that would be implemented during Project construction (see Section 4.2.4.1, Minimization Measures for Construction, of the Biological Resources section).

6.1.11 Data Request DR BIO-10b

DR BIO-10b: Please provide an assessment of impacts to this species and corresponding mitigation measure(s).

Response: An assessment of impacts to orange-throated whiptail has been added to Section 4.2.2.2.3, Construction Impacts to Special-Status Wildlife Species, of the CEC Application (see Attachment 6) and to Appendix 4.2A. Potential impacts will be mitigated to a less-than-significant level through implementation of MM-BIO-1.

6.1.12 Data Request DR BIO-10c

DR BIO-10c: Are the Best Management Practices (BMPs) listed on page 4.2-29 meant to be part of a mitigation measure? Similar question for the Environmental Awareness Training discussed on page 4.2-30. If so, please reformat and clearly include these as mitigation measures.

Response: The BMPs listed in Section 4.2.4.1 of the Biological Resources section and the Environmental Awareness training discussed in Section 4.2.4.2, Minimization Measures for Special-Status Species, are Project design features (PDFs). PDFs are specific environmental commitments proposed by the Applicant that are incorporated into the Project design as part of the Project description to avoid or reduce potential environmental effects. Because PDFs are incorporated into the Project, they do not constitute mitigation measures.

6.1.13 Data Request DR BIO-10d

DR BIO-10d: Please provide a mitigation measure for the minimization measure to implement the Decommissioning Plan for site restoration upon decommissioning of the project. Clearly state who the responsible parties are and what specific items are to be included in the Decommissioning Plan, including appropriate reporting.

Response: As discussed in Section 2, Project Description, of the Project application, a Decommissioning Plan has been prepared based on the best information available at this time (Appendix 2C of the application). The detailed procedures for temporary closures or full closure of the facility will need to be provided at the time a closure is required. The following mitigation measure (MM-BIO-3) is provided to prepare and implement a final Decommissioning Plan and has been added to Section 4.2.4.3, Minimization Measure for Site Restoration (Decommissioning), of the updated Biological Resources section (see Attachment 6).

MM-BIO-3. Prior to commencing decommissioning activities and at least 12 months in advance of planned decommissioning, the applicant shall file a decommissioning plan with the CEC Compliance Project Manager (CPM) for approval. The decommissioning plan shall:

- Identify and discuss the proposed decommissioning and site restoration activities for the project and all appurtenant facilities constructed as a part of/or because of the project;
- Identify all applicable laws, ordinances, regulations, standards (LORS) and local/regional plans applicable at that time;
- Discuss how the specific proposed decommissioning activities would comply with those identified LORS and plans;
- Discuss the reasons for selecting the preferred proposal; and

- Provide a schedule for decommissioning and identify the final reporting that shall be required to demonstrate that decommissioning was completed in compliance with the CEC-approved decommissioning plan.

6.1.14 Data Request DR BIO-11

DR BIO-11: Staff requests that the applicant initiate surveys for Crotch's bumble bee (CBB) consistent with the CDFW Survey Considerations for California Endangered Species Act (CESA) Candidate Bumble Bee Species https://wildlife.ca.gov/Conservation/Survey-Protocols#377281281-invertebrates) as soon as possible to ensure detections can be made prior to the end of the flight season. These surveys shall include both nesting colony surveys and foraging surveys in adjacent habitat. Surveys shall include habitat adjacent to Oso Creek, the existing pollinator garden and nursery, and all areas within 100 feet of project disturbance.

Completion of these surveys is not intended to delay a determination of data completion, but rather to further inform staff on the potential use of the site by this species. Please provide copies of the data as it is collected for inclusion in staff's analysis.

Response: The requested surveys for Crotch's bumble bee are being initiated. The results of the surveys will be included in a standalone memorandum and submitted to CEC once available.

6.1.15 Data Request DR BIO-12

DR BIO-12: Staff requests that the applicant initiate surveys for burrowing owl (nesting or wintering sites) on the project site and within 500 feet of disturbance areas where suitable habitat is present. Surveys shall follow CDFW recommended protocols presented in the Burrowing Owl Survey Protocol and Mitigation Guidelines (https://nrm.dfg.ca.gov/FileHandler.ashx?DocumentID=83842&inline).

Completion of these surveys is not intended to delay a determination of data completion, but rather to further inform staff on the potential use of the site by this species. Please provide copies of the data as it is collected for inclusion in staff's analysis.

Response: The requested surveys for burrowing owl are being initiated. The results of the surveys will be included in a standalone memorandum and submitted to CEC once available.

7 Executive Summary

7.1 Data Requests DR ES-1 through DR ES-3

7.1.1 Data Request DR ES-1

DR ES-1: Please identify the person or persons responsible for the preparation of each principal subject area.

Response: Table 2 is provided below and identifies the persons responsible for preparation of the application.

Table 2. DR ES-1, Persons Responsible for Preparation of the Opt-In Application

Organization	Role	Name
Compass Energy Storage LLC	Project Management and Overall Application Preparation (Introduction, Project Description, etc.)	Renée Robin, Director, Permitting and Planning
		Paul McMillan, Director, Development
		Kalen Nataf, Project Management, Senior Advisor
Power Flow Development	Project Management and Overall Application Preparation (Introduction, Project Description, etc.)	Justin Alvord, President
Dudek	Project Management and Overall Application Preparation (Introduction, Project Description, etc.)	David Hochart, Project Director Erin Phillips, Project Manager Jason Greenstein, GIS Steve Taffolla, Publications Manager
	Air Quality, Public Health	Adam Poll, Senior Environmental Planner
	Biological Resources	Tommy Molioo, Senior Biologist
	Cultural Resources	Adam Giacinto, Senior Archaeologist
	Geological Hazards and Resources	David Hochart, Project Director Erin Phillips, Project Manager
	Hazards and Hazardous Materials, Waste Management, Worker Health and Safety	Susan Jennings, Environmental Compliance Manager Erin Phillips, Project Manager
	Noise	Mark Storm, Senior Acoustician
	Paleontological Resources	Michael Williams, Senior Paleontologist
	Soils	David Hochart, Project Director Erin Phillips, Project Manager
	Traffic and Transportation	Sabita Tewani, Senior Transportation Planner
	Visual Resources	Joshua Saunders, Senior Environmental Planner
	Water Resources	Charles Greely, Principal Engineer

Table 2. DR ES-1, Persons Responsible for Preparation of the Opt-In Application

Organization	Role	Name
	Wildfire	Michael Huff, Project Director
	Alternatives	Candice Magnus, Senior Project Manager
Brownstein Hyatt Farber Schreck LLP	Land Use	Ryan Waterman, Legal Counsel Sarah Bronstad, Land Use Planner
Economic & Planning Systems Inc.	Socioeconomics	Teifion Rice-Evans
Sargeant & Lundy	Design Engineer	Michael Turner, PE
		Russell D. Howe, PE
Electrical Consultants Inc.	Electrical and Civil Engineering	Matt LaCount, PE
LGC Geotechnical Inc.	Geological Hazards	Kevin Colson, Vice President

7.1.2 Data Request DR ES-2

DR ES-2: Please provide a full-page color photographic reproduction depicting the visual appearance of the site prior to construction, and a full-page color simulation or artist's rendering of the site and all project components at the site, after construction. This should clearly show the project site, including all project components, with existing and proposed conditions and should not be from the I-5 vantage point. It should be a closer vantage point such as the access road entrance into the BESS facility.

Response: The requested existing and proposed simulation from a closer vantage point is provided as Attachment 7. The vantage point is from within the Saddleback Church property, north of the BESS facility, looking south from near the access road entrance into the BESS facility.

7.1.3 Data Request DR ES-3

DR ES-3: Please provide the direct mailing addresses for occupants of properties contiguous to the proposed power plant, related facilities, transmission lines, or other linear facilities as shown on the latest equalized assessment roll. If the property does not have a street address and/or is not occupied, please identify it as such.

Response: Direct mailing addresses for occupants are provided in Attachment 8. Attachment 8 is an updated version of Appendix 1B of the application, which included direct mailing addresses for owners and was previously submitted. Direct mailing addresses for occupants have been added in a new column.

8 Hazardous Materials Handling

8.1 Data Requests DR HAZ-1 through DR HAZ-8

8.1.1 Data Request DR HAZ-1

DR HAZ-1: Please provide a discussion of whether the project site is within an airport land use plan or within 2 miles of a public use airport and any resultant impacts and mitigation.

Response: The Project site is not located within the boundary of an airport land use plan and is not within 2 miles of a public use airport. The nearest public use airport is John Wayne Airport, which is located approximately 14.5 miles northwest of the Project site. Therefore, no impacts would occur, and no mitigation is required.

8.1.2 Data Request DR HAZ-2

DR HAZ-2: Please provide a discussion/summary of how the HMBP and SPCC would reduce the risk of adverse effects due to hazardous material use and storage during project construction.

Response: A hazardous materials business plan (HMBP) aims to prevent or minimize harm to public health and safety and the environment from a release or threatened release of a hazardous material. During Project construction, this is primarily accomplished by training construction personnel, establishing appropriate BMPs on site, and providing first responders with the necessary information to effectively protect the public in an emergency. An HMBP contains detailed information that includes the following:

- An inventory of hazardous materials at a facility
- Emergency response plans and procedures to be followed in the event of a reportable release or threatened release of a hazardous material
- Requirements to train employees in safety procedures in the event of a release or threatened release of a hazardous material, including onboarding for new employees and annual refresher courses for existing employees
- A site map that depicts north orientation, loading areas, internal roads, adjacent streets, storm and sewer drains, access and exit points, emergency shutoffs, evacuation staging areas, hazardous material handling and storage areas, and emergency response equipment

The Project HMBP would reduce the risk of adverse effects due to hazardous material use and storage during Project construction, operation, and decommissioning by providing an actionable plan to protect public health and safety and the environment from a release or threatened release of hazardous materials into the workplace and environment.

The Project spill prevention control and countermeasure (SPCC) plan would reduce the risk of adverse effects due to oil use and storage during Project construction, operation, and decommissioning. The SPCC plan would do the following:

- Describe the physical layout of the facility, including a facility diagram, which should show the location of oil-filled equipment, each oil-filled container, and any oil transfer stations and pipes
- List the type of oil in each container and the full storage capacity of each container
- Spill prevention procedures that cover the routine practices that will occur at the Project site, including oil handling and facility transfers of oil
- Describe secondary containment around containers or readily available equipment, visual inspection practices, and routine maintenance for electrical equipment
- Describe countermeasures for discharge discovery, response and cleanup including which of those procedures will be carried out by the facility and which will require an outside contractor
- Name methods of disposal for recovered materials in accordance with local, state, and federal laws
- Provide a contact list with facility contacts; contractor contacts; and federal, state, and local agency contacts (if applicable)
- Develop procedures for reporting a discharge, including relaying site location information and relevant information regarding the total volume and type of oil discharged
- Outline facility inspection methods, frequency, and recordkeeping requirements
- Identify security measures for the Project site, including fencing, locks, flanges, and security lighting (if necessary)
- Provide elements of training information for, at a minimum, the oil handling personnel at the facility, including a schedule of retraining at least once per year that highlights known discharges and malfunctioning components and any recently developed precautionary measures
- Be certified, according to the requirements of 40 CFR 112, By a certified Professional Engineer or via self-certification by Project management

For additional information regarding the applicability of an SPCC plan for the Project, please refer to Section 8.1.7, Data Request DR HAZ-7.

8.1.3 Data Request DR HAZ-3

DR HAZ-3: Please provide clarification about the potential use and storage of gasoline onsite, and anticipated volumes and storage locations.

Response: No gasoline is planned to be stored on site. Construction equipment may be powered by gasoline or diesel fuel. There will be no containers external to those pieces of equipment that would store gasoline or diesel on site.

8.1.4 Data Request DR HAZ-4

DR HAZ-4: Please provide a discussion of the toxic vapors that could be produced if a battery is damaged, or thermal runaway occurs.

Response: Laboratory testing of emissions from lithium-iron-phosphate (LFP) battery cells in thermal runaway shows that emissions are minimal, short term, and localized—consisting of flammable gases consumed at the source—and are significantly less than would be found in a house fire. In the unlikely event of a battery cell malfunction, the primary emissions released from an LFP battery would be carbon dioxide (CO_2) and carbon monoxide (CO), along with lesser amounts of other compounds, all of which dissipate within a few meters of the source. The emissions also could include the electrolyte coolant released inside the battery container by the fire suppression system; however, the containers are designed to retain the coolant internally. Generally, the battery cell would start to off-gas through pressure relief vents if the temperature exceeds 178°C; however, the battery would not enter thermal runaway until it exceeds the thermal runaway onset temperature, which is usually between 170°C and 220°C, depending on the cathode chemistry.

8.1.5 Data Request DR HAZ-5

DR HAZ-5: Please provide a discussion of the potential for hazardous materials spills or leaks from hazardous materials used and/or stored onsite during operation or construction, and measures/procedures that would be used to reduce the risk of spills or releases and resulting adverse effects to people and the environment.

Response: There are specific areas/activities on the Project site that have the potential for the occurrence of spill-related incidents during construction and operation. These areas/activities are listed below:

- The transfer of fuel from tank trucks to construction vehicle
- Collection and transport of sanitary sewage (portable toilet) by vacuum truck
- Use of hazardous liquid products, including hydraulic fluids, solvents, and lubricating oils
- Release of operating fluids from construction equipment
- Concrete waste management
- Hazardous materials storage areas
- Waste accumulation areas

The greatest potential for spills of hazardous materials would be during construction from equipment (e.g., hydraulic leaks, fuel spills). The applicant and all contractors and subcontractors would include appropriate spill containment and protective measures for activities that have the potential to release hazardous materials. Any leaks or spills that discharge to soil will be cleaned up by trained personnel, according to BMPs and as described below. Any wastes removed, including materials used for cleanup, will be disposed of according to federal, state, and local laws. Measures and procedures that would be used to reduce the risk of spills or releases and result in effect to people and the environment are listed below.

General and Pre-release Planning Measures and Procedures

- Drip pans would be used under portable equipment where there is potential for leaks or spills during maintenance, fueling, or other operations. Drip pans would be suitably sized for the equipment, constructed of impermeable material, and not allowed to overflow.
- Drip pans containing rain water or water from snow melt may be emptied to the ground surface only after visual inspection confirms there is no presence of hydrocarbons (i.e., oily sheen on the water surface).

- Leaking drums, hoses, or equipment would be repaired or removed from the work area to prevent spills of hydrocarbons, chemicals, or other materials. Oily equipment or materials would not be stored in or near drainage areas where water runoff from the site could become contaminated.
- Vehicle and equipment maintenance would be confined to designated areas, and precautions would be taken to preclude fluids from being discharged or spilled to land or drainage ditches.
- Drip pans would be used under equipment where there is high use and/or a potential for leaks, including temporary generators and transformers, sampling lines, stop cocks, dispensing areas, etc. Permanent drip pans would also be provided underneath the fueling ports of portable equipment not equipped with inherent secondary containment. Containment areas or drip pans receiving oil or oily water shall not be allowed to overflow.

Fueling Measures and Procedures

- Vehicle fueling shall occur in areas where the potential for contamination is minimized in accordance with this plan and as approved by the Environmental Safety and Health (ES&H) manager.
- Equipment that remains stationary while in use for considerable periods of time during construction, such as rigs and cranes, must adhere to strict fueling procedures, and appropriate spill containment devices shall be used.

Concrete Waste and Washout Measures and Procedures

- Concrete waste and concrete washout would be contained in either specially designed concrete waste haul-off containers or in temporary concrete washout facilities, and the material will be disposed of off site.
- Washout areas would be removed or replaced once a container reaches 75% capacity.
- If concrete waste areas are placed on or belowground, the placement of these would occur in areas where the potential for contamination is minimized in accordance with this plan and as approved by the ES&H manager.
- Waste containers that contain concrete waste or wastewater may be a hazard to wildlife. Containers would be covered at the end of the work day and when waste or wastewater is present to the satisfaction of the site ES&H manager.

Spill Kit Measures and Procedures

- Spill kits complete with soaker pads, oil-absorbing materials, and containment booms would be required by all contractors and their subcontractors. Absorbent mats, sand, clay, or other absorbent materials shall be readily available for deployment to control or contain spilled material. Spill containment kits for work activities will be located in convenient areas and available for use with specific work activities.

Hazardous Materials Storage Measures and Procedures

- To prevent accidental spills during construction from reaching the environment, all temporary hazardous material storage areas would be located at least 100 feet away from surface waters and buffer areas or have structural controls that would prevent the migration of a spill into a drainage area. It is recommended to provide temporary secondary containment when hazardous materials are going to be transferred to smaller containers to avoid a potential release. The temporary secondary containment can be constructed

of a concrete slab with curbs, a soil berm with a plastic liner, or a manufactured secondary containment system. In addition, the Project would maintain an adequate number of spill kits around the site.

Spill Response Measures and Procedures

- In the event a spill does occur, employees would immediately notify their supervisor and would take immediate steps to stop the leak if possible. The exact actions taken to stop, reduce, and contain the release are influenced by the severity of the spill, the quantity of material released, the circumstances of the release, the type of material, and the spill location.
- All supervisors would be responsible for dealing with spills and advising construction site personnel of any special or necessary actions that need to be taken as dictated by the situation.
- The applicant and contractors and subcontractors must remain committed to resolving any substandard process or condition that may have contributed to any spills or releases. All spills, regardless of volume, would be recorded in a Spill Log, and ES&H staff will take measures to ensure and document the cleanup and identify corrective measures to prevent reoccurrence.
- All wastes generated by the Project's spill response and cleanup would be properly contained, labeled, and documented.

Spill Reporting Measures and Procedures

- All spills would be reported internally to the ES&H manager and site manager in accordance with the incident reporting procedures. Immediately following a spill, initial reports to these individuals would identify the type and amount of material spilled and immediate actions taken to contain and respond to the incident.
- The applicant would be notified and would make notifications to regulatory authorities depending on the type of material and quantity spilled. Therefore, it is critical that this information be immediately reported to the supervisor responsible for notifying management and the ES&H department of the incident.

Training

- Employees will be trained in hazardous spill response and major cleanup appropriately.

8.1.6 Data Request DR HAZ-6

DR HAZ-6: Please provide a discussion of explosion risks related to construction and operation of the project and any necessary mitigation measures.

Response: The Project will use battery storage systems that are compliant with National Fire Protection Association (NFPA) 855, that are Underwriters Laboratories (UL) certified, and that include built-in failsafe and cooling systems designed to prevent thermal runaway and the spread of fire. A fire protection system is installed to automatically shut down any affected battery storage components and prevent the spread of the fire to the other battery storage modules. Key takeaways from the UL 9540A tests of the battery to be used in the Project found that when forced into a thermal condition, one adjacent cell went into thermal runaway, but no others became involved. Smoking from the unit lasted 30 to 90 minutes, flammable gases were produced and consumed, and the test concluded shortly thereafter. No battery storage fire has propagated beyond an individual container.

The proposed Project battery storage technology (Tesla Megapack 2XL or MP2XL) includes an explosion control system to mitigate the risk of an uncontrolled deflagration. The system includes 26 pressure-sensitive vents (overpressure vents) and 12 sparkers installed throughout the battery module bay designed to ignite flammable gases very early in a thermal runaway event before they accumulate within the enclosure and become an explosion hazard. The sparkers are installed at a variety of locations and heights throughout the battery module bay to ensure the flammable gases released during thermal runaway quickly meet an ignition source. The 26 overpressure vents are installed in the roof of the sealed battery module bay's IP66 enclosure and permit gases, products of combustion, and flames to safely exhaust through the roof during a thermal event. By designing this natural ventilation flow path, flammable gases are not permitted to accumulate within the MP2XL cabinet, reducing the risk of an explosion that could compromise the cabinet's integrity, push open the front doors, or expel projectiles from the cabinet. In addition, the ventilation path creates a controlled fire condition, should one occur, out the front and top of the MP2XL cabinet. By maintaining the cabinet's integrity, keeping all the doors shut during a fire event, reducing the risk of projectiles, and creating a controlled path for flames that exit the top of the MP2XL cabinet, the likelihood of a thermal event having an impact on life or safety of site personnel or first responders is reduced. In addition, by maintaining these features, the likelihood of a fire propagating to electrical equipment or other exposures is also reduced and can be designed for at the installation level (i.e., maintain clearances, emergency response plans, etc.).

The number and total area of overpressure vents is sized following the requirements of NFPA 68. They are designed to relieve with a safety factor of 2.5 times the enclosure's strength, including the front doors. Meaning, during an overpressure event inside the MP2XL cabinet, the overpressure vents will open when subjected to an overpressure of approximately 12 kilopascal (kPa) (250 pounds per square foot [psf]), well before the integrity of the enclosure itself becomes compromised at 30 kPa (626 psf) with a 2.5 times safety factor.

Tesla developed the overpressure vents and sparker system because the application of NFPA 68 or NFPA 69 was not suitable for the MP2XL cabinet given it does not have large volumes of open space, as is typical of BESS cabinets. This engineered approach is permitted by NFPA 855, Section 9.6.5.6.4, provided it is validated through large-scale, unit level fire testing, which Tesla has performed. During the UL 9540A unit level test, six cells were simultaneously forced into thermal runaway within a single battery module. This resulted in thermal runaway propagating to a seventh cell only. The failure of the seven cells did not result in any observations of explosion hazards, including but not limited to, observations of a deflagration, projectiles, flying debris, detonation, or other explosive discharge of gases. In addition, internal destructive unit level fire testing further demonstrated the functionality of the explosion control system. During this test, 48 cells were simultaneously failed within the same battery module (an extreme abuse condition). The sparker system ignited the flammable off-gases and an overpressure vent opened. This resulted in a controlled fire event. There were no observations of explosion hazards, such as projectiles, flying debris, detonation, or other explosive discharge of gases.

Additional detail on these prevention and mitigation systems will be included in the hazard mitigation analysis and corresponding emergency response plan developed in cooperation with the Orange County Fire Authority prior to the commencement of construction.

8.1.7 Data Request DR HAZ-7

DR HAZ-7: Please provide a discussion of applicability of the SPCC for both construction and operation and a copy of a draft SPCC with inclusion of procedures to prevent spills and releases and for notification and cleanup should a spill or release occur.

Response: SPCC plans are federal plans that gain their authority under Section 311(j)(1)(C) of the Clean Water Act as amended by the Oil Pollution Act of 1990. The purpose of an SPCC plan is to prevent and prepare a response in the case of an oil discharge to waters of the United States from non-transportation-related facilities. Federal SPCC requirements are outlined in Code of Federal Regulations Title 40, Part 112. Federal SPCC regulations cover all oils including those from petroleum-based sources and non- petroleum-based sources. SPCC facilities must prepare and implement an SPCC plan within 6 months of beginning operations. SPCC applicability in the United States is complex and varies from state to state.

In general, for renewable energy projects, a federal SPCC plan is required if both of the following are true:

- Could the facility reasonably be expected to discharge oil in quantities that may be harmful into navigable waters or adjoining shorelines?
- Is the total aggregate capacity of aboveground oil storage containers greater than 1,320 gallons of oil or is the aggregate aboveground storage capacity in tanks and oil-filled equipment 55 U.S. gallons or more?

The evaluation of applicability of a State of California SPCC plan is similar but not entirely the same as under the federal rules. SPCC plans in the State of California are evaluated based on the California Aboveground Petroleum Storage Tank (APSA) Program, California Health and Safety Code Division 20, Miscellaneous Health and Safety Provisions, Chapter 6.67, Aboveground Storage of Petroleum. Unlike the federal SPCC regulations, which only apply near navigable waters, the APSA Program regulates projects no matter where they are in the state. California SPCC plans covered under the APSA Program, however, are only concerned with petroleum oil storage, whereas federal SPCC regulations cover oils in general.

The California APSA Program defines “petroleum” to be crude oil, or a fraction thereof, that is liquid at 60°F and 14.7 pounds per square inch absolute pressure (California Health and Safety Code Section 25270.2). In other words, petroleum oils are typically liquid at ambient temperatures and pressures.

- Examples of petroleum under the California APSA Program: Mineral oil and insulating oils, gasoline, diesel, biofuel blends, synthetic oil, motor oil, and used oil.
- Examples of petroleum that do NOT meet the definition under the California APSA Program: Liquefied petroleum gas or propane, liquefied natural gas, hot mix asphalt, asphalt cement, 100% biodiesel (without petroleum), animal fat, and vegetable oil.

The below discussion is based on the applicability standards for federal SPCC plans and California APSA Program SPCC plans.

Federal Applicability: Applicable

Applicable during the life of the project under current rules: The Project is anticipated to have an aggregate oil-filled equipment volume in the form of transformers at the site, which are over the 1,320-gallon threshold for an SPCC plan, and the Project is anticipated to qualify for a federal SPCC plan based on its proximity to United States navigable waters (i.e., Oso Creek).

State of California: Currently Not Applicable, Applicability May Change

Construction and Decommissioning California APSA Program SPCC Plan: Conditionally Exempt: Though the Project site may store fuel on site over the 1,320-gallon threshold for an SPCC plan during construction and

decommissioning, the Project is exempt under current APSA Program rules because the site will not include a storage tank that exceeds 20,000 gallons and the cumulative storage capacity will not exceed 100,000 gallons.[1]

- Under the current wording of the APSA Program, a facility on a construction site in California is exempt under current APSA Program regulation (California Health and Safety Code Section 25270.4.5[b]) from preparing an SPCC plan if:
  - No storage tank at the location exceeds 20,000, and
  - The cumulative storage capacity of the tank facility does not exceed 100,000 gallons.
- A construction site, while conditionally except from preparing the APSA Program SPCC plan, is still subject to APSA Program fees, the Tank Facility Statement in the Project HMBP, and Certified Unified Program Agency (CUPA) inspections. Because APSA Program revisions are under review, the need for an SPCC plan in California should be confirmed immediately prior to construction.

Operational California APSA Program SPCC Plan: Conditionally Exempt: The Project will have an aggregate oil-filled equipment volume in the form of transformers at the site that is over the 1,320-gallon threshold, and the site may also have dielectric fluid in on-site transformers that meets the APSA Program definition of "petroleum"; however, most electric-fueled equipment will be exempt from the APSA Program due to the following APSA Program language under 25270.2(a)(4):

> (4) Oil-filled electrical equipment, including, but not limited to, transformers, circuit breakers, or capacitors, if the oil-filled electrical equipment meets either of the following conditions:
>
> (A) The equipment contains less than 10,000 gallons of dielectric fluid.
>
> (B) The equipment contains 10,000 gallons or more of dielectric fluid with PCB levels less than 50 parts per million, appropriate containment or diversionary structures or equipment are employed to prevent discharged oil from reaching a navigable water course, and the electrical equipment is visually inspected in accordance with the usual routine maintenance procedures of the owner or operator.

A draft SPCC plan to meet federal requirements is included as Attachment 9.

8.1.8 Data Request DR HAZ-8

DR HAZ-8: Please provide names and associated contact information for any officials/agencies that were contacted for hazardous material and hazards information related to the preparation of Section 4.5.

Response: As shown in Table 3 below, Table 4.5-3, from Section 4.5, Hazards and Hazardous Materials, of the Opt-In Application, has been updated below with name, title, and phone number for previously missing contacts. The Orange County Health Care Agency, Environmental Health Division contact has not been contacted previously regarding the Project but has been identified as the appropriate contacts for CEC staff.

[1] As of March 2023, the current APSA rules are under review by the California Office of the State Fire Marshall and have potential to change.

Table 3. DR HAZ-8, Updated Table 4.5-3, Permits and Agency Contacts

Issue/Approval	Agency Contact	Applicability
HMBP*	Veronica Kelley, Agency Director Orange County Health Care Agency, Environmental Health Division 1241 East Dyer Road, #120, Santa Ana, California 92705 714.433.6000	Hazardous materials compliance
SPCC*	Veronica Kelley, Agency Director Orange County Health Care Agency Environmental Health Division 1241 East Dyer Road, #120, Santa Ana, California 92705 714.433.6000	Hazardous materials compliance

Note:
* Approvals would be superseded by CEC approval of the Project under the opt-in program.

9 Land Use

9.1 Data Requests DR LAND-1 through DR LAND-7

9.1.1 Data Request DR LAND-1

DR LAND-1: Please add item 14 to the legend and to Figure 4-1.

Response: Item 14, Industrial Housing Overlay, has been added to Figure 4-1 (see Figure 4 of this document).

9.1.2 Data Request DR LAND-2

DR LAND-2: Please confirm the width of the access road, amend the text describing the project, and revise Figure 2-1 and the Project Site Plan and General Arrangement drawings in Appendix 2A in the application as necessary. Please confirm whether the project access road begins before the Saddleback Church gate and guardhouse is reached from Camino Capistrano Road and describe how access to the access road will be controlled, including where any gates would be located. Regarding existing structures through which the access road would pass, please explain the current use of these structures and identify whether the structures would be removed and whether their functions would be replaced, by whom, and at what location. Regarding trees located along the access road route, identify any that would be removed and if removed whether and how they would be replaced.

Response: The width of the access road will be 30 feet wide within a 38-foot-wide easement as shown in the Project Site Plan drawing (Drawing CMP-SE-100; Appendix 2A of the application) and revised Figure 2-1 (see Figure 5 of this document). The width of the access road shown within the General Arrangement drawing (Drawing CMP-SE-101; Appendix 2A of the application) is intended to demarcate that the internal BESS yard circulation system roads will be a minimum width of 20 feet; therefore, no change has been made to the General Arrangement drawing. The access road will begin before the Saddleback Church gate and guardhouse is reached from Camino Capistrano Road. Access would be controlled by gates at three locations where the road meets the BESS facility as shown in Figure 5 (lime green). Prior to reaching the BESS facility, the access road would pass through a portion of an area that currently contains modular buildings that are used during Sunday morning church for children's classrooms and used during mid-week evenings for group meetings (high school groups, men's groups, women's groups, etc.). Saddleback Church plans to relocate three modular buildings approximately 500 feet to the north, north of the existing parking lot, prior to construction.

As shown in Figure 6 of this document, the enclosed tree survey exhibit shows a total of 367 trees within the proximity of the proposed access easement and BESS Project area. It is expected that 309 trees would remain, and up to 58 trees will need to be removed. The trees to be removed consist of 26 trees for the proposed access road, 27 trees within the road easement, and 5 trees for the proposed the stormwater outfall. The 58 trees to be removed are all non-native species: 37 Mexican fan palms, 5 olive trees, 4 Mediterranean cypress trees, 4 Peruvian pepper trees, 4 silver-dollar gum eucalyptus, 2 golden wattles, 1 queen palm, and 1 silky oak tree. The 53 trees removed along the access road will be replaced at locations identified in cooperation with the Saddleback Church to ensure the linear buffer remains robust.

9.1.3 Data Request DR LAND-3

DR LAND-3: Please describe the extent of the 20-foot-tall screening fence and confirm whether it would screen the switch yard. Also describe what structures would be required to ensure stability of the screening fence, what material would be used to construct the lattice work of the fence, the approximate size of voids in the lattice work, the material and expected life of the faux ivy and how it maintains its appearance with exposure to sun and rain, and whether the faux ivy would be combustible. Please revise Figure 2-1, the Project Site Plan and General Arrangement drawings in Appendix 2A in the application, and the Conceptual Landscape Plan in Appendix 2B in the application, as necessary.

Response: The battery storage yard will be screened by the proposed 10-foot perimeter wall, and a 20-foot-tall screening fence would be located east of the BESS modules. The SDG&E switchyard will also be screened by the 20-foot screening fence to the extent allowed by SDG&E standards. The screening fence would consist of chain-link fence to which the faux ivy would be securely anchored. The approximate size of the voids (i.e., diamonds) in the chain link fence would be up to 2 inches. The faux ivy material is made of polyurethane, the same as artificial turf, which is fire resistant, and has an expected life of 7 years but has been seen in good condition for up to 12 years on past installations. The color of the faux ivy darkens over time. The faux ivy contemplated for the Project is routinely utilized by SDG&E for their facilities. An example specification sheet is included as Attachment 10.

9.1.4 Data Request DR LAND-4

DR LAND-4: Please show the location of the Equestrian Trail on Figure 2-1 and the Project Site Plan, including the relocated section and the balance of the trail in the project vicinity. Please confirm whether the relocated Equestrian Trail and the North Open Space Trail are the same trail. Also identify what entity, if any, maintains the trail.

Response: The dark brown dotted line in updated Figure 2-1, Site Plan (Figure 5 of this document), represents the City-mapped "Oso Rancho Capistrano Trail," a multi-user trail (equestrian/bike/hike) that terminates near the southwest corner of the Project site. The yellow dotted line is the City-mapped "Trail Owned by Others" and is labeled as the Unnamed Trail in Figure 5 and on the City of San Juan Capistrano's Trail Map. The existing Unnamed Trail traverses through the center of the proposed BESS facility and thus is proposed to be relocated to the west of the BESS facility site as part of the Project, as shown by the dark green dotted line. The proposed relocation would allow the Unnamed Trail to connect to the mapped north end of the existing Oso Rancho Capistrano Trail multi-user trail. The Unnamed Trail is located on private property owned by Saddleback Church and thus is not a City-owned or -maintained trail. Over the years, Saddleback Church has allowed use of the trail by the public but does not maintain the trail. Please note, the term North Open Space Trail does not apply. The source of the existing trail alignments depicted in Figure 5 is from a City map dated September 2021.[2]

9.1.5 Data Request DR LAND-5

DR LAND-5: Please confirm whether there is any active agriculture or cultivation being practiced within any areas affected by the proposed project, including the type of agricultural practice and whether and where it may be relocated.

[2] https://www.sanjuancapistrano.org/DocumentCenter/View/1419/Map-of-City-Trails-PDF?bidId=.

Response: Saddleback Church maintains a community garden consisting of a 12-foot-by-12-foot greenhouse, 30-foot-by-30-foot portable shade structures, raised planters, perimeter fencing, a 12-foot-by-12-foot office, and shipping containers that is currently located where the proposed BESS facility would be located. Saddleback Church plans to relocate the garden just north of the BESS facility.

9.1.6 Data Request DR LAND-6

DR LAND-6: Please provide the following details:

a. For all LORS subsections within Section 4 Environmental Analysis of the application, provide a table or tables with discussions and documentation demonstrating how the project would conform with all applicable laws, regulations, ordinances, standards, adopted local, regional, state and federal land use plans, leases, and permits. For local, regional, and state agency permits that would otherwise be required, but for the CECs exclusive jurisdiction, provide all the necessary information that would be included in an application for a discretionary or ministerial permit. For ministerial permits like encroachment permits, provide sufficient information for CEC staff to independently verify whether the project would meet all conditions for issuance of the ministerial permits.
b. Provide tables that identify each agency that, but for the CEC's exclusive authority to certify sites, would have jurisdiction to issue permits and approvals or to enforce laws, regulations, standards, and adopted land use plans.
c. Provide a table with the required contact information identified in Appendix B (i) (2) for all agencies listed in the table required by paragraph b. above.
d. Please correct the reference to soils and the table number (shown as table 4.16- 3) at page 4.6-15.

Response: A comprehensive LORS table is included as Attachment 11.

9.1.7 Data Request DR LAND-7

DR LAND-7: Please confirm that no permits or approvals of other agencies beside the CEC are required, such as any federal permits. If such permits are required, provide a schedule of permits required that are outside the authority of the CEC and what steps have been or are planned to be taken to obtain such permits or approvals. If a schedule is provided elsewhere in the application, it can be cross referenced in Section 4.6.7.

Response: A permit and approval table is included as Attachment 12.

10 Noise

10.1 Data Request DR NOISE-1

DR NOISE-1: Please address the discrepancy between Tables 4.7-4 and 4.7-5 for the same hour of day recorded and clarify which set of measurements are correct.

Response: The average noise levels in Table 4.7-4 have been updated; see updated Table 4 below. The discrepancy between Tables 4.7-4 and 4.7-5 has been resolved. The introduction text to the table has also been updated as shown below.

> As illustrated in Table 4.7-4, daytime (7 AM to 7 PM) ambient noise levels are generally in the 51 to 66 dBA Leq range; evening noise levels (7 PM to 10 PM) are in the 52 to 61 dBA Leq range, and nighttime noise levels (10 PM to 7 AM) are in the 58 to 64 dBA Leq range. These fluctuations in the levels between the periods of the day, evening and night are typical for areas with roadway traffic noise exposure as the dominant noise source.

Table 4. DR NOISE-1, Updated Table 4.7-4, Long-Term Outdoor Ambient Sound Pressure Level (SPL) Measurement Results at LT2, 45-hour Monitoring Period (March 24 to March 26, 2023)

Hour of Day (hh:mm)	Energy-Averaged Noise Level (Leq 1-hour) dBA	Statistical Noise Level (L10) dBA	Statistical Noise Level (L50) dBA	Statistical Noise Level (L90) dBA
08:45	62	62	60	58
09:45	56	56	54	52
10:45	52	53	51	49
11:45	54	55	53	51
12:45	53	54	53	51
13:45	53	55	53	51
14:45	55	55	53	51
15:45	54	56	53	51
16:45	53	54	51	50
17:45	52	53	52	50
18:45	53	54	52	51
19:45	59	58	56	56
20:45	60	61	60	59
21:45	62	63	62	61
22:45	61	62	61	60
23:45	60	61	60	58
00:45	58	59	58	56
01:45	58	60	58	56
02:45	57	58	56	55
03:45	58	59	58	56

Table 4. DR NOISE-1, Updated Table 4.7-4, Long-Term Outdoor Ambient Sound Pressure Level (SPL) Measurement Results at LT2, 45-hour Monitoring Period (March 24 to March 26, 2023)

Hour of Day (hh:mm)	Energy-Averaged Noise Level (Leq 1-hour) dBA	Statistical Noise Level (L10) dBA	Statistical Noise Level (L50) dBA	Statistical Noise Level (L90) dBA
04:45	60	61	60	59
05:45	63	64	63	62
06:45	64	65	64	63
07:45	66	66	65	64
08:45	63	64	64	63
09:45	58	58	61	56
10:45	53	54	53	53
11:45	54	55	52	51
12:45	62	58	54	53
13:45	56	57	54	52
14:45	56	57	54	52
15:45	55	55	53	52
16:45	55	56	52	51
17:45	51	52	51	49
18:45	53	54	50	49
19:45	55	55	51	50
20:45	58	58	55	54
21:45	62	63	62	61
22:45	62	63	63	62
23:45	61	62	62	61
00:45	59	60	60	58
01:45	58	59	59	58
02:45	58	59	57	55
03:45	57	58	56	54
04:45	59	60	57	56

11 Project Description

11.1 Data Requests DR PD-1 through DR PD-6

11.1.1 Data Request DR PD-1

DR PD-1: Please provide a map at a scale of 1:24,000 (1" = 2000'), (or appropriate map scale agreed to by staff) along with an identification of the dedicated leaseholds by section, township, range, county, showing the proposed final locations and layout of the power plant and all related facilities.

Response: Please see Section, Township, Range map included as Figure 7.

11.1.2 Data Request DR PD-2

DR PD-2: Please provide elevation drawings that identify the heights of all the tall structures (e.g., H-frames and poles) for both the project substation and the SDG&E switch yard, and include the transmission line poles and dead end structure. Structures and heights should correspond to what has been presented in the visual simulations and Table 4.13-3 (Characteristics of Primary Project Components) or specify the differences.

Response: Elevation drawings for the Project substation were provided previously in Appendix 2A of the application. Elevation drawings for the transmission line and SDG&E switchyard were not previously provided and are included herein as Attachments 13 and 14, respectively. Table 4.13-3, Characteristics of Primary Project Components, has been updated to reflect the switchyard and transmission line elevations (see Section 17.1.15, Data Request DR VIS-15, of this document).

11.1.3 Data Request DR PD-3

DR PD-3: Please provide a figure identifying the existing and proposed location of the North Open Space Trail.

Response: Please refer to revised Figure 2-1, Site Plan (Figure 5 of this document), and the response provided above in Section 9.1.4, Data Request DR LAND-4.

11.1.4 Data Request DR PD-4

DR PD-4: Please add a description of the proposed realignment of the existing North Open Space Trail to the project description including associated construction activities.

Response: The following description should be added as Section 2.2.12, Relocated Unnamed Trail, to the Project Description:

> The existing Unnamed Trail (labeled as "Unnamed" on the City's Trail Map and in Figure 5), traverses through the central portion of the proposed BESS facility. This trail is located on privately owned land, is approximately 6 to 8 feet wide, consists of earthen surface material (i.e., is not a City-owned or maintained trail), and is not formally designated with signage or other markers. The

Project would relocate a portion of the existing trail to the west, outside of the fenced BESS facility limits. The relocated portion of the trail would be approximately 0.25 mile longs and up to 6 feet wide. Relocating the trail would provide for a connection to the existing Oso Rancho Capistrano Trail to the southwest; the Oso Rancho Capistrano Trail is owned and maintained by the City and is not located on church property. North of the proposed BESS facility, the existing trail traverses through Saddleback Church property along the eastern church property limits in the area of the proposed Project access road. Once construction of the Project is complete, the proposed access road would be unfenced and paved, which would facilitate movement through the area in the same way access is currently allowed. Following construction, the existing trail would continue to provide access north of the church property boundary.

Construction of the trail would entail clearing the 6-foot-wide path using a skid steer loader and compacting soils. Construction of the relocated trail is anticipated to be completed over a duration of 4 weeks. Construction duration, equipment, and vehicle trips related to the relocated trail are already accounted for in the grading construction phase of Table 2-3, Construction Scenario Assumptions, of the Project Description.

Relocation of the trail would result in a temporary disruption of access while the BESS facility and access road are being constructed. It is anticipated that access to the Project site will be limited for a period of up to 1 year. Signage, fencing, and flagging would be installed at the northern terminus of the Oso Rancho Capistrano Trail to notify trail users of the temporary closure of the portion of the trail that is on private property. There would be no temporary disruption of access to the City's Oso Rancho Capistrano Trail during construction. Once construction is complete, the temporary closure would be lifted, and trail users would be able to resume use of the trail in its relocated position.

11.1.5 Data Request DR PD-5

DR PD-5: Please identify in the project description if the realignment would result in a temporary disruption of access to a portion of the trail and if so, the potential duration of any restrictions to access.

Response: The information requested in this data request is included above in Section 11.1.4, Data Request DR PD-4.

11.1.6 Data Request DR PD-6

DR PD-6: Please provide a full-page color photographic reproduction depicting a representative above ground section of the transmission line route prior to construction and a full-page color photographic simulation of that section of the transmission line route after construction.

Response: The requested existing and proposed simulation of the transmission line route is provided as Attachment 15.

12 Public Health

12.1 Data Requests DR PH-1 through DR PH-4

12.1.1 Data Request DR PH-1

DR PH-1: Please provide a map showing sensitive receptor locations for MEIR, MEIW, MESR/MEDR, and MERR, including the distance from the project boundary.

Response: A figure that denotes the receptor locations for the maximally exposed individual resident (MEIR), maximally exposed individual worker (MEIW), and maximally exposed school receptor/maximally exposed daycare receptor (MESR/MEDR) and includes their relative distance to the Project boundary has been included as Figure 8. The maximally exposed recreational receptor (MERR) was not included in the figure based on the following:

The construction health risk assessment evaluated the cancer and non-cancer risk impacts to receptors using the Office of Environmental Health Hazard Assessment (OEHHA) 2015 methodology[3] and CARB's Hotspots Analysis and Reporting Program Version 2 (HARP2). Diesel particulate matter (DPM) from construction equipment and heavy-duty diesel trucks was evaluated. DPM does not have an acute (short-term) reference exposure level for non-cancer health impacts in HARP2. Therefore, only long-term cancer and chronic non-cancer risk was evaluated. The MERR represents a receptor that would be exposed to short-term acute durations of emissions and not long-term chronic exposure. Because DPM does not have a short-term reference exposure level, the MERR would not apply to this assessment.

12.1.2 Data Request DR PH-2

DR PH-2: If the generators will be utilized for the project, please include their emission rates and engine manufacturing specification sheets, and Health Risk Assessment to demonstrate the project impacts would be less than significant at the sensitive receptor locations identified in DR PH-1.

Response: Please refer to Section 3.1.2, Data Request DR AQ-2, above. Since the emergency generator during operation would already be permitted and accounted for, a health risk assessment would not be required.

12.1.3 Data Request DR PH-3

DR PH-3: Please provide tables that identify each agency with jurisdiction to issue applicable permits, leases, and approvals or to enforce identified laws, regulations, standards, and adopted local, regional, state and federal land use plans, and agencies that would have permit approval or enforcement authority, but for the exclusive authority of the CEC to certify sites and related facilities.

Response: Please refer to Attachment 11 for a comprehensive LORS table, which includes the requested information as it relates to public health.

[3] OEHHA (Office of Environmental Health Hazard Assessment). 2015. Air Toxics Hot Spots Program Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments. Air, Community, and Environmental Research Branch, OEHHA, California Environmental Protection Agency. February 2015. Accessed October 2023. http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf.

12.1.4 Data Request DR PH-4

DR PH-4: Please provide the name, title, phone number, address (required), and email address (if known), of an official who was contacted within each agency, and provide the name of the official who will serve as a contact person for CEC staff.

Response: This data request is not applicable because the Project does not require any state or local air quality permit that would have been issued from SCAQMD. Please refer to Section 9.1.6, Data Request DR LAND-6, and Section 9.1.7, Data Request DR LAND-7, above for additional information.

13 Socioeconomics

13.1 Data Requests DR SOCIO-1 through DR SOCIO-5

13.1.1 Data Request DR SOCIO-1

DR SOCIO-1: Please provide a citation/reference for that statement. Also, provide a copy of any applicable record of conversation.

Response: In Section 4.10.3, Cumulative Effects, of the application, the statement is made, "Although the various projects may require a similar set of skills, local labor unions have indicated that there is a sufficient supply of skilled labor in Orange County to support the Project."

The statement has been revised as follows:

> Although the various projects may require a similar set of skills, due to the existing construction labor force in Orange County it is expected that there is a sufficient supply of skilled labor in Orange County to support the Project. Table 7 of Appendix 4.10A, Economic and Public Revenue Impact Study, presents American Community Survey (ACS) 2017–2021 5-Year Estimates for Orange County's existing construction industry labor force and estimates that there are 69,126 construction workers in Orange County categorized into a variety of trades (carpenters, electricians, roofers, etc.). As the construction phase of the Project will require 123 total full-time equivalent employees (or 0.17% of the total 69,126 Orange County construction labor force), it is therefore assumed that the County's existing construction labor force has a sufficient number of construction workers to fulfill the needs of the construction phase of the Project, in addition to the construction needs of other cumulative projects.

13.1.2 Data Request DR SOCIO-2

DR SOCIO-2: Please provide corrected URLs for the following:

a. City of San Juan Capistrano. General Fund Summary, Fiscal Year Budget 2022-23
b. City of San Juan Capistrano. General Fund Summary, Fiscal Year Budget 2021-22
c. City of San Juan Capistrano. General Fund Summary, Fiscal Year Budget 2020-21
d. State of California Employment Development Department. Labor Market Information Division. Current Employment Statistics (CES)
e. State of California Employment Development Department. Labor Market Information Division. Local Area Unemployment Statistics (LAUS)

Response: Corrected URLs are provided below:

a. City of San Juan Capistrano. General Fund Summary, Fiscal Year Budget 2022-23
   https://www.sanjuancapistrano.org/ArchiveCenter/ViewFile/Item/196

b. City of San Juan Capistrano. General Fund Summary, Fiscal Year Budget 2021-22
   https://www.sanjuancapistrano.org/ArchiveCenter/ViewFile/Item/108
c. City of San Juan Capistrano. General Fund Summary, Fiscal Year Budget 2020-21
   https://www.sanjuancapistrano.org/ArchiveCenter/ViewFile/Item/109
d. State of California Employment Development Department. Labor Market Information Division. Current Employment Statistics (CES)
   https://labormarketinfo.edd.ca.gov/data/employment-by-industry.html
e. State of California Employment Development Department. Labor Market Information Division. Local Area Unemployment Statistics (LAUS)
   https://data.ca.gov/dataset/local-area-unemployment-statistics-laus-annual-average/resource/0d49b0b6-a012-4041-82cb-acebd0d3e8b4

13.1.3 Data Request DR SOCIO-3

DR SOCIO-3: Please provide data to address the most recent and projected revenues and whether the proposed project would have an effect on revenues including direct and indirect effects.

Response: Please refer to Appendix 4.10A, Economic and Public Revenue Impact Study, previously provided as part of the application. The Project is expected to generate appreciable tax revenues to the City, including one-time and ongoing tax revenues. The Project is estimated to generate $8.3 million in new property tax and local sales tax revenues over the lifetime of the Project (2023-dollar terms). As shown in Table 3 of Appendix 4.10A, the City is expected to receive about $2.3 million in one-time sales and use tax revenues from the construction phase. The Project is also expected to generate an annual average of about $170,000 each year in property taxes, totaling about $6 million in property tax revenues over the life of the Project.

Overall, the Project will generate substantial property tax and sales and use tax revenues that will provide funding to Orange County, the State of California, and the City. As shown in Table 4 of Appendix 4.10A, the Project is expected to generate an average of about $1.5 million in property taxes each year and a total of $52.2 million in total over the 35-year period. Under current tax allocation factors, of this total, about $6 million would accrue to the City (as shown in Table 3 of Appendix 4.10A), $12.4 million to Orange County, and $33.8 million to the state for school funding. Additionally, about $9.3 million in sales and use taxes are expected to be generated over the lifetime of the Project for the San Jan Capistrano's General Fund, County transportation projects, and the State of California.

Please refer to the Public Revenue Impact Analysis and Results subsection of Appendix 4.10A that begins on page 21 for a discussion of the Project's effect on revenues including direct and indirect effects.

13.1.4 Data Request DR SOCIO-4

DR SOCIO-4: Please provide similar data for the city. Using this data, please provide average annual compounded growth rates (rather than direct percentage change). Please also provide a brief discussion or conclusions pertaining to anticipated changes in social characteristics, including population, demographic, and community trends during the timeframe associated with construction and operation of the proposed project including any direct or indirect effects.

Response: As shown in Table 5 below, Table 4.10-1, Historical and Projected Populations, has been updated to include data for the City. Please note California Department of Finance historical and projected populations are not provided at the City level. Historical and projected populations for the City are provided from the Southern California Association of Governments (SCAG). References for SCAG data are provided below the table.

Table 5. DR SOCIO-4, Updated Table 4.10-1, Historical and Projected Populations

Area	2010	2015	2020	2022	2030 projected	2040 projected	2050 projected
City of San Juan Capistrano	34,593	N/A	35,196	34,798	39,600*	39,500	N/A
Orange County	3,010,232	3,154,363	3,190,832	3,162,245	3,291,863	3,315,726	3,268,048
California	37,366,938	39,007,121	39,782,419	39,185,605	41,860,549	43,353,414	44,049,015

Source: California Department of Finance 2020, 2022; SCAG 2024a, 2024b, 2024c.
Notes: N/A = not applicable.
* Projected population data provided is for year 2035.

SCAG (Southern California Association of Governments). 2024a. "Total Population: 2000 and 2010, Incorporated Cities by County in California." Accessed May 20, 2024. https://scag.ca.gov/sites/main/files/file-attachments/citypopulation2000and2010.pdf?1605576091.

SCAG. 2024b. "SoCal Atlas" [web-mapping tool]. Accessed May 20, 2024. https://rdp.scag.ca.gov/socal-atlas/.

SCAG. 2024c. "2016-2040 RTP/SCS Final Growth Forecast by Jurisdiction." Accessed May 20, 2024. https://scag.ca.gov/sites/main/files/file-attachments/2016_2040rtpscs_finalgrowthforecastbyjurisdiction.pdf?1605576071.

Average annual compounded growth rates for the City are provided below:

- 2010–2020: The population of the City grew 1.7% between 2010 and 2020, or at a rate of 0.17% annually.
- 2020–2035: The population of the City is expected to grow 12.5% between 2020 and 2035, or at a rate of 0.83% annually.

The following includes a discussion pertaining to anticipated changes in social characteristics, including population, demographic, and community trends during the timeframe associated with construction and operation of the proposed Project, including any direct or indirect effects:

Construction: The construction activities will provide employment to construction workers who currently live in the County. While providing additional wages to these workers during the construction phase, we would not expect this to have any impact on the social characteristics of the City or County.

Operations: Ongoing operations of the Project will provide a modest number of jobs to existing workers. The scale and nature of these jobs are not expected to have any impact on the social characteristics of the City or County.

13.1.5 Data Request DR SOCIO-5

DR SOCIO-5: Please confirm whether the citation for Tables 4.10-5 and 4.10-6 (CEDD) is referring to "State of California Employment Development Department." Also, provide a date in the references so the correct reference is known. If that is not the correct reference, provide a reference for that citation. Also, please provide a list of the various crafts that would be required to construct the project (e.g., construction equipment operators, construction laborers, electricians, etc.). Using the data, please provide a brief discussion about the availability of the county workforce to construct the project.

Response: The citations for Tables 4.10-5 and 4.10-6 (CEDD) refer to the State of California Employment Development Department. References have been updated to provide a date and the updated URL (per Section 13.1.2, Data Request DR SOCIO-2) as follows:

CEDD (State of California Employment Development Department). 2023a. "Current Employment Statistics (CES), Annual Average: 1990–2021." Labor Market Information Division. Accessed March 21, 2023. https://labormarketinfo.edd.ca.gov/data/employment-by-industry.html.

CEDD. 2023b. "Local Area Unemployment Statistics (LAUS), Annual Average, Labor Force and Unemployment Rates." Labor Market Information Division. Accessed March 22, 2023. https://data.ca.gov/dataset/local-area-unemployment-statistics-laus-annual-average/resource/0d49b0b6-a012-4041-82cb-acebd0d3e8b4.

Please note the source citation at the bottom of Table 4.10-5, Employment Distribution in Orange County, 2018-2021, should read "CEDD 2023a," and the source citation at the bottom of Table 4.10-6, City, County, and State Employment Data, 2018-2021, should read "CEDD 2023b."

Construction of the Project will include, but not be limited to, the following construction occupations:

- First-line supervisors of construction trades
- Construction laborers
- Construction equipment operators
- Electricians
- Brickmasons, blockmasons, stonemasons, and reinforcing iron and rebar workers
- Pipelayers

Please refer to Table 7 of Appendix 4.10A, Economic and Public Revenue Impact Study (also included below), which presents ACS 2017–2021 5-Year Estimates for Orange County's existing construction industry labor force. As the construction phase of the Project will require 123 total full time equivalent employees consisting of a mix of the above occupations, it is therefore assumed that the County's existing construction labor force has a sufficient number of construction workers to fulfill the needs of the construction phase of the Project, and the labor force is anticipated to be sourced from within the County.

Construction Occupation	Orange County Labor Force
First-line supervisors of construction trades and extraction workers	5,808
Brickmasons, blockmasons, stonemasons, and reinforcing iron and rebar workers	970
Carpenters	10,521
Carpet, floor, and tile installers and finishers	1,935
Cement masons, concrete finishers, and terrazzo workers	426
Construction laborers	22,543
Construction equipment operators	1,270
Drywall installers, ceiling tile installers, and tapers	971
Electricians	6,719
Glaziers	390
Insulation workers	177
Painters and paperhangers	7,523
Pipelayers	531
Plumbers, pipefitters, and steamfitters	5,549
Plasterers and stucco masons	456
Roofers	1,405
Structural iron and steel workers	588
Helpers, construction trades	517
Elevator installers and repairers	319
Other construction and related workers	508
Total Orange County Construction Labor Force	**69,126**

Source: 2017-2021 5-Year ACS PUMS; Economic & Planning Systems

14 Traffic and Transportation

14.1 Data Requests DR TRANS-1 through DR TRANS-11

14.1.1 Data Request DR TRANS-1

DR TRANS-1: Provide a map of the major transportation facilities (streets, rail, bus lines) in the area, covering approximately a five-mile radius from the site.

Response: A figure showing major transportation facilities within a 5-mile radius of Project has been included as Figure 9.

14.1.2 Data Request DR TRANS-2

DR TRANS-2: Provide measures to reduce auto trips by construction workers. Please consider and respond regarding measures such as carpool matching and/or a shuttle from the Laguna Niguel/Mission Viejo Metrolink Station that is a mile from the site.

Response: Although no traffic or vehicle miles traveled (VMT) effects have been identified in the analysis of the proposed Project, there would be a need for management of construction traffic during the 18-month period and later during the decommissioning phase. Traffic control and demand management measures that could be implemented to minimize any potential traffic delays on Camino Capistrano during the AM and PM peak hours are as follows:

1. Use temporary traffic control devices (i.e., flagmen, signage, barriers, etc.) in accordance with the California Department of Transportation (Caltrans) California Manual on Uniform Traffic Control Device at the Camino Capistrano/Rancho Capistrano-Project Access intersection where Project construction could impede traffic movement or safe passing of non-construction traffic through and around construction areas
2. Stagger construction work shifts to reduce AM and PM peak hour traffic to and from the proposed project
3. Encourage carpooling among construction employees (workers):
4. Review feasibility of carpool matching and/or a shuttle from the Laguna Niguel/Mission Viejo Metrolink Station to the project site
5. Establish flexible working hours outside of peak hours.
6. Schedule truck deliveries during off peak hours
7. Coordinate with Caltrans and the City in order to secure the necessary encroachment and trip permits necessary for any specialized haul trucks

14.1.3 Data Request DR TRANS-3

DR TRANS-3: Provide a map of all the roadways, bus lines, and rail lines proximate to the site (approximately a one-mile radius), including any proposed new access roads for the site.

Response: A figure showing major transportation facilities within a 1-mile radius of Project has been included as Figure 10.

14.1.4 Data Request DR TRANS-4

DR TRANS-4: Extend the level of service (LOS) analysis to cover the Camino Capistrano/Avery Parkway intersection and report the results with the addition of project-generated traffic.

Response: Per the data request, AM and PM traffic counts were collected at the Camino Capistrano/Avery Parkway intersection during a typical weekday to assess level of service (LOS) under Existing conditions. Project construction phase trips were distributed and assigned at this intersection. Traffic count sheets are included as Attachment 16.

An intersection LOS analysis for the Camino Capistrano/Avery Parkway was conducted using Highway Capacity Manual (HCM) 6th Edition and Intersection Capacity Utilization (ICU) methodology via the Vistro software. The City of San Juan Capistrano considers LOS D as the upper limit of satisfactory operations for intersections. Table 6 shows the results of the intersection LOS analysis during the construction phase. As shown below, the intersection would continue to operate at an acceptable LOS of D or better under Existing conditions and with Existing plus Project construction traffic conditions during the AM peak hour and PM peak hour, using both methodologies required by the City. LOS worksheets are provided as Attachment 16. Therefore, the addition of construction traffic at the Camino Capistrano/Avery Parkway would not impact the LOS conditions.

Table 6. DR TRANS-4, Existing plus Project Construction Peak Hour Intersection Level of Service

No.	Intersection	Signalized Methodology	Existing				Existing plus Project Construction			
			AM Peak		PM Peak		AM Peak		PM Peak	
			Delay/ V/C[1]	LOS	Delay/ V/C[1]	LOS	Delay/ V/C[1]	LOS	Delay/ V/C[1]	LOS
2	Camino Capistrano/ Avery Parkway	HCM	27.4	C	41.1	D	35.2	D	41.1	D
		ICU	0.603	B	0.562	A	0.687	B	0.562	A

Notes: LOS = level of service; HCM = Highway Capacity Manual.
1 Delay in seconds per vehicle; V/C = volume to capacity ratio.

14.1.5 Data Request DR TRANS-5

DR TRANS-5: Provide a map that shows the truck routes and any weight restrictions within one mile of the project site.

Response: A figure showing truck routes within a 1-mile radius of Project has been included as Figure 11. Per the City's Municipal Code, there are no weight restrictions on any roadway within 1 mile of the Project site. Per the City's Municipal Code,4 the nearest roadways with weight restriction of commercial vehicle exceeding 12,000 pounds gross weight to the Project site are over a mile away as shown below:

- Camino Capistrano from Junipero Serra Road to Del Obispo Street: 1.7 miles south of Camino Capistrano/Rancho Capistrano-Project Access

4 City of San Juan Capistrano, California Municipal Code, Title 4, Chapter 6, Article 8, Section 4-6.801, Commercial Vehicles Prohibiting from Using Certain Streets.

- Ortega Highway from Del Obispo Street to Camino Capistrano: 3.0 miles south of Camino Capistrano/Rancho Capistrano-Project Access

Please note, no existing weight restriction information has been able to be located via City, County, or property owner records. A structural assessment of the bridge at the entrance to Saddleback Church property where the Project access road begins is currently underway, and results of the assessment will be provided when available.

14.1.6 Data Request DR TRANS-6

DR TRANS-6: Provide the basis for concluding that 80 percent of construction worker trips and 100 percent of construction-related truck trips would come from the north.

Response: The distribution of workers and trucks is based on location of freeway interchanges of I-5 at Avery Parkway to the north and Junipero Serra Road to the south, which provide regional access and would be the likely travel path for workers and trucks. The intersection lane configuration at the project driveway configuration is at Camino Capistrano, which would allow entry for trucks arriving from the north using the southbound right turn lane. The exit movement for both cars and trucks would be via the eastbound right-turn-only lane because outbound left turn is not allowed at the intersection.

14.1.7 Data Request DR TRANS-7

DR TRANS-7: Clarify how southbound truck trips on Camino Capistrano would safely make a right turn from the through lane, as indicated in Figure 4.12.6.

Response: As noted in Section 4.12.2.4, Truck Turn Analysis, of the application, inbound trucks would not have adequate turn radii from the southbound right-turn lane and therefore would have to use the southbound through lane while entering the Project site. However, outbound trucks would be able to exit using the eastbound right-turn lane at the Camino Capistrano/Rancho Capistrano–Project Driveway intersection. For inbound trucks that have a longer wheelbase than WB-40, the delivery would be required to be arranged at an appropriate off-site location, and then delivered to the site from a WB-40 or smaller truck. Alternatively, the existing median at the Camino Capistrano/Rancho Capistrano–Project Driveway intersection can be removed to facilitate the truck turns then reconstructed once construction is completed. Since the through traffic is low along Camino Capistrano, it is not anticipated that traffic along Camino Capistrano would be excessively delayed. However, during construction phases with high truck traffic, a traffic control plan will be implemented, which may include the need for flagmen and pedestrian detours.

14.1.8 Data Request DR TRANS-8

DR TRANS-8: Provide the estimated trip lengths for construction workers, and the basis for the estimate.

Response: The approximate trip lengths for worker commute, vendor trucks, and haul trips has been estimated using default values for the SCAQMD region from the California Emissions Estimator Model (CalEEMod) land use emissions computer model in the Project's air quality analysis. The following one-way trip lengths for construction workers, vendor trucks, and haul trucks have been assumed:

- Workers: 18.5 miles

- Vendor trucks: 10.2 miles
- Haul trucks: 20.0 miles

14.1.9 Data Request DR TRANS-9

DR TRANS-9: Provide a detailed map and description of the width and alignment of the access road.

Response: Please refer to the detailed map provided in Drawing CMP-SE-100 within previously provided Appendix 2A. The access road would be a new 30-foot-wide paved road located on the eastern portion of the Saddleback Church property as shown in solid black linework on Drawing CMP-SE-100. The road has been designed to have a 50-foot turning radius. The 30-foot-wide access road would allow enough space for two-way traffic and would be located within a 38-foot-wide easement; the easement is demarcated in yellow dash linework on Drawing CMP-SE-100. The easement would be granted to the Project Applicant by Saddleback Church to support the Project. For additional details related to the access road, please refer to Section 9.1.2, Data Request DR LAND-2.

14.1.10 Data Request DR TRANS-10

DR TRANS-10: Indicate the quantity, frequency, and contents of any hazardous materials that would be hauled to/from the project site during construction and operation.

Response: Please refer to Table 4.5-1, Hazardous Materials Use during Construction and Operation, from the previously provided application for a list of hazardous materials that would be transported and used on site.

14.1.11 Data Request DR TRANS-11

DR TRANS-11: Indicate whether any relevant government officials were contacted to-date and provide contact information for all agencies listed in Section 4.12.5, along with the name and contact information for each agency official the applicant has contacted.

Response: No agencies were contacted. Agency contact information was previously provided in Table 4.12-11.

15 Transmission System Safety and Nuisance

15.1 Data Requests DR TSSN-1 through DR TSSN-2

15.1.1 Data Request DR TSSN-1

DR TSSN-1: Please provide the EMF values beneath the 138 kV transmission loop-in lines.

Response: This response measures the electric and magnetic field (EMF) values for the transmission spans the Project would potentially be affecting from constructing the Project switchyard.

After running the EMF calculations for the T-line throughout the length of the cut-in, the max EMF value was 0.80 kilovolts per meter (kV/m). The typical value for most of the spans was about 0.7 kV/m. These readings were taken at 1 meter above ground level and at the center line of the alignment. The EMF significantly reduces as you get farther from the transmission center line. The EMF at the edge of the right-of-way (ROW) (50 feet from center line) was about 0.05 (kV/m).

Conclusion: These values are considered low and fall below state EMF standards.

15.1.2 Data Request DR TSSN-2

DR TSSN-2: Please estimate the radio and television interference that could result from the project.

Response: There is no evidence to indicate there will be any radio or television interference resulting from the Project transmission. Transmission lines are not located near any sensitive receptors.

16 Transmission System Design

16.1 Data Requests DR TSD-1 through DR TSD-8

16.1.1 Data Request DR TSD-1

DR TSD-1: Please provide one-line diagrams for the project substation. Show all equipment ratings including the bay arrangement of the circuit breaker, disconnection switches, buses, transformers, and other equipment that would be required for the project interconnection to the proposed switchyard.

Response: A one-line diagram for the Project substation is included as Attachment 17.

16.1.2 Data Request DR TSD-2

DR TSD-2: Please provide one-line diagrams for the proposed SDG&E switchyard. Show all equipment ratings including bay arrangement of the breakers, disconnect switches, buses, and other equipment. Show the interconnection to the existing SDG&E transmission system and the project substation.

Response: A one-line diagram for the SDG&E switchyard is included as Attachment 18.

16.1.3 Data Request DR TSD-3

DR TSD-3: Please provide the pole configuration. Indicate the number of poles required to support the overhead generator tie-line and the 138 kV loop-in transmission lines.

Response: The Project's pole configuration is shown in Attachment 13. Three new poles and two replacement poles will be required to support the Project. Poles 22A, 22B, and 22C would be new poles. Poles 23 and 24 are currently existing but would require replacement to support the Project.

16.1.4 Data Request DR TSD-4

DR TSD-4: Please provide the gen-tie conductor type, size, and current carrying capacity.

Response: 1033.5 ACSR 45/7 Ortolan, 1043 amps

16.1.5 Data Request DR TSD-5

DR TSD-5: The applicant provided the Appendix A of the Cluster 13 Phase II Interconnection Study Report only. Please provide the entire California ISO Cluster 13 Phase II Interconnection Study Report including all the appendices and attachments.

Response: The entire Phase II Interconnection Study Report and all attachments and appendices are provided in Confidential Attachment 19.

16.1.6 Data Request DR TSD-6

DR TSD-6: Please provide the most recent Generator Interconnection Reassessment Study Report if it is available.

Response: There is no reassessment study for the Project.

16.1.7 Data Request DR TSD-7

DR TSD-7: Please discuss the CPUC GO 128 standard in reference to the project's underground construction facilities, such as grounding, duct banks, derated ampacity, underground conductor clearances, and soil resistivity analysis.

Response: Project facilities will comply with all applicable electrical codes and requirements. General Order (GO) 128 requirements will be reviewed as part of the approved design for the SDG&E switchyard. As it relates to electrical facilities that connect the SDG&E switchyard to the Project substation, all facilities will be aboveground.

16.1.8 Data Request DR TSD-8

DR TSD-8: Please provide an expected schedule for necessary approvals from the CPUC.

Response: Based on the type of SDG&E facilities required and the fact that impacts have been captured in this permit application, SDG&E expects it can meet GO 131 and CEQA requirements via an expedited Notice of Construction (NOC). The NOC is expected 6 months before the start of construction.

17 Visual Resources

17.1 Data Requests DR VIS-1 through DR VIS-23

17.1.1 Data Request DR VIS-1

DR VIS-1: Prepare and submit project visual simulations for Views 1 and 2 that illustrate the conceptual landscaping and screening plan at one year after completion of construction, and number those images as Figures 4.13-2a and 4.13- 3a, respectively.

Response: The Project site is located in the City of San Juan Capistrano, which is contiguous to the Cities of Laguna Niguel and San Clemente. Pursuant to the State of California Department of Finance Population and Housing Estimates for Cities, Counties, and the State, 20202024, the combined population of these cities exceeds 100,000.[5] In accordance with CEQA Guidelines Appendix G, Threshold I(c), if the Project is to be constructed within an "urbanized area" as defined in Public Resources Code Section 21071, consideration of impacts to visual character shall be determined through an analysis of the Project's conformity with scenic quality regulations established in the city/county General Plan and city municipal code or county government code (e.g., zoning). Further and since the Project site is within an urbanized area, the provisions of CEQA Guidelines Appendix G Threshold I(c), related to projects within a non-urbanized area, do not apply. Thus, the provisions related to preparation of a key observation point (KOP) map and photo-realistic simulations of the Project are not applicable, and additional simulations at 1 year after construction completion have not been prepared as requested.

17.1.2 Data Request DR VIS-2

DR VIS-2: Retain but re-number existing Figures 4.13-2a and 4.13-3a as Figures 4.13-2b and 4.13-3b, respectively, and specify the time to vegetative maturity (after construction) that is illustrated in the existing simulations.

Response: As further described in Section 17.1.1, Data Request DR VIS-1, above, additional Project visual simulations from Views 1 and 2 were not prepared. Please refer to DR VIS-1 for a further explanation as to why additional Project visual simulations from Views 1 and 2 were not prepared. The existing simulations show vegetative maturity at approximately 10 years of growth.

17.1.3 Data Request DR VIS-3

DR VIS-3: Prepare and submit a map of scenic vistas, scenic highways (all categories), and scenic resources (all categories) within five miles of the project site.

Response: Due to the location and relatively narrow extent of the Project site viewshed that is primarily defined by prominent ridgelines paralleling the Project site and I-5 to the east and west, the availability of views to the Project site is generally limited to the immediate surrounding area. Specifically, views to the Project site are highly localized and generally do not extend beyond the nearby segment of I-5, nearby hillsides to the east and west of the Project

[5] State of California Department of Finance. 2024. "E-5 Population and Housing Estimates for Cities, Counties and the State, 2020–2024." May 2024. https://dof.ca.gov/forecasting/demographics/estimates/.

site, and prominent north-facing slopes located adjacent to I-5 and approximately 3 miles to the south of the Project site. As such, an investigation of scenic resources located outside of the immediate surrounding area and up to 5 miles from the Project site (that would include ocean views from coastal bluffs and coastal communities) is not particularly relevant for assessing those scenic resources that could be affected by implementation of the Project. Therefore, the investigation of existing scenic resources was limited to the adjacent communities of Laguna Niguel and San Juan Capistrano. Identified scenic resources in the communities of Laguna Niguel and San Juan Capistrano are depicted on Figure 12.

17.1.4 Data Request DR VIS-4

DR VIS-4: Provide a narrative discussion of each resource identified in response to DR VIS-3 within five miles of the project site.

Response: As previously described In Section 17.1.3, Data Request DR VIS-3, above, the investigation of visual resources was focused on the nearby communities of Laguna Niguel and San Juan Capistrano, and identified visual resources are depicted on Figure 12. As shown on the figure, the Colinas Ridge Trail, Foster/Shea Trail, and Colinas Bluff Trail are located on the eastern slope of Colinas Ridge and can be accessed by streets within a Laguna Niguel neighborhood located at the top of the ridge. These hiking trails offer views of San Juan Capistrano, including the Northwest Open Space, which is located 0.3 miles from the western boundary of the Project site. The Oso Rancho Capistrano Trail runs north to south along the foothills of Colinas Ridge and crosses through the center of the Project site. The Trabuco Creek Trail and Patriot/Flagpole Hill Trail run along a ridge approximately 3.3 miles from the southeastern boundary of the Project site, offering a northwestern view of San Juan Capistrano, including the Mission San Juan Capistrano Basilica and the Project site. The Trabuco Creek Trail runs along Trabuco Creek, ending 2 miles from the southeastern boundary of the Project site. The Arroyo Trabuco Trail runs along an additional ridge that begins approximately 0.6 miles from the eastern boundary of the Project site.

In addition to the identified trails, two eligible scenic routes run through San Juan Capistrano. The portion of I-5 that is considered an eligible State Scenic Highway extends south from State Route (SR) 74 and continues south through Orange County and into San Diego County. The northernmost segment of the eligible State Scenic Highway portion of I-5 is located approximately 1.7 miles southeast of the Project site (views to the Project site are not available from the eligible scenic segment of the interstate). In addition to I-5, SR-74 from I-5 east into Riverside County is an eligible State Scenic Highway. The westerly portion of SR-74 is located approximately 1.7 miles to the southeast of the Project site (views to the Project site are not available from SR-74 due to the presence of intervening terrain, development, and vegetation). Lastly and in regard to local open space, the Northwest Open Space is located approximately 0.4 miles from the southeastern boundary of the Project site and is recognized for its historical value as the “mother village” for the Juaneño people of the San Juan Capistrano Valley. The Swanner House is located on the Northwest Open Space and was listed on the National Register of Historic Places in 2007. The property includes a two-story craftsman house, water tower, and garage.

17.1.5 Data Request DR VIS-5

DR VIS-5: Include any designated scenic vista and scenic resource in an adopted federal, state, county, or city government planning document, plan, or regulation.

Response: Planning documents from the Cities of Laguna Niguel and San Juan Capistrano were reviewed to determine the presence of formally designated scenic vistas and scenic resources in the surrounding area. The San

Juan Capistrano General Plan's Open Space and Conservation Element does not specify scenic vistas beyond the mention of the general visual characteristics of natural ridgelines and areas of general open space. The Laguna Niguel General Plan's Open Space, Parks, and Conservation Element lists several landscape corridors located west of Colinas Ridge. As described above, the Cities of San Juan Capistrano and Laguna Niguel were analyzed for scenic resources, including ridgelines and open space areas.

17.1.6 Data Request DR VIS-6

DR VIS-6: Include any natural features or objects that are a part of the land, such as a geologic distinguishing characteristic (e.g., laccolith), geomorphologic feature (e.g., gorge), or other terrain feature (e.g., a water body, open space, or a tree recognized for its aesthetic, botanical, and ecological value or age, rarity, and size).

Response: The Project site is located within a relatively narrow valley, bound by steep slopes on the west and a series of several hills located east of I-5. A portion of Oso Creek lies immediately east of the Project site and runs parallel to I-5. Outside of these steep areas, the terrain in the immediate Project area is flat to gently sloping. Most of the surrounding area is dominated by undeveloped agricultural land consisting of native and non-native vegetation communities including riparian woodland, upland mustards, disturbed habitat, and ornamental vegetation.

The area is known for views of general open spaces and local ridgelines. Open space, designated by the Land Use Element, accounts for approximately 2,649 acres, which is 30% of the City of San Juan Capistrano. The Northwest Open Space spans 65.6 acres, and it is located approximately 0.4 miles from the southeastern boundary of the Project site. The Northwest Open Space's natural features includes mature trees, riparian vegetation, and Trabuco Creek, which runs through the eastern portion of the area.

17.1.7 Data Request DR VIS-7

DR VIS-7: Include any man-made features or objects that embody elements of architecture or engineering design, detail, materials, or craftsmanship that represent a significant innovation or are unique, such as the California State Capitol, Golden Gate Bridge, or Hollywood Sign.

Response: The Project site is adjacent to Saddleback Church Rancho Capistrano to the north, undeveloped land to the south, Oso Creek to the south and east, Metrolink Railroad and I-5 to the east, and open space and residences outside of the San Juan Capistrano city limits to the west (these homes are in Laguna Niguel). There are no human-made features or objects representative of unique or significant innovation, like the California State Capitol, Golden Gate Bridge, or Hollywood sign within the immediate vicinity of the Project. The Mission San Juan Capistrano Basilica is located approximately 2 miles from the southeastern boundary of the Project site, and views to the basilica are not available from the Project site or from the immediate surrounding area. The Laguna Niguel General Plan does not specify any human-made features of unique importance. Laguna Niguel City Hall is located approximately 2.2 miles west of the Project site. As described above, the Northwest Open Space is located in close proximity to the Project site along with the railroad and I-5. As previously described, the Swanner House is located on the Northwest Open Space and is a federally recognized place of historical value.

17.1.8 Data Request DR VIS-8

DR VIS-8: Provide a description of the existing nighttime lighting that is visible on the project site and in the vicinity of the project.

Response: The Project site is primarily vacant and contains no sources of artificial nighttime lighting. The Project site does not include sources of artificial nighttime lighting; however, nighttime viewing conditions are influenced by existing lighting sources from nearby residential, commercial (including at local automotive dealerships), and transportation (e.g., local streets and I-5) land uses within the vicinity. While streetlights are not installed along Camino Capistrano, lights are installed along the northbound travel lanes of I-5. Less frequent and transient, passing Metrolink trains also contribute artificial lighting to the local nighttime environment.

17.1.9 Data Request DR VIS-9

DR VIS-9: Provide additional consistency analysis for the project based on landscaping maturity at one year after completion of construction (as illustrated in the additionally required simulations identified above), and specify the time frame to achieve the project consistency that is currently presented in the analysis.

Response: Please refer to Section 17.1.1, Data Request DR VIS-1, above for further explanation as to why the provision of photo-simulations from Views 1 and 2 were determined to not be applicable to the Project.

17.1.10 Data Request DR VIS-10

DR VIS-10: For each image, provide: camera type, lens focal length, viewing angle, date and time the photograph was taken, and the distance to the project site.

Response: Please refer to Section 17.1.1, Data Request DR VIS-1, above for further explanation as to why the provision of photo-simulations from Views 1 and 2 were determined to not be applicable to the Project.

17.1.11 Data Request DR VIS-11

DR VIS-11: Separate from the existing view and simulation images presented in Section 4.13, provide to the CEC project manager stand-alone, high-resolution images that are capable of being printed at 11” x 17” with a minimum 600 dots per inch output resolution.

Response: Please refer to Section 17.1.1, Data Request DR VIS-1, above for further explanation as to why the provision of photo-simulations from Views 1 and 2 were determined to not be applicable to the Project.

17.1.12 Data Request DR VIS-12

DR VIS-12: Provide revised electronic file of Section 4.13 Visual Resources that includes the additional simulations with landscaping maturity at one year after completion of construction.

Response: Please refer to Section 17.1.1, Data Request DR VIS-1, above for further explanation as to why the provision of photo-simulations from Views 1 and 2 were determined to not be applicable to the Project.

17.1.13 Data Request DR VIS-13

DR VIS-13: Provide electronic files to the CEC project manager of the stand-alone, high-resolution images that are capable of being printed at 11” x 17” with a minimum 600 dots per inch output resolution.

Response: Please refer to Section 17.1.1, Data Request DR VIS-1, above for further explanation as to why the provision of photo-simulations from Views 1 and 2 were determined to not be applicable to the Project.

17.1.14 Data Request DR VIS-14

DR VIS-14: Provide scaled elevation drawings that identify the heights of buildings, structures, and major equipment including H-frames and poles for both the project substation and the SDG&E switchyard and include the transmission line poles and dead-end structure. Structures and heights should correspond to what has been presented in the visual simulations and an updated Table 4.13-3 (Characteristics of Primary Project Components; see DR VIS-15), or specify the differences.

Response: Scaled elevation drawings identifying heights of buildings, structures, and major equipment have been provided by the Applicant. Major equipment includes H-frames and poles for both the Project substation and the SDG&E switchyard. Elevation drawings for the Project substation were provided previously in Appendix 2A. Elevation drawings for the SDG&E switchyard and transmission line were not previously provided and are included herein as Attachment 13 and 14.

17.1.15 Data Request DR VIS-15

DR VIS-15: Update Table 4.13-3 (Characteristics of Primary Project Components) as appropriate with additional dimension information (e.g., length of perimeter wall, length of screening trellis) such that Table 4.13-3 and the elevation drawings are consistent.

Response: As shown in Table 7, please see revised Table 4.13-3, which includes additional information on select Project components.

Table 7. DR VIS-15, Updated Table 4.13-3, Characteristics of Primary Project Components

Component	Dimensions/Size	Materials	Finishes
Battery energy storage system (containers/enclosures)	28.87 feet × 9.14 feet × 5.41 feet	Prefabricated metal material	Light gray
Project substation (includes open rack air insulated switch gear, main power transformer, and pole to connect substation to SDG&E switchyard)	Varies, tallest component (dead-end structure) would be 44 feet high	Prefabricated metal material	Light to dark gray
SDG&E switchyard (includes open rack air insulated switch gear and transmission control center)	Varies, tallest component (H-frame structure) would be 55 feet high	Prefabricated metal material	Light to dark gray
Loop-in transmission line (supported by five poles)	Varies, up to 100 feet high	Tubular steel	Light to dark gray
Perimeter wall	10 feet tall (total length of 2,829 feet)	Prefabricated/precast concrete block decorative wall	Dark gray block

Table 7. DR VIS-15, Updated Table 4.13-3, Characteristics of Primary Project Components

Component	Dimensions/Size	Materials	Finishes
Security fence (internal site)	6 feet tall	Chain-link with three strands of barbed wire	Light gray
Screening trellis (internal to site)	20 feet tall (total length of 513 feet)	Wood trellis covered with vines	Tan (trellis), green (vines)
Landscaping	20-foot-wide buffer area adjacent to perimeter wall Trees: 24-inch to 36-inch box size; 20 to 60 feet tall by 15 to 40 feet wide	Not applicable	Color varies by species

Notes: SDG&E = San Diego Gas & Electric Company.

17.1.16 Data Request DR VIS-16

DR VIS-16: Update Table 4.13-3, as appropriate, to address any additional components added per the requirements of DR VIS-14 and DR VIS-15.

Response: Please see Table 7 above.

17.1.17 Data Request DR VIS-17

DR VIS-17: Provide documentation that demonstrates conformance of the Conceptual Landscape Plan with the applicable local codes.

Response: A compliance statement that the plan has been designed to comply with the City of San Juan Capistrano Landscape Documentation Checklist last updated April 2011 and additional information regarding Orange County Fire Authority guideline requirements have been added to sheet LS-3 of the updated Conceptual Landscape Plan (Attachment 20).

17.1.18 Data Request DR VIS-18

DR VIS-18: Augment the Conceptual Landscape Plan with the following information:

a. Expected growth rates.
b. Expected heights of vegetation at one year, five years, and maturity.
c. Specific irrigation system components and locations.
d. A calculation of the total pervious surface amount for the project site. Include the surface to be replaced, the new surface, and the total area to be landscaped.

Response: The Conceptual Landscape Plan has been updated to include the following information (see Attachment 20):

a. Expected plant growth rate
    a. Added to plant legend on sheet LS-3

b. Expected height at 1 year, 5 years, and maturity
    a. Added to plant legend on sheet LS-3
c. Irrigation system components and locations (irrigation plan)
    a. See sheet LS-6
d. Total pervious/impervious surface (square feet)—note existing surface, new surface, and area to be landscaped
    a. See new table on sheet LS-3

17.1.19 Data Request DR VIS-19

DR VIS-19: Provide a project-specific conceptual outdoor lighting control and management plan (lighting plan), and explain the control of reflectance from exterior surfaces off site that conforms with the city municipal code or county government code.

Response: Project-specific lighting plans are being developed in accordance with the City Municipal Code and will be provided when available. Permanent motion-sensitive, directional security lights would be installed to provide adequate illumination around the substation area and points of ingress/egress. All lighting will be shielded and directed downward to minimize the potential for glare, spillover onto adjacent properties, and skyglow. Levels of individual lighting sources would comply with recommendations of the Illuminating Engineering Society, CEC, and City of San Juan Capistrano Ordinance No. 676 (Exterior Lighting Standards for Non-Residential Projects) to ensure lighting is no brighter than necessary. The finishes of materials used as exterior surfaces are generally dull and not typically associated with the generation of substantial glare, further information on the materials used in the exterior of Project components is listed in Table 7 above.

17.1.20 Data Request DR VIS-20

DR VIS-20: Provide a list of the project-specific luminaires; identify the design (e.g., full-cutoff, semi-cutoff, non-cutoff); and indicate if the luminaires have the International Dark-Sky Association Fixture Seal of Approval to the extent feasible consistent with safety and security considerations. Show the project-specific luminaires' locations on a diagram or elevation.

Response: Project-specific luminaires will be listed, and their design and consistency with safety and security considerations in relation to the International Dark Sky Association will be indicated on the Project-specific lighting plans. As previously described, further information on the finishes is listed in Table 7, above.

17.1.21 Data Request DR VIS-21

DR VIS-21: As specified in the Siting Regulations, describe project reflectance and include the intensity of the specular reflectance from the exterior surface of the Project's large buildings, structures, and major equipment off site to the surrounding area (e.g., the light reflected from the shiny surface).

Response: Please refer to response to Section 17.1.15, Data Request DR VIS-15, above, which provides a detailed accounting of Project components including dimensions, scale, and/or length; materials; and finishes. As typical with electrical substations and existing BESS projects, most metallic materials associated with Project components would present a dulled finish and would not generate substantial glare during sunny conditions.

17.1.22 Data Request DR VIS-22

DR VIS-22: Identify each agency with jurisdiction to issue applicable permits and/or approvals, but for the exclusive authority of the CEC, pertaining to:

a. Project-specific conceptual outdoor lighting control and management plan (lighting plan).
b. Project-specific Conceptual Landscape Plan

Response: For traditional discretionary development proposals/projects, conceptual lighting and landscape plans would be submitted to the City of San Juan Capistrano for review, comment, and approval.

17.1.23 Data Request DR VIS-23

DR VIS-23: Please provide the name, title, phone number, address (required), and email address (if known), of each official who was contacted within each agency, and also provide the name of the official who will serve as a contact person for CEC staff.

Response: No officials associated with local cities or agencies were contacted during the preparation of the aesthetics evaluation presented in the Opt-In Application.

18 Water Resources

18.1 Data Requests DR WATER-1 through DR WATER-3

18.1.1 Data Request DR WATER-1

DR WATER-1: Although the water demand during the operational phase is expected to be minimal, please estimate the average and maximum daily, as well as the annual, water demand during the operational phase of the project.

Response: Operational water use will be limited to landscape irrigation water. During the landscape establishment period, watering is assumed to be necessary three times per week, resulting in a water demand as follows:

Establishment period (approximately 1 year):

- Average daily water demand: 8,620 gallons per day
- Maximum daily water demand (July and August): 11,494 gallons per day
- Maximum weekly water demand: 34,483 gallons per week (maximum 1,793,116 gallons per year)

Once the landscaping is established, watering is assumed to be necessary two times per week, resulting in a water demand as follows:

Long-term maintenance period to establish the plants and get strong growth for screening (approximately 2 to 4 years):

- Average daily water demand: 10,775 gallons per day
- Maximum daily water demand: 14,368 gallons per day
- Maximum weekly water demand: 28,736 gallons (maximum 1,494,272 gallons per year)

After plant root systems are sufficient to support plants with minimal supplemental water, the watering schedule is expected to be tapered to provide supplemental water during exceptionally hot and dry weather as needed for plant survival. To maintain best health and aesthetics, it is assumed seasonal watering would be needed for the life of the Project.

18.1.2 Data Request DR WATER-2

DR WATER-2: Please provide the status of the water agency's approvals for the proposed project use.

Response: Compass Energy Storage LLC has been in communications with Moulton Niguel Water District (MNWD) for Project water service. MNWD issued the Project a will serve letter on May 25, 2022. Ongoing discussions are occurring between Compass Energy Storage LLC and MNWD to determine the water system upgrades that will be required to support the Project's water service. Please refer to Attachment 21, Will Serve Letter, for additional details.

18.1.3 Data Request DR WATER-3

DR WATER-3: Please confirm whether any of the project's scope of work would affect County or OCFD's right-of-way or facilities and describe how they would be affected.

Response: The Project involves discharge of on-site stormwater runoff into one of two existing Orange County Flood Control District (OCFCD) outfalls, which are located to the northeast of the BESS facility. The on-site stormwater runoff from the Project would be detained in an underground storage chamber system located under and adjacent to the access roads, the design of which has been sized for a 100-year storm event. From here, the water would be pumped north to one of two existing OCFCD outfalls. The Project's on-site discharge pumped into the storm drains/outfalls will be incorporated into and consistent with OCFCD's National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds within the San Diego Region (Order No. R9-2013-0001, NPDES No. CAS0109266, as amended by Order No., R9-2015-0001) authorized by the San Diego RWQCB. The flows to these outfalls will not be increased from the existing peak flowrates.

Compass Energy Storage LLC has been in communications with OCFCD to process an encroachment permit to discharge into the OCFCD outfalls. The Project's access road has been designed to avoid OCFCD property.

19 Wildfire

19.1 Data Requests DR FIRE-1 through DR FIRE-4

19.1.1 Data Request DR FIRE-1

DR FIRE-1: Please provide what procedures would be taken after a shutoff due to abnormal conditions, including, but not limited to inspection, repair, and notifications.

Response: Any shutoff due to inspection and repair are considered planned operations, and shut-off and detailed procedures are in place. Fault and warning notifications could lead to unplanned shutoffs of equipment. When this occurs, the Applicant will investigate the data remotely for root cause. If the abnormality can be cured remotely, the Applicant will do so and bring the unit(s) back to operation. If the fault or warning requires on-site technician, the Applicant will dispatch to site to resolve the issue, then bring the unit(s) back online.

19.1.2 Data Request DR FIRE-2

DR FIRE-2: Please provide a detailed specification and description of the FSS.

Response: NFPA 855 and the 2021 International Fire Code (IFC) Chapter 12 both require fire control and suppression systems to be provided in certain installation conditions for BESSs. These fire suppression systems, however, are typically required for rooms, areas within buildings, and "walk-in" units when installed outdoors.

The Project will install MP2XL battery modules. All components of the MP2XL are housed in a cabinet-style enclosure, with access for maintenance provided via enclosure doors that cannot be physically entered by any person. The installation codes and standards, thus, would not consider the MP2XL walk-in container, occupied building, or structure as defined by NFPA 855 and IFC.

The MP2XL does not rely on any external or internal fire suppression systems to limit cascading thermal runaway. The UL 9540A unit level fire test results demonstrate that a suppression system is not required to stop the spread of fire from cell to cell, module to module, or cabinet to cabinet when a near simultaneous failure of up to six cells occurs within the same battery module.

19.1.3 Data Request DR FIRE-3

DR FIRE-3: Please provide information on what gases the FSS gas detectors would be monitoring, including whether the gas detectors monitor for toxic vapors produced from battery damage or overheating?

Response: The MP2XL does not require a fire detection, gas detection, or fire extinguishing system for safe operation. It includes a series of passive fire protection schemes (barriers) to protect it from spreading a fire from one unit to another. As demonstrated in UL 9540A unit level fire testing, a nearly simultaneous failure of up to seven cells did not result in thermal runaway propagating throughout the battery module or to adjacent MP2XL cabinets. These results were without fire extinguishing, smoke or gas detection systems and with a disabled battery management system (BMS) and thermal management system (TMS). However, the MP2XL does have a number of internal sensors within

it that can detect an off-normal overheating event, such as a fire. In the event that these sensors detect an overheating event, this condition can be relayed by the BMS to the Tesla Site Controller and off-site to a Tesla Local Operation Center (LOC), which operate 24/7. The LOC can then inform operations and maintenance (O&M) service personnel who, after responding to the signal, can notify the local fire department, if necessary.

In addition, the Project will also have an external fire detection and notification system installed in accordance with NFPA 72. This external system will be monitored separately (not monitored through the MP2XL or an LOC) by a fire alarm monitoring company that operates 24/7, as required by the California Fire Code (CFC). Between the internal heat sensors and the external fire detection system, the Project will have several means for detecting and notifying O&M personnel and the fire service of an MP2XL fire event.

19.1.4 Data Request DR FIRE-4

DR FIRE-4: Please provide a detailed description of the auxiliary distribution box and any hazardous materials it may contain.

Response: No hazardous materials are present in any auxiliary distribution boxes.

20 Worker Safety

20.1 Data Requests DR WS-1 through DR WS-3

20.1.1 Data Request DR WS-1

DR WS-1: Please add 'Documentation Procedures' to the following program elements under the Construction Safety Programs: Hazardous Waste, Hot Work Safety, lockout/tagout (LOTO), Confined Space Entry, Electrical Safety, Hazard Communication and Respiratory Protection Programs. Additionally, the Construction Hazard Analysis (Table 4.16-1) should be amended to include 'Trench and Excavation' activities and 'Exposure to Hazardous Waste' as addressed in Section 4.14, Waste Management.

Response: As shown below, Section 4.16.1.3.1, Construction Health and Safety Program, has been revised to include "Documentation Procedures" in the following program elements under the Construction Safety Programs: Hazardous Waste, Hot Work Safety, Lockout/Tagout (LO/TO), Confined Space Entry, Electrical Safety, Hazard Communication, and Respiratory Protection Programs. Where "Documentation Procedures" has been added, it is shown in <u>underlined</u> text.

- Motor Vehicle and Heavy Equipment Safety Program
  - Operation and maintenance of vehicles
  - Inspection
  - PPE
  - Training
- Forklift Operation Program
  - Trained and certified operators
  - Fueling operations
  - Safe operating parameters
  - Training
- Excavation/Trenching Program
  - Shoring, sloping, and benching requirements
  - California Division of Occupational Safety and Health (Cal/OSHA) permit requirements
  - Inspection
  - Access and egress
- Fall Protection Program
  - Evaluation of fall hazards
  - Protective devices
  - Training
- Scaffolding/Ladder Safety Program
  - Inspection of equipment

- Load ratings
- Safe operating parameters
- Operator training

- **Crane and Material Handling Program**
  - Certified and licensed operators
  - Inspection of equipment
  - Load ratings
  - Safe operating parameters
  - Training
- **Hazardous Waste Program**
  - Evaluation of hazard
  - Training
  - Air monitoring
  - Medical surveillance
  - Health and Safety Plan preparation
  - Documentation procedures
- **Hot Work Safety Program**
  - Welding and cutting procedures
  - Acetylene and fuel gas safety procedures
  - Fire watch
  - Hot work permit
  - PPE
  - Training
  - Documentation procedures
- **Employee Exposure Monitoring Program**
  - Exposure evaluation
  - Monitoring requirements
  - Reporting of results
  - Medical surveillance
  - Training
- **Electrical Safety Program**
  - Grounding procedure
  - Overhead and underground utilities
  - Utility clearance
  - Assured Grounding Program/Ground Fault Circuit Interrupters
  - Training
  - Documentation procedures

- LO/TO Program
  - Allocation of devices (e.g., locks, tags, and adaptors)
  - LO/TO sequencing
  - Types/magnitudes of energy
  - Types/locations of machines
  - Verification
  - Training
  - Documentation procedures
- Permit-required Confined-space Entry Program
  - Air monitoring and ventilation requirements
  - Rescue procedures
  - LO/TO and blocking, blinding, and blanking requirements
  - Permit completion
  - Training
  - Documentation procedures
- Hand and Portable Power Tool Safety Program
  - Guarding and proper operation
  - Training
- Powder-actuated Tool Safety Program
  - Operator qualification
  - Inspection requirements
  - Repair requirements
  - Storage requirements
  - Training
- Housekeeping and Material Handling and Storage Program
  - Storage requirements
  - Walkways and work surfaces
  - Equipment handling requirements
  - Training
- Hearing Conservation Program
  - Identifying high-noise environments
  - Exposure monitoring
  - Medical surveillance requirements
  - Hearing-protective devices
  - Training
- Back Injury Prevention Program
  - Proper lifting and material handling procedures
  - Training

- Hazard Communication Program
  - Labeling requirements
  - Storage and handling
  - Safety data sheets
  - Chemical inventory
  - Training
  - Documentation procedures
- Respiratory Protection Program
  - Selection and use
  - Storage
  - Fit testing
  - Medical requirements
  - Inspection and repair
  - Training
  - Documentation procedures
- Heat and Cold Stress Monitoring and Control Program
  - Monitoring requirements
  - Prevention and control

DR WS-1 also asks for the Construction Hazard Analysis (Table 4.16-1) to be amended to include "Trench and Excavation" activities and "Exposure to Hazardous Waste." Trench and Excavation and Exposure to Hazardous Waste activities are already included in Table 4.16-1; therefore, no amendment to the table is needed. Trench and Excavation activities are included in row 3 of Table 4.16-1, and Exposure to Hazardous Waste activities are included in row 10 of Table 4.16-1.

20.1.2 Data Request DR WS-2

DR WS-2: Please add 'Documentation Procedures' to the following program elements under the Operations Health and Safety Programs: First Aid, CPR and Automated External Defibrillator, Excavation/Trenching, Hot Work Safety, Workplace Ergonomics, Employee Exposure Monitoring, Confined-Space Entry, Housekeeping and Material Handling and Storage, Hearing Conservation, Hazard Communication, and Respiratory Protection Programs. Additionally, the Operation Hazard Analysis (Table 4.16-2) should be amended to include 'Exposure to Hazardous Waste' as addressed in Section 4.14, Waste Management. Please add Hazardous Material Reporting and Documentation to the Housekeeping and Material Handling Storage Program element.

Response: As shown below, Section 4.16.1.3.2, Operations Health and Safety Program, has been revised to include "Documentation Procedures" in the following program elements under the Operations Health and Safety Programs: First Aid, CPR, and Automated External Defibrillator; Excavation/Trenching; Hot Work Safety; Workplace Ergonomics; Employee Exposure Monitoring; Confined-Space Entry; Housekeeping and Material Handling and Storage; Hearing Conservation; Hazard Communication; and Respiratory Protection Programs. Where "Documentation Procedures" has been added, it is shown in underlined text. In addition, "Hazardous Material

Reporting and Documentation" has been added to the Housekeeping and Material Handling Storage Program element, as shown in underlined text below.

- Injury and Illness Prevention Program
  - Personnel with the responsibility and authority for implementing the plan
  - Safety and health policy
  - Work rules and safe work practices
  - System for ensuring that employees comply with safe work practices
  - Employee communications
  - Identification and evaluation of workplace hazards
  - Methods and/or procedures for correcting unsafe or unhealthy conditions, work practices, and work procedures in a timely manner based on the severity of the hazards
  - Specific safety procedures (see Operation Safety Program)
- First Aid, CPR, and Automated External Defibrillator
  - General requirements
  - Written program
  - Training
  - Maintenance
  - Documentation procedures
- Fire Protection and Prevention Program
  - General requirements
  - Fire hazard inventory, including ignition sources and mitigation
  - Housekeeping and proper materials storage
  - Employee alarm/communication system
  - Portable fire extinguishers
  - Fixed firefighting equipment
  - Fire control
  - Flammable and combustible liquid storage
  - Use of flammable and combustible liquids
  - Dispensing and disposal of liquids
  - Training
  - Personnel to contact for information on plan contents
- Emergency Action Program/Plan. This program/plan is part of the Risk Management Plan and Process Safety Management Program.
  - Emergency escape procedures and emergency escape route assignments
  - Procedures to be followed by employees who remain to operate critical plant operations before they evacuate
  - Procedures to account for all employees after emergency evacuation has been completed
  - Rescue and medical duties for those employees performing them
  - Fire and emergency reporting procedures

- Alarm and communication system
- Personnel to contact for information on plan contents
- Training requirements

- PPE Program
  - Hazard analysis and prescription of PPE
  - Personal protective devices
  - Head protection
  - Eye and face protection
  - Body protection
  - Hand protection
  - Foot protection
  - Skin protection
  - Sanitation
  - Safety belts and lifelines for fall protection
  - Protection for electrical shock
  - Medical services and first aid/blood-borne pathogens
  - Respiratory protective equipment
  - Hearing protection
  - Life safety
  - Training
- Operation Safety Program
  - Motor Vehicle and Heavy Equipment Safety Program
    - Operation and maintenance of vehicles
    - Inspection
    - PPE
    - Training
- Forklift Operation Program
  - Trained and certified operators
  - Fueling operations
  - Safe operating parameters
  - Training
- Excavation/Trenching Program
  - Shoring, sloping, and benching requirements
  - Cal/OSHA permit requirements
  - Inspection
  - Air monitoring
  - Access and egress
  - Documentation procedures

- Fall Protection Program
  - Evaluation of fall hazards
  - Protection devices
  - Training
- Scaffolding/Ladder Safety Program
  - Construction and inspection of equipment
  - Proper use
  - Training
- Articulating Boom Platforms Program
  - Inspection of equipment
  - Load ratings
  - Safe operating parameters
  - Operator training
- Hot Work Safety Program
  - Welding and cutting procedures
  - Acetylene and fuel gas safety
  - Fire Watch
  - Hot work permit
  - PPE
  - Training
  - Documentation procedures
- Workplace Ergonomics Program
  - Identification of personnel at risk
  - Evaluation of personnel
  - Workplace and job activity modifications
  - Training
  - Documentation procedures
- Employee Exposure Monitoring Program
  - Exposure evaluation
  - Monitoring requirements
  - Reporting of results
  - Medical surveillance
  - Training
  - Electrical Safety Program
  - Grounding procedure
  - Overhead and underground utilities
  - Utility clearance
  - Training

  - High Voltage Switching
  - Documentation procedures
- LO/TO Program
  - Allocation of LO/TO devices (e.g., locks, tags, and adaptors)
  - Machine-specific LO/TO procedures
  - Steps for verification of isolation
  - Training (Affected and Authorized and Interaction with Energized Electrics)
  - Annual program review
- Permit-required Confined-space Entry Program
  - Air monitoring and ventilation requirements
  - Rescue procedures
  - LO/TO and blocking, blinding, and blanking requirements
  - Permit completion
  - Training
  - Documentation procedures
- Hand and Portable Power Tool Safety Program
  - Guarding and proper operation
  - Training
- Housekeeping and Material Handling and Storage Program
  - Storage requirements
  - Walkways and work surfaces
  - Equipment handling requirements
  - Training
  - Documentation procedures
  - Hazardous material reporting and documentation
- Hearing Conservation Program
  - Identifying high-noise environments
  - Exposure monitoring
  - Medical surveillance requirements
  - Hearing-protective devices
  - Training
  - Documentation procedures
- Back Injury Prevention Program
  - Proper lifting and material-handling procedures
  - Training
- Hazard Communication Program
  - Labeling requirements
  - Storage and handling

  - Safety data sheets
  - Chemical inventory
  - Training
  - Documentation procedures
- Respiratory Protection Program
  - Selection and use
  - Storage
  - Fit testing
  - Medical requirements
  - Inspection and repair
  - Training
  - Documentation procedures
- Heat and Cold Stress Monitoring and Control Program
  - Monitoring requirements
  - Prevention and control
- Safe Driving Program
  - Inspection and Maintenance
  - Training

As shown below in Table 8, an amended version of Table 4.16-2, Operation Hazard Analysis, is provided. As shown in underline text (row 8), "Exposure to Hazardous Waste" has been added to the table.

Table 8. DR WS-2, Updated Table 4.16-2, Operation Hazard Analysis for the Compass Energy Storage Facility

Activity	Hazard	Control
Motor vehicle and heavy equipment use	▪ Employee injury and property damage from collisions between people and equipment	▪ Motor Vehicle and Heavy Equipment Safety Program
Forklift operation	▪ Same as heavy equipment	▪ Forklift Operation Program
Trench and excavation	▪ Employee injury and property damage from the collapse of trenches and excavations	▪ Excavation/Trenching Program ▪ Confined Space Training
Working at elevated locations	▪ Falls from the same level and elevated areas	▪ Fall Prevention Program ▪ Scaffolding/Ladder Safety Program ▪ Working at Heights
Using cranes and derricks	▪ Property damage from falling loads ▪ Employee injuries from falling loads ▪ Injuries and property damage from contact with crane or derrick	▪ Crane and Material Handling Program ▪ Critical Lift Studies as necessary ▪ Crane Operator Certification

Table 8. DR WS-2, Updated Table 4.16-2, Operation Hazard Analysis for the Compass Energy Storage Facility

Activity	Hazard	Control
Working with flammable and combustible liquids	▪ Fire/spills	▪ Fire Protection and Prevention Program
Working with hazardous materials	▪ Employee injury (chemical burns, inhalation, digestion, absorption)	▪ Safe Use Handling Procedures ▪ Job Specific Training ▪ PPE Program ▪ Spill Response Procedures ▪ Emergency Response Program
Exposure to hazardous waste	▪ Personnel who are working with or have the potential to be exposed to contaminated soil, groundwater, or debris during construction	▪ Hazardous Waste Program
Hot work (including cutting and welding)	▪ Employee injury and property damage from fire ▪ Exposure to fumes during cutting and welding ▪ Ocular exposure to ultraviolet and infrared radiation during cutting and welding	▪ Hot Work Safety Program ▪ Respiratory Protection Program ▪ Employee Exposure Monitoring Program ▪ PPE Program ▪ Fire Protection and Prevention Program ▪ Hexavalent Chromium Program
Troubleshooting and maintenance of systems and general operational activities	▪ Employee injury and property damage from contact with hazardous energy sources (e.g., electrical, thermal, and mechanical)	▪ Electrical Safety Program ▪ LO/TO Program
Working on electrical equipment and systems	▪ Employee contact with live electricity	▪ Electrical Safety Program ▪ PPE Program
Confined space entry	▪ Employee injury from physical and chemical hazards	▪ Confined-space Program
General operation activities	▪ Employee injury from hand and portable power tools	▪ Hand and Portable Power Tool Safety Program ▪ PPE
	▪ Employee injury and property damage from inadequate walking and work surfaces	▪ Housekeeping and Material Handling and Storage Program
	▪ Employee overexposure to occupational noise	▪ Hearing Conservation Program ▪ PPE Program
	▪ Employee injury from improper lifting and carrying materials and equipment	▪ Back Injury Prevention Program
	▪ Employee injury and property damage from unsafe driving	▪ Safe Driving Program
	▪ Employee overexposure to hazardous gases, vapors, dusts, and fumes	▪ Hazard Communication Program ▪ Respiratory Protection Program ▪ PPE Program

Table 8. DR WS-2, Updated Table 4.16-2, Operation Hazard Analysis for the Compass Energy Storage Facility

Activity	Hazard	Control
		▪ Employee Exposure Monitoring Program
	▪ Reporting and repairing hazardous conditions	▪ Injury and Illness Prevention Program
	▪ Heat and cold stress	▪ Heat and Cold Stress Monitoring and Control Program
	▪ Ergonomic injuries	▪ Ergonomic Awareness Program
Working Outdoors	▪ Employee working alone outdoors could suffer an injury ▪ Lightning Strike during a storm	▪ Working alone/Man Down Plan ▪ Lightning Procedure ▪ Heat Stress Training and Management
Biological Hazards	▪ Wildlife Hazards	▪ Emergency Response Plan ▪ Working Alone/Man Down Plan ▪ Pest Management Protocol

20.1.3 Data Request DR WS-3

DR-WS-3: As required by NFPA 855, please add a discussion of the BESS hazard mitigation analysis to be prepared in compliance with UL 9540A. The hazard mitigation analysis shall include consideration of potential thermal runaway fault conditions occurring within a single battery storage rack, cell module or cell array (i.e., cell level, module level, unit level and installation level). The analysis shall include mitigations to prevent flammable gases released during fire, battery overcharging, and other abnormal operating conditions within the BESS from creating an explosion hazard that could injure workers or emergency first responders.

Response: A hazard mitigation analysis (HMA) will be prepared for the Project. These documents will be prepared in coordination with the Orange County Fire Authority. Specific requirements for performing an HMA are not provided in the CFC. As such, the HMA will be prepared using the guidance provided by CFC Section 1207.1.4. The HMA will evaluate the findings of the UL 9540A cell, module, and unit level testing pertaining to thermal runaway and off-gassing. Per CFC Section 1207.1.4.1, an HMA must evaluate the consequences of the following single-failure modes, and any others deemed necessary by the fire code official:

1. Thermal runaway condition in a single BESS rack, module, or unit
2. Failure of any battery (energy) management system
3. Failure of any required ventilation or exhaust system
4. Voltage surges on the primary electric supply
5. Short circuits on the load side of the BESS
6. Failure of the smoke detection, fire detection, fire suppression, or gas detection system
7. Spill neutralization not being provided or failure of the secondary containment system

The consequences of each of these for the MP2XL (the proposed battery technology) will be discussed in detail. In addition, per CFC Section 1207.1.4.2, the fire code official or fire-authority having jurisdiction is authorized to approve the HMA provided that it demonstrates all of the following:

1. Fires will be contained within unoccupied BESS rooms or areas for the minimum duration of the fire-resistance-rated separations identified in Section 1207.7.4.
2. Fires in occupied work centers will be detected in time to allow occupants within the room or area to evacuate safely.
3. Toxic and highly toxic gases released during fires will not reach concentrations in excess of Immediately Dangerous to Life or Health (IDLH) levels in the building or adjacent means of egress routes during the time deemed necessary to evacuate from any affected area.
4. Flammable gases released from the BESS during charging, discharging, and normal operation shall not exceed 25% of their lower flammability limit (LFL).
5. Flammable gases released from the BESS during fire, overcharging, and other abnormal conditions will be controlled through the use of ventilation of the gases preventing accumulation or by deflagration venting.

In addition, the HMA will include mitigations to prevent flammable gases released during fire, battery overcharging, and other abnormal operating conditions within the BESS from creating an explosion hazard that could injure workers or emergency first responders, as applicable.

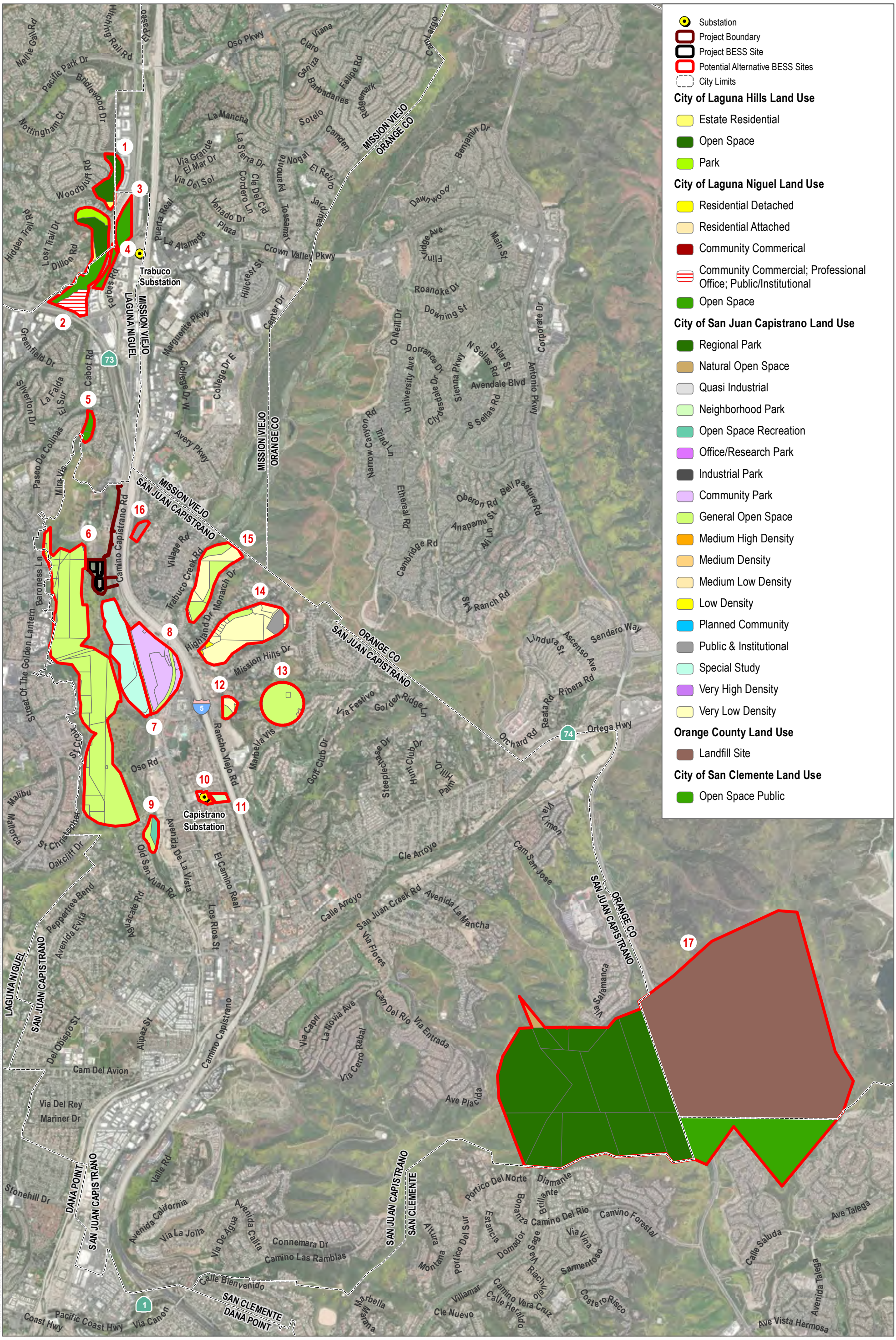


FIGURE 1

DR ALT-1. Updated Figure 5-1A, Alternative Locations Land Use

Compass Battery Energy Storage Project

DUDEK

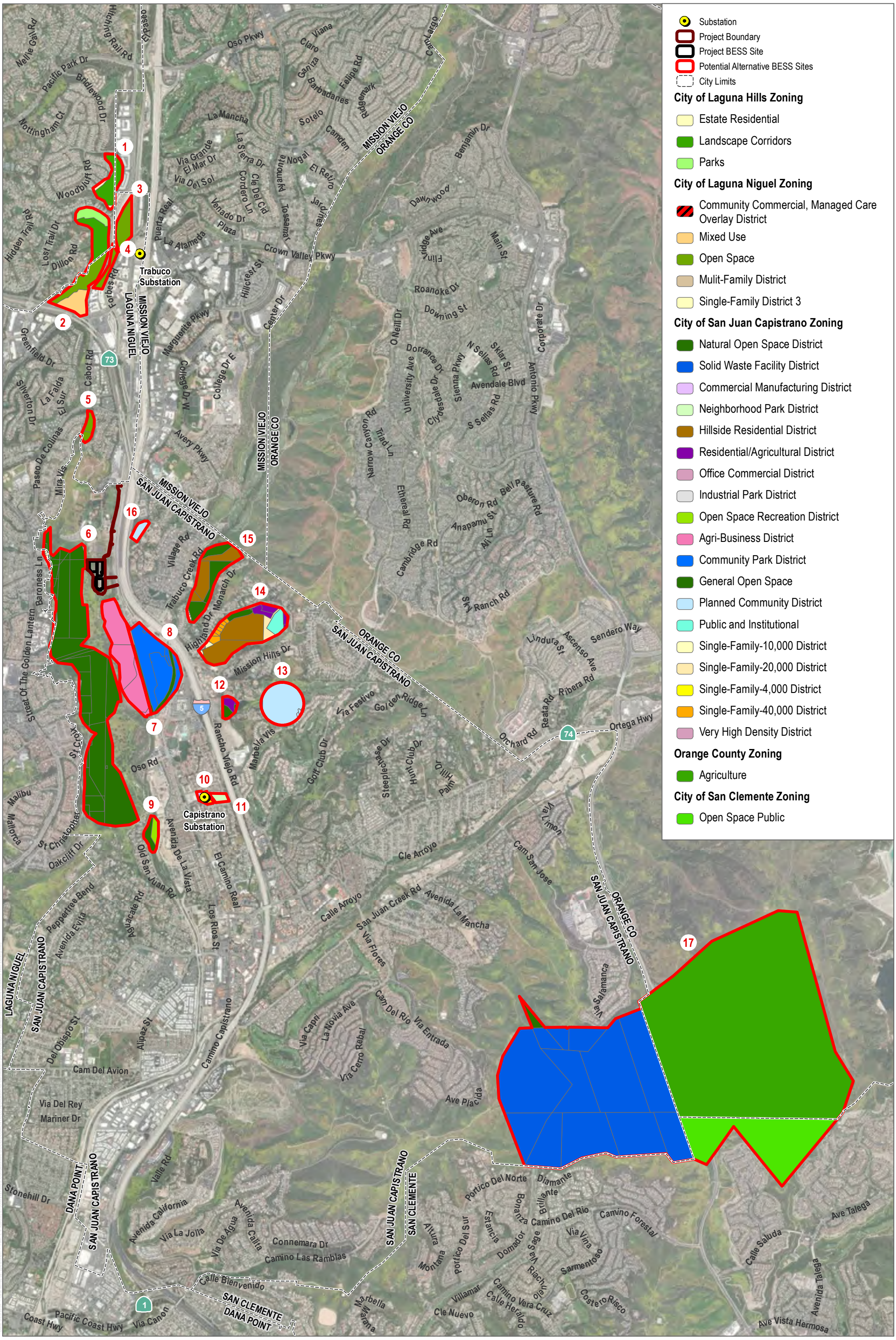


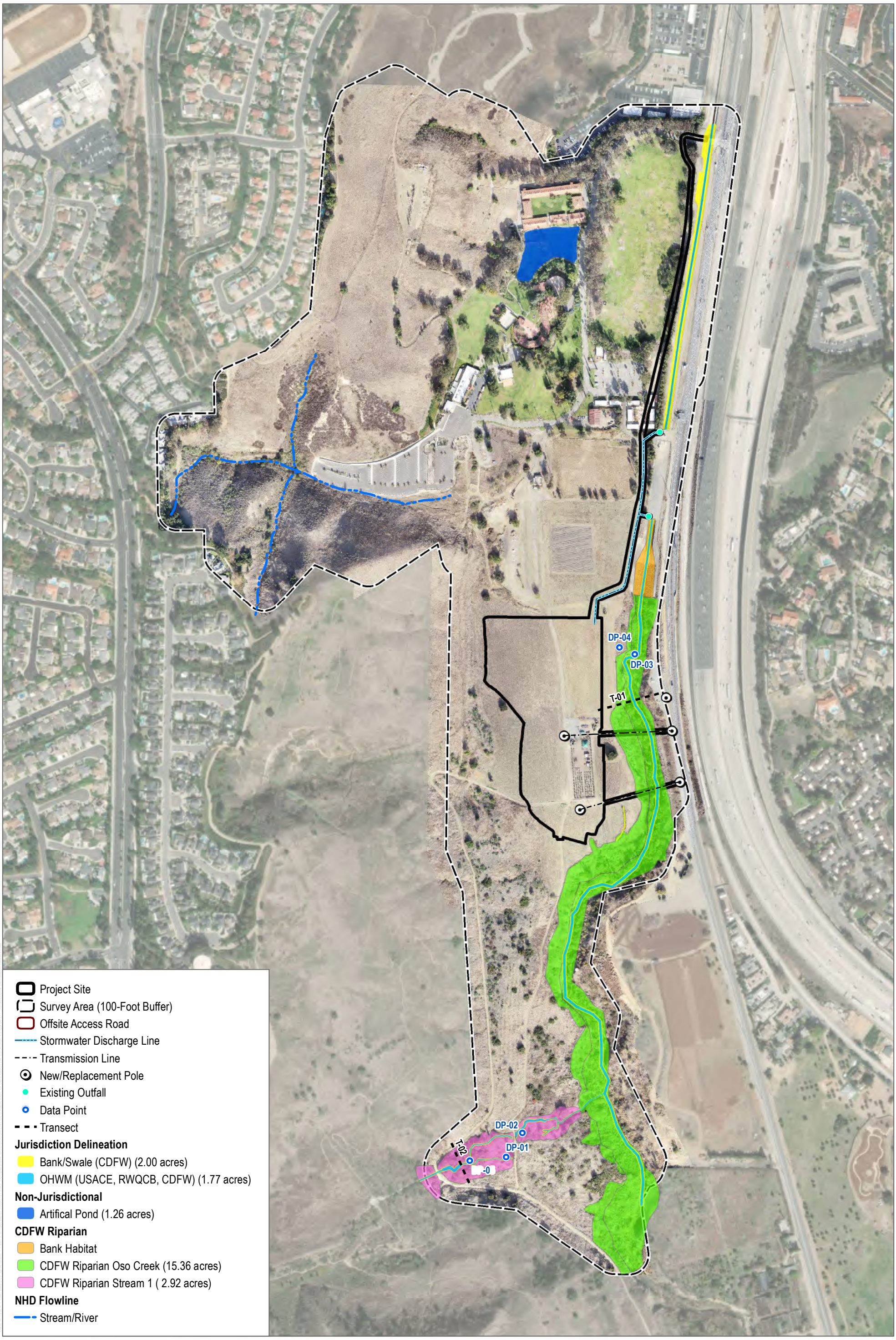
FIGURE 2

DR ALT-1. Updated Figure 5-1B, Alternative Locations Zoning

Compass Battery Energy Storage Project

DUDEK

0 1,500 3,000 Feet



SOURCE: Dudek 2021 & 2023; Esri World Imagery 2019; NHD 2018

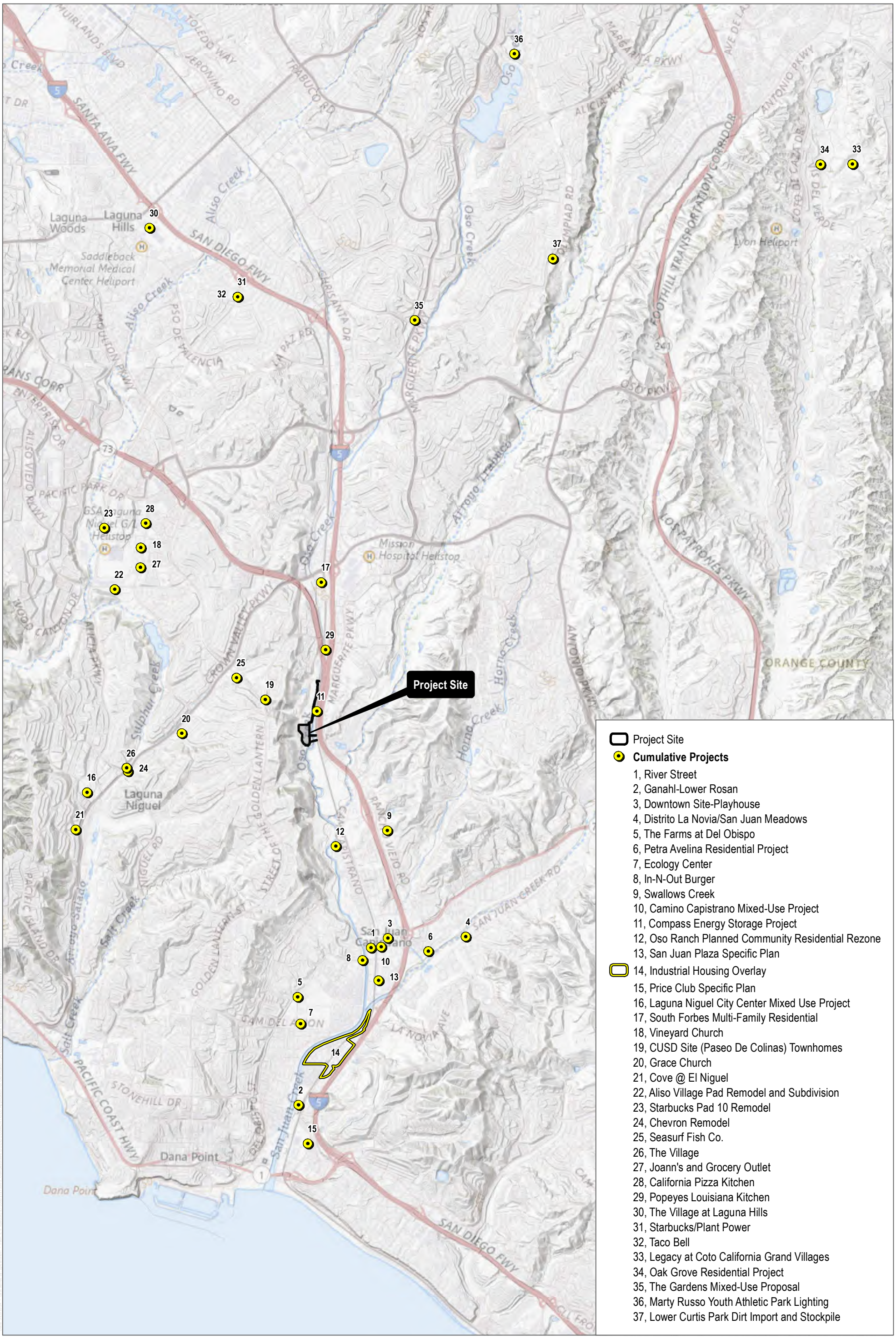
DUDEK

0 250 500 Feet

FIGURE 3

DR BIO-5. Updated Figure 4.2-1, Jurisdictional Delineation Results

Compass Battery Energy Storage Project



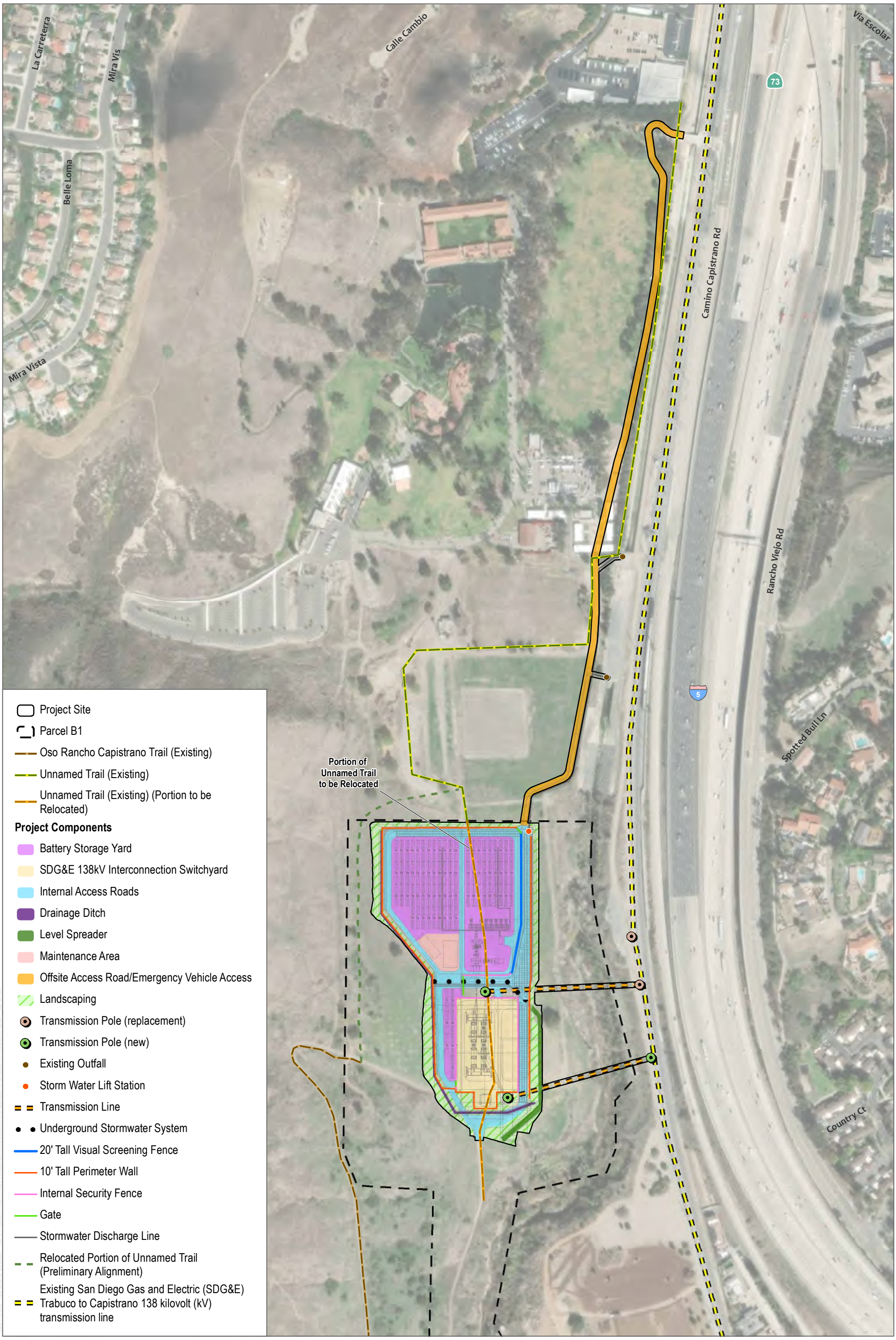
SOURCE: Esri 2023; USGS National Map 2023

DUDEK

FIGURE 4

DR LAND-1. Updated Figure 4-1, Cumulative Projects

Compass Battery Energy Storage Project



SOURCE: Bing Maps 2023; Sargent & Lundy 2023

DUDEK

0 100 200 Feet

FIGURE 5

DR LAND-2. Updated Figure 2-1, Site Plan

Compass Battery Energy Storage Project

SOURCE: Esri World Imagery Basemap; Orange County 2024

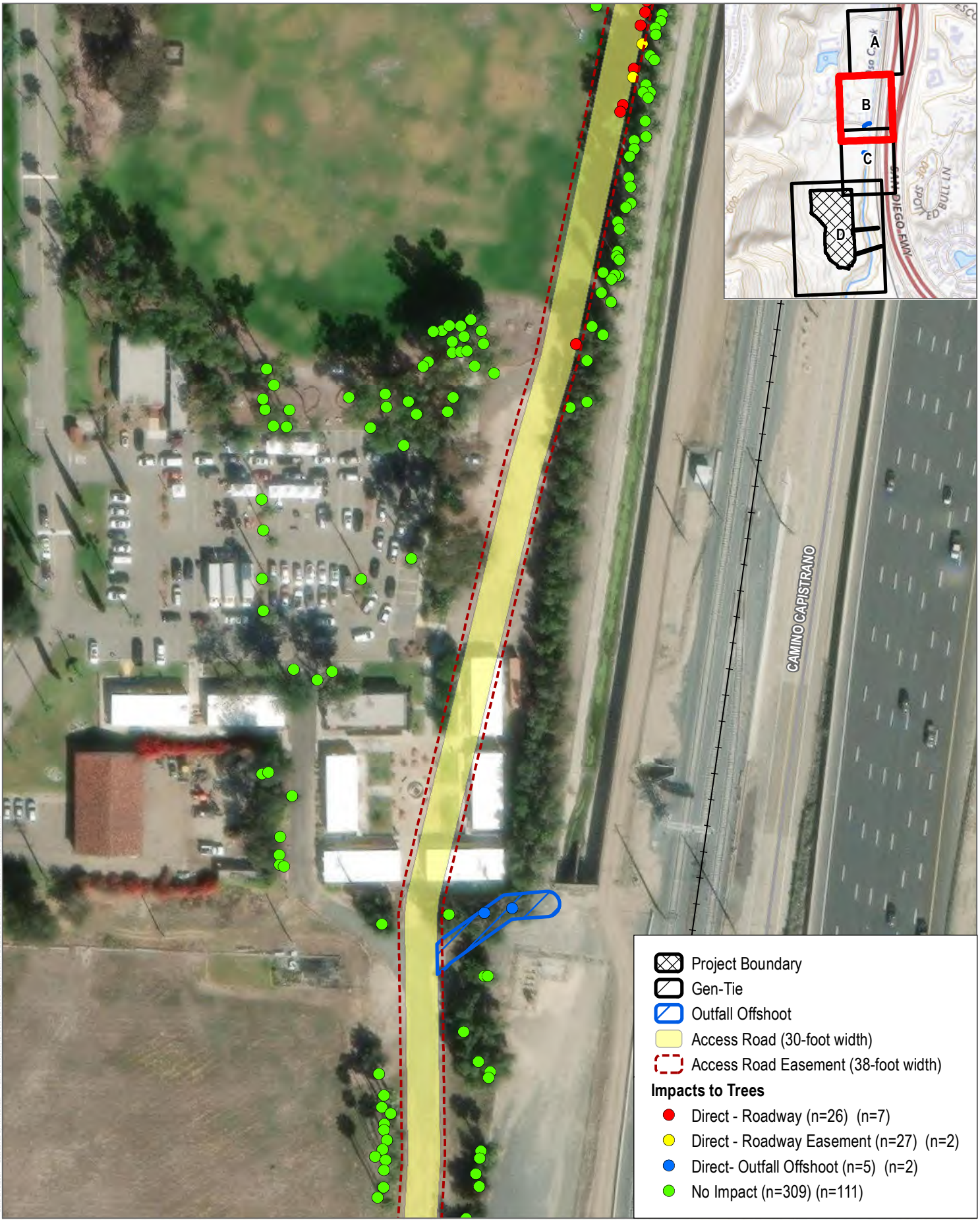
DUDEK

0 50 100 Feet

FIGURE 6A

DR LAND-2. Impacts to Trees

Compass Battery Energy Storage Project



SOURCE: Esri World Imagery Basemap; Orange County 2024

DUDEK

0 50 100 Feet

FIGURE 6B

DR LAND-2. Impacts to Trees

Compass Battery Energy Storage Project

SOURCE: Esri World Imagery Basemap; Orange County 2024

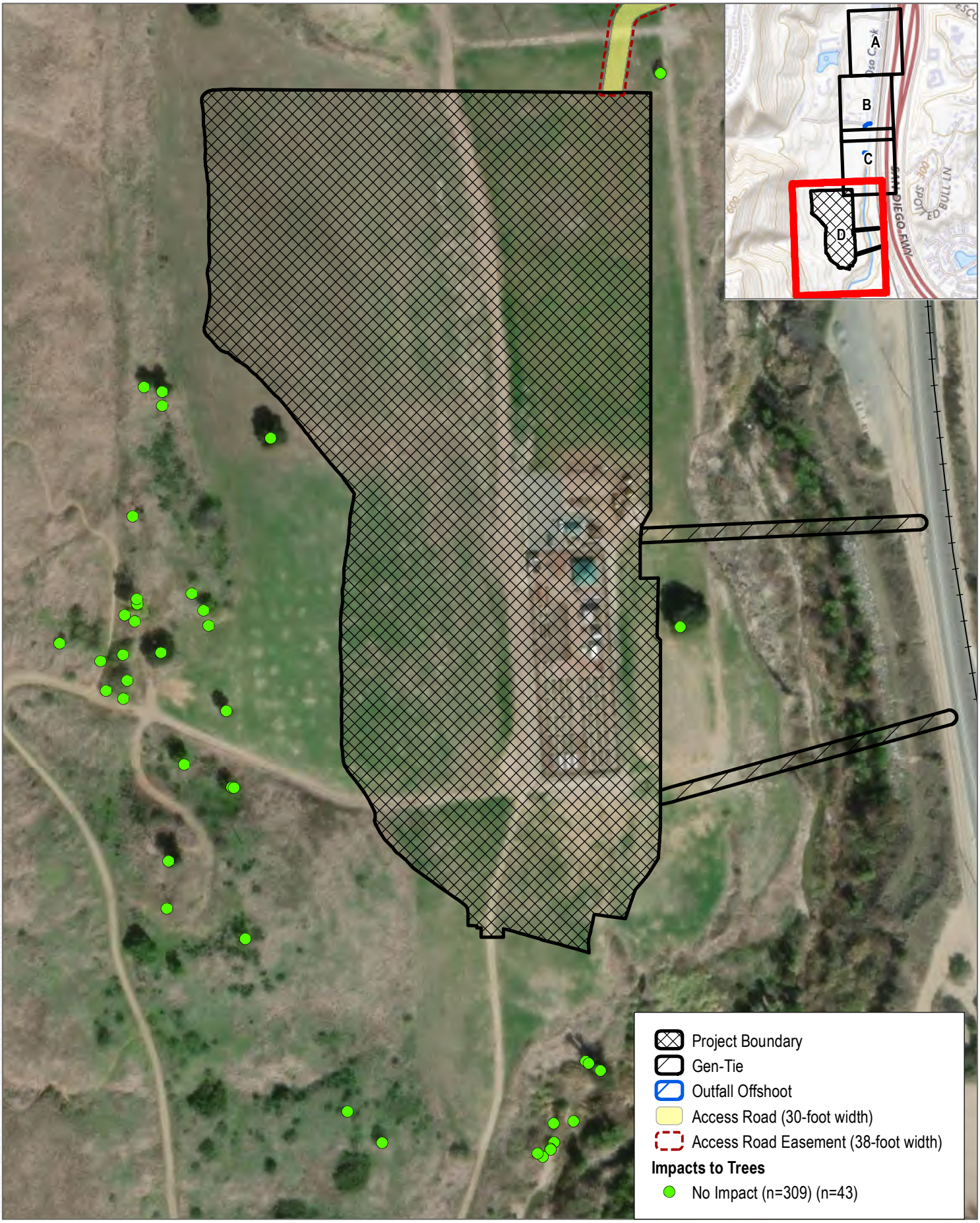
DUDEK

0 50 100 Feet

FIGURE 6C

DR LAND-2. Impacts to Trees

Compass Battery Energy Storage Project



SOURCE: Esri World Imagery Basemap; Orange County 2024

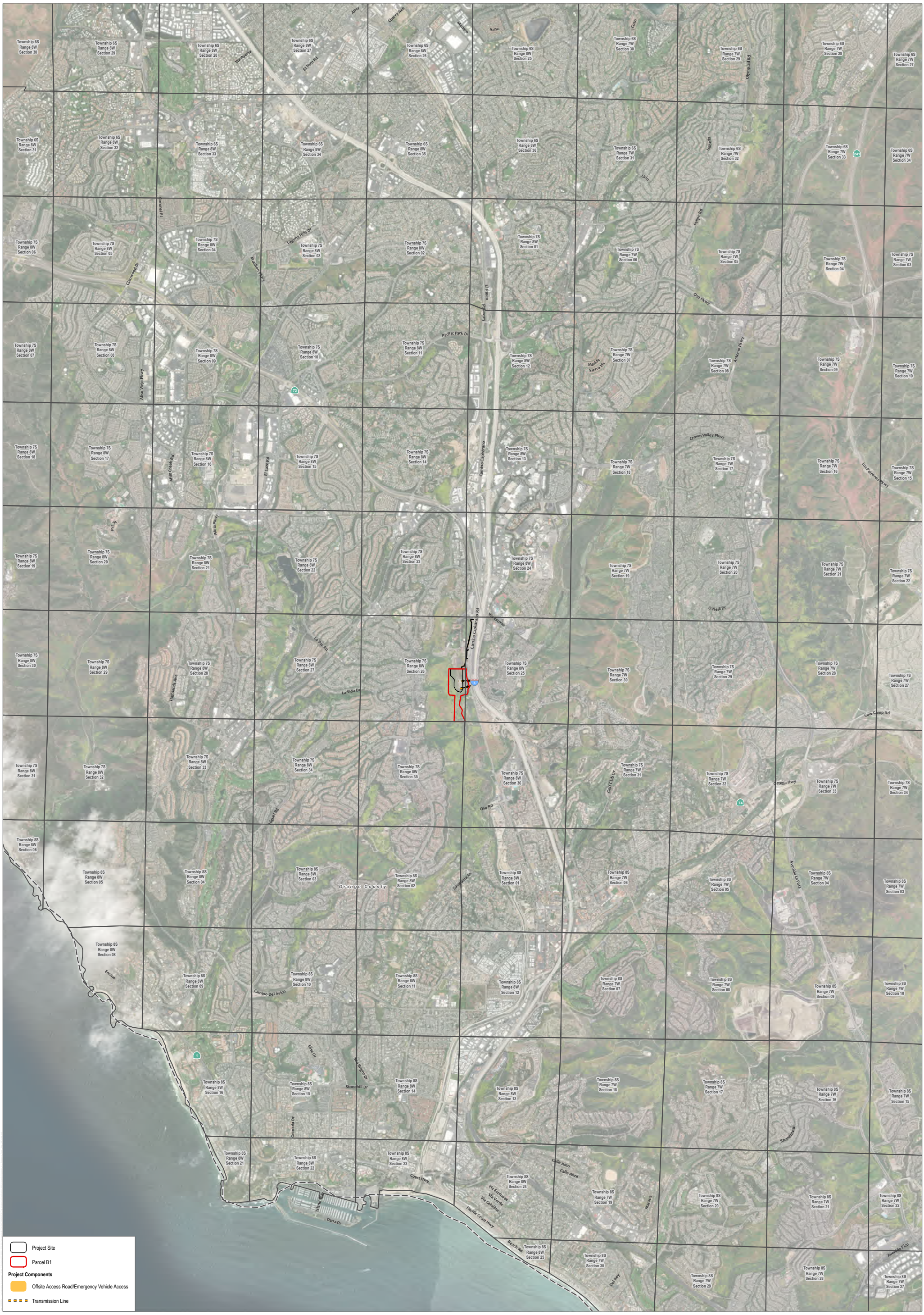
DUDEK

0 85 170 Feet

FIGURE 6D

DR LAND-2. Impacts to Trees

Compass Battery Energy Storage Project



SOURCE: Esri World Imager 2022; Parcel Quest 2022; County of Orange 2022

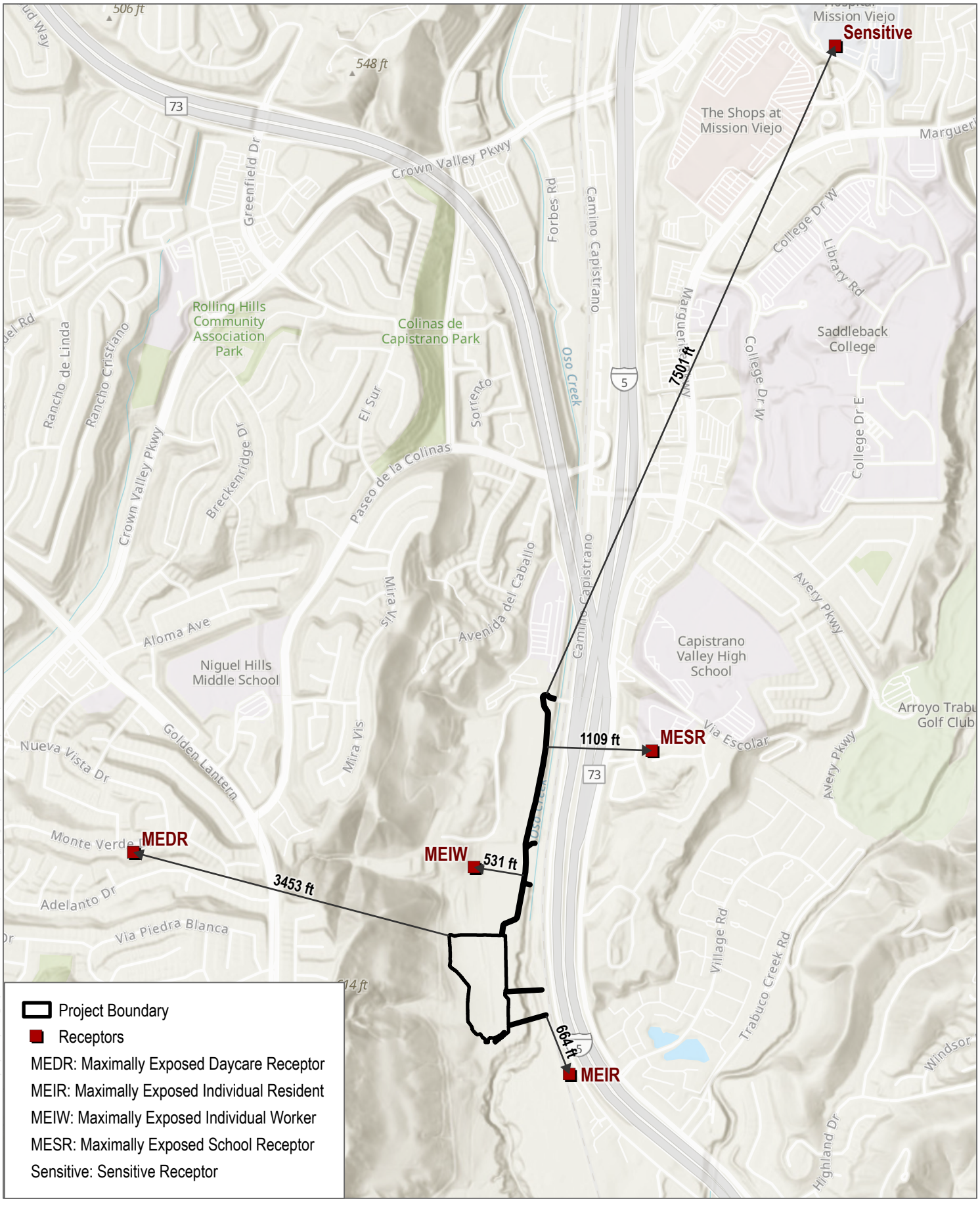
DUDEK

0 1,000 2,000 Feet

FIGURE 7

DR PD-1. Section, Township, Range Map

Compass Battery Energy Storage Project



SOURCE: ESRI World Topographic Map

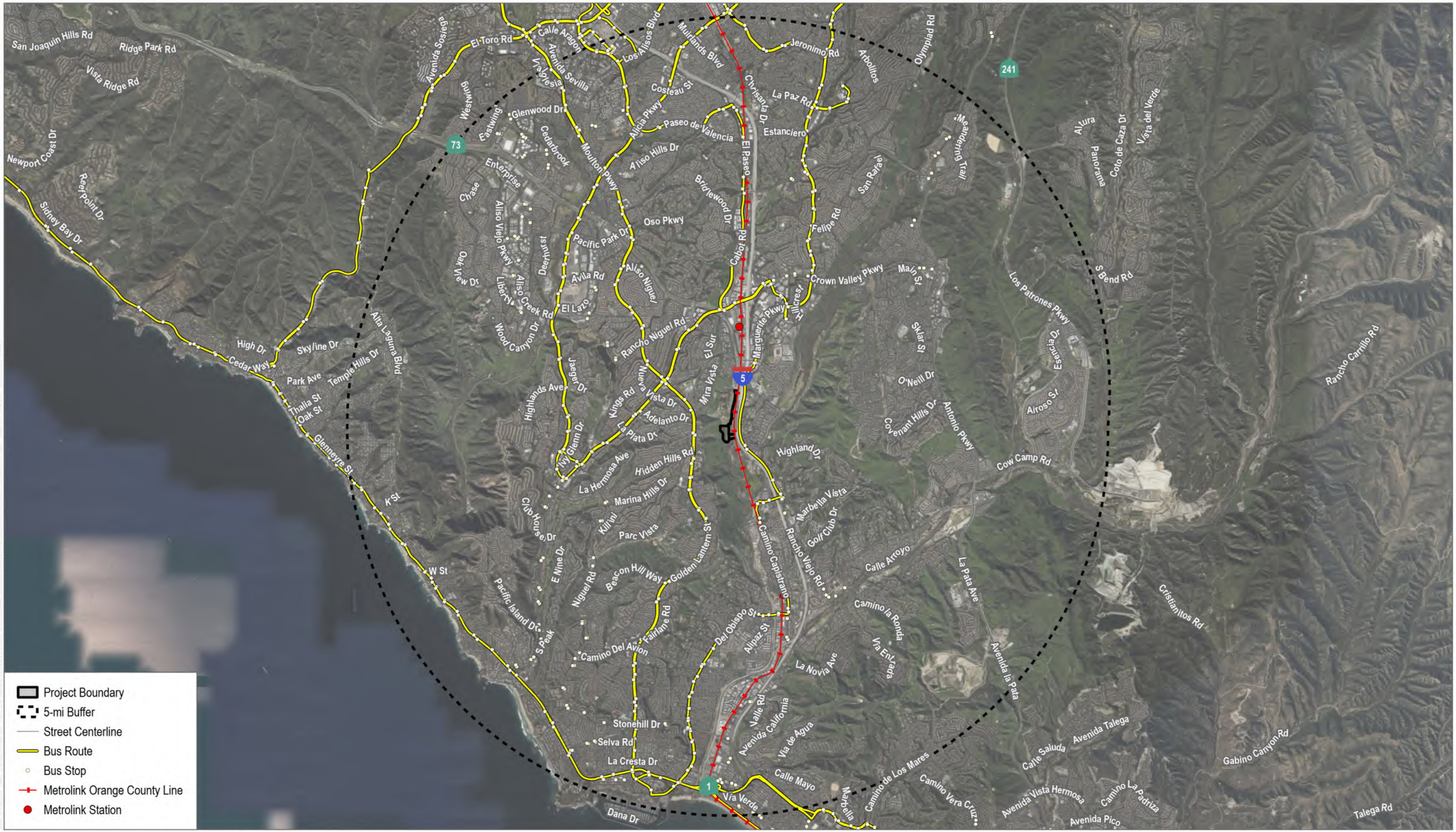
DUDEK

0 500 1,000 Feet

FIGURE 8

DR PH-1. Receptor Locations

Compass Battery Energy Storage Project



SOURCE: Esri 2024; Orange County Transportation Authority 2024

DUDEK

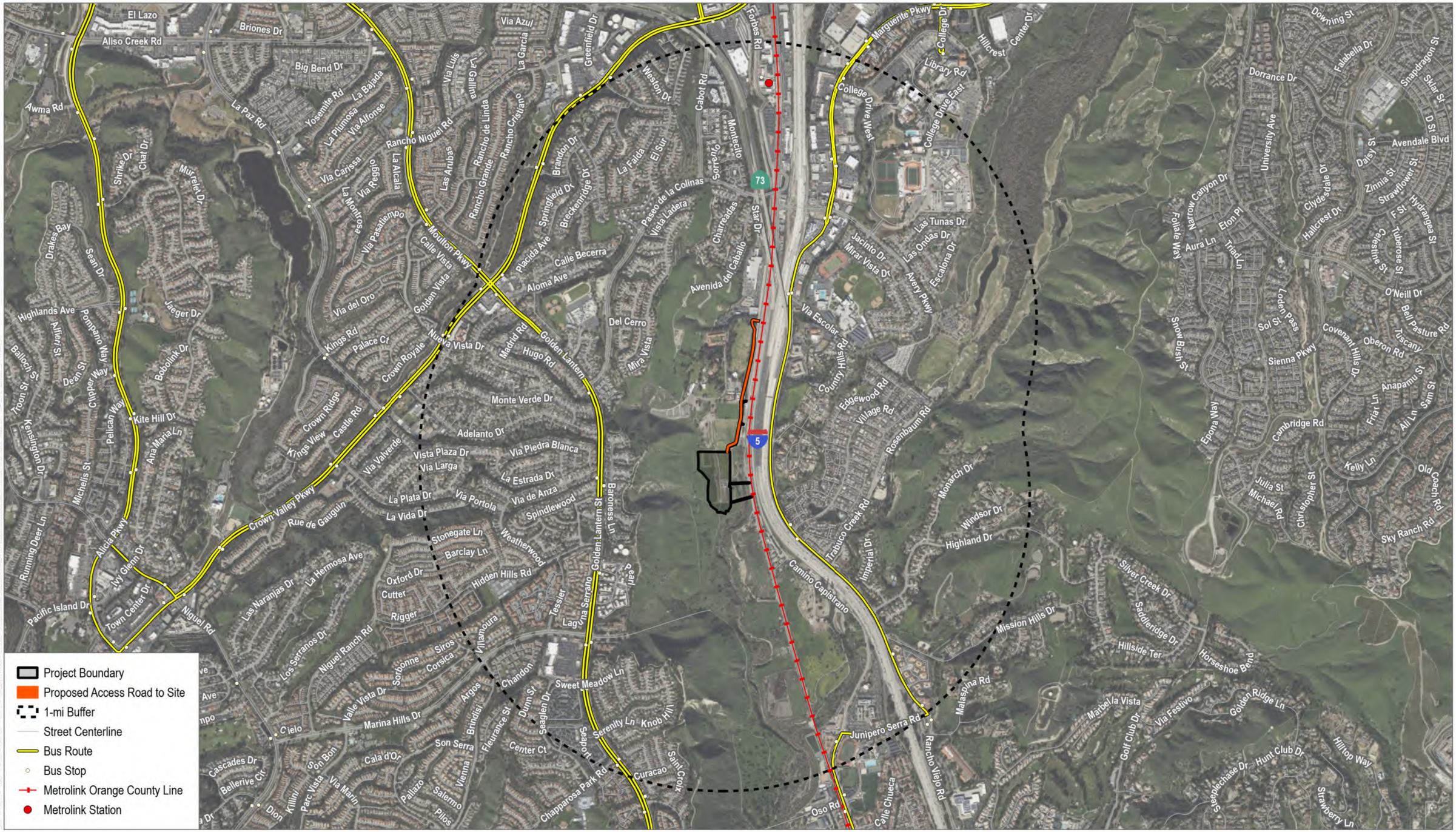
N

0 3,000 6,000 Feet

FIGURE 9

DR TRANS-1. Major Transportation Facilities within 5-mile Radius of Project

Compass Energy Storage Project



SOURCE: Bing Maps 2023; Orange County Transportation Authority 2024

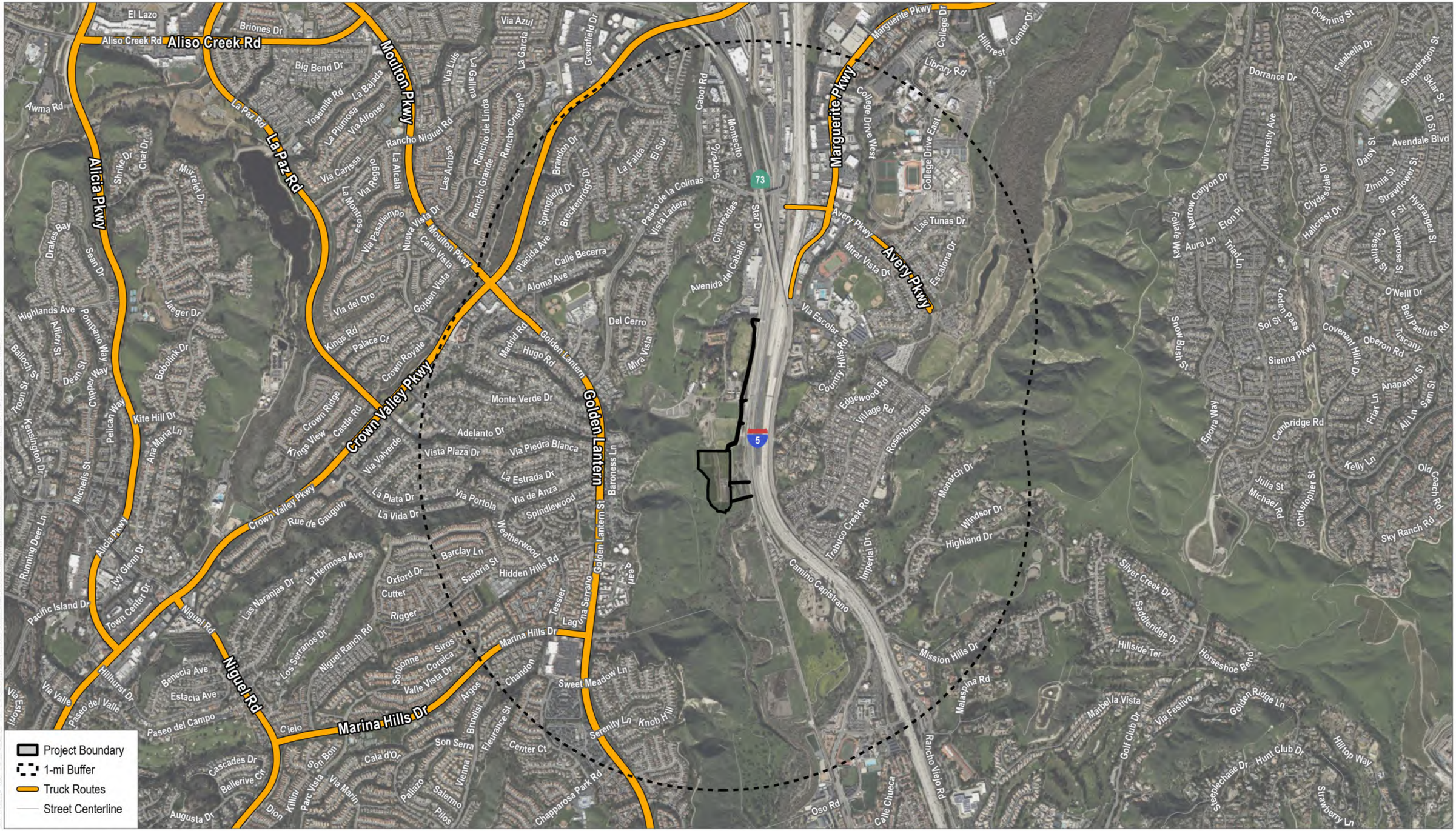
DUDEK

0 500 1,000 Feet

FIGURE 10

DR TRANS-3. Major Transportation Facilities within 1-mile Radius of Project

Compass Energy Storage Project



SOURCE: Bing Maps 2023; Orange County Transportation Authority 2024; City of San Juan Capistrano Code of Ordinances 2024

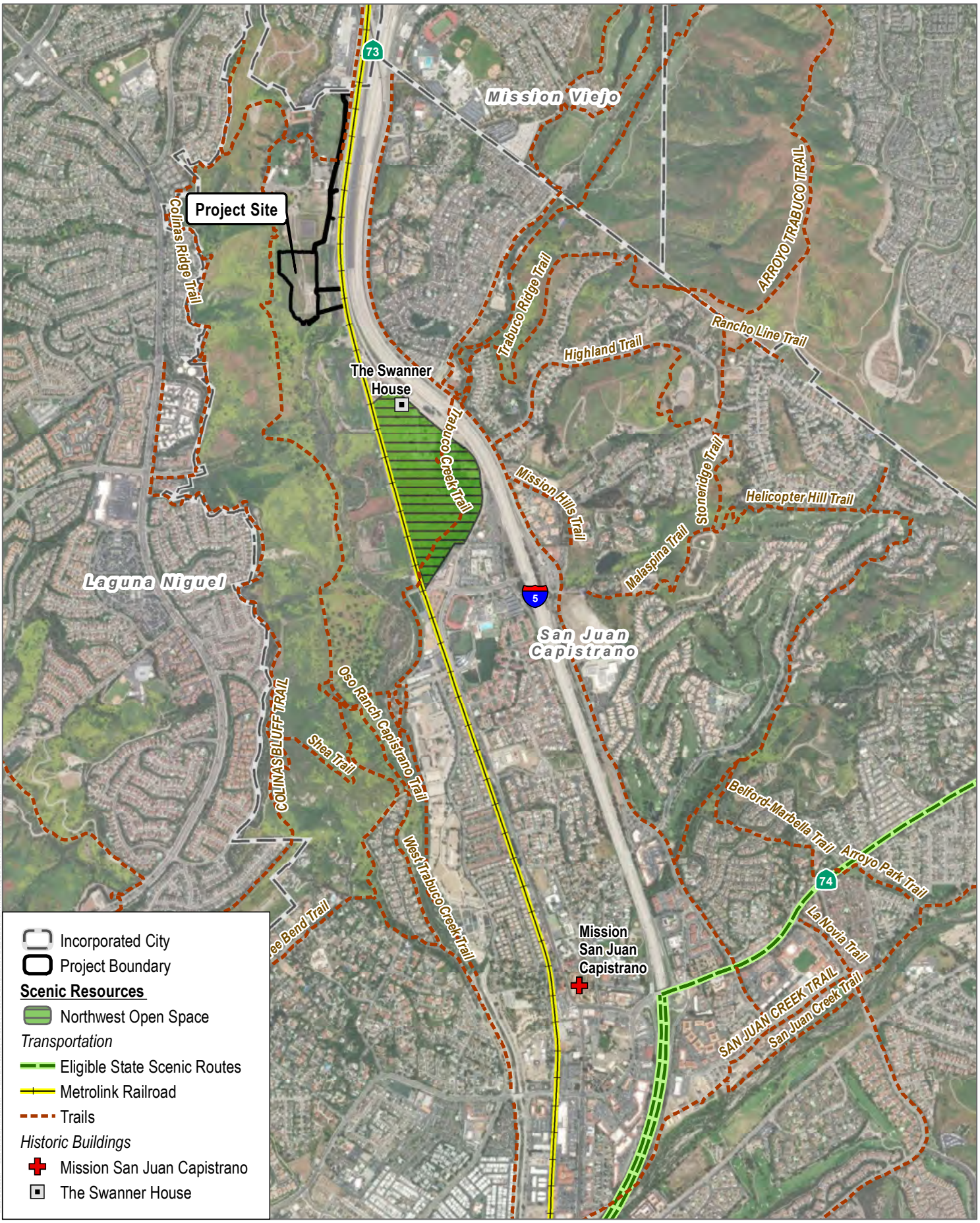
DUDEK

0 500 1,000 Feet

FIGURE 11

DR TRANS-5. Truck Routes within 1-mile Radius of Project

Compass Energy Storage Project



SOURCE: Esri World Imagery Basemap; Orange County 2024

DUDEK

0 1,000 2,000 Feet

FIGURE 12

DR VIS-3. Scenic Resources in the Immediate Surrounding Area of the Project Site

Compass Battery Energy Storage Project

Attachment 1

DR MAND-1. Economic and Public Revenue Impact Study Addendum

MEMORANDUM

To: Engie

From: Economic & Planning Systems, Inc.

Subject: Response to CEC Inquiry Regarding Compass Battery Energy Storage Project Data Completeness Worksheet: Net Positive Economic Benefit to the Local Government; EPS #231063

Date: July 17, 2024

Economic & Planning Systems, Inc. (EPS) appreciates the opportunity to review and comment on the California Energy Commission (CEC) inquiries related to the topic of Net Positive Economic Benefits to the Local Government. An economic analysis of the Compass project was provided in the EPS technical memorandum dated January 4th, 2024 titled, "Compass Battery Energy Storage Project Economic and Public Revenue Impact Study" (Original EPS Memo).

The CEC comments are included in "DR MAND-1" of Attachment B of the document titled "Determination of Incomplete Application and Request for Information for the Compass Energy Storage Project" dated May 13th, 2024. This CEC document inquires about the net positive economic benefit calculations, some of the assumptions utilized in EPS's original memorandum as well as the inclusion of additional items not explicitly covered in the memorandum. This memorandum provides responses to all of these inquiries.

Specifically, this memo includes responses to DR MAND-1a, b(i), and b(ii), with b(iii), the IMPLAN project configuration file, provided separately as a JSON file.

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Net Impacts Analysis Commentary

The Original EPS Memo estimates and documents the positive economic benefits to the local government including the positive effects on public revenues and the positive effects on economic activity. Our response below explains why the positive economic benefits previously provided represent conservative estimates of net positive economic benefits. This section responds to the data requested in **DR MAND-1a** per the California Code of Regulations, title 20, section 1877(f) requirement.

Net Economic Activity Benefits

As described in the Original EPS Memo, the Compass Project will generate substantial jobs, wages, and economic activity in the City of San Juan Capistrano during the construction phase of the Project and during the ongoing operational phase (computed using IMPLAN software).

The CEC has posed the question whether there are also negative economic impacts associated with the project (for example, for the fossil fuel industry in Orange County). For the Compass project, the investment in battery technology is expected to have substantive additional positive spillover economic effects, not negative ones. More specifically, the development of battery storage facilities increases the utility of renewable energy production projects (e.g. solar facilities), acting as an incentive for additional investment in renewable energy production along with the associated, additional economic benefits.

As a result, the Compass Project-specific estimates of economic benefits provided in the Orifinal EPS Memo represent a conservative estimate of the aggregate **net economic benefits** of the project in the City. As estimated in the Original EPS Memo, these economic benefits include:

- Construction Activity: 127 Job-Years; $140,400 Average Compensation per Job; $51.6 million in Economic Output
- Ongoing Operations Activity: 8 Annual Jobs; 280 Job-Years over the lifetime of the Project; $105,000 Average Compensation; $1.5 million in Annual Economic Output; $53.7 million Economic Output over the lifetime of the Project

As requested, the assumptions used to generate these net positive economic benefits are provided in subsequent sections of this memorandum. The

Net Positive Public Revenues to Local Government Entity

As described in the Original EPS Memo, the Compass Project will generate substantial property and sales and use taxes to the City of San Juan Capistrano during the construction phase of the Project and during the ongoing operational phase.

The CEC has posed the question whether there are also negative impacts associated with the project (for example, increases in public service costs that would reduce the net revenue impact). The new Compass project is not expected to increase the public services expenditures by the City of San Juan Capistrano. One area of potential impact relates to impacts on County roads from construction activities. The project developer is, however, required to repair any such impacts if they were to occur so there would be no cost impact to the City.

As a result, the property taxes and sales and use taxes accruing to the City represent net new revenues to the City. As estimated in the EPS Report, these economic benefits include:

- Construction Activity: $2.3 million from sales and use taxes
- Ongoing Operations Activity (35-year Total): $6.0 million from property taxes

As requested, the assumptions used to generate these net positive economic benefits are provided in later sections of this memorandum.

Economic Inputs and Methodology

EPS utilized an Input-Output (I/O) modeling framework to estimate the Project's economic impacts. The analysis was performed using IMPLAN (Impact Analysis for Planning) software, an I/O model that draws on data collected by the IMPLAN Group, LLC, from several state and federal sources, including the Bureau of Economic Analysis, the Bureau of Labor Statistics, and the Census Bureau. More information concerning IMPLAN and notes on I/O modeling are further provided in the Original EPS Memo in the **Economic Impact Analysis Methodology section** (pages 13-15). To provide greater detail into EPS's modeling inputs and assumptions, the below section outlines the list of specific assumptions based on geography, construction, and operational inputs. Each input is summarized in **Table 1** later in this section. This section responds to the data requested in **DR MAND-1 b(i)**, per the California Code of Regulations, title 20, section 1877(f) requirement.

Geographic Inputs

The Compass Battery Energy Storage Project's proposed location is in San Juan Capistrano in southern Orange County. EPS conducted the analysis for both the City of San Juan Capistrano and Orange County.

Orange County was selected as the appropriate study area to fulfill CEC requirements for the socioeconomic overview. This includes an overview of the study area's economic base and fiscal resources. Within IMPLAN, EPS used the IMPLAN-formulated region of Orange County to run its economic analysis. Additionally, there are multiple zip codes associated with the City of San Juan Capistrano. However, most of these zip codes extend beyond the boundaries of the city. One zip code, 92675, contains the bulk of the city area. To illustrate the estimated economic impacts for San Juan Capistrano, EPS used this single zip code.

Construction Inputs

All the data inputs used to calculate the Project's economic impact in IMPLAN are originally sourced from Engie, shown below in **Table 1**. EPS created two IMPLAN events to capture the economic impacts of the Compass project. Both events are an Industry Impact Analysis (Detailed) type. Given battery energy storage systems do not have their own specific industry code within IMPLAN's 546 industry scheme, EPS utilized Industry Code 52: Construction of new power and communication structures. Both IMPLAN events utilized the most recent available information from IMPLAN at the time, which was a data year of 2021 and a dollar year of 2023.

The first IJMPLAN event titled "Compass Construction- Income, Value, Output Figures" within the attached JSON file, is used to estimate direct, indirect, and induced labor income, value added, and output. Employment (127) and employee compensation ($17,830,833) were the only two inputs used for this IMPLAN event. The second event titled, "Compass Construction- Employment Figures" in the attached JSON file is estimate direct, indirect, and induced employment. Employment (127), employee compensation ($17,830,833), proprietor employment (0), and proprietor income ($0) were the only events used in this IMPLAN event. Employment was separated as an event to provide a more reliable estimate of the jobs generated in the City and

County based on data provided by Engie. EPS relied on two inputs from Engie to create this analysis: employment count and employee compensation.

The employment count was provided in full-time equivalents (FTEs) by type of worker needed during each month of construction, as shown in Table 5 of the Original EPS Memo. There is an anticipated 123 FTEs. However, the IMPLAN employee count includes all full-time, part-time, and temporary positions, and therefore the original direct construction phase FTE value of 123 must be converted to IMPLAN employees to correctly generate economic impact estimates via IMPLAN. This conversion was done using IMPLAN's "546 FTE & Employee Compensation Conversion Table" FTE per Total Employment conversion factor of 0.9715 for Industry Code 52. When the 123 FTE is divided by this conversion factor, the result is the direct employment impact of 127 that is utilized in this analysis. In the resulting tables (Tables 1, 2, 12, 14, 15, and 18 in the Original EPS Memo), EPS references the 127 direct employment jobs, exclusive of proprietorship employment.

As the second input, EPS relied on salary information from Engie. Average annual salaries for each employment position are shown below in **Table 1**. Per the number of employees and their work duration (Table 5 in the Original EPS Memo), EPS calculated the total compensation for the Project of $17,830,833. This figure represents the total direct employee compensation and the second input of the Industry Impact Analysis (Detailed). Again, EPS references this number in the Original EPS Memo's tables 1, 12, 16, and A-5, exclusive of proprietorship income.

Operations Inputs

The data input used to calculate the annual operational impact was provided by Engie, shown below in **Table 1**. Again, EPS used an Industry Impact Analysis (Detailed) type event within IMPLAN to estimate operational economic impacts. Within IMPLAN's listed industry set, EPS used Industry Code 514: Electronic and precision equipment repair and maintenance. Industry Code 47: Electrical power transmission and distribution would have been utilized, but this industry did does not exist within the selected San Juan Capistrano zip code. Thus, EPS opted to use an alternative Industry Code with similar job characteristics. As with the construction phase calculations, the operations IMPLAN event utilized the most recent available information from IMPLAN at the time, which was a data year of 2021 and a dollar year of 2023. Engie indicated there were eight total full-time and part-time employees. This figure served as the wage and salary employment input, which was the only input used with IMPLAN to calculate economic impacts for Operations. The annual impact output from this IMPLAN event was then multiplied by 35 (the number of operating years) to account for the Project's total operational impact to calculate the values shown under the Operations (Lifetime) rows in tables 1, 2, 14, 15, 18, and 19 of the Original EPS Memo.

Table 1 Economic Inputs and Assumptions for IMPLAN

Inputs	Figure	Details	Source
Geography			
San Juan Capistrano Zip Codes	N/A	EPS created an IMPLAN geography using a single zip code as other zip codes in San Juan make up a small contingent of the city. This results in a more conversative economic impacts estimate.	Zip Code: 92675 Engie, IMPLAN
Orange County, CA	N/A	EPS used the Orange County geography as already established by IMPLAN.	Engie, IMPLAN
Construction			
Wage & Salary Employment	127	This figure is used as the foundation for job figures in the table set as a more conservative figure. Although proprietors make up an additional source of employment, EPS counted only wage and salary employees in the economic impact tables.	Converted FTE number from IMPLAN's Employment to FTE Conversion Table
Proprietor Employment	0	EPS used 0 proprietors in one of its IMPLAN events to provide a more accurate assessment of direct, indirect, and induced employment.	Engie, IMPLAN
FTE Construction Employment	123	EPS Calculated FTE by the number of workforce employees and duration of employment. See **Table 5** in the Original Memo for more details.	Engie provided workforce totals and duration of employment for each job
Total Employee Compensation	$17,830,833	EPS estimated total employee compensation by calculating each position's (electrician, lineman, etc.) duration and wages and then summed the total compensation. This figure includes income Supplements (benefits).	Engie and EPS
Electrician Annual	$160,000	Average Annual Compensation.	Engie
Lineman Annual	$190,000	Average Annual Compensation.	Engie
Operator Annual	$150,000	Average Annual Compensation.	Engie
Laborer Annual	$120,000	Average Annual Compensation.	Engie
Civil Annual Compensation	$135,000	Average Annual Compensation.	Engie
Proprietor Compensation	$0	EPS used $0 for proprietor income in one of its IMPLAN events to provide a more accurate assessment of direct, indirect, and induced employment.	Engie, IMPLAN
Operations			
Wage & Salary Employment	8	Inclusive of full-time and part-time	Engie
Number of Operating Years	35	Estimated to operate for 35 years.	Engie

Source: IMPLAN; Engie; Economic & Planning Systems, Inc.

Fiscal Inputs and Assumptions

As part of the California Code of Regulations (CCR), title 20, section 1877(f), Opt-In Applications are required to provide assumptions used to run the economic model updates pertaining to any identified economic benefits associated with, among other things, employment growth, property and sales tax revenues, and infrastructure improvements. This section specifies the assumptions EPS utilized to derive these estimates in the Original EPS Memo (Appendix 4.10A of the Opt-In Application). This section specifically responds to the data requested in **DR MAND-1 b(ii)** and addresses relevant portions of the "net" positive economic benefits of employment growth and public revenues to the City as requested in **DR MAND-1 a**, per the California Code of Regulations, title 20, section 1877(f) requirement.

Employment Growth

Anticipated employment growth related to the proposed project is explained in the Construction Inputs and Operations Inputs sections discussed previously within this document, with references to the relevant sections of the Original EPS Memo that pertain to these estimates. As previously indicated, the Construction phase of the project is estimated to generate 123 direct FTEs (as explicitly detailed in Table 5 of the Original EPS Memo) while the Operations phase is estimated to generate eight total full-time and part-time employees (as explained on page 5 and page 20 of the Original EPS Memo).

Furthermore, page 9 of the Original EPS Memo states that it is assumed that "the County's existing construction labor force has a sufficient number of currently unemployed construction workers to fulfill the needs of the construction phase of the Project, and the labor force is anticipated to be sourced from within the County." Therefore, these 123 FTE positions required for construction are representative of the net increase in County jobs, as the current Countywide unemployment rate as applied to the County pool of construction labor force suggests there is more than an adequate amount of currently unemployed construction workers in the County to fulfill these positions without necessitating the use of the already-employed labor force.

Public Revenues

There are two public revenue items estimated in the Original EPS Memo – property tax and sales and use tax. Both rely on an estimated capital cost of the proposed project which, as indicated on pages 5 and 22 of the Original EPS Memo, is estimated at $300 million. This value was provided by the Applicant based on the best available information at the time of writing.

Property Tax

As described on Page 22 of the Original EPS Memo, the assessed value of the proposed project is calculated over its 25-year economic life using a straight-line depreciation method, resulting in total cumulative property tax payments of $52.2 million over the Project's lifetime. As further described on Page 22 of the Original EPS Memo, and as explicitly detailed in Appendix Tables A-3 and A-4, 11.5 percent of this total ($6,006,265) will accrue to the City of San Juan Capistrano over the life of the Project based on the Tax Rate Area (TRA) in which the project is proposed to be located (TRA 23-038). This sum represents the total net property tax benefit of the Project, as there is no negative property tax impact to net out of this total.

Sales and Use Tax

As described on Page 21-22 of the Original EPS Memo, and as explicitly detailed in Appendix Tables A-1 and A-2, the Project is estimated to generate one-time sales tax revenues to the City of San Juan Capistrano of $2,252,548. This estimate assumes that, as explained on Page 21 of the Original EPS Memo, the Applicant will establish a job-site sub-permit with the California Department of Tax and Fee Administration (CDTFA) to allow for the City to receive the entirety of the applicable sales and use tax revenues generated by Project construction activities. Appendix Table A-1 of the Original EPS Memo details the assumed categorization of the construction-phase direct purchases based on how they will be taxed, with the footnotes in said table explaining in detail how these assumptions were made. This sum represents the total net one-time sales and use tax benefit of the Project, as there is no negative sales and use tax revenue to net out of this total.

Retail Sales

Additionally, there is an estimate of retail sales impacts described on Page 23 of the Original EPS Memo, with corresponding calculations included in Appendix Tables A-5 and A-6. As stated on Page 23 of the Original EPS Memo, "the construction period is estimated to generate $3.2 million in retail sales and the operations period may support another $150,000 in annual retail sales." This estimate includes aggregate retail sales expenditures generated by direct, indirect, and induced impacts of the Project.

Infrastructure Improvements

The Applicant's proposed project would not necessitate the construction of any public infrastructure improvements. Existing roads already provide adequate site access for construction and operations, and no additional infrastructure is required. There is only one City-owned street that will be utilized for project construction, Camino Capistrano, and the Applicant has indicated that a typical condition of approval for these projects involves an agreement to provide any necessary improvements to public streets used for construction to ensure that any wear and tear caused by the construction process is rectified at the end of the construction period. Therefore, while no new infrastructure will be built, it is possible there will be maintenance-related improvements to Camino Capistrano to ensure any construction-related road wear is rectified.

Attachment 2

DR AQ-1. Updated Section 4.1 Air Quality

4.1 Air Quality

4.1.1 Introduction

This section presents the methodology and results of an analysis performed to assess potential impacts of airborne emissions from the construction and operation of the Compass Energy Storage Project (project) and the project's compliance with applicable air quality requirements. The analysis was prepared following the South Coast Air Quality Management District's (SCAQMD) California Environmental Quality Act (CEQA) Air Quality Handbook (SCAQMD 1993).

Section 4.1.1 presents the introduction to the project. Section 4.1.2 presents the regulatory items affecting new source review. Section 4.1.3 presents data on the emissions of criteria, greenhouse gases and air toxic pollutants from the project. Section 4.1.4 discusses the best available control technology (BACT) evaluations for the project. Section 4.1.5 presents the air quality impact analysis for the project. Section 4.1.6 discusses the meteorological data selection process required to analyze the impacts of the project. Section 4.1.7 presents applicable laws, ordinances, regulations, and standards. Section 4.1.8 contains references cited or consulted in preparing this section. Appendices 4.1A through 4.1C contain the emissions calculations, air quality impact analysis for construction and operation phases, air dispersion modeling information, list of receptors, and regional emissions inventory data.

4.1.2 Regulatory Items Affecting New Source Review

Regulated air emissions from project operations will not exceed federal major source thresholds under nonattainment New Source Review (NSR) or Prevention of Significant Deterioration (PSD) and, therefore, federal NSR will not apply to this project. Because nonattainment NSR does not apply, emission offsets are not required. The project site is located in an area that is considered extreme nonattainment (National Ambient Air Quality Standards [NAAQS] and California Ambient Air Quality Standards [CAAQS]) for 8-hour ozone (1997, 2008, and 2015), extreme nonattainment (NAAQS and CAAQS) for 1-hour ozone (1979), nonattainment for CAAQS particulate matter less than 10 microns (PM_{10}), and serious nonattainment (NAAQS and CAAQS) for particulate matter less than 2.5 microns ($PM_{2.5}$) (2006 and 2012) (SCAQMD 2016).

SCAQMD has an NSR process that is organized into under Regulation XIII – New Source Review, Rules 1300 through 1325. The NSR process requires the following considerations:

- Emission units must meet Best Available Control Technology (BACT). BACT will be met by purchasing engines that conform to the United States Environmental Protection Agency (EPA) Tier 4 emission standards and combust diesel fuel that contains no more than 15 parts per million ppm sulfur.

The project will generate emissions of criteria air pollutants during construction and operation. NSR is concerned with the operational emissions associated with the project. The proposed project would not include any permitted sources such as an emergency generator or other emissions unit. Therefore, BACT requirements would not apply to the proposed project.

The direct construction and operation emissions impacts associated with the project are analyzed according to SCAQMD and California Energy Commission (CEC) modeling requirements. An air quality analysis was conducted to demonstrate that impacts from nitrogen oxides (NO_x), carbon monoxide (CO), sulfur dioxide (SO_2), and

particulate matter (PM_{10} and $PM_{2.5}$) will comply with the CAAQS and NAAQS for the applicable averaging periods. Impacts from nearby sources are not anticipated to be significant but will be assessed for criteria pollutants under separate cover if requested by SCAQMD or the CEC. The need for a cumulative source analysis will be assessed after the CEC data adequacy review. A search of the California Air Resources Board (CARB) Pollution Mapping Tool shows that the closest tracked source is an inactive electrical generating facility located approximately 4.5 miles to the southeast of the project. There are no active generating units inside of the CEC's suggested radius of 6 miles to consider nearby sources, therefore, no cumulative air quality modeling protocol is provided in this study.

Worst-case annual emissions for operation are summarized in Table 4.1-1.

Table 4.1-1. Facility Potential to Emit Summary and Major Source/Attainment Status for Operation

Pollutant	Project PTE (tpy)	Federal Attainment	State Attainment	Federal NSR Major Source Threshold (tpy)	Federal PSD Major Source Threshold (tpy)
NO_2	0.004	Y	Y	10	250
CO	0.01	Y	Y	50	250
VOC	0.01	N/A	N/A	10	250
SO_2	0.00003	Y	Y	70	250
PM_{10}	0.002	Y	N	70	250
$PM_{2.5}$	0.001	N-serious	N	70	250
GHG (CO_2e)	327	N/A	N/A	N/A	75,000
Ozone	N/A	N-extreme	N	N/A	N/A

Notes: tpy = tons per year; N/A = not applicable; NSR = new source review; PSD = prevention of significant deterioration; NO_2 = nitrogen dioxide; CO = carbon monoxide; VOC = volatile organic compounds; SO_2 = sulfur dioxide; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns; GHG = greenhouse gases; CO_2e = carbon dioxide equivalent. Greenhouse gas (GHG) can only be a major source under PSD if another regulated pollutant is a major source for PSD. **Source:** EPA 2023a.

4.1.3 Emissions Evaluation

4.1.3.1 Facility Emissions

As shown in Table 4.1-1, the proposed project would not result in emissions that exceed the major source screening threshold of 250 tons per year. Therefore, the proposed project would be considered a NSR minor source for all criteria air pollutants under federal regulations. As such, the project will not be required to implement the requirements of the federal PSD program. The SCAQMD's NSR rules requires that all emission units meet BACT standards. BACT requires utilizing engines that conform to the EPA Tier 4 emission standards and combust diesel fuel that contains no more than 15 parts per million (ppm) sulfur. The proposed project would not include any permitted sources such as an emergency generator or boiler. Therefore, BACT requirements would not apply to the proposed project. However, off-road equipment during construction would meet the Tier Final 4 emissions standard although not it is not required by SCAQMD's NSR rules. Criteria air pollutant emissions from the project are discussed in the following sections. Emissions related to hazardous air pollutants (HAPs) are discussed in Section 4.9, Public Health, of this application. Detailed emissions calculations for all air criteria pollutants are provided in Appendix 4.1A. Peak hourly, daily, and annual emissions of criteria air pollutants are based on the anticipated construction schedule and hours of use for the off-road equipment.

4.1.3.2 Normal Operations

Construction and operation of the proposed project would include activities that would require the use of off-road diesel-fueled equipment. Use of the off-road equipment during construction activities would result in criteria air pollutant and toxic air pollutant emissions to the South Coast Air Basin (SCAB). Specifically, criteria air pollutant emissions would include emissions of volatile organic compounds (VOCs), NO_x, CO, sulfur oxides (SO_x), PM_{10}, $PM_{2.5}$, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Air Toxic pollutants would consist of a combination of HAPs and other compound which are commonly generated from the combustion of diesel fuel. Table 4.1-2 lists the pollutants that may potentially be emitted by the project during regular maintenance activities. There are no other significant sources of criteria air pollutant or HAPs resulting from the operation of the project. Commissiong of the project is not anticipated to require significant time or result in emissions that are beyond the scope of normal operation captured in this analysis. As such, no air emission testing is anticipated for commissioning of the project.

Table 4.1-2. Air Pollutants Emitted by the Project

Criteria Air Pollutants	Greenhouse Gases	Toxic Air Contaminants
Volatile Organic Compounds	Carbon Dioxide	Diesel Particulate Matter
Nitrogen Oxides	Methane	—
Carbon Monoxide	Nitrous Oxide	
Particulate Matter Less than 10 microns	—	
Particulate Matter Less than 2.5 microns		

4.1.3.3 Criteria Pollutant Emissions

Criteria air pollutant emissions would be released from the use of diesel fueled off-road equipment during construction and from periodic maintenance during operation. Table 4.1-3 shows the maximum short term (pounds per hour [lb/hr]) and annual criteria pollutant emissions for the worst-case scenario during operation. See Appendix 4.1A for detailed calculations for criteria air pollutant emissions.

Table 4.1-3. Facility Maximum Emissions Rate and PTE Summary for Operation

Criteria Air Pollutants	Maximum Emissions Rate (lb/hr)	Potential to Emit (tpy)
NO_2	0.4422	0.004
CO	0.4131	0.01
VOC	0.0514	0.01
SO_2	0.0012	0.00003
PM_{10}	0.0253	0.002
$PM_{2.5}$	0.0183	0.001
CO_2e	315.75	327

Source: Appendix 4.1A.
Notes: lb/hr = pounds per hour; tpy = tons per year; NO_x = nitrogen oxides; CO = carbon monoxide; VOC = volatile organic compounds; SO_2 = sulfur dioxide; PM_{10}/$PM_{2.5}$ = particulate matter less than 10 or less than 2.5 microns; CO_2e = carbon dioxide equivalent.

Greenhouse Gas Emissions

GHG emissions would be released from the use of diesel fueled off-road equipment during construction and from periodic maintenance during operation. Greenhouse gas (GHG) emissions have been estimated for both construction and operation of the project. Table 4.1-3 shows the GHG emissions from operation of the project. Appendix 4.1A provides GHG emissions details for all phases of construction.

4.1.3.4 Hazardous Air Pollutants

Section 4.9, Public Health, provides a detailed quantitative analysis on HAPs emissions from operation of the project and a health risk assessment.

4.1.3.5 Construction Emissions

Construction of the proposed project is estimated to require 15 months to complete. Construction activity and the resulting emissions at the project site would be in line with emissions at most construction sites. Construction of the project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (e.g., off-road construction equipment, soil disturbance, and VOC off-gassing from architectural coatings and asphalt pavement. Specifically, entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Internal combustion engines used by construction equipment, haul trucks, vendor trucks (i.e., delivery trucks), and worker vehicles would result in emissions of VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$. Construction emissions can vary substantially from day to day depending on the level of activity, the specific type of operation, and, for dust, the prevailing weather conditions. Emissions estimates resulting from construction of the project can be found in Appendix 4.1A.

The proposed project would be required to incorporate reduction measures as required by SCAQMD Rule 403 and Rule 1113. SCAQMD Rule 403, Fugitive Dust, requires the implementation of measures to control the emission of visible fugitive/nuisance dust, such as wetting soils that would be disturbed. It was assumed that the active sites would be watered at least twice daily. Rule 1113, Architectural Coatings, requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

The SCAQMD CEQA Air Quality Significance Thresholds, as revised in March 2023, set forth quantitative emission significance thresholds for criteria air pollutants, which, if exceeded, would indicate the potential for a project to contribute to violations of the NAAQS or CAAQS. Table 4.1-4 lists the revised SCAQMD Air Quality Significance Thresholds (SCAQMD 2023).

Table 4.1-4. South Coast Air Quality Management District Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	**Construction (Pounds per Day)**	**Operation (Pounds per Day)**
VOCs	75	55
NO_x	100	55
CO	550	550
SO_x	150	150

Table 4.1-4. South Coast Air Quality Management District Air Quality Significance Thresholds

Criteria Pollutants Mass Daily Thresholds		
Pollutant	**Construction (Pounds per Day)**	**Operation (Pounds per Day)**
PM_{10}	150	150
$PM_{2.5}$	55	55
Lead[a]	3	3
TACs and Odor Thresholds		
TACs[b]	Maximum incremental cancer risk ≥10 in 1 million Cancer Burden >0.5 excess cancer cases (in areas ≥1 in 1 million) Chronic and acute hazard index ≥1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	

Source: SCAQMD 2023.
Notes: VOCs = volatile organic compounds; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; TAC = toxic air contaminant; SCAQMD = South Coast Air Quality Management District.
[a] The phase-out of leaded gasoline started in 1976. Since gasoline no longer contains lead, the project is not anticipated to result in impacts related to lead; therefore, it is not discussed in this analysis.
[b] TACs include carcinogens and noncarcinogens.

Table 4.1-5 shows the estimated maximum daily construction emissions associated with the construction phase of the project.

Table 4.1-5. Estimated Maximum Daily Construction Criteria Air Pollutant Emissions

Year	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds Per Day					
2025	3.96	58.36	181.36	0.38	16.92	6.54
2026	1.03	16.27	46.89	0.09	1.15	0.39
SCAQMD Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Threshold Exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Source: Appendix 4-1A.
Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; SCAQMD = South Coast Air Quality Management District.
The values shown are the maximum summer or winter daily emissions results from the California Emissions Estimator Model (CalEEMod). These estimates reflect control of fugitive dust required by SCAQMD Rule 403.

As shown in Table 4.1-5 daily construction emissions would not exceed the SCAQMD significance thresholds for VOC, NO_x, CO, SO_x, PM_{10}, or $PM_{2.5}$ during project construction, and short-term construction impacts would be less than significant.

Localized Significance Thresholds Analysis

Construction activities associated with the project would result in temporary sources of on-site fugitive dust and construction equipment emissions. A localized significance threshold (LST) analysis has been prepared to determine potential impacts to nearby sensitive receptors during construction of the project. As indicated in the discussion of the thresholds of significance, SCAQMD recommends the evaluation of localized NO_2, CO, PM_{10}, and $PM_{2.5}$ impacts as a result of construction activities to sensitive receptors in the immediate vicinity of the project

site. The impacts were analyzed using methods consistent with those in SCAQMD's Final Localized Significance Threshold Methodology (2008~~9~~). According to the Final Localized Significance Threshold Methodology, "off-site mobile emissions from the project should not be included in the emissions compared to the LSTs" (SCAQMD 2008~~9~~). Trucks and worker trips associated with the project are not expected to cause substantial air quality impacts to sensitive receptors along off-site roadways since emissions would be relatively brief in nature and would cease once the vehicles pass through the main streets. Nonetheless, if effort to conservatively capture potential vehicle activity within the project boundary (i.e., fence line), a small portion (i.e., 1,000 feet [0.19 miles]) of the off-site vehicle travel for worker vehicles, vendor trucks, and haul trucks were conservatively assumed as on-site emissions for the LST analysis. The allowable emission rates depend on the following parameters:

1. Source-Receptor Area (SRA) in which the project is located
2. Size of the project site
3. Distance between the project site and the nearest sensitive receptor (e.g., residences, schools, hospitals)

The project site is located in SRA 21 (Capistrano Valley). LST pollutant screening level concentration data is currently published for 1-, 2-, and 5-acre sites for varying distances (25, 50, 100, 200, and 500 meters). The SCAQMD "Fact Sheet for Applying CalEEMod to Localized Significance Thresholds" (SCAQMD 2011) provides estimated acres per 8-hour day for crawler tractors, graders, rubber-tired dozers, and scrapers to assist in estimating the maximum number of acres disturbed on the peak day. Because these earth-moving pieces of equipment are anticipated to be used, the estimated maximum acres per day using this approach would be 2 acres. Therefore 2-acre site was assumed for the look-up tables. The nearest sensitive-receptor land use is located approximately 280 feet east of the project site across Interstate 5. Accordingly, the distance in the LST look-up table of 200 meters is assumed to conduct a conservative analysis. The estimated maximum daily on-site construction emissions generated by the project are presented in Table 4.1-6 and compared to the applicable SCAQMD LSTs.

Table 4.1-6. Localized Significance Thresholds Analysis for Project Construction

Maximum On-Site Emissions	NO_2	CO	PM_{10}	$PM_{2.5}$
	Pounds per Day			
Summer				
2025	30.49	96.52	0.30	0.29
2026	N/A	N/A	N/A	N/A
Maximum Daily Emissions	**30.49**	**96.52**	**0.30**	**0.29**
Winter				
2025	34.46	160.43	8.30	4.09
2026	14.98	44.20	0.13	0.13
Maximum Daily Emissions	**34.46**	**160.43**	**8.30**	**4.09**
SCAQMD LST	*165*	*2,615*	*55*	*22*
LST Exceeded?	**No**	**No**	**No**	**No**

Source: SCAQMD 2008.
Notes: NO_2 = nitrogen dioxide; CO = carbon monoxide; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable or available; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold.
Localized significance thresholds are shown for a 2-acre project site corresponding to a distance to a sensitive receptor of 200 meters.

As shown in Table 4.1-6, proposed construction activities would not generate emissions in excess of site-specific LSTs for NO_x, CO, PM_{10}, and $PM_{2.5}$.

Construction GHG emissions

Construction of the Project would result in emissions of GHG emissions primarily associated with use of off-road construction equipment, on-road haul and vendor (material delivery) truck trips, and worker vehicle trips. A detailed depiction of the construction schedule—including information regarding phasing, equipment used during each phase, haul trucks, vendor trucks, and worker vehicles—is included in Appendix 4.1A. Table 4.1-7 shows the estimated annual GHG construction emissions associated with the Project. Complete details of the construction emissions calculations are provided in Appendix 4.1A.

Table 4.1-7. Estimated Annual Construction GHG Emissions

Year	CO2	CH4	N2O	CO2e
	Metric Tons			
2024	2,313.48	0.10	0.09	2,343.88
2025	214.66	0.008	0.006	216.88
2060	270.57	0.009	0.002	271.65
Total	2,313.477	0.1	0.09	2,832.41
			Amortized Emissions (30 years)	*94.41*

Source: CalEEMod Version 2022.1.
Notes: GHG = greenhouse gas; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent. See Appendix 4.1A for complete results. <0.01 = reported value is less than 0.01.

As shown in Table 4.1-7, the estimated total GHG emissions from construction of the Project would be approximately 2,832 MT CO_2e. When amortized over 30 years, the estimated annual GHG emissions from construction of the Project would be approximately 94 MT CO_2e per year.

4.1.3.6 Operational Emissions

Operation of the proposed project would generate VOC, NO_x, CO, SO_x, PM_{10}, ~~and~~ $PM_{2.5}$ and GHG emissions from area sources, energy sources ~~and~~ mobile sources and off-road equipment, which are discussed below. Emissions from these sources were estimated based on California Emissions Estimator Model (CalEEMod) default assumptions for operations of the proposed project land uses. It was assumed that the project would be operational following the completion of construction, which would occur in 2026.

Area Sources

The area source category calculates direct sources of air pollutant emissions located at the project site, including consumer product use and landscape maintenance equipment. CalEEMod defaults were used to estimate emissions from area sources during operation of the project.

Consumer products are various solvents used in non-industrial applications that emit VOCs during their product use, including detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. Consumer product VOC emissions are estimated in CalEEMod based on the floor area of buildings and on the default factor

of pounds of VOC per building square foot per day. The CalEEMod default utilization rates and emission factors were assumed.

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chainsaws, and hedge trimmers, as well as air compressors ~~, generators,~~ and pumps. The emissions associated from landscape equipment use were estimated using CalEEMod. The emission factors are multiplied by the number of summer days that represent the number of operational days.

Energy Sources

As represented in CalEEMod, energy sources include emissions associated with building electricity. Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for GHGs in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site. The project does not include the use of natural gas during operation. Therefore, no emissions associated with energy sources were quantified for the air quality analysis. The estimated annual electricity consumption from the project was provided by the applicant and assumed to be 10,950 megawatt-hours per year. This estimate includes all energy demand to power HVAC equipment associated with BESS cooling and energy loss from charging and discharging the BESS.

Mobile Sources

Following the completion of construction activities, the project would generate criteria pollutant emissions from mobile sources (vehicular traffic) as a result of the periodic maintenance of the project. The project was assumed to require up to 2 employees visiting the BESS facility sites 1 day a week for maintenance. The estimated trip lengths and trip modes were based on data provided by the project applicant. CalEEMod was used to estimate emissions from proposed vehicular sources (refer to Appendix 4.1A). CalEEMod default data, including temperature, trip characteristics, variable start information, and emissions factors, were conservatively used for the model inputs. Project-related traffic was assumed to include a mixture of vehicles in accordance with the associated use, as modeled within CalEEMod, which is based on the CARB EMFAC2021 model. Emission factors representing the vehicle mix and emissions for 2026 were used to estimate emissions associated with vehicular sources.

Off-Road Sources

During irregular maintenance, the project may require the movement or replacement of battery enclosures during the lifetime of the project. As such, the use of one crane was assumed to assist the lifting and movement of the BESS containers. CalEEMod was used to estimate criteria air pollutant emissions of the crane assuming 8 hours of operation on 1 day every year.

Solid Waste

The Project would generate solid waste from the on-site employees, and therefore, result in CO_2e emissions associated with landfill off-gassing. CalEEMod default values for solid waste generation were used to estimate GHG emissions associated with solid waste.

Water and Wastewater

Water consumption estimates for the operations and maintenance building for both indoor and outdoor water use were estimated using CalEEMod default values. Electricity use for water supply is based on the electric pump

rating, pump flow rate, electricity intensity factors from CalEEMod for the County, and the indoor and outdoor water use default values in CalEEMod.

Criteria Air Pollutant Operational Emissions

Table 4.1-~~7~~ 8 presents the unmitigated maximum daily emissions associated with the operation of the project in 2026 after all phases of construction have been completed. Complete details of the emissions calculations are provided in Appendix 4.1A. Emissions represent maximum of summer and winter. "Summer" emissions are representative of the conditions that may occur during the ozone (O_3) season (May 1 to October 31), and "winter" emissions are representative of the conditions that may occur during the balance of the year (November 1 to April 30).

Table 4.1-~~7~~8. Estimated Maximum Daily Operational Criteria Air Pollutant Emissions

Source	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
	Pounds per Day					
Summer						
Mobile	0.01	0.09	0.19	<0.01	0.06	0.02
Area	0.03	<0.01	0.04	<0.01	<0.01	<0.01
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.37	3.45	3.07	<0.01	0.14	0.13
Total	**0.41**	**3.54**	**3.30**	**0.01**	**0.20**	**0.15**
Winter						
Mobile	0.01	0.09	0.17	<0.01	0.06	0.02
Area	0.02	N/A	N/A	N/A	N/A	N/A
Energy	0.00	0.00	0.00	0.00	0.00	0.00
Off-Road	0.37	3.45	3.07	0.01	0.14	0.13
Total	**0.40**	**3.54**	**3.24**	**0.01**	**0.20**	**0.15**
Maximum Daily Emissions						
Maximum	**0.41**	**3.54**	**3.30**	**0.01**	**0.20**	**0.15**
SCAQMD threshold	*55*	*55*	*550*	*150*	*150*	*55*
Threshold exceeded?	**No**	**No**	**No**	**No**	**No**	**No**

Notes: VOC = volatile organic compound; NO_x = oxides of nitrogen; CO = carbon monoxide; SO_x = sulfur oxides; PM_{10} = coarse particulate matter; $PM_{2.5}$ = fine particulate matter; N/A = not applicable or available; SCAQMD = South Coast Air Quality Management District. <0.01 = reported value is less than 0.01.
See Appendix 4.1A for complete results.
The values shown are the maximum summer or winter daily emissions results from CalEEMod. Columns may not add due to rounding.

As shown in Table 4.1-~~8~~7, daily operational emissions for the project would not exceed SCAQMD's significance thresholds for any criteria air pollutant. Therefore, the project would result in a **less-than-significant impact** related to emissions of criteria air pollutant emissions during operation.

GHG Operational Emissions

Table 4.1-9 shows the estimated annual GHG operational emissions associated with the Project. Total annual operational emissions were calculated in CalEEMod and combined with amortized (35 years) construction emissions.

Table 4.1-9. Estimated Annual Operational GHG Emissions

Emissions Source	CO_2	CH_4	N_2O	CO_2e
	Metric Tons per Year			
Area	0.02	<0.01	<0.01	0.02
Energy	224.00	0.16	0.02	234.02
Mobile	2.57	<0.01	<0.01	2.66
Waste	0.11	0.01	0.00	0.39
Water	0.19	0.01	<0.01	0.44
Off-Road	0.45	<0.01	<0.01	0.45
			Amortized Construction Emissions (30 years)	*94.41*
			Total Project Emissions	**332.08**

Source: See Appendix 4.1A for complete results.
Notes: GHG = greenhouse gas; MT = metric tons; CO_2 = carbon dioxide; CH_4 = methane; N_2O = nitrous oxide; CO_2e = carbon dioxide equivalent. <0.01 = reported value is less than 0.01.
[1] Includes sulfur hexafluoride (SF_6) gas emissions from leakage.

As shown in Table 4.1-9, implementation of the Project would result in approximately 332 MT CO_2e per year including amortized construction emissions. Complete details of the construction emissions calculations are provided in Appendix 4.1A.

4.1.4 Best Available Control Technology Evaluation

4.1.4.1 Current Control Technologies

BACT will be met by purchasing engines certified to meet EPA Tier 4 emissions for the applicable size and type of engine. Based on the proposed engines for project operation, Table 4.1-108 shows emission limits must be met per SCAQMD BACT Guidelines for Non-Major Polluting Facilities.

Table 4.1-108. SCAQMD BACT Guidelines for Non-major Polluting Facilities – Portable Engines[a]

Subcategory	Rating Size (horsepower)	Criteria Air Pollutants (g/kW-hr)					
		VOCs	NO_x	NO_x + NMHC[b]	SO_x	CO	PM[c]
Compression Ignition[d]	50 <HP>75	NA	NA	4.7	Sulfur content no greater than 0.0015% by weight	5.0	0.03
	75<HP>175		0.40	0.19		5.0	0.02
	175<HP>750[e]		0.4	0.19		3.5	0.02
	>750 HP		3.5	0.4		3.5	0.10
Spark Ignition	All	1.5	1.5	NA	NA	.20	NA

Source: SCAQMD 2022b.
Notes: g/kW-hr = grams per kilowatt hour; VOCs = volatile organic compounds; NO_x = oxides of nitrogen; NMHC = non-methane hydrocarbons; SO_x = sulfur oxides; CO = carbon monoxide; PM = particulate matter; HP = horsepower; NA = not applicable.
[a] BACT for portable engines is determined by deemed complete date of permit application, not date of manufacture or installation.
[b] NMHC + NO_x means the sum of non-methane hydrocarbons and oxides of nitrogen emissions, unless specified as "NMHC only," which only includes NMHC emissions.
[c] The PM limits in the table only apply to filterable PM. [d] The engine must be certified by EPA or CARB to meet the Tier 4 emissions requirements of 40 CFR part 89 – Control of Emissions from New and In-use Nonroad Compression-Ignition Engines shown in the table or otherwise demonstrate that it meets the Tier 4 emissions limits. If, because of the averaging, banking, and trading

program, there is no new engine from any manufacturer that meets the above standards, then the engine must meet the family emissions limits established by the manufacturer and approved by the EPA. Based on the model year, the CARB Airborne Toxic Control Measure for portable diesel engines requires in-use portable diesel engines to be certified to Tier 1, 2, 3, or 4 by their respective deadlines, all of which have passed.

[e] CARB has extended the Tier 4 Final requirements deadline "until further notice" for Portable, Compression-Ignition Engines for HP > 750.

4.1.4.2 Proposed Best Available Control Technology

No permitted stationary or portable emission sources are proposed as part of the project operation. Therefore, BACT requirements are not applicable to the operation of the project.

4.1.5 Air Quality Impact Analysis

This section discusses the methodology and analysis results. The spatial extent and magnitude of ground-level emissions concentrations resulting from construction of the project. The maximum-modeled concentrations were added to the maximum background concentrations to access against the applicable thresholds. Dispersion modeling methods follow the EPA approved methods established in 40CFR Part 51 Appendix W and SCAQMD Modeling Guidance for AERMOD (SCAQMD n.d.).

4.1.5.1 Climate and Meteorology

Air Quality

The SCAB is characterized as having a Mediterranean climate (typified as semiarid with mild winters, warm summers, and moderate rainfall). The general region lies in the semi-permanent high-pressure zone of the eastern Pacific; as a result, the climate is mild and tempered by cool sea breezes. The usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds.

Moderate temperatures, comfortable humidity, and limited precipitation characterize the climate in the SCAB. The average annual temperature varies little throughout the SCAB, averaging 75°F. However, with a less-pronounced oceanic influence, the eastern inland portions of the SCAB show greater variability in annual minimum and maximum temperatures. All portions of the SCAB have recorded temperatures over 100°F in recent years. Although the SCAB has a semiarid climate, the air near the surface is moist because of the presence of a shallow marine layer. Except for infrequent periods when dry air is brought into the SCAB by offshore winds, the ocean effect is dominant. Periods with heavy fog are frequent, and low stratus clouds, occasionally referred to as "high fog," are a characteristic climate feature. Annual average relative humidity is 70% at the coast and 57% in the eastern part of the SCAB. Precipitation in the SCAB is typically 9 to 14 inches annually and is rarely in the form of snow or hail because of typically warm weather. Most of the rainfall in Southern California occurs between late fall and early spring, with most rain typically occurring in the months of January and February (SCAQMD 2017).

GHGs

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind patterns, lasting for an extended period of time (decades or longer). The Earth's temperature depends on the balance between energy entering and leaving the planet's system. Many factors, both natural and human, can cause changes in Earth's energy balance, including variations in the sun's energy reaching Earth, changes in the

reflectivity of Earth's atmosphere and surface, and changes in the greenhouse effect, which affects the amount of heat retained by Earth's atmosphere (EPA 2023c).

The greenhouse effect is the trapping and build-up of heat in the atmosphere (troposphere) near the Earth's surface. The greenhouse effect traps heat in the troposphere through a threefold process as follows: Short-wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long-wave radiation; and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and toward the Earth. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature and creates a pleasant, livable environment on the Earth. Human activities that emit additional GHGs to the atmosphere increase the amount of infrared radiation that gets absorbed before escaping into space, thus enhancing the greenhouse effect and causing the Earth's surface temperature to rise.

The scientific record of the Earth's climate shows that the climate system varies naturally over a wide range of time scales and that in general, climate changes prior to the Industrial Revolution in the 1700s can be explained by natural causes, such as changes in solar energy, volcanic eruptions, and natural changes in GHG concentrations. Recent climate changes, in particular the warming observed over the past century, however, cannot be explained by natural causes alone. Rather, it is extremely likely that human activities have been the dominant cause of that warming since the mid-20th century and is the most significant driver of observed climate change (IPCC 2014; EPA 2023c). Human influence on the climate system is evident from the increasing GHG concentrations in the atmosphere, positive radiative forcing, observed warming, and improved understanding of the climate system (IPCC 2014). The atmospheric concentrations of GHGs have increased to levels unprecedented in the last 800,000 years, primarily from fossil fuel emissions and secondarily from emissions associated with land use changes (IPCC 2014). Continued emissions of GHGs will cause further warming and changes in all components of the climate system, which is discussed further in Section 3.1.5, Potential Effects of Climate Change.

4.1.5.2 Dispersion Modeling Methodology

Construction Modeling Scenario

See Section 4.1.3.5 for a discussion of the construction modeling scenario.

Operational Modeling Scenario

The project will include the development of an approximately 250 MW BESS and associated infrastructure. A BESS is a stationary equipment that receives electrical energy and then utilizes batteries to store that energy to supply electrical energy at a future time. Power released or captured by the proposed project will be transferred to and from the SDG&E Trabuco to Capistrano 138 kV transmission line via a loop-in generation transmission line that will interconnect to an SDG&E switchyard to be constructed within the project site. The project will consist of lithium-ion batteries, installed in racks and contained inside non-habitable enclosures; inverters; MV transformers; an SDG&E switchyard; a project substation; and other associated equipment. The project site would be monitored remotely and would only require periodic maintenance. Therefore, the proposed project would not result in regular on-site emissions during normal operation, and emission concentrations are anticipated to be less than those from construction. Therefore, no operational modeling was conducted.

Emissions Inventory

As discussed in Section 4.1.3.5, construction of the project would result in the temporary addition of pollutants to the local airshed caused by on-site sources (e.g., off-road construction equipment, soil disturbance, and VOC off-gassing from architectural coatings and asphalt pavement). Specifically, entrained dust results from the exposure of earth surfaces to wind from the direct disturbance and movement of soil, resulting in PM_{10} and $PM_{2.5}$ emissions. Internal combustion engines used by construction equipment, haul trucks, vendor trucks (i.e., delivery trucks), and worker vehicles would result in emissions of VOC, NO_x, CO, PM_{10}, and $PM_{2.5}$. CalEEMod Version 2022.1 was used to estimate emissions from construction of the proposed project. Detailed emissions assumptions can be found in Appendix 4.1A ~~A~~.

4.1.5.3 Additional Model Selection

Additional models/programs described below were used to quantify pollutant impacts on the surrounding environment based on the emission sources operating parameters and their locations.

- CalEEMod is a statewide computer model developed in cooperation with air districts throughout the state to quantify criteria air pollutant and GHG emissions associated with construction activities and operation of a variety of land use projects, such as residential, commercial, and industrial facilities. CalEEMod input parameters, including the land use type used to represent the project and its size, construction schedule, and anticipated use of construction equipment, were based on information provided by the applicant or default model assumptions if project specifics were unavailable.
- HARP Air Dispersion Modeling and Risk Tool (version 21081) was used to estimate human health risks related to cancer, chronic non-cancer, and acute health effects. More discussion about HARP is provided in Section 4.9, Public Health.

4.1.5.4 Modeling Parameters

The dispersion modeling was performed using the American Meteorological Society/EPA Regulatory Model (AERMOD), which is the model SCAQMD requires for atmospheric dispersion of emissions. AERMOD is a steady-state Gaussian plume model that incorporates air dispersion based on planetary boundary layer turbulence structure and scaling concepts, including treatment of surface and elevated sources, building downwash, and simple and complex terrain (EPA 2023b). Principal parameters of this modeling are presented in Table 4.1-~~9~~11.

Table 4.1-119. AERMOD Principal Parameters

Parameter	Details
Meteorological Data	The latest 3-year meteorological data (2011–2014 and 2016) for the Mission Viejo Station were obtained from SCAQMD as the recommended meteorological station and input to AERMOD.
Urban versus Rural Option	Urban areas typically have more surface roughness, as well as structures and low-albedo surfaces that absorb more sunlight—and thus more heat—relative to rural areas. Per the SCAQMD guidelines, the land use procedure from 4.4.1 of the OEHHA Guidance Manual indicated that urban dispersion was appropriate for the project site.
Terrain Characteristics	The elevation of the modeled site is 67 meters above sea level. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate.

Table 4.1-119. AERMOD Principal Parameters

Parameter	Details
Elevation Data	Digital elevation data were imported into AERMOD, and elevations were assigned to the emission sources and receptors. Digital elevation data were obtained through AERMOD View in the U.S. Geological Survey's National Elevation Dataset format with a 30-meter resolution.
Emission Sources and Release Parameters	Air dispersion modeling from construction equipment was conducted using emissions estimated using CalEEMod, assuming emissions would occur 8 hours per day, 5 days per week. Vehicle trips were modified to account only for emissions occurring within 0.25 miles of the project site (SJVAPCD 2018). The proposed project area was modeled as a series of adjacent line-volume sources.
Source Release Characterizations	The modeled line of volume sources was placed to cover the site for exhaust emissions. A plume height dimension of 10 meters, a plume width dimension of 10 meters, and a release height of 5 meters was assumed for off-road equipment and diesel trucks (SCAQMD 2008).
Receptors	A cartesian plant boundary with 25-meter spacing was placed around the project site. A uniform cartesian grid of 50-meter spacing was placed out to 500 meters from the project site, and a uniform cartesian grid of 100-meter spacing was placed out to 1,000 meters from the project site (SCAQMD n.d.).
Variable Emissions	The variable emissions scenario was used to limit the emissions from construction in accordance with the noise ordinance of the City of San Juan Capistrano Municipal Code, Title 9, Chapter 3, Article 5, which limits construction from 6:00 p.m. to 7:00 a.m. on Monday through Friday, or from 4:30 p.m. to 8:30 a.m. on Saturday.

Notes: AERMOD = American Meteorological Society/EPA Regulatory Model; SCAQMD = South Coast Air Quality Management District; CalEEMod = California Emissions Estimator Model.
See Appendix 4.1B for additional information.

All NO_2 concentrations were estimated using the Ambient Ratio Method Version 2 (ARM2), which is a regulatory default option and commonly used in practice. The default minimum NO_2/NO_x conversion ratio of 0.5 and maximum conversion ratio of 0.9 were used for both 1-hour and annual averaging periods. There are no point sources associated with construction or operation of the project. Therefore, stack height analysis is not applicable. All pollutants were modeled in accordance with their respective ambient air quality standards (AAQS) averaging times.

Monitoring data for the SCAB were obtained via the SCAQMD's Historical Data by Year for comparison to applicable AAQSs. Modeled maximum 24-hour and annual concentrations of PM_{10} and $PM_{2.5}$ were compared directly to the significant change thresholds of 2.5 and 1.0 micrograms/cubic meter, respectively.

The most recent 3 years of available monitoring data were used to develop background concentration values. For all CAAQS and most NAAQS pollutants, the maximum value from the most recent 3 years were used except for the NAAQS pollutants with special design values including the 1-hour NO_2 (3-year average of the 98th percentile of the daily maximum 1-hour average) and 1-hour SO_2 (3-year average of the 99th percentile of the daily maximum 1-hour average) (SCAQMD n.d.).

4.1.5.5 Background Air Quality

Ambient Air Quality Standards

Criteria air pollutants are defined as pollutants for which the federal and state governments have established AAQS, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include O_3, NO_2, CO, SO_2, PM_{10}, $PM_{2.5}$, and lead. The federal government and state government have established NAAQS and CAAQS, respectively, for each of these pollutants. The CAAQS are generally more restrictive than the NAAQS. The NAAQS and CAAQS are presented in Table 4.1-12~~0~~, Ambient Air Quality Standards.

Table 4.1-12~~0~~. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	Primary[c,d]	Secondary[c,e]
Ozone (O_3)	1 hour	0.09 ppm (180 µg/m³)	—	Same as Primary Standard[f]
	8 hours	0.070 ppm (137 µg/m³)	0.070 ppm (137 µg/m³)[f]	
Nitrogen dioxide (NO_2)[g]	1 hour	0.18 ppm (339 µg/m³)	0.100 ppm (188 µg/m³)	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 µg/m³)	0.053 ppm (100 µg/m³)	
Carbon monoxide (CO)	1 hour	20 ppm (23 mg/m³)	35 ppm (40 mg/m³)	None
	8 hours	9.0 ppm (10 mg/m³)	9 ppm (10 mg/m³)	
Sulfur dioxide (SO_2)[h]	1 hour	0.25 ppm (655 µg/m³)	0.075 ppm (196 µg/m³)	—
	3 hours	—	—	0.5 ppm (1,300 µg/m³)
	24 hours	0.04 ppm (105 µg/m³)	0.14 ppm (for certain areas)[g]	—
	Annual	—	0.030 ppm (for certain areas)[g]	—
Course Particulate Matter (PM_{10})[i]	24 hours	50 µg/m³	150 µg/m³	Same as Primary Standard
	Annual Arithmetic Mean	20 µg/m³	—	
Fine Particulate Matter ($PM_{2.5}$)[i]	24 hours	—	35 µg/m³	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m³	12.0 µg/m³	15.0 µg/m³
Lead[j,k]	30-day Average	1.5 µg/m³	—	—
	Calendar Quarter	—	1.5 mg/m³ (for certain areas)k	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 mg/m3	

Table 4.1-12~~0~~. Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[a]	National Standards[b]	
		Concentration[c]	Primary[c,d]	Secondary[c,e]
Hydrogen sulfide	1 hour	0.03 ppm (42 µg/m3)	—	—
Vinyl chloride[j]	24 hours	0.01 ppm (26 µg/m3)	—	—
Sulfates	24 hours	25 µg/m3	—	—
Visibility-reducing particles	8 hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70%	—	—

Source: CARB 2016.

Notes: ppm = parts per million by volume; µg/m^3 = micrograms per cubic meter; mg/m^3= milligrams per cubic meter; PST = Pacific Standard Time.

[a] California standards for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, suspended particulate matter—PM_{10}, $PM_{2.5}$, and visibility-reducing particles—are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[b] National standards (other than O_3, NO_2, SO_2, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

[c] Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C) and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

[d] National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

[e] National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[f] On October 1, 2015, the primary and secondary NAAAQS for O_3 were lowered from 0.075 ppm to 0.070 ppm.

[g] To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of ppm. To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

[h] On June 2, 2010, a new 1-hour SO_2 standard was established, and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[i] On December 14, 2012, the national annual $PM_{2.5}$ primary standard was lowered from 15 µg/m^3 to 12.0 µg/m^3. The existing national 24-hour $PM_{2.5}$ standards (primary and secondary) were retained at 35 µg/m^3, as was the annual secondary standard of 15 µg/m^3. The existing 24-hour PM_{10} standards (primary and secondary) of 150 µg/m^3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[j] CARB has identified lead and vinyl chloride as toxic air contaminants (TACs) with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

[k] The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m^3 as a quarterly average) remains in effect until 1 year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

Criteria Air Pollutant Health Effects

Criteria air pollutants and their health effects are discussed in the following paragraphs.[1]

Ozone. O_3 is a strong-smelling, pale blue, reactive, toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the sun's energy and O_3 precursors. These precursors are mainly NO_x and VOCs. The maximum effects of precursor emissions on O_3 concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O_3 formation, and ideal conditions occur during summer and early autumn on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O_3 exists in the upper atmosphere O_3 layer (stratospheric O_3) and at the Earth's surface in the troposphere (ground-level O_3).2 The O_3 that EPA and CARB regulate as a criteria air pollutant is produced close to the ground level, where people live, exercise, and breathe. Ground-level O_3 is a harmful air pollutant that causes numerous adverse health effects and is thus considered "bad" O_3. Stratospheric, or "good," O_3 occurs naturally in the upper atmosphere, where it reduces the amount of ultraviolet light (i.e., solar radiation) entering the Earth's atmosphere. Without the protection of the beneficial stratospheric O_3 layer, plant and animal life would be seriously harmed.

O_3 in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) to O_3 at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes (EPA 2023b~~EPA 2013~~).

Inhalation of O_3 causes inflammation and irritation of the tissues lining human airways, causing and worsening a variety of symptoms. Exposure to O_3 can reduce the volume of air that the lungs breathe in, thereby causing shortness of breath. O_3 in sufficient doses increases the permeability of lung cells, rendering them more susceptible to toxins and microorganisms. The occurrence and severity of health effects from O_3 exposure vary widely among individuals, even when the dose and the duration of exposure are the same. Research shows adults and children who spend more time outdoors participating in vigorous physical activities are at greater risk from the harmful health effects of O_3 exposure. While there are relatively few studies on the effects of O_3 on children, the available studies show that children are no more or less likely to suffer harmful effects than adults. However, there are a number of reasons why children may be more susceptible to O_3 and other pollutants. Children and teens spend nearly twice as much time outdoors and engaged in vigorous activities as adults. Children breathe more rapidly than adults and inhale more pollution per pound of their body weight than adults. Also, children are less likely than adults to notice their own symptoms and avoid harmful exposures. Further research may be able to better distinguish between health effects in children and adults. Children, adolescents, and adults who exercise or work outdoors, where O_3 concentrations are the highest, are at the greatest risk of harm from this pollutant (CARB 2023b).

Nitrogen Dioxide. NO_2 is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO_2 in the atmosphere is the oxidation of the primary air pollutant nitric oxide, which is a colorless, odorless gas. NO_x plays a major role, together with VOCs, in the atmospheric reactions that produce O_3. NO_x is formed from fuel combustion under high temperature or pressure. In addition, NO_x is an

1 The descriptions of the criteria air pollutants and associated health effects are based on EPA's "Criteria Air Pollutants" (EPA 2023c), as well as CARB's "Glossary" (CARB 2023a).

2 The troposphere is the layer of the Earth's atmosphere nearest to the surface of the Earth. The troposphere extends outward about 5 miles at the poles and about 10 miles at the equator.

important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emissions sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers.

A large body of health science literature indicates that exposure to NO_2 can induce adverse health effects. The strongest health evidence, and the health basis for the ambient air quality standards for NO_2, results from controlled human exposure studies that show that NO_2 exposure can intensify responses to allergens in allergic asthmatics. In addition, a number of epidemiological studies have demonstrated associations between NO_2 exposure and premature death, cardiopulmonary effects, decreased lung function growth in children, respiratory symptoms, emergency room visits for asthma, and intensified allergic responses. Infants and children are particularly at risk because they have disproportionately higher exposure to NO_2 than adults due to their greater breathing rate for their body weight and their typically greater outdoor exposure duration. Several studies have shown that long-term NO_2 exposure during childhood, the period of rapid lung growth, can lead to smaller lungs at maturity in children with higher levels of exposure compared to children with lower exposure levels. In addition, children with asthma have a greater degree of airway responsiveness compared with adult asthmatics. In adults, the greatest risk is to people who have chronic respiratory diseases, such as asthma and chronic obstructive pulmonary disease (CARB 2023c).

Carbon Monoxide. CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas, such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a nonreactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions—primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, which is a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent.

CO is harmful because it binds to hemoglobin in the blood, reducing the ability of blood to carry oxygen. This interferes with oxygen delivery to the body's organs. The most common effects of CO exposure are fatigue, headaches, confusion and reduced mental alertness, light-headedness, and dizziness due to inadequate oxygen delivery to the brain. For people with cardiovascular disease, short-term CO exposure can further reduce their body's already compromised ability to respond to the increased oxygen demands of exercise, exertion, or stress. Inadequate oxygen delivery to the heart muscle leads to chest pain and decreased exercise tolerance. Unborn babies whose mothers experience high levels of CO exposure during pregnancy are at risk of adverse developmental effects. Unborn babies, infants, elderly people, and people with anemia or with a history of heart or respiratory disease are most likely to experience health effects with exposure to elevated levels of CO (CARB 2023d).

Sulfur Dioxide. SO_2 is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO_2 are coal and oil used in power plants and industries; as such, the highest levels of SO_2 are generally found near large industrial complexes. In recent years, SO_2 concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO_2 and limits on the sulfur content of fuels.

Controlled human exposure and epidemiological studies show that children and adults with asthma are more likely to experience adverse responses with SO_2 exposure, compared with the non-asthmatic population. Effects at levels near the 1-hour standard are those of asthma exacerbation, including bronchoconstriction accompanied

by symptoms of respiratory irritation such as wheezing, shortness of breath, and chest tightness, especially during exercise or physical activity. Also, exposure at elevated levels of SO_2 (above 1 part ppm) results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality. Older people and people with cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most likely to experience these adverse effects (CARB 2023e.

SO_2 is of concern both because it is a direct respiratory irritant and because it contributes to the formation of sulfate and sulfuric acid in particulate matter (NRC 2005). People with asthma are of particular concern, both because they have increased baseline airflow resistance and because their SO_2-induced increase in airflow resistance is greater than in healthy people, and it increases with the severity of their asthma (NRC 2005). SO_2 is thought to induce airway constriction via neural reflexes involving irritant receptors in the airways (NRC 2005).

Particulate Matter. Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere. $PM_{2.5}$ and PM_{10} represent fractions of particulate matter. Major sources of PM_{10} include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions. $PM_{2.5}$ results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition, $PM_{2.5}$ can be formed in the atmosphere from gases such as SO_x, NO_x, and VOCs.

$PM_{2.5}$ and PM_{10} pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract. $PM_{2.5}$ and PM_{10} can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances such as lead, sulfates, and nitrates can cause lung damage directly or be absorbed into the bloodstream, causing damage elsewhere in the body. Additionally, these substances can transport adsorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas PM_{10} tends to collect in the upper portion of the respiratory system, $PM_{2.5}$ is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle and produce haze and reduce regional visibility.

A number of adverse health effects have been associated with exposure to both $PM_{2.5}$ and PM_{10}. For $PM_{2.5}$, short-term exposures (up to 24-hour duration) have been associated with premature mortality, increased hospital admissions for heart or lung causes, acute and chronic bronchitis, asthma attacks, emergency room visits, respiratory symptoms, and restricted activity days. These adverse health effects have been reported primarily in infants, children, and older adults with preexisting heart or lung diseases. In addition, of all of the common air pollutants, $PM_{2.5}$ is associated with the greatest proportion of adverse health effects related to air pollution, both in the United States and worldwide based on the World Health Organization's Global Burden of Disease Project. Short-term exposures to PM_{10} have been associated primarily with worsening of respiratory diseases, including asthma and chronic obstructive pulmonary disease, leading to hospitalization and emergency department visits (CARB 2017).

Long-term exposure (months to years) to $PM_{2.5}$ has been linked to premature death, particularly in people who have chronic heart or lung diseases, and reduced lung function growth in children. The effects of long-term exposure to PM_{10} are less clear, although several studies suggest a link between long-term PM_{10} exposure and

respiratory mortality. The International Agency for Research on Cancer published a review in 2015 that concluded that particulate matter in outdoor air pollution causes lung cancer (CARB 2017).

Lead. Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead-emissions sources of greater concern.

Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient (IQ) performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

Greenhouses and other Climate Forcing Substances

A GHG is any gas that absorbs infrared radiation in the atmosphere; in other words, GHGs trap heat in the atmosphere. GHGs include, but are not limited to, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), water vapor, hydrofluorocarbons (HFCs), hydrochlorofluorocarbons (HCFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3) (see also 14 CCR 15364.5).[3]— Some GHGs, such as CO_2, CH_4, and N_2O, occur naturally and are emitted to the atmosphere through natural processes and human activities. Of these gases, CO_2 and CH_4 are emitted in the greatest quantities from human activities. Manufactured GHGs, which have a much greater heat-absorption potential than CO_2, include fluorinated gases, such as HFCs, HCFCs, PFCs, and SF_6, which are associated with certain industrial products and processes. The following paragraphs provide a summary of the most common GHGs and their sources.[4]

Carbon Dioxide (CO_2). CO_2 is a naturally occurring gas and a by-product of human activities and is the principal anthropogenic GHG that affects the Earth's radiative balance. Natural sources of CO_2 include respiration of bacteria, plants, animals, and fungus; evaporation from oceans; volcanic out-gassing; and decomposition of dead organic matter. Human activities that generate CO_2 are from the combustion of fuels such as coal, oil, natural gas, and wood and changes in land use.

Methane (CH_4). CH_4 is produced through both natural and human activities. CH_4 is a flammable gas and is the main component of natural gas. Methane is produced through anaerobic (without oxygen) decomposition of waste in landfills, flooded rice fields, animal digestion, decomposition of animal wastes, production and distribution of natural gas and petroleum, coal production, and incomplete fossil fuel combustion.

Nitrous Oxide (N_2O). N_2O is produced through natural and human activities, mainly through agricultural activities and natural biological processes, although fuel burning and other processes also create N_2O. Sources of N_2O include soil cultivation practices (microbial processes in soil and water), especially the use of commercial and

[3] Climate forcing substances include GHGs and other substances such as black carbon and aerosols.
[4] The descriptions of GHGs are summarized from the IPCC Fourth Assessment Report (2007), CARB's "Glossary of Terms Used in GHG Inventories" (2018), and EPA's "Climate Change" (2022).

organic fertilizers, manure management, industrial processes (such as in nitric acid production, nylon production, and fossil-fuel-fired power plants), vehicle emissions, and using N_2O as a propellant (such as in rockets, racecars, and aerosol sprays).

Fluorinated Gases. Fluorinated gases (also referred to as F-gases) are synthetic powerful GHGs emitted from many industrial processes. Fluorinated gases are commonly used as substitutes for stratospheric ozone-depleting substances (e.g., CFCs, HCFCs, and halons). The most prevalent fluorinated gases include the following:

- **Hydrofluorocarbons:** HFCs are compounds containing only hydrogen, fluorine, and carbon atoms. HFCs are synthetic chemicals used as alternatives to ozone-depleting substances in serving many industrial, commercial, and personal needs. HFCs are emitted as by-products of industrial processes and are used in manufacturing.
- **Perfluorocarbons:** PFCs are a group of human-made chemicals composed of carbon and fluorine only. These chemicals were introduced as alternatives, with HFCs, to the ozone depleting substances. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.
- **Sulfur Hexafluoride:** SF_6 is a colorless gas soluble in alcohol and ether and slightly soluble in water. SF_6 is used for insulation in electric power transmission and distribution equipment, semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.
- **Nitrogen Trifluoride:** NF3 is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

Chlorofluorocarbons (CFCs). CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere) and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric O_3.

Hydrochlorofluorocarbons (HCFCs). HCFCs are a large group of compounds, whose structure is very close to that of CFCs—containing hydrogen, fluorine, chlorine, and carbon atoms—but including one or more hydrogen atoms. Like HFCs, HCFCs are used in refrigerants and propellants. HCFCs were also used in place of CFCs for some applications; however, their use in general is being phased out.

Black Carbon. Black carbon is a component of fine particulate matter, which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived species that varies spatially, which makes it difficult to quantify the global warming potential. Diesel particulate matter emissions are a major source of black carbon and are TACs that have been regulated and controlled in California for several decades to protect public health. In relation to declining diesel particulate matter from the California Air Resources Board's (CARB's) regulations pertaining to diesel engines, diesel fuels, and burning activities, CARB estimates that annual black carbon emissions in California have reduced by 70% between 1990 and 2010, with 95% control expected by 2020 (CARB 2014).

Water Vapor. The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration

from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

Ozone (O_3). Tropospheric O_3, which is created by photochemical reactions involving gases from both natural sources and human activities, acts as a GHG. Stratospheric O_3, which is created by the interaction between solar ultraviolet radiation and molecular oxygen (O_2), plays a decisive role in the stratospheric radiative balance. Depletion of stratospheric O_3, due to chemical reactions that may be enhanced by climate change, results in an increased ground-level flux of ultraviolet-B radiation.

Aerosols. Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

Ambient Air Quality Monitoring Data

The SCAQMD operates a network of ambient air monitoring stations throughout the SCAB, which measure ambient concentrations of pollutants and determine whether the ambient air quality meets the CAAQS and the NAAQS. The Mission Viejo monitoring station represents the closest monitoring station to the project for O_3, CO, PM_{10}, and $PM_{2.5}$. The Anaheim monitoring station represents the closest monitoring station to the project for NO_2; and the Los Angeles monitoring station represents the closest station to the project for SO_2. Ambient concentrations of pollutants from 2020 through 2022 are presented in Table 4.1-1~~1~~3.

Table 4.1-1~~1~~3. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	AAQS	Measured Concentration by Year			Exceedances by Year		
					2020	2021	2022	2020	2021	2022
Ozone (O_3)										
Mission Viejo	ppm	Maximum 1-hour concentration	State	0.09	0.171	0.105	0.110	20	2	1
	ppm	Maximum 8-hour concentration	State	0.070	0.123	0.082	0.089	34	8	6
			Federal	0.070	0.122	0.081	0.088	32	8	5
Nitrogen Dioxide (NO_2)										
Anaheim	ppm	Maximum 1-hour concentration	State	0.18	0.069	0.072	0.062	0	0	0
			Federal	0.100	0.069	0.072	0.062	0	0	0
	ppm	Annual concentration	State	0.030	0.018	0.019	0.018	N/A	N/A	N/A
			Federal	0.053	0.019	0.019	0.019	N/A	N/A	N/A
Carbon Monoxide (CO)										
Mission Viejo	ppm	Maximum 1-hour concentration	State	20	1.7	1	1	0	0	0
			Federal	35	1.7	1	1	0	0	0
	ppm	Maximum 8-hour concentration	State	9.0	0.8	0.8	1	N/A	N/A	N/A
			Federal	9	0.8	1.8	1	N/A	N/A	N/A

Table 4.1-1~~1~~3. Local Ambient Air Quality Data

Monitoring Station	Unit	Averaging Time	Agency/ Method	AAQS	Measured Concentration by Year			Exceedances by Year		
					2020	2021	2022	2020	2021	2022
Sulfur Dioxide (SO_2)										
Los Angeles	ppm	Maximum 1-hour concentration	Federal	0.075	0.006	0.007	0.006	0	0	0
	ppm	Maximum 24-hour concentration	State	0.04	0.009	0.001	0.001	0	0	0
			Federal	0.140	0.009	0.001	0.001	0	0	0
	ppm	Annual concentration	Federal	0.030	0.001	0.001	0.0004	N/A	N/A	N/A
Coarse Particulate Matter (PM_{10})[a]										
Mission Viejo	µg/m³	Maximum 24-hour concentration	State	50	55.1	34.6	30.4	2	0	ND
			Federal	150	56.2	35.2	31.0	ND	0	ND
	µg/m³	Annual concentration	State	20	ND	15.8	ND	N/A	N/A	N/A
Fine Particulate Matter ($PM_{2.5}$)[a]										
Mission Viejo	µg/m³	Maximum 24-hour concentration	Federal	35	46.6	32.6	22.6	3	0	0
	µg/m³	Annual concentration	State	12	ND	ND	ND	N/A	N/A	N/A
			Federal	12.0	9.3	9.7	9.0	N/A	N/A	N/A

Sources: CARB 2023f, EPA 2023d.

Notes: ppm = parts per million; N/A = not available or applicable; µg/m³ = micrograms per cubic meter; ND = insufficient data available to determine the value.

Data taken from CARB iADAM (http://www.arb.ca.gov/adam) and EPA AirData (http://www.epa.gov/airdata/) represent the highest concentrations experienced over a given year.

Exceedances of federal and state standards are only shown for O_3 and particulate matter. Daily exceedances for particulate matter are estimated days because PM_{10} and $PM_{2.5}$ are not monitored daily. All other criteria pollutants did not exceed federal or state standards during the years shown. There is no federal standard for 1-hour O_3, annual PM_{10}, or 24-hour SO_2, nor is there a state 24-hour standard for $PM_{2.5}$.

The Mission Viejo monitoring station is located 26081 Via Pera, Mission Viejo, California 92691.

The Anaheim monitoring station is located at 812 W. Vermont Street, Anaheim, California 92802.

The Los Angeles monitoring station is located at 7201 W. Westchester Parkway, Los Angeles, California 90045.

[a] Measurements of PM_{10} and $PM_{2.5}$ are usually collected every 6 days and every 1 to 3 days, respectively. Number of days exceeding the standards is a mathematical estimate of the number of days concentrations would have been greater than the level of the standard had each day been monitored.

4.1.6 Air Quality Analyses

The following sections present the analyses for determining the changes to ambient air quality concentrations in the region of the proposed project. These analyses are comprised of a screening assessment to determine the worst-case emissions from construction of the proposed project (the most intensive period of air pollutant emissions). Cumulative multisource modeling assessments, which are used to analyze the proposed project plus nearby existing sources, is not proposed because the only air emission sources present are intended from construction.

4.1.6.1 Construction Impact Analysis

The screening analysis consists of evaluating modeled project emissions against the significant impact levels (SILs) established by the EPA to determine if a project's criteria air pollutant emissions are considered inconsequential in comparison to the NAAQS. If the SILs are not exceeded, then a project's impacts would be considered insignificant, and no further analysis would be required. For completeness, this analysis also evaluates project emissions to the CAAQS and NAAQS. Modeled concentrations are compared to the SILs in Table 4.1-1~~2~~4. All maximum facility impacts occurred at the ambient boundary, and the estimated concentrations are all below the applicable SILs.

Table 4.1-1~~2~~4. Air Quality Impact Results – Significant Impact levels

Pollutant	Averaging Time	Maximum Concentration (mg/m³)	Class II SIL (mg/m³)
Nitrogen dioxide (NO_2)	1 hour	80.03	7.5
	Annual	7.05	1
Carbon monoxide (CO)	1 hour	425.40	2,000
	8 hours	119.01	500
Sulfur dioxide (SO_2)	1 hour	0.47	7.86
	3 hours	0.38	25
	24 hours	0.10	5
Course Particulate Matter (PM_{10})	24 hours	0.44	5
	Annual	0.19	1
Fine Particulate Matter ($PM_{2.5}$)	24 hours	0.25	1.2
	Annual	0.12	0.3

Notes: CAAQS are not listed because the SIL does not apply to CAAQS. µg/m3 = micrograms per cubic meter; SIL = Significant Impact Level.

As shown in Table 4.1-1~~2~~4, the maximum concentrations related by the project would not exceed the SILs established by the EPA for CO, SO_2, PM_{10}, and $PM_{2.5}$. However, the SIL for NO_x would exceed during construction for both the 1-hour and annual averaging. Because the SIL was exceed for NO_x, maximum combined concentrations (modeled + background) are evaluated in Table 4.1-1~~3~~5.

Table 4.1-1~~5~~3. Air Quality Impact Results – Ambient Air Quality Standards

Pollutant	Averaging Time	Maximum Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	Ambient Air Quality Standard (µg/m³)	
					CAAQS	NAAQS
Nitrogen dioxide (NO_2)	1 hour	80.03	95.94	175.97	339	N/A
	1 hour	80.03	95.94	175.97	N/A	188
	Annual	7.05	25.00	32.05	57	100
Carbon monoxide (CO)	1 hour	425.40	2,760	3,185.40	23,000	40,000
	8 hours	119.01	1,955	2,074.01	10,000	10,000
Sulfur dioxide (SO_2)[a]	1 hour	0.47	20.61	21.08	655	N/A
	24 hours	0.10	3.14	3.24	105	N/A
Course	24 hours	0.44	120.00	120.44	50	N/A

Table 4.1-1~~5~~3. Air Quality Impact Results – Ambient Air Quality Standards

Pollutant	Averaging Time	Maximum Concentration (µg/m³)	Background Concentration (µg/m³)	Total Concentration (µg/m³)	Ambient Air Quality Standard (µg/m³)	
					CAAQS	NAAQS
Particulate Matter (PM_{10})	Annual	0.19	23.90	24.09	20	N/A
Fine Particulate Matter ($PM_{2.5}$)	24 hours	0.25	54.40	54.65	—	35
	Annual	0.12	11.44	11.56	12	12
Sulfate	24 hour	0.10	5.10	5.20	25	N/A
Lead	Rolling 3-month average	0.002	0.012	0.014	N/A	0.15
	30-day average	0.002	0.016	0.018	1.5	N/A

Notes: µg/m3 = micrograms per cubic meter; CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards; PM_{10} = particulate matter less than 10 microns; $PM_{2.5}$ = particulate matter less than 2.5 microns; N/A = not applicable or available.

[a] Results for SO_2 and CO are reported as the H1H even though the NAAQS allows other forms of compliance. Using the H1H is a more conservative approach.

As shown in Table 4.1-1~~5~~3, the proposed project would not exceed the CAAQS for NAAQS after accounting for background concentrations for all criteria air pollutants except for PM_{10} CAAQS and $PM_{2.5}$ NAAQS. The exceedances for PM_{10} and $PM_{2.5}$ are due to the high level of background concentrations that already exceed the CAAQS and NAAQS. As shown in Table 4.1-7, the project would not exceed the SIL for both the 24-hour and annual PM_{10} concentrations and $PM_{2.5}$ 24-hour concentration. Additionally, these emissions would be temporary and short-term construction-related emissions. Therefore, impacts would be **less than significant.**

4.1.6.2 Operational Impact Analysis

A BESS is a stationary equipment that receives electrical energy and then utilizes batteries to store that energy to supply electrical energy at a future time. Power released or captured by the proposed project will be transferred to and from the SDG&E Trabuco to Capistrano 138 kV transmission line via a loop-in generation transmission line that will interconnect to an SDG&E switchyard to be constructed within the project site. The project will consist of lithium-ion batteries, installed in racks and contained inside non-habitable enclosures; inverters; MV transformers; an SDG&E switchyard; a project substation; and other associated equipment. The project site would be monitored remotely and would only require periodic maintenance. Therefore, the proposed project would not result in regular on-site emissions during normal operation and emission concentrations are anticipated to be less than those from construction. Therefore, no operational modeling was conducted.

4.1.6.3 BESS Commissioning Impact Analysis

Commissioning of the project is not anticipated to have any additional impacts beyond what has been considered for operation or result in greater intensity of activity than construction, so a separate commissioning impact analysis is not provided.

4.1.6.4 Fumigation Analysis

The project is located approximately 4.5 miles (7.2 kilometers) from the nearest large body of water (Pacific Ocean). Shoreline fumigation analysis is not relevant more than 3 kilometers from a large body of water, so shoreline fumigation was not run. Inversion break-up fumigation was considered; however, the AERSCREEN model will only consider fumigation for point sources with release heights 10 meters or more above ground level. Because the project was modeled as volume line sources, an inversion-break up fumigation model cannot be run.

4.1.7 Laws, Ordinances, Regulations, and Statutes

The project applicant would ensure compliance with laws, ordinances, regulations, and statutes of all applicable federal, state, local and administering agencies pertaining to air quality issues.

4.1.7.1 Federal

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the Clean Air Act, including setting NAAQS for major air pollutants; setting HAP standards; approving state attainment plans; setting motor vehicle emission standards; issuing stationary source emission standards and permits; and establishing acid rain control measures, stratospheric O_3 protection measures, and enforcement provisions. Under the Clean Air Act, NAAQS are established for the following criteria pollutants: O_3, CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O_3, NO_2, SO_2, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O_3, NO_2, SO_2, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The Clean Air Act requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. States with areas that exceed the NAAQS must prepare a state implementation plan that demonstrates how those areas will attain the NAAQS within mandated time frames.

4.1.7.2 State

In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established CAAQS, which are generally more restrictive than the NAAQS. As stated previously, an AAQS defines the maximum amount of a pollutant averaged over a specified period of time that can be present in outdoor air without harm to the public's health. For each pollutant, concentrations must be below the relevant CAAQS before a basin can attain the corresponding CAAQS. Air quality is considered "in attainment" if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O_3, CO, SO_2 (1-hour and 24-hour), NO_2, PM_{10}, and $PM_{2.5}$ and visibility-reducing particles are values that are not to be exceeded.

California Health and Safety Code Section 41700

Section 41700 of the Health and Safety Code states that a person shall not discharge from any source whatsoever quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health, or safety of any of those persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property. This section also applies to sources of objectionable odors.

4.1.7.3 Air Pollution Control District

While CARB is responsible for the regulation of mobile emissions sources within the state, local air quality management districts and air pollution control districts are responsible for enforcing standards and regulating stationary sources. SCAQMD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SCAB, where the project is located. SCAQMD operates monitoring stations in the SCAB, develops rules and regulations for stationary sources and equipment, prepares emissions inventory and air quality management planning documents, and conducts source testing and inspections. SCAQMD's Air Quality Management Plan (AQMP) includes control measures and strategies to be implemented to attain the CAAQS and NAAQS in the SCAB. SCAQMD then implements these control measures as regulations to control or reduce criteria pollutant emissions from stationary sources or equipment.

The 2022 AQMP was adopted on December 2, 2022, and was developed to address the 2015 national ozone standard. The 2022 AQMP provides the regional path towards improving air quality and meeting federal standards for air pollutants. The 2022 AQMP builds upon measures already in place from previous AQMPs. It also includes a variety of additional strategies such as regulation, accelerated deployment of available cleaner technologies (e.g., zero emissions technologies, when cost-effective and feasible, and low NO_x technologies in other applications), best management practices, co-benefits from existing programs (e.g., climate and energy efficiency), incentives, and other Clean Air Act measures to achieve the 2015 federal ozone standard (SCAQMD 2022a).

Applicable Rules

Emissions that would result from project construction may be subject to SCAQMD rules and regulations, which may include the following.

Rule 401 – Visible Emissions. This rule establishes the limit for visible emissions from stationary sources for a period or periods aggregating more than 3 minutes in any hour. This rule prohibits visible emissions dark or darker than Ringelmann No. 1 for periods greater than 3 minutes in any hour or such opacity which could obscure an observer's view to a degree equal or greater than does smoke.

Rule 402 – Nuisance. This rule prohibits the discharge of air pollutants from a facility that cause injury, detriment, nuisance, or annoyance to the public or damage to business or property.

Rule 403 – Fugitive Dust. This rule requires fugitive dust sources to implement best available control measures for all sources and prohibits all forms of visible particulate matter from crossing any property line. SCAQMD Rule 403 is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust.

Rule 431.2 – Sulfur Content of Liquid Fuels. The purpose of this rule is to limit the sulfur content in diesel and other liquid fuels for the purpose both of reducing the formation of SO_x and particulates during combustion and of enabling the use of add-on control devices for diesel-fueled internal combustion engines. The rule applies to all refiners, importers, and other fuel suppliers such as distributors, marketers, and retailers, as well as to users of diesel, low-sulfur diesel, and other liquid fuels for stationary-source applications in the SCAQMD. The rule also affects diesel fuel supplied for mobile source applications.

Rule 1113 – Architectural Coatings. This rule requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

4.1.7.4 Agency Jurisdiction and Contacts

No agencies were contacted directly to specifically discuss air quality impacts related to the proposed project.

4.1.7.5 Permit Requirements and Schedules

See Section 4.1.2, Regulatory Items Affecting New Source Review for a description of the permitting requirements and schedules.

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Attachment 3

DR BIO-1. Jurisdictional Delineation Report

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MEMORANDUM

To:	Renee Robin
From:	Tommy Molioo, Sr. Biologist
Subject:	Jurisdictional Delineation Update for the Compass BESS Project
Date:	July 2024
cc:	Erin Phillips, Dudek

An updated survey to the initial jurisdictional delineation was conducted by Dudek biologist Tommy Molioo on March 23, 2023 to delineate and verify the extent of potentially jurisdictional waters in portions of Oso Creek located to the north of previously surveyed areas due to a change in the project site plan. The site plan for the Battery Energy Storage Site (BESS) project was extended to the north including upstream portions of Oso Creek and a man-made pond that were not previously surveyed during the initial delineation survey. The survey followed the same methodology as the initial delineation to identify potential wetlands and non-wetland waters of the U.S. and State, and waters regulated by California Department of Fish and Wildlife (CDFW) that may occur on the extended project site.

Methods

Non-wetland waters of the United States were delineated based on the presence of an Ordinary High Water Mark (OHWM) as determined using the methodology in A Field Guide to the Identification of the OHWM in the Arid West Region of the Western United States. Wetland waters of the United States were delineated based on methodology described in the 1987 Corps of Engineers Wetland Delineation Manual and the ACOE Regional Supplement. Pursuant to the federal Clean Water Act, U.S. Army Corps of Engineers (ACOE) and Regional Water Quality Control Board (RWQCB) jurisdictional areas include those supporting all three wetlands criteria described in the ACOE manual: hydric soils, hydrology, and hydrophytic vegetation. Areas regulated by the RWQCB are generally coincident with the ACOE, but can also include isolated features that have evidence of surface water inundation pursuant to the state Porter-Cologne Water Quality Control Act. Isolated features are delineated at the OHWM, at the outer limits of hydrophytic vegetation, or at the outer rim of depressional features if relevant.

Streambeds are typically delineated from top of bank to top of bank or the extent of the overhanging canopy of associated riparian vegetation beyond the top of bank. For shallow drainages and washes that do not support riparian vegetation, the top-of-bank measurement may be the same as the OHWM measurement.

To aid in the delineation, data forms were used to collect information at representative locations. Information obtained at each sample point location was recorded on the appropriate data form to determine the OHWM and presence of

jurisdictional wetlands. Hydrology, vegetation, and soils were assessed, and data were collected on an approved ACOE Arid West Wetland Determination Data form.

Results

The portion of Oso Creek not previously surveyed included a concrete-lined portion of the creek that continues upstream. As Oso Creek enters the site it is entirely channelized and an approximately 450-feet of Oso Creek occurs underground and discharges on site via a large double box culvert. An additional approximately 2,000 feet of channelized Oso Creek was added to the project site as an access road will be constructed approximately 100 feet west of and parallel to Oso Creek. This portion of Oso Creek is entirely concrete-lined with rip-rap on the banks and is devoid of natural riparian vegetation. Therefore, this portion of Oso Creek is considered a non-wetland water of the U.S. due to the lack of hydrophytic vegetation. Potential ACOE jurisdiction would extend to the OWHM of the channel bottom, as well as the RWQCB which mirrors USACE jurisdiction. Additionally, CDFW would likely exert jurisdiction to the top of the channel banks as a concrete-lined trapezoidal feature with no overhanging riparian canopy.

Additionally, a man-made pond occurs in the northwest corner of the survey area that is an isolated feature installed for aesthetic purposes for the church property. It is regularly maintained for landscaping purposes and contains non-native fishes. This pond is isolated from any naturally occurring drainage feature that occurs in the area, particularly Oso Creek. The pond does not function as an impoundment of water from a natural water source. Therefore, this man-made pond is likely not subject to regulatory jurisdiction from USACE, RWQCB, and CDFW.

Conclusions

Oso Creek is a potentially regulated feature as previously documented in the initial jurisdictional delineation report dated July 7, 2021. Project-related impacts to any portion of Oso Creek would be considered significant and would require a permit under Sections 404 and 401 of the Clean Water Act, and Section 1600 et seq. of California Fish and Game Code. The permits would also require compensatory habitat-based mitigation to offset project impacts. Project impacts to the man-made pond, although unlikely to occur, would not require a permit and no mitigation would be needed.

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July 7, 2021 12755

Mr. Justin Amirault
Broad Reach Power, LLC
5444 Westheimer Road, Suite 1000
Houston, Texas 77056

Subject: *Aquatic Resources Delineation Report for Compass Battery Energy Storage Project, San Juan Capistrano, California*

Dear Mr. Amirault:

This letter report documents the existing aquatic resources at the proposed Compass Battery Energy Storage Project site (Project) located in the City of San Juan Capistrano, Orange County, California. The Project proposes the installation of a battery energy storage facility. This letter report is intended to (1) evaluate the presence and extent of aquatic resources that may be subject to the jurisdiction of the United Stated Army Corps of Engineers (USACE), the Regional Water Quality Control Board (RWQCB), and the California Department of Fish and Wildlife (CDFW), (2) quantify impacts to aquatic resources that would result from implementation of repairs at the project site, and (3) provide a discussion of potential water resource permits required for construction of the project.

1 Project Location

The Project will be constructed on approximately 13 acres in the north-western portion of the City of San Juan Capistrano (Project Boundary) (Attachment A: Figure 1). The 13-acre Project Boundary occurs located west of Interstate 5 and State Route 73, and east of Golden Lantern Street. The Project Boundary occurs within an undeveloped area located to the south of an existing church facility.

The Project Boundary and a 100-foot buffer were assessed for this report (Survey Area). The Survey Area is surrounded by the Saddleback Church Rancho Capistrano to the north, open space and scattered residences to the south, Oso Creek to the south and east, Burlington Northern Santa Fe (BNSF) railroad tracks and Interstate-5 to the east, and Oso Rancho Capistrano Trail to the west. The SDG&E Trabuco to Capistrano 138 kV transmission line is located approximately 250 feet to the east and runs alongside the BNSF tracks.

2 Project Description

The proposed Project will be composed of lithium-ion batteries installed in racks, inverters, medium-voltage (MV) transformers, a switchyard, a collector substation, and other associated equipment to interconnect into the SDG&E Trabuco to Capistrano 138 kV transmission line (point of interconnection). The batteries will be installed either in containers or in purpose-built enclosures designed for aesthetic compatibility with the surrounding area. The containers or enclosures will have battery storage racks, with relay and communications systems for automated monitoring and managing of the batteries to ensure design performance. A battery management system will be provided to control the charging/discharging of the batteries, along with temperature monitoring and control of the individual battery cell temperature with an integrated cooling system. Batteries operate with direct current (DC)

electricity, which must be converted to alternating current (AC) for compatibility with the existing electric grid. Power inverters to convert between AC and DC, along with transformers to step up the voltage, will be included.

The proposed facility will provide a service to the regional electric grid by looping into the SDG&E electric transmission system, storing energy on site, and then later delivering energy (discharging) back to the point of interconnection. Following construction, the proposed use will not create emissions to air, will not require sanitary facilities, and will not require water for operation.

3 Regulatory Background

3.1 Federal Statutes and Regulations – U.S. Army Corps of Engineers

Pursuant to Section 404 of the Clean Water Act (CWA), any person or public agency proposing to discharge dredged or fill material into "waters of the United States", including jurisdictional wetlands, must obtain a permit from the ACOE. On January 23, 2020, the Environmental Protection Agency and ACOE published a final rule (33 CFR, Part 328) defining the scope of waters protected under the CWA in an effort to undo the broad interpretation of federal jurisdiction established in the 2015 "Clean Water Rule" (80 Federal Regulation 37053). The new rule, referred to as the "Navigable Waters Protection Rule," issued new regulations to redefine the types of waterbodies covered by the federal CWA, which dramatically narrowed the scope of the federal administration's regulatory authority compared to previous CWA regulations. As a result of the final rule, the Environmental Protection Agency and ACOE define "waters of the United States" to include the following four categories: (1) the territorial seas and traditional navigable waters; (2) tributaries of such waters; (3) certain lakes, ponds, and impoundments of jurisdictional waters; and (4) wetlands adjacent to other jurisdictional waters (other than waters that are themselves wetlands).

For non-tidal waters of the United States, the lateral limits of ACOE jurisdiction extend to the ordinary high-water mark (OHWM) when no adjacent wetlands are present. As defined in 33 Code of Federal Regulations 328.3(c)(6), the OHWM is "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as [a] clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." If adjacent wetlands are present, the jurisdiction extends to the limit of the wetlands.

Wetlands are "those areas that are inundated or saturated by surface water or groundwater 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" (33 CFR 328.3). Wetlands are jurisdictional if they meet this definition as well as the definition of waters of the United States. Three criteria must be satisfied to classify an area as a wetland under ACOE jurisdiction: (1) a predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation); (2) soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils); and (3) permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology). The ACOE uses the methodology in the Regional Supplements to the Corps of Engineers Wetland Delineation Manual to determine whether an area meets these three criteria. In the Survey Area, the supplement for the Arid West Region (ACOE 2008a) is used.

ACOE-Regulated Activities

Under Section 404 of the CWA, the ACOE regulates activities that involve a discharge of dredged or fill material, including but not limited to grading, placing riprap for erosion control, pouring concrete, laying sod, and stockpiling excavated material into waters of the United States. Activities that generally do not involve a regulated discharge (if performed specifically in a manner to avoid discharges) include driving pilings, providing some drainage channel maintenance activities, and excavating without stockpiling.

3.2 State Statutes and Regulations – Regional Water Quality Control Board

The State of California has concurrent jurisdiction with the federal government under Section 401 of the CWA for jurisdictional wetlands and waters of the United States. Where isolated waters and wetlands (not subject to federal jurisdiction) are involved, the state will exert independent jurisdiction via the Porter-Cologne Water Quality Control Act.

Section 401 of the Clean Water Act

Section 401 of the CWA requires that any applicant for a federal permit for activities that involve a discharge to waters of the United States shall provide the federal permitting agency a certification from the state in which the discharge is proposed that states that the discharge will comply with the applicable provisions under the federal CWA. Therefore, in California, before the ACOE will issue a Section 404 permit, applicants must apply for and receive a Section 401 Water Quality Certification or waiver from the RWQCB.

Under Section 401 of the CWA, the RWQCB regulates at the state level all activities that are regulated at the federal level by ACOE.

Porter-Cologne Water Quality Control Act

The RWQCB regulates actions that would involve "discharging waste, or proposing to discharge waste, within any region that could affect the quality of the waters of the state" (California Water Code, Section 13260(a)), pursuant to provisions of the state Porter-Cologne Water Quality Control Act. "Waters of the state" are defined as "any surface water or groundwater, including saline waters, within the boundaries of the state" (California Water Code, Section 13050(e)).

Under the Porter-Cologne Water Quality Control Act, the RWQCB regulates all such activities, as well as dredging, filling, or discharging materials into waters of the state, that are not regulated by the ACOE due to a lack of connectivity with a navigable water body.

3.3 State Statutes and Regulations – California Department of Fish and Wildlife

The California Fish and Game Code, Sections 1600–1616, mandates that "it is unlawful for any person to substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake designated by the department, or use any material from the streambeds, without first notifying the department of such activity."

The CDFW's jurisdiction includes ephemeral, intermittent, and perennial watercourses (including dry washes) and lakes characterized by the presence of (1) definable bed and banks and (2) existing fish or wildlife resources. Furthermore, CDFW jurisdiction extends to riparian habitat and may include oak woodlands in canyon bottoms. Historical court cases have further extended CDFW jurisdiction to include watercourses that seemingly disappear but reemerge elsewhere. Under the CDFW definition, a watercourse need not exhibit evidence of an OHWM to be claimed as jurisdictional. CDFW does not have jurisdiction over ocean or shoreline resources.

Under the California Fish and Game Code, Sections 1600–1616, CDFW has the authority to regulate work that will 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. CDFW also has the authority to regulate work that will 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. This regulation takes the form of a requirement for a Lake or Streambed Alteration Agreement and is applicable to all projects.

4 Methods

4.1 Literature Review

The following available resources were reviewed to assess the potential for jurisdictional aquatic resources within the Survey Area: aerial photographs (Google Earth 2021; Historic Aerials 2021); the U.S. Geological Survey 7.5-minute topographic quadrangle (USGS 2021); a Natural Resources Conservation Service soil map (USDA 2021a); U.S. Environmental Protection Agency Watershed Assessment, Tracking & Environmental Results System (EPA 2020), which includes the National Hydrography Dataset; and the National Wetland Inventory (NWI; USFWS 2021).

4.2 Jurisdictional Delineation

On March 11, 2021, Dudek biologist Dylan Ayers conducted a formal aquatic resources delineation of potentially jurisdictional waters and wetlands within the Survey Area, where access was available. The Survey Area, which encompasses the Project Boundary, was surveyed on foot. The following types of features were surveyed for:

- Waters of the United States, including wetlands, under the jurisdiction of the ACOE, pursuant to Section 404 of the federal CWA
- Waters of the state under the jurisdiction of the RWQCB, pursuant to Section 401 of the federal CWA and the Porter-Cologne Water Quality Control Act as wetlands or drainages
- Streambeds under the jurisdiction of the CDFW, pursuant to Section 1602 of the California Fish and Game Code

Non-wetland waters of the United States were delineated based on the presence of an OHWM as determined using the methodology in A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (ACOE 2008b). Wetland waters of the United States were delineated based on methodology described in the 1987 Corps of Engineers Wetland Delineation Manual (ACOE 1987) and the ACOE Regional Supplement (ACOE 2008a). Pursuant to the federal CWA, ACOE and RWQCB jurisdictional areas include those supporting all three wetlands criteria described in the ACOE manual: hydric soils, hydrology, and hydrophytic vegetation. Areas regulated by the RWQCB are generally coincident with the ACOE, but can also include isolated

features that have evidence of surface water inundation pursuant to the state Porter-Cologne Water Quality Control Act. Isolated features are delineated at the OHWM, at the outer limits of hydrophytic vegetation, or at the outer rim of depressional features if relevant.

Streambeds are typically delineated from top of bank to top of bank or the extent of the overhanging canopy of associated riparian vegetation beyond the top of bank. For shallow drainages and washes that do not support riparian vegetation, the top-of-bank measurement may be the same as the OHWM measurement.

To aid in the delineation, data forms were used to collect information at representative locations. Information obtained at each sample point location was recorded on the appropriate data form to determine the OHWM, as provided in Appendix B of the ACOE's OHWM guidance (ACOE 2008b), and presence of jurisdictional wetlands, as provided in Appendix C of the ACOE's Regional Supplement (ACOE 2008a). Hydrology, vegetation, and soils were assessed, and data were collected on an approved ACOE Arid West Wetland Determination Data form. These datasheets and forms are provided in Attachment B of this report. Representative photographs of the jurisdictional features were taken in accordance with ACOE guidelines and are provided in Attachment C.

5 Environmental Setting

5.1 Land Uses

The Survey Area occurs adjacent to Oso Creek and consists of a mix of undeveloped and developed lands. Open space is located on the northern side of the Project Boundary, associated with the Saddleback Church Rancho Capistrano, that contains dirt roads and light, non-commercial agricultural activity. Besides a few small dirt trails and roads, the southern portion of the Project Boundary is undeveloped and showed no sign of recent agricultural activity. The entire eastern edge of the Project Boundary is adjacent to Oso Creek which lies at the bottom of steep slopes which cut through large areas of the site (Attachment A: Figure 2). Outside of these steep areas, the Survey Area is flat to gently sloping. Elevation on the Survey Area ranges from approximately 165 to 270 feet above mean sea level. Representative photographs of the Survey Area are included in Attachment C.

5.2 Climate

The climate of southern Orange County consists of a generally dry yet coastal climate typical of the arid southwest, characterized by hot, dry summers with mild winters. Average yearly temperatures near San Juan Capistrano range from approximately 43°F to 78°F, with the lowest average temperature of 51°F in January to the highest average temperature of 71°F in August. The regional area generally receives an average rainfall of approximately 12.52 inches per year, with precipitation concentrated in the winter to spring months of November through March (WRCC 2021). Rainfall had occurred in the region approximately two weeks before or after the March 11 site visit (Weather Underground 2021).

5.3 Soils

According to the NRCS Web Soil Survey (USDA 2021a), the Survey Area occurs within the Orange County and Part of Riverside County, California (CA678). Six soil types were found within the Survey Area (Attachment A: Figure 3). A brief description of each series is provided below:

- Alo soils consists of moderately deep, well drained soils. They formed in material weathered from shale or sandstone on mountains. Alo soils have slopes of 2 to 75 percent.
- Botella soils generally consist of very deep, well drained soils that formed in alluvial material from sedimentary rocks. Botella soils typically occur in valley bottoms and on alluvial fans with slopes of 0 to 15 percent.
- Corralitos soils consist of deep, somewhat excessively drained soils that formed in recent sandy alluvium derived from acid sandstone and related rocks. Corralitos soils are on alluvial fans and in small valleys and have slopes of 0 to 15 percent.
- Myford soils are generally deep, moderately well drained soils formed on terraces. They typically occur on nearly level to moderately steep terraces at elevations of less than 1,500 feet.
- Riverwash soils generally consist of coarse sands, gravel, and sandy loams. They are the result of stream flow and are often found on alluvial fans.
- Sorrento soils consist of very deep, well drained soils that formed in alluvium mostly from sedimentary rocks. Sorrento soils are on alluvial fans and stabilized floodplains and have slopes of 0 to 15 percent.

Soils in the northern half of the Survey Area are somewhat disturbed due to agricultural activity, while soils in the southern portion of the Survey Area are mostly undisturbed.

Riverwash is listed as a hydric soil by the Natural Resource Conservation Service for Orange County and Part of Riverside County, California (USDA 2021b). No other soil types mapped within the Survey Area are considered hydric.

5.4 Vegetation Communities and Land Covers

The Survey Area consists of mostly undeveloped lands (Attachment A: Figure 4). Most of the Survey Area is dominated by non-native annual grasses, with trees and shrubs occurring intermittently around the Survey Area. Dense riparian vegetation is found around the aquatic resources on the Survey Area and non-native vegetation occurs sporadically throughout. The entire eastern edge of the Survey Area contains steep slopes that are associated with Oso Creek. Significant erosion is occurring on these steep slopes, leaving some areas as barren soils with no established vegetative cover. Communities observed throughout the Survey Area include Agriculture (AGR), Artemisia Californica Association (Artcal), Urban/Developed (DEV), Disturbed Habitat (DH), Non-Vegetated Channel (NVC), Ornamental (ORN), Populus fremontii – Salix lasiolepis Association (Popfre-Sallas), and Upland Mustards (UM). These vegetation communities and land covers are described in further detail below. The complete list of plant species observed at the Survey Area is included in Attachment D.

5.4.1 Native Vegetation Communities

Agriculture (AGR) The AGR mapping unit is not recognized by the Natural Communities List (CDFG 2010) but is described by Oberbauer (2008). The AGR mapping unit refers to areas that support an active agricultural operation.

Agricultural activity occurring on-site consisted of row crops and raised container gardens that are part of a non-commercial operation. Some herbaceous ruderal species were observed growing in the disturbed soils associated with these areas. AGR habitat is mapped throughout the northern half of Project site and accounts for approximately 27.42 acres of the Survey Area.

Artemisia Californica Association (Artcal) The Artcal vegetation community occurs nears the southern tip of the Project and is mapped adjacent to the Oso Creek Trail. Characteristic species of this community incudes California sagebrush (*Artemisia californica*), California buckwheat (*Eriogonum fasciculatum*), purple sage (*Salvia leucophylla*), and sugar bush (*Rhus ovata*). Other mixed herbs observed in this community include artichoke thistle (*Cynara cardunculus*), fiddleneck (*Amsinckia menziesii*), and California wood sorrel (*Oxalis californica*). It accounts for approximately 0.02-acre of the Survey Area.

Mulefat Thickets (Bascal) The Bascal mapping unit occurs along the edges of the Popfre-Sallas vegetation community, on the steep slopes associated with Oso Creek. Charaterictic species of this community includes mule fat (*Baccharis salicifolia*), elderberry (*Sambucus nigra*), and tamarisk (*Tamarix ramoissima*). Other mixed herbs observed in this community include poison hemlock, black mustard (*Brassica nigra*), and horseweed (*Erigeron* sp.). This community is relatively low and occupies 4.86 acres within the Survey Area.

Urban/Developed (DEV) The DEV unit is not recognized by the Natural Communities List (CDFG 2010) but is described by Oberbauer (2008). Developed land typically includes areas that have been constructed upon and do not contain any naturally occurring vegetation. These areas are generally characterized as graded land with asphalt and concrete placed upon it. DEV areas mapped for the Survey Area include approximately 2.86 acres of the existing paved parking lots and roadway on the northern side of the site. No vegetation was observed within DEV areas on the Survey Area.

Disturbed Habitat (DH) The DH mapping unit is not recognized by the Natural Communities List (CDFG 2010) but is described by Oberbauer (2008). The DH mapping unit refers to areas that lack vegetation but still retain a pervious surface, or that are dominated by a sparse cover of non-native grasses and ruderal species such as wild oat (*Avena fatua)*, black mustard, red brome (*Bromus madritensis*), and prickly lettuce (*Lactuca serriola*). DH is mapped in the northern areas of the site near some barren parking areas that are compacted with predominantly bare ground. It is also mapped along the dirt roads that extend across the entire site. It accounts for approximately 6.12 acres of the Survey Area.

Non-Vegetated Channel (NVC) The NVC mapping unit is not recognized be the Natural Communities List (CDFG (2010) but is described by Oberauer (2008). The NVC mapping unit refers to sandy, gravelly, or rocky fringe of waterways or flood channels. These areas are generally unvegetated due to variable water lines although some weedy species of grasses may grow along the outer edges. NVC is mapped near the northeastern corner of the site, associated with the artificial channels that convey Oso Creek. It accounts for 0.42-acre within the Survey Area.

Ornamental (ORN) The ORN mapping unit is not recognized be the Natural Communities List (CDFG (2010) but is described by Oberauer (2008). The ORN mapping unit refers to areas that are consistently managed and planted with decorative tree, shrub, and herbaceous species. ORN is mapped near the northwestern corner of the site, associated with the DEV areas also located near that side of the site. It accounts for 0.47-acre within the Survey Area.

Populus fremontii – Salix lasiolepis Association (Popfre-Sallas) The Popfre-Sallas vegetation community occurs along Oso Creek and Stream 1, found on both flat land and steep slopes. Characteristic species of this community

includes Fremont's cottonwood (*Populus fremontii*), arroyo willow (*Salix lasiolepis*), mule fat (*Baccharis salicifolia*), and California sycamore (*Platanus racemosa*). Other mixed herbs observed in this community include poison hemlock (*Conium maculatum*) and California wood sorrel. This community is relatively high quality and occupies 4.88 acres within the Survey Area.

Upland Mustards (UM) The UM vegetation community occurs across all portions of the site, on both sloped areas and flat lands. The community is mapped for approximately 12.55 acres of the Survey Area. Characteristic species of this community includes black mustard, red brome, ripgut brome (*Bromus diandrus*), wild oat, soft chess (B*romus hordeaceus*), and Johnsongrass (*Sorghum halepense*). Other mixed herbs observed in this community include artichoke thistle (*Cynara cardunculus*), pampas grass (*Cortaderia selloana*), red stemmed filaree (*Erodium cicutarium*), and London rocket (*Sisymbrium irio*). This community is relatively low quality as many of the observed species are non-native and associated with prior disturbance.

5.5 Topography

The Survey Area is located in southeastern Orange County and occurs within in lightly developed area as depicted on the Orange, CA 7.5-minute USGS topographic quadrangle map. The Survey Area is flat to very steep with an elevation range of approximately 165 feet above mean sea level (AMSL) to 270 feet AMSL. The surrounding topography is generally similar. The most significant change in topography within the Survey Area is associated with Oso Creek and its steep slopes.

5.6 Hydrology

The Survey Area is located within the Aliso-San Onofre watershed (HUC 8), and specifically within the San Juan Creek Subwatershed (HUC 10) (Attachment A, Figure 5). The Aliso-San Onofre watershed covers approximately 176 square miles of mountainous, urban, and costal lands and its drainage area includes portions or Orange, Riverside, and San Diego counties.

The Nation Hydrography Dataset (NHD) maps Oso Creek as a perennial stream feature which flows north to south along the eastern edge of the Project (Attachment A, Figure 6). An ephemeral drainage feature is mapped flowing across the southern portion of the Project, originating from a concrete lined channel at the southwestern corner of the site. This ephemeral feature flows northeast, eventually flowing into Oso Creek. One additional ephemeral stream feature is mapped on the western side of the Project, but it was not observed in the field. A review of the National Wetland Inventory (NWI) dataset revealed one wetland type, Riverine, occurs within the Survey Area. Oso Creek (R4SBC) habitat is classified as riverine, intermittent, streambed, and seasonally flooded. The ephemeral streams mentioned above are not shown in the NWI dataset.

Oso Creek flows south, away from the Project, into Arroyo Trabuco. Arroyo Trabuco joins with San Juan Creek, a relatively permanent water (RPW) downstream, which flows into the Pacific Ocean, a traditional navigable water (TNW) near Dana Point.

6 Results

Based on the results of the literature and database review, and the jurisdictional delineation conducted in the field, one perennial stream, Oso Creek, one unnamed ephemeral stream, Stream 1, and one upland swale, Swale 1, were identified and evaluated within the Survey Area. Oso Creek drains the local watershed, including Stream 1 and Swale 1, and

exhibits direct downstream connectivity with the Pacific Ocean. All features are potentially subject to the regulatory agency jurisdiction under Section 404 and 401 of the CWA, and Section 1600 et seq. of CFG Code, which is described in more detail below for each jurisdiction. All data collected in the field is provided in Attachment B. As required by the ACOE's Los Angeles District, a summary of aquatic resources investigated is provided in Attachment E, Aquatic Resources Upload Sheet. Attachment A, Figures 7a & 7b, provide a complete geographic overview of the features discussed.

6.1 Waters of the United States

The Survey Area contains portions of Oso Creek, Stream 1, and Swale 1. All features exhibit downstream connectivity with the Pacific Ocean, a traditional navigable water, but only Oso Creek and Stream 1 display an OHWM (Attachment A, Figures 7a & 7b).

The following descriptions are detailed accounts of the potentially jurisdictional features investigated within the Survey Area. For potential wetland areas, the wetland indicator status wfiguras assigned to each species using the National Wetland Plant List (California) (Lichvar et al. 2016), as shown in Table 1.

Table 1. Summary of Wetland Indicator Status

Category	Probability
Obligate Wetland (OBL)	Almost always occur in wetlands (estimated probability of >99%)
Facultative Wetland (FACW)	Usually occur in wetlands (estimated probability of 67% to 99%)
Facultative (FAC)	Equally likely to occur in wetlands/non-wetlands (estimated probability of 34% to 66%)
Facultative Upland (FACU)	Usually occur in non-wetlands (estimated probability 67% to 99%)
Obligate Upland (UPL)	Almost always occur in non-wetlands (estimated probability >99%)
No Indicator (NI)	—

Oso Creek

Oso Creek flows onto the site via a concrete lined culvert near the northeast corner of the Survey Area. The Cowardin classification for Oso Creek is R4SBC (Riverine Intermittent Streambed Seasonally Flooded Wetlands), which supports the observed conditions of the creek during the aquatic delineation in the field. Besides the concrete lined portions, the creek is heavily vegetated with riparian species and large trees that shade out much of the creek. Vegetation around the creek was dominated by native species with some non-native populations found throughout the observable portions of the Survey Area.

Two data stations were collected at Oso Creek, one on the muddy bank of the creek (DP-03), and one in an adjacent upland area (DP-04). Data Point 3 (DP-03) contains a dominance of arroyo willow (FACW) and mule fat (FAC). The presence of hydrophytic plant species represents a dominance of hydrophytes, and therefore hydrophytic vegetation is present. A 5-inch soil sample was taken at DP-03. A restrictive layer of cobbles and roots was found at the bottom of the sample. The soil within the entire 5-inches had a sandy clay loam texture and displayed a color of 10YR 4/2 in 100% of the matrix. No redoximorphic concentrations were found. Due to the lack of hydric soil indicators, hydric soils are absent from DP-03. However, soils within the sample were saturated which is a primary

wetland hydrology indicator, as well as the presence of secondary wetland hydrology indicators such as water marks, sediment deposits, and drift deposits within a riverine feature. Therefore, wetland hydrology is present within DP-03. Since DP-03 only contains 2 of the 3 ACOE wetland parameters, it does not pass the "three parameter test" and is not considered a wetland feature.

Data Point 4 (DP-04) contains a dominance of black mustard (NI), red stemmed filaree (NI), and fiddleneck (NI). The presence of these upland species does not represent a dominance or prevalence of hydrophytes, and therefore no hydrophytic vegetation is present. A 3-inch soil sample was taken at DP-04. A restrictive layer of hard soils was found immediately below the surface. The soil within the entire 3-inches had a clay loam texture and displayed a color of 10YR 5/3 in 100% of the matrix. No redoximorphic concentrations were found. Due to the lack of hydric soil indicators, hydric soils are absent from DP-04. Finally, no wetland hydrology indicators were observed and there was a lack of a surface water, a high-water table, and saturated soils. Therefore, DP-04 does not occur within a wetland as all three wetland parameters are absent.

Stream 1

Stream 1 flows into the Survey Area via a concrete lined channel at the southwestern corner of the site. Stream 1 is described as an ephemeral stream and has no Cowardian classification. This feature, after flowing on-site beneath a pedestrian bridge, widens out as it flows under a thick riparian canopy before becoming channelized and moving towards a dirt road. The creek has a separate branch the dead ends at this dirt road. After crossing the road, the riparian canopy thins out as Stream 1 reaches the edge of the steep slopes associated with Oso Creek. Before reaching the creek, water in Stream 1 falls over a 15+ foot vertical drop.

Three data stations were collected at Stream 1, one within the thick riparian canopy near the southwestern corner of the Survey Area (DP-05), one in an upland area adjacent to a branch of Stream 1 (DP-01), and one in a vegetated area on the southern bank of the stream (DP-02).

Data Point 1 (DP-01) contains a dominance of poison hemlock (FACW) and California wood sorrel (NI). The presence of these species does not represent a dominance or prevalence of hydrophytes, and therefore no hydrophytic vegetation is present. A 9-inch soil sample was taken at DP-01. A restrictive layer of hard clay soils was found below the surface. The soil within the entire 9-inches had a clay loam texture and displayed a color of 10YR 3/2 in 100% of the matrix. No redoximorphic concentrations were found. Due to the lack of hydric soil indicators, hydric soils are absent from DP-01. However, soils within the sample were saturated which is a primary wetland hydrology indicator. Therefore, wetland hydrology is present within DP-01. Since DP-01 only contains 1 of the 3 ACOE wetland parameters, it does not pass the "three parameter test" and is not considered a wetland feature.

Data Point 2 (DP-02) contains a dominance of arroyo willow (FACW) and poison hemlock (FACW). The presence of hydrophytic plant species represents a dominance of hydrophytes, and therefore hydrophytic vegetation is present. A 10-inch soil sample was taken at DP-02. A restrictive layer of hard clay soils was found below the surface. The soil within the entire 10-inches had a clay loam texture and displayed a color of 10YR 3/3 in 100% of the matrix. No redoximorphic concentrations were found. Due to the lack of hydric soil indicators, hydric soils are absent from DP-02. However, soils within the sample were saturated which is a primary wetland hydrology indicator. Therefore, wetland hydrology is present within DP-02. Since DP-02 only contains 2 of the 3 ACOE wetland parameters, it does not pass the "three parameter test" and is not considered a wetland feature.

Data Point 5 (DP-05) contains a dominance of arroyo willow (FACW), poison hemlock (NI), Brazilian pepper (*Schinus terebinthifolius*) (FAC), and California wood sorrel (NI). The presence of hydrophytic plant species represents a dominance of hydrophytes, and therefore hydrophytic vegetation is present. A 10-inch soil sample was taken at DP-05. A restrictive layer of hard clay soils was found below the surface. The soils within inches 0 to 4 had silty clay texture and displayed a color of 10YR 5/2 in 100% of the matrix. Inches 4 to 10 had sandy clay loam texture and displayed a color of 10YR 5/3 in 90% of the matrix. No redoximorphic concentrations were found. Due to the lack of hydric soil indicators, hydric soils are absent from DP-05. However, soils within the sample were saturated which is a primary wetland hydrology indicator. Therefore, wetland hydrology is present within DP-05. Since DP-05 only contains 2 of the 3 ACOE wetland parameters, it does not pass the "three parameter test" and is not considered a wetland feature.

Swale 1

Swale 1 is a small erosional feature that acts as an upland swale, draining areas associated with adjacent agricultural areas. This feature was deep and V-shaped and did not exhibit an OHWM. Water than enters Swale 1 moves towards the steep slope that leads down to Oso Creek. Significant erosion can be seen below Swale 1 along the slope. No hydrophytic vegetation was observed in this feature.

A summary of the data collected at each data station is provided below in Table 2.

Table 2. Data Station Results Summary

Data Station	Wetland Field Indicators			Vegetation Community	ACOE Jurisdictional Status	ACOE Jurisdiction Type
	Vegetation	Hydric Soils	Hydrology			
DP-01	None	None	✓	Popfre-Sallas	Jurisdictional	Non-Wetland
DP-02	✓	None	✓	Popfre-Sallas	Jurisdictional	Non-Wetland
DP-03	✓	None	✓	Popfre-Sallas	Jurisdictional	Non-Wetland
DP-04	None	None	None	Upland Mustards	Jurisdictional	Non-Wetland
DP-05	✓	None	✓	Popfre-Sallas	Jurisdictional	Non-Wetland

6.2 Waters of the State

RWQCB Jurisdiction

The features described above as subject to ACOE's jurisdiction as Waters of the U.S. also potentially fall under the authority of the Santa Ana RWQCB in accordance with Section 401 of the CWA.

6.3 CDFW Jurisdiction

Areas under CDFW jurisdiction mapped on the Survey Area include the portions of Oso Creek, Stream 1, and Swale 1 that encompass all non-wetland waters of the U.S./State, and the top of channel banks and associated riparian habitats (Attachment A, Figures 7a & 7b).

6.4 Summary of Jurisdictional Aquatic Resources

The Survey Area supports three features that would be considered non-wetland waters of the United States under the jurisdiction of the ACOE, non-wetland waters of the State under the jurisdiction of RWQCB, and CDFW jurisdictional non-wetland waters. Table 3 summarizes the extent of each regulatory agency's jurisdiction within the Survey Area.

Table 3. Summary of Jurisdictional Aquatic Resources within the Survey Area

Jurisdiction	Habitat Type	Total (acres/linear feet)
Waters of the United States and State (ACOE/RWQCB)		
Non-Wetland Waters		
Oso Creek	OHWM	0.23/1,865
Stream 1	OHWM	0.37/3,233
Waters of the United States and State (ACOE/RWQCB) Total*		**0.60/5,098**
CDFW Waters		
Non-Wetland Waters		
Oso Creek	OHWM and Bank	0.40
Stream 1	Concrete Bank and Channel	1.39
Swale 1	Swale Bank and Channel	0.01
CDFW Jurisdiction Total*		**1.89**

Notes:
* Acreage may not total due to rounding.
RWQCB = Regional Water Quality Control Board; CDFW = California Department of Fish and Wildlife.

7 Conclusions

The delineation determined that the Survey Area contains non-wetland waters of the U.S. and State within the reach of Oso Creek that occurs along the Survey Area boundary. As currently designed the project will be constructed within upland habitats on site, and no design features are proposed to encroach within potential jurisdictional limits. However, in the event project impacts do occur, permitting and subsequent mitigation would be required from the regulatory agencies. Should you have any questions regarding this report or require additional information, please do not hesitate to contact me at tmolioo@dudek.com or 949.373.8308.

Sincerely,

Dylan Ayers
Biologist

Tommy Molioo
Sr. Biologist

Att.: A – Figures
1. Project Location
2. Local Topographic Map
3. Soils Map

4. Biological Resources
5. Watershed Map
6. Hydrology Map
7. Aquatic Resources Delineation
B – Datasheets
C – Site Photographs
D – Species Compendium
E – Aquatic Resources Upload Sheet

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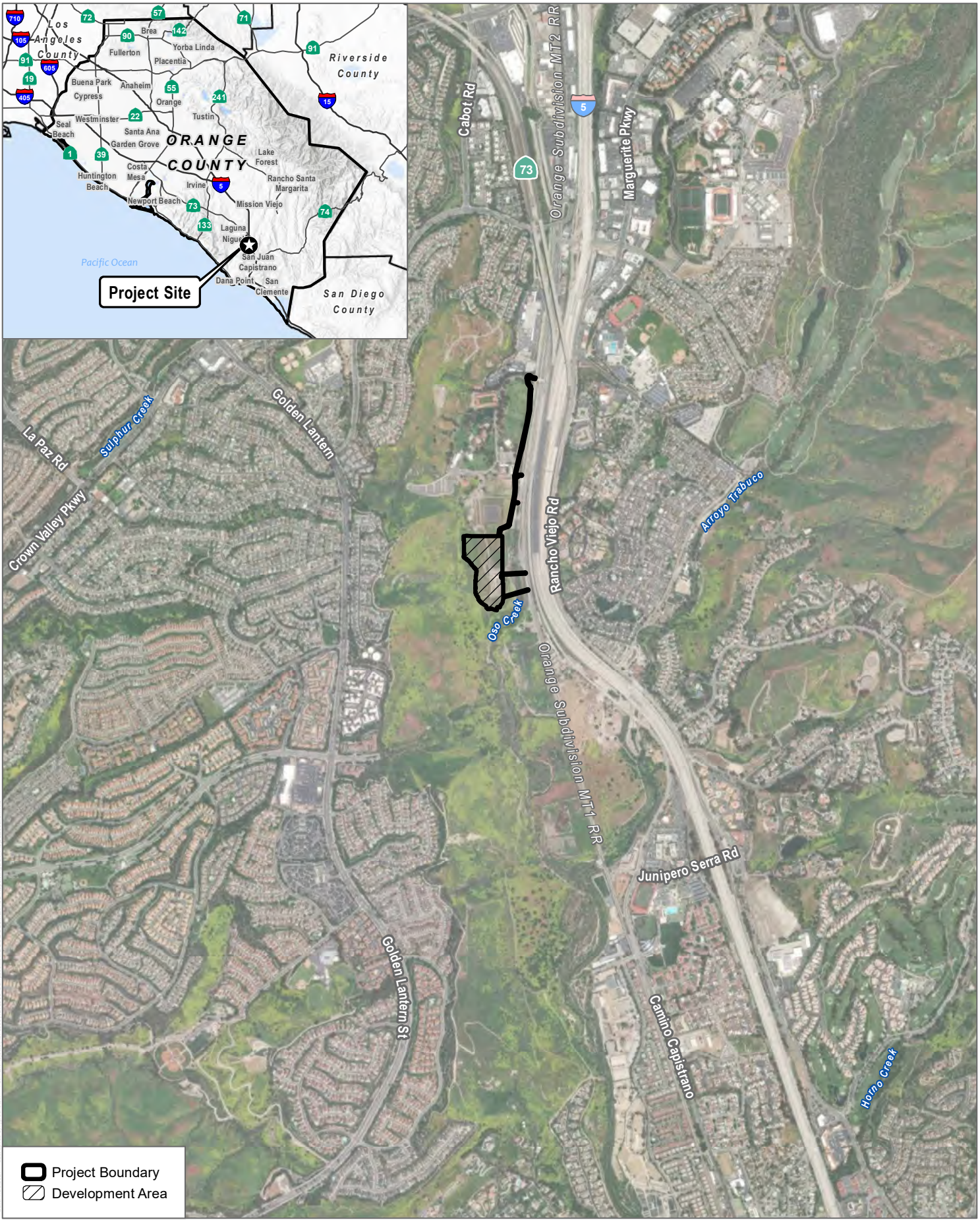
Attachment A

Figures



SOURCE: Esri World Imagery 2020

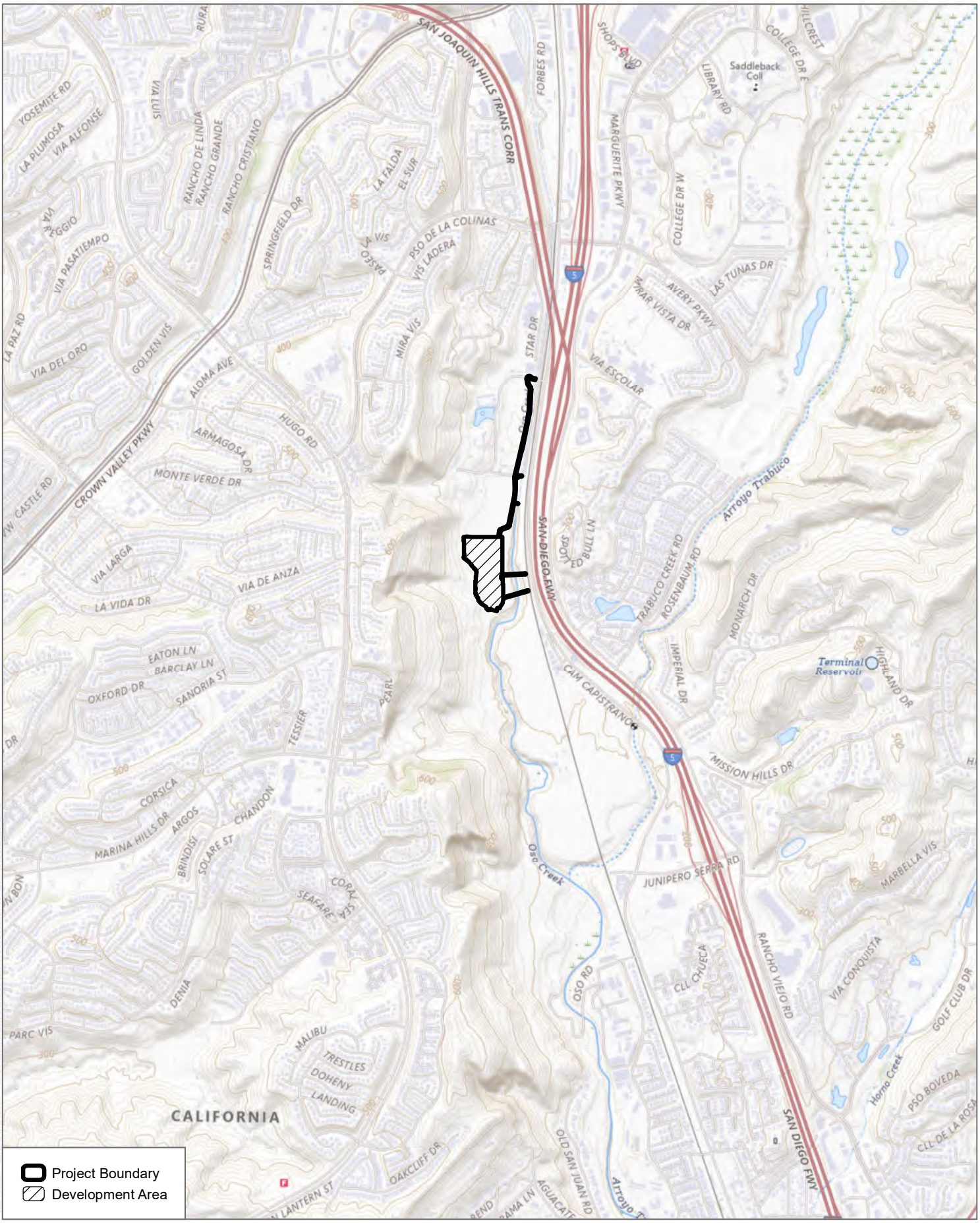
DUDEK

0 1,000 2,000 Feet

FIGURE 1

Project Location

Compass Energy Storage Project



SOURCE: USGS Topo Series San Juan Capistrano Quadrangle

DUDEK

0 1,000 2,000 Feet

FIGURE 2

Local Topographic Map

Compass Energy Storage Project

SOURCE: Esri World Imagery 2023; USDA 2023; Open Street Map 2023

DUDEK

0 295 590 Feet

FIGURE 3

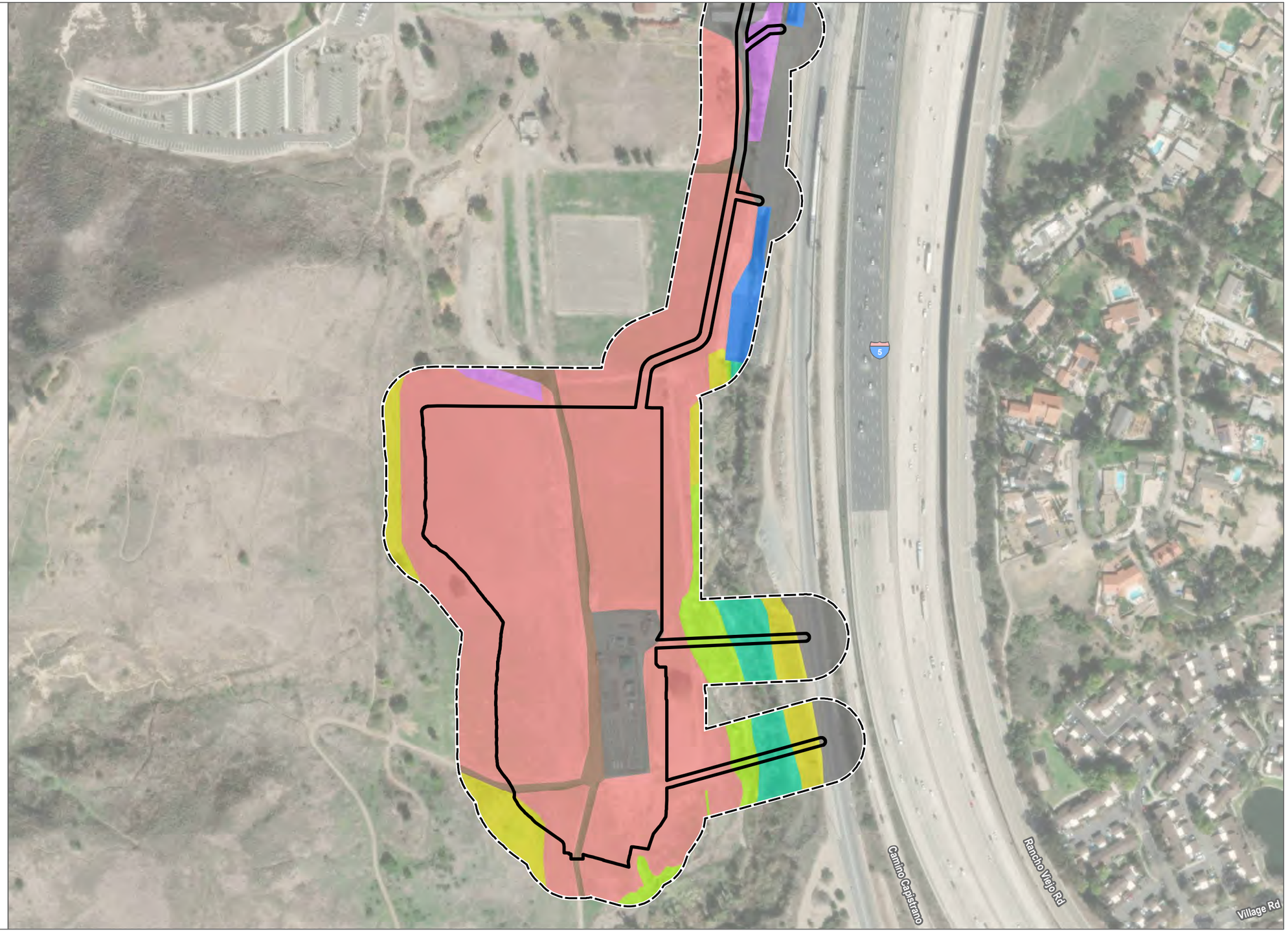
Soils

Compass Energy Storage Project

Project Boundary
Survey Area

Vegetation Communities and Land Covers

- Mulefat thickets
- Populus fremontii - Salix lasiolepis Association
- Upland Mustards
- Disturbed Habitat
- General Agriculture
- Non-Vegetated Channel
- Ornamental
- Urban/Developed



SOURCE: Esri World Imagery 2023; Open Street Map 2023

DUDEK

0 125 250 Feet

FIGURE 4A

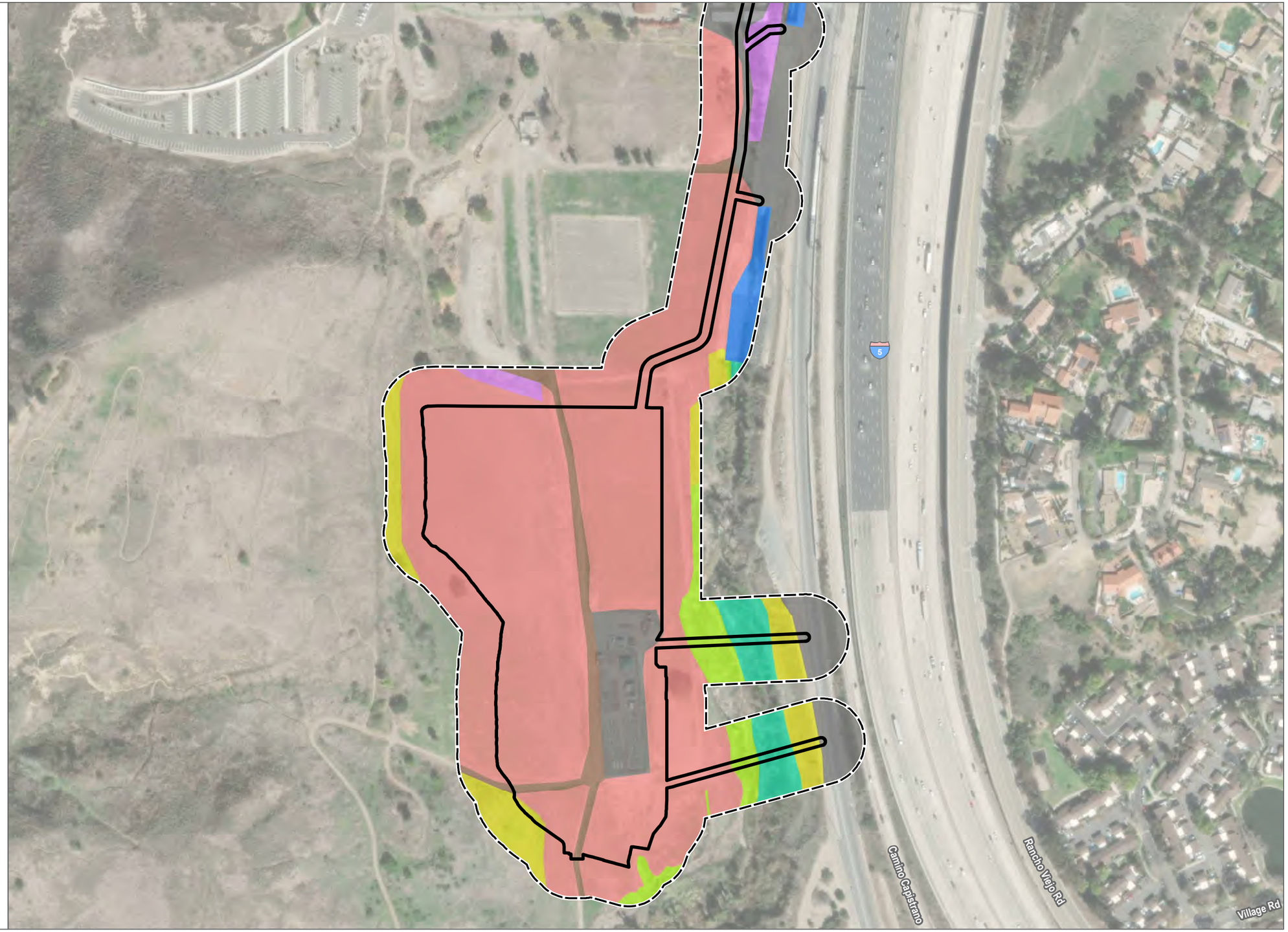
Biological Resources

Compass Energy Storage Project

Project Boundary
Survey Area

Vegetation Communities and Land Covers

- Mulefat thickets
- Populus fremontii - Salix lasiolepis Association
- Upland Mustards
- Disturbed Habitat
- General Agriculture
- Non-Vegetated Channel
- Ornamental
- Urban/Developed



SOURCE: Esri World Imagery 2023; Open Street Map 2023

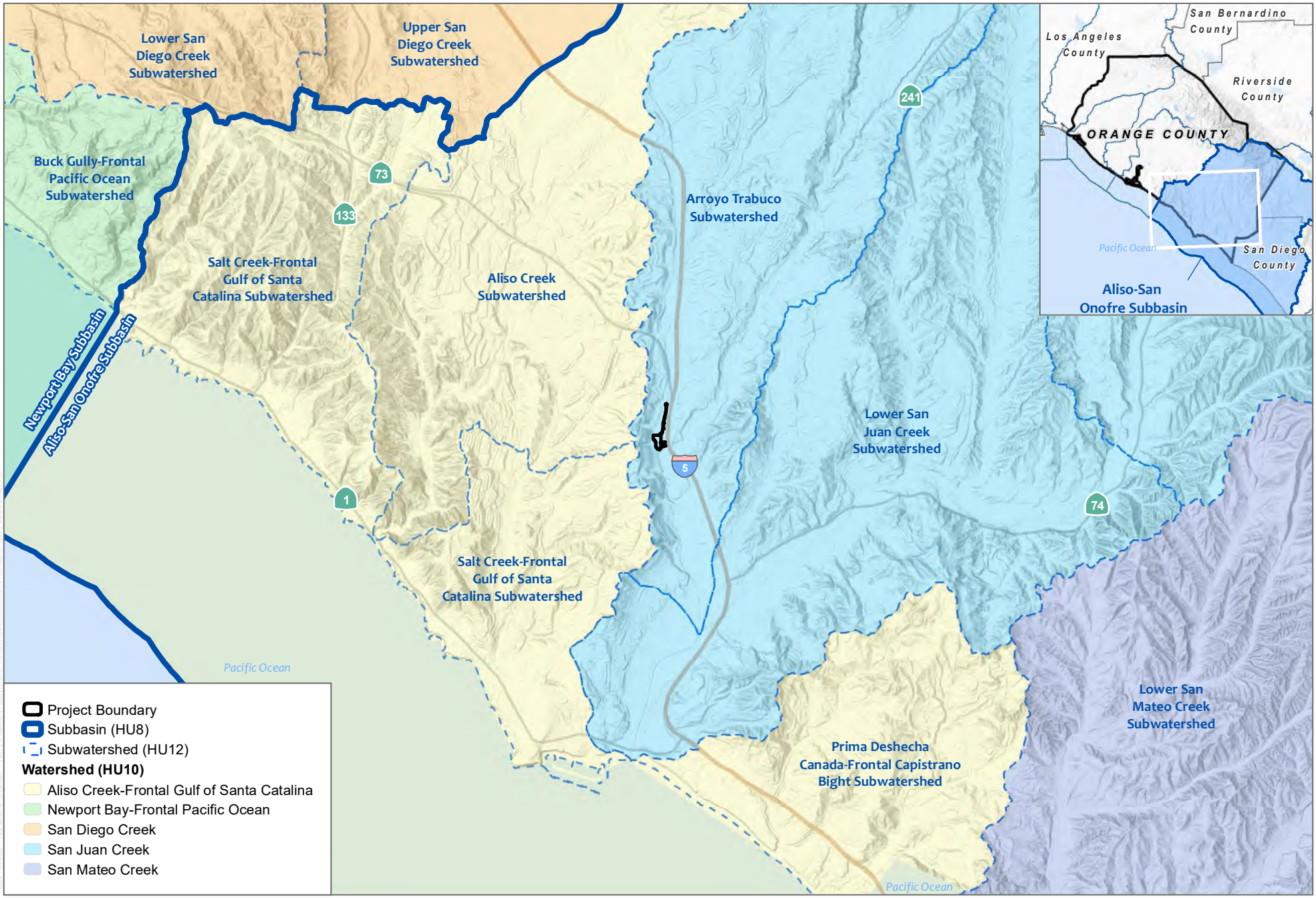
DUDEK

0 125 250 Feet

FIGURE 4B

Biological Resources

Compass Energy Storage Project



SOURCE: Esri Shaded Relief 2023; USGS 2023

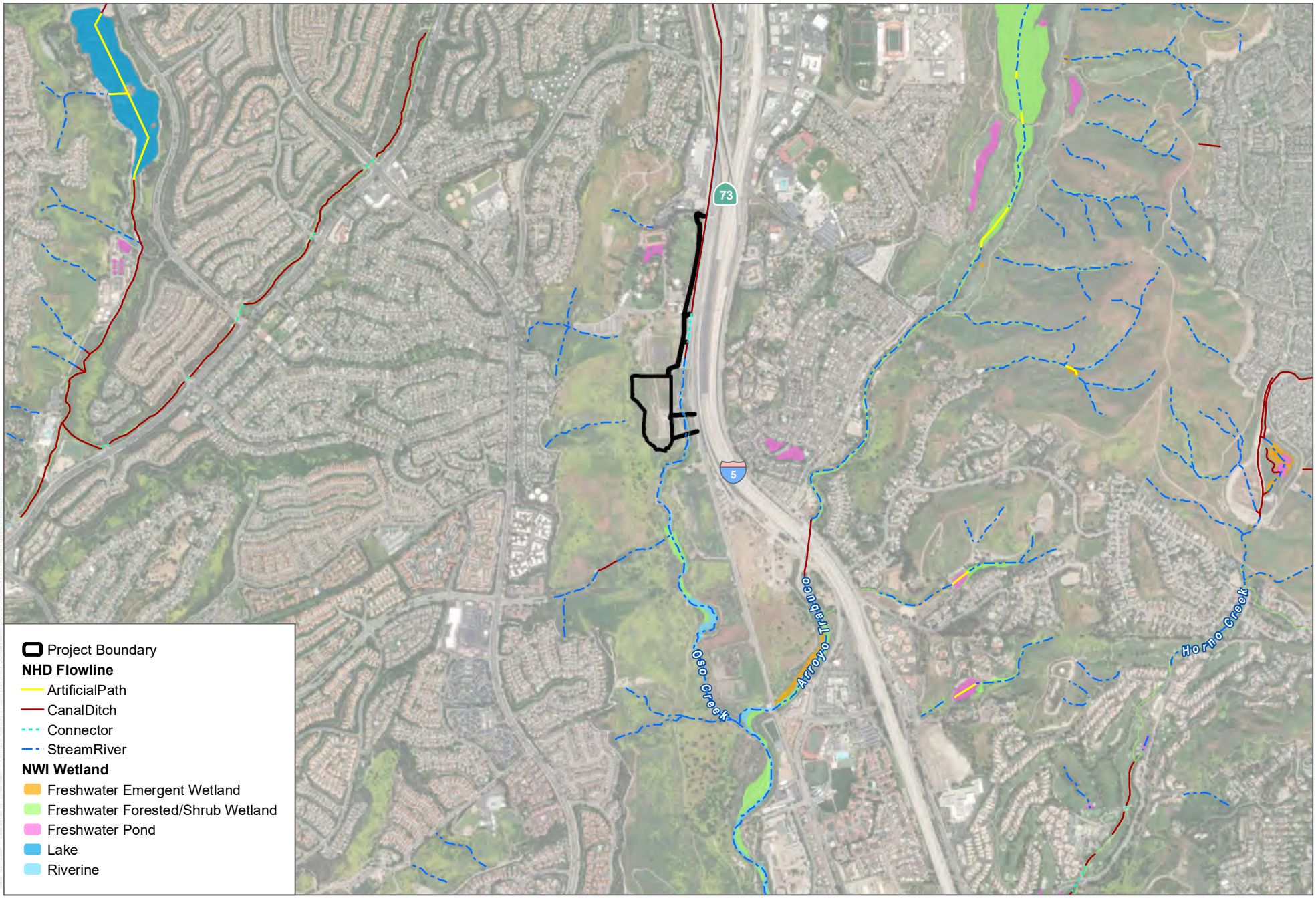
DUDEK

0 5,000 10,000 Feet

FIGURE 5

Watershed Map

Compass Energy Storage Project



SOURCE: Esri World Imagery 2023; USFWS NWI 2023; USGS NHD 2023

DUDEK

0 1,000 2,000 Feet

FIGURE 6

Hydrology Map

Compass Energy Storage Project

Project Boundary (14.54 acres)
Survey Area (39.17 acres)
Map Reference Point

Jurisdictional Features

Bank/Swale (CDFW) (0.93 acres)
OHWM (USACE, RWQCB, CDFW) (1.40 acres)
Bank Habitat

Vegetation Communities and Land Covers

AGR, General
DEV, Urban/Developed
DH, Disturbed Habitat
NVC, Non-Vegetated Channel
ORN, Ornamental

Created on Thursday, July 25, 2024
Made in accordance with the *Updated Map and Drawing Standards for the South Pacific Division Regulatory Program*, as amended on February 10, 2016 by:
Jason Deters, Project Manager
Enforcement and Special Projects Unit
U.S. Army Corps of Engineers
South Pacific Division
Sacramento District, Regulatory Division
1325 J Street, Room 1350
Sacramento, California 95814-2922

Coordinate System: NAD 1983 State Plane Zone 5
Projection: Transverse Mercator
Datum: North American 1983
Vertical Datum: NAVD88, U.S. Feet
1 inch = 100 feet

SOURCE: Esri World Imagery 2023

DUDEK

0 125 250 Feet

FIGURE 7A
Aquatic Resources Delineation
Compass Energy Storage Project

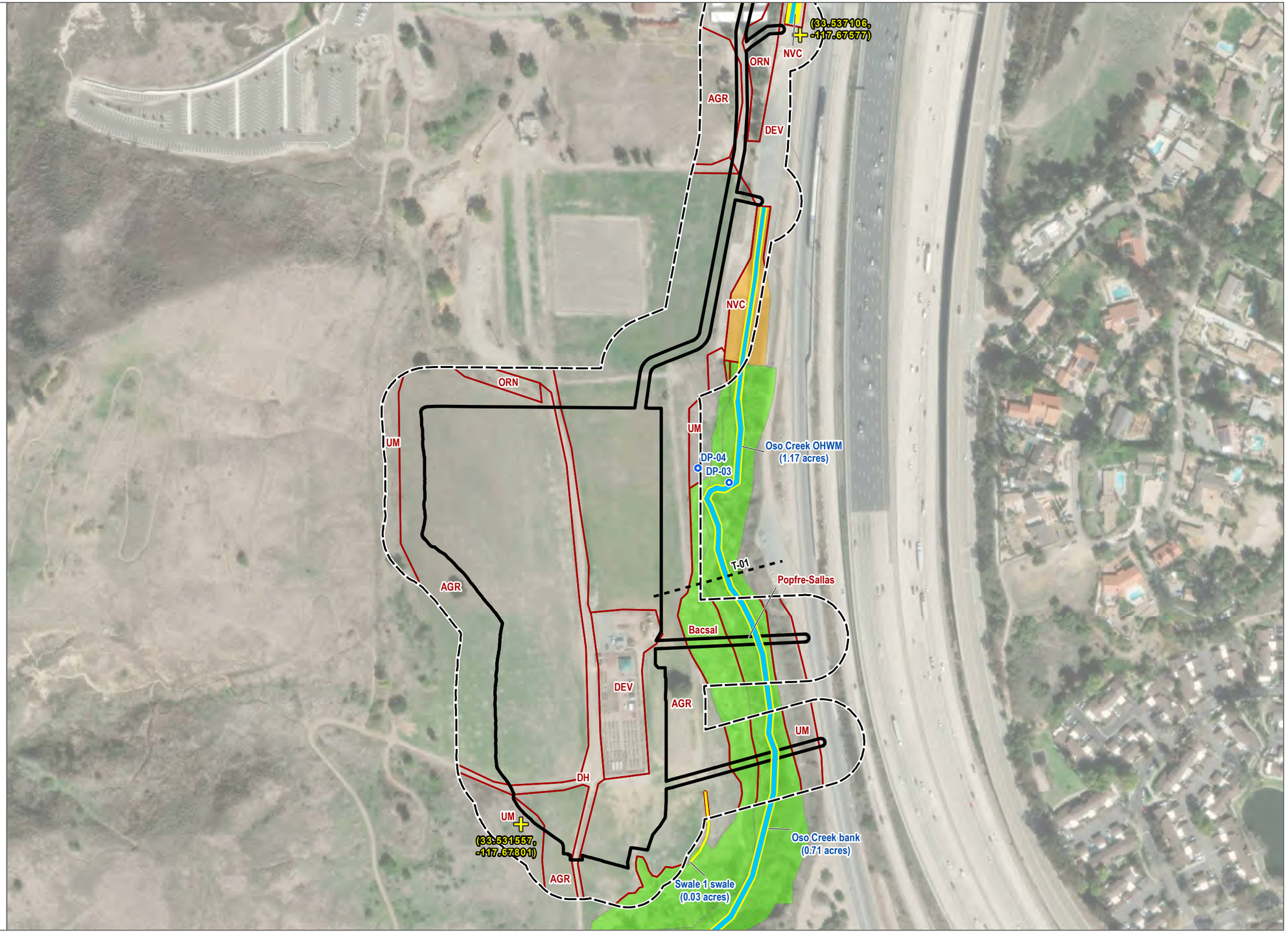
- Project Boundary (14.54 acres)
- Survey Area (39.17 acres)
- Map Reference Point
- Data Point
- Transect

Jurisdictional Features

- Bank/Swale (CDFW) (0.93 acres)
- OHWM (USACE, RWQCB, CDFW) (1.40 acres)
- Bank Habitat
- CDFW Riparian Oso Creek (15.36 acres)

Vegetation Communities and Land Covers

- AGR, General
- Bacsal, Mulefat thickets
- DEV, Urban/Developed
- DH, Disturbed Habitat
- NVC, Non-Vegetated Channel
- ORN, Ornamental
- Popfre-Sallas, Populus fremontii - Salix lasiolepis Association
- UM, Upland Mustards



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Coordinate System: NAD 1983 State Plane Zone 5
Projection: Transverse Mercator
Datum: North American 1983
Vertical Datum: NAVD88, U.S. Feet
1 inch = 100 feet

SOURCE: Esri World Imagery 2023

DUDEK 0 125 250 Feet

FIGURE 7B
Aquatic Resources Delineation
Compass Energy Storage Project

Attachment B

Datasheets

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Captiva BESS City/County: San juan capistrano Sampling Date: 2021-03-11

Applicant/Owner: State: California Sampling Point: CPTV-DMA-DP-01

Investigator(s): DMA Section, Township, Range:

Landform (hillslope, terrace, etc.): Upland, Depression Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR): C 19 Lat: 33.5348206 Long: -117.6741809 Datum: WGS 84

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✔	**Is the Sampled Area within a Wetland?** Yes ____ No ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:

Some old Ag trees in area, area mostly dominated by shrub and herb species, sub dominant species include palm, mule fat, pampas grass, and oxalis understory. Besides a dirt road nearby, area is mostly unimpacted.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10x10 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Quercus agrifolia	5	✔	NI
2.			
3.			
4.			
	5%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10x10 ft r)			
1. Conium maculatum	80	✔	FACW
2. Cortaderia jubata	5		FACU
3.			
4.			
5.			
	85%	= Total Cover	
Herb Stratum (Plot size: 10x10 ft r)			
1. Oxalis californica	70	✔	NI
2. Conium maculatum	25	✔	FACW
3. Silybum marianum	5		NI
4.			
5.			
6.			
7.			
8.			
	100%	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	105	x 2 =	210
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	110 (A)		230 (B)

Prevalence Index = B/A = 2.1

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks:

Hydro veg in this area is dominated mostly by sub tree species.

SOIL

Sampling Point: CPTV-DMA-DP-01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 9	10YR 3/2	100					Clay Loam	Soils are saturated, likely from recent rain, no water table found, sample is one uniform layer
-								
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Hard clay soils

Depth (inches): 9

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✔ No _____ Depth (inches): 1

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Point taken between two stream features in the riparian area they support, recent rains the previous night, ground is moist.

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Captiva BESS City/County: San juan capistrano Sampling Date: 2021-03-11

Applicant/Owner: State: California Sampling Point: CPTV-DMA-DP-02

Investigator(s): DMA Section, Township, Range:

Landform (hillslope, terrace, etc.): Upland, Depression Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR): Lat: 33.527097 Long: -117.678112 Datum: WGS 84

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)

Are Vegetation ✔, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔ No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✔
Hydric Soil Present?	Yes ____ No ✔	
Wetland Hydrology Present?	Yes ✔ No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10x10 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	25	✔	FACW
2.			
3.			
4.			
	25% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10x10 ft r)			
1. Conium maculatum	70	✔	FACW
2.			
3.			FACU
4.			
5.			
	70% = Total Cover		
Herb Stratum (Plot size: 10x10 ft r)			
1. Oxalis californica	70	✔	NI
2. Conium maculatum	25	✔	FACW
3. Silybum marianum	5		NI
4.			
5.			
6.			
7.			
8.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	____ = Total Cover		

% Bare Ground in Herb Stratum ____ % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	120	x 2 =	240
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	120 (A)		240 (B)

Prevalence Index = B/A = 2.0

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Hydro veg in this area is dominated mostly by sub tree species, few willow in area, some new growth occuring

SOIL

Sampling Point: CPTV-DMA-DP-02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 10	10YR 3/3	100					Clay Loam	
-								
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Hard soils

Depth (inches): 10

Hydric Soil Present? Yes ____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ✔ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): ____

Water Table Present? Yes ____ No ✔ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ✔ No ____ Depth (inches): 1

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Point taken near stream feature, rain has occurred recently,

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Captiva BESS City/County: San juan capistrano Sampling Date: 2021-03-11

Applicant/Owner: State: California Sampling Point: CPTV-DMA-DP-03

Investigator(s): DMA Section, Township, Range:

Landform (hillslope, terrace, etc.): Riverine Local relief (concave, convex, none): Concave Slope (%): 25

Subregion (LRR): Lat: 33.533971 Long: -117.676311 Datum: WGS 84

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10x10 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Baccharis salicifolia	40	✔	FAC
2. Salix lasiolepis	25	✔	FACW
3. Washingtonia robusta	15		FACW
4.			
	80%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10x10 ft r)			
1. Baccharis salicifolia	50	✔	FAC
2.			
3.			
4.			FACU
5.			
	50%	= Total Cover	
Herb Stratum (Plot size: 10x10 ft r)			
1. Rumex crispus	25	✔	FAC
2.			
3.			FACW
4.			
5.			
6.			
7.			
8.			
	25%	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 75.0 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	115	x 3 =	345
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	155 (A)		425 (B)

Prevalence Index = B/A = 2.7

Hydrophytic Vegetation Indicators:

✔ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Adventitious rooting in this area, point taken near edge of water

SOIL

Sampling Point: CPTV-DMA-DP-03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	10YR 4/2	100					Sandy Clay Loam	Soils are saturated, likely from recent rain, lots of organics in sample,
-								
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Cobbles

Depth (inches): 6

Hydric Soil Present? Yes ____ No ✔

Remarks:

Despite proximity to creek, no hydric indicators were found. Difficult to dig given presence of cobbles and roots from surrounding veg

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ✔ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✔ Water Marks (B1) (**Riverine**)
- ✔ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ____ No ✔ Depth (inches): ____

Water Table Present? Yes ____ No ✔ Depth (inches): ____

Saturation Present? (includes capillary fringe) Yes ✔ No ____ Depth (inches): 1

Wetland Hydrology Present? Yes ✔ No ____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Point taken adjacent to oso creek where water is flowing at or just below ordinary high levels.

Remarks:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Captiva BESS City/County: San juan capistrano Sampling Date: 2021-03-11

Applicant/Owner: State: California Sampling Point: CPTV-DMA-DP-04

Investigator(s): DMA Section, Township, Range:

Landform (hillslope, terrace, etc.): Upland, Flat Local relief (concave, convex, none): None Slope (%): 2

Subregion (LRR): Lat: 33.534067 Long: -117.676572 Datum: WGS 84

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)

Are Vegetation ✔, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ____	No ✔	**Is the Sampled Area within a Wetland?** Yes ____ No ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ____	No ✔	

Remarks:

Veg maintenance occurs near this area, ag areas are nearby but this location doesn't seem to support any actual ag activity. Despite this, mowing and other management likely occurs here. Very slight grade which lead to slope which becomes steeper in riparian areas

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10x10 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1.	15	✔	FACW
2.			
3.			FAC
4.			
	15%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10x10 ft r)			
1. Baccharis salicifolia	15	✔	FAC
2.			
3.			
4.			
5.			
	15%	= Total Cover	
Herb Stratum (Plot size: 10x10 ft r)			
1. Brassica nigra	25	✔	NI
2. Erodium cicutarium	25	✔	NI
3. Amsinckia menziesii	15	✔	NI
4. Lactuca serriola	10		FACU
5.			
6.			
7.			
8.			
	75%	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 25.0 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	15	x 3 =	45
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	40 (A)		115 (B)

Prevalence Index = B/A = 2.9

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ____ No ✔

Remarks:

Upland area

SOIL

Sampling Point: CPTV-DMA-DP-04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 3	10YR 5/3	100					Clay Loam	
-								
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Hard soils

Depth (inches): 4

Hydric Soil Present? Yes _____ No ✔

Remarks:

Upland area

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Upland, no evidence of flow in this area

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Captiva BESS City/County: San juan capistrano Sampling Date: 2021-04-08

Applicant/Owner: State: California Sampling Point: CPTV-DMA-DP-05

Investigator(s): DMA Section, Township, Range:

Landform (hillslope, terrace, etc.): Riverine Local relief (concave, convex, none): Concave Slope (%): 3

Subregion (LRR): C 19 Lat: 33.526707 Long: -117.679008 Datum: WGS 84

Soil Map Unit Name: NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✔ No ____ (If no, explain in Remarks.)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✔	No ____	**Is the Sampled Area within a Wetland?** Yes ____ No ✔
Hydric Soil Present?	Yes ____	No ✔	
Wetland Hydrology Present?	Yes ✔	No ____	

Remarks:

Point taken in forested riparian habitat

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 10x10 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Salix lasiolepis	60	✔	FACW
2.			
3.			
4.			
	60%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 10x10 ft r)			
1. Schinus terebinthifolia	25	✔	FAC
2. Persea palustris	15	✔	NI
3. Conium maculatum	5		FACW
4.			
5.			
	45%	= Total Cover	
Herb Stratum (Plot size: 10x10 ft r)			
1. Oxalis californica	65	✔	NI
2. Cyperus eragrostis	15		FACW
3. Conium maculatum	10		FACW
4.			
5.			
6.			
7.			
8.			
	90%	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum 10.0 % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	25	x 3 =	75
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	115 (A)		255 (B)

Prevalence Index = B/A = 2.2

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✔ No ____

Remarks:

Multiple hydrophytic species found in this riparian area, ground is moist from recent rains, no OBL species found

SOIL

Sampling Point: CPTV-DMA-DP-05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 4	10YR 5/2	100					Silty Clay	
4 - 10	10YR 5/3	90					Sandy Clay Loam	Some mineral material felt in sample, some gravel and organic materials
-								
-								
-								
-								
-								
-								

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: Roots and cobbles

Depth (inches): 10

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ✔ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Vis ble on Aerial Imagery (B7)
- ✔ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ✔ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ✔ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ✔ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✔ No _____ Depth (inches): 1

Wetland Hydrology Present? Yes ✔ No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Point taken near branching area of stream, rain has occurred recently, water is not flowing in some places, some standing water visible in streambed

Remarks:

Attachment C

Site Photographs

Photo 1: View of Oso Creek flowing out of culvert into non-vegetated channel at northeast corner of site.

Photo 2: View looking upstream Oso Creek towards non-vegetated channel.

Photo 3: Another view of Oso Creek channel, looking upstream from western bank.

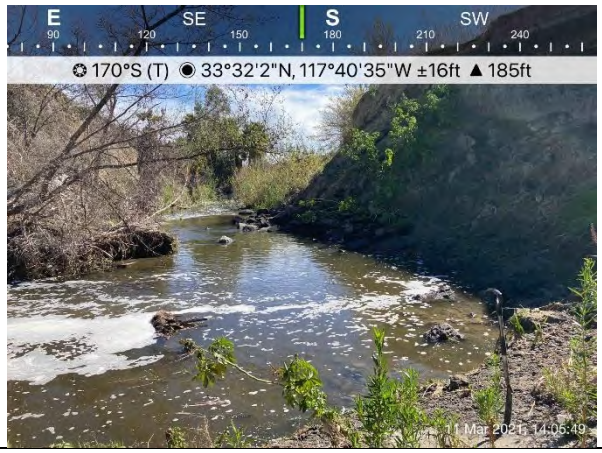

Photo 4: View of Oso Creek taken from western bank, looking downstream.

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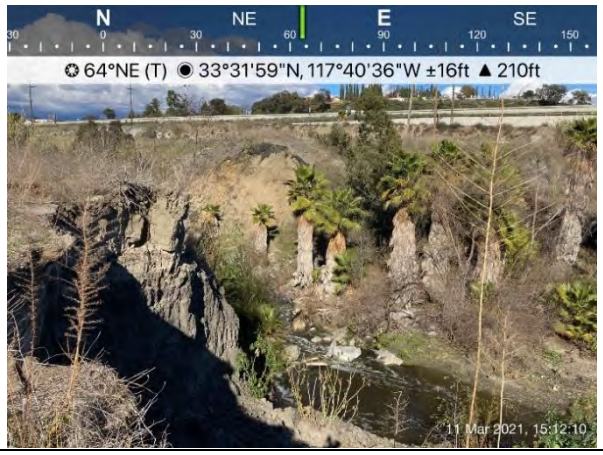
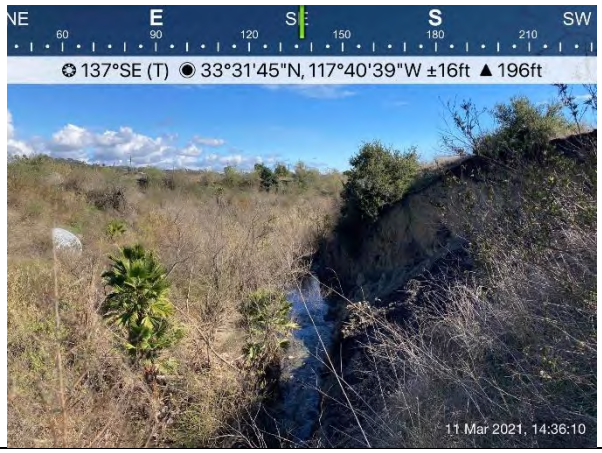
<td> 
</td>
<td> 
</td>
</tr>
<tr>
<td>Photo 5: View of Oso Creek, taken from top of steep bank, riparian area in view.</td>
<td>Photo 6: View of area around DP-03.</td>
</tr>
<tr>
<td> 
</td>
<td> 
</td>
</tr>
<tr>
<td>Photo 7: View of area around DP-04.</td>
<td>Photo 8: View of riparian area and steep walls that characterize Oso Creek.</td>
</tr>
</table>

Photo 9: Additional view of riparian area and steep walls around Oso Creek.

Photo 10: View of Stream 1 coming down onto site from adjacent slope. Concrete Streambed shown.

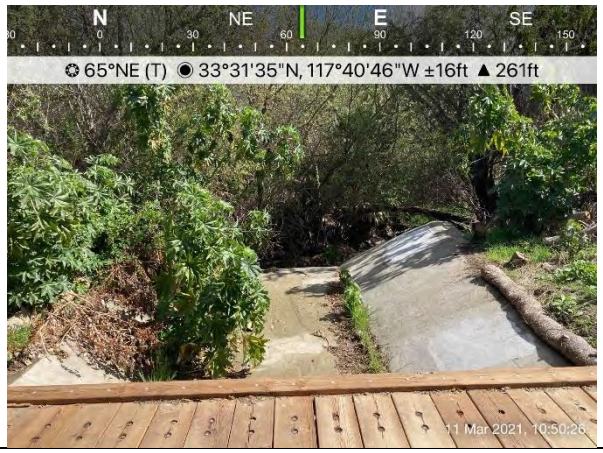


Photo 11: View of Stream 1 passing beneath pedestrian and flowing onto site.

Photo 12: View of thick riparian vegetation around Stream 1.

Photo 13: View of incised area of Stream 1 channel as it flows through riparian area.

Photo 14: View of heavily incised area where Stream 1 falls over vertical drop before flowing towards Oso Creek.

Photo 15: View of branch of Stream 1 that dead ends at dirt road.

Photo 16: View of poison hemlock occupying portion of riparian area near Stream 1.

	
Photo 17: View of area around DP-01.	**Photo 18:** View of area around DP-02.
	
Photo 19: View of area around DP-02.	

Attachment D

Species Compendium

Plants

Eudicots

Vascular Species

ANACARDIACEAE—SUMAC FAMILY

* *Rhus integrifolia*—lemonade berry
* *Schinus mole*—Peruvian pepper tree
* *Schinus terebinthifolius*—Brazilian pepper tree

APIACEAE—CARROT FAMILY

* *Conium maculatum*—poison hemlock

ASTERACEAE—SUNFLOWER FAMILY

* *Artemisia californica*—California sagebrush
* *Baccharis salicifolia*—mulefat
* *Baccharis pilularis*—coyote brush
* *Centaurea melitensis*—Tocalote
* *Cynara cardunculus*—artichoke thistle
* *Erigeron* sp.—horseweed
* *Helianthus annuus*—common sunflower
* *Heterotheca grandiflora*—telegraphweed
* *Isocoma menziesii—Menzies'* goldenbush
* *Lactuca serriola*—prickly lettuce
* *Xanthium strumarium*—cocklebur

BORAGINACEAE-FORGET ME NOT FAMILY

* *Brassica nigra*—black mustard
* *Amsinckia menziesii* — fiddleneck

BRASSICACEAE—MUSTARD FAMILY

* *Brassica nigra*— black mustard
* *Sisybrium irio*—London rocket

EUPHORBIACEAE—SPURGE FAMILY

* *Croton setiger*—turkey mullein
* *Ricinus communis*—castorbean

FABACEAE—LEGUME FAMILY

* *Trifolium repens*—white clover
* *Melitlotus indicus*—sweetclover

GERANIACEAE—GERANIUM FAMILY

* *Erodium cicutarium*—red stemmed filaree

OXALIDACEAE—WOOD SORREL FAMILY

* *Oxalis californica*—California wood sorrel

POLYGONACEAE—BUCKWHEAT FAMILY

* *Eriogonum fasciculatum*—California buckwheat

ROSACEAE—ROSE FAMILY

* *Rosa californica*—California wild rose
* *Rubus ursinus*—California blackberry

RUBIACEAE—COFFEE FAMILY

* *Gallium* sp.—cleavers

SALICACEAE—WILLOW FAMILY

* *Populus fremontii*—Fremont's cottonwood
* *Salix lasiolepis*—arroyo willow
* *Salix lucida*—Pacific willow

SOLANACEAE—NIGHTSHADE FAMILY

* *Nicotiana glauca*—tree tobacco

TAMARICACEAE—TAMARISK FAMILY

* *Tamarix ramosissima*—French tamarisk

Monocots

ARECACEAE—PALM FAMILY

* *Washingtonia robusta*—Washington fan palm

CYPERACEAE—GRAMINOID FAMILY

* *Cyperus eragrostis*—Washington fan palm

POACEAE—GRASS FAMILY

* *Arundo donax*—giant reed
* *Avena fatua*—wildoats
* *Cortaderia selloana*—pampas grass

* *Bromus diandrus*—ripgut brome
* *Bromus hordeaceus*—soft chess
* *Bromus madritensis*—red brome
* *Echinochloa crus galli*—barnyard grass
* *Festuca perennis*—Italian rye grass
* *Polypogon monspeliensis*—Annual beard grass
* *Sorghum halpense*—Johnson grass

Wildlife

Bird

Crow and Ravens

CORVIDAE—CROW, RAVENS, AND ALLIES

Corvux corax—common raven

Finches

FRINGILLIDAE—FRINGILLINE AND CARDUELINE FINCHES AND ALLIES

Haemorhous mexicanus—house finch
Spinus psaltria—lesser goldfinch

Flycatchers

TYRANNIDAE—TYRANT FLYCATCHERS

Sayornis nigricans—black phoebe
Tyrannus vociferans—Cassin's kingbird

Hawks

ACCIPITRIDAE—HAWKS, KITES, EAGLES, AND ALLIES

Buteo jamaicensis—red-tailed hawk
Buteo lineatus—red-shouldered hawk

Hummingbirds

TROCHILIDAE—HUMMINGBIRDS

Calypte anna—Anna's hummingbird

New World Vultures

CATHARTIDAE—NEW WORLD VULTURES

Cathartes aura—turkey vulture

New World Warblers

PARULIDAE—NEW WORLD WARBLER

Setophaga palmarum—palm warbler

Pigeons and Doves

COLUMBIDAE—PIGEONS AND DOVES

Columba livia—rock pigeon

Zenaida macroura—mourning dove

Sparrows

PASSERIDAE—SPARROWS

Passer dosmesticus—house sparrow

Zenaida macroura—mourning dove

Mammals

Rabbits

LEPORDIAE—RABBITS

Sylvilagus bachmani—brush rabbit

Squirrels

SCIURIDAE—SQUIRRELS

Spermophilus (Otospermophilus) *beecheyi*—California ground squirrel

* signifies introduced (non-native) species

Attachment E

Aquatic Resources Upload Sheet
(files submitted separately)

Attachment 4

DR BIO-2. Updated Appendix 4.2A Special Status Plant Species Potential to Occur

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
Aphanisma blitoides	aphanisma	None/None/1B.2	Feb-Jun	Coastal bluff scrub, Coastal dunes, Coastal scrub; sandy or gravelly/annual herb/Feb–June/3–1,000	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 5 miles from the project site along the coast (CDFW 2021). Aphanisma was not observed during rare plant surveys within the Biological Study Area (BSA).
Artemisia palmeri	San Diego sagewort	None/None/4.2	(Feb)May-Sep	Chaparral, Coastal scrub, Riparian forest, Riparian scrub, Riparian woodland; sandy, mesic/perennial deciduous shrub/(Feb)May–Sep/49–3,000	Not expected to occur. Limited suitable vegetation present to support this species. There are no known occurrences within 5 miles of the project site (CCH 2021). San Diego sagewort was not observed during rare plant surveys within the BSA.
Asplenium vespertinum	western spleenwort	None/None/4.2	Feb-Jun	Chaparral, Cismontane woodland, Coastal scrub; rocky/perennial rhizomatous herb/Feb–June/591–3,280	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. There are no known occurrences within 5 miles of the project site (CCH 2021). Western spleen wort was not observed during rare plant surveys within the BSA.
Astragalus brauntonii	Braunton's milk-vetch	FE/None/1B.1	Jan-Aug	Chaparral, Coastal scrub, Valley and foothill grassland; recent burns or disturbed areas, usually sandstone with carbonate layers/perennial herb/Jan–Aug/13–2,095	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 10 miles north of the project site (CDFW 2021). Braunton's milk-vetch was not observed during rare plant surveys within the BSA.

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
Atriplex coulteri	Coulter's saltbush	None/None/1B.2	Mar-Oct	Coastal bluff scrub, Coastal dunes, Coastal scrub, Valley and foothill grassland; alkaline or clay/perennial herb/Mar–Oct/10–1,505	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 1 mile south of the project site (CDFW 2021). Coulter's saltbush was not observed during rare plant surveys within the BSA.
Atriplex pacifica	South Coast saltscale	None/None/1B.2	Mar-Oct	Coastal bluff scrub, Coastal dunes, Coastal scrub, Playas/annual herb/Mar–Oct/0–460	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 5 miles from the project site along the coast (CDFW 2021). South coast saltscale was not observed during rare plant surveys within the BSA.
Atriplex parishii	Parish's brittlescale	None/None/1B.1	Jun-Oct	Chenopod scrub, Playas, Vernal pools; alkaline/annual herb/June–Oct/82–6,230	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 5 miles from the project site (CDFW 2021). Parish's brittlescale was not observed during rare plant surveys BSA.
Atriplex serenana var. *davidsonii*	Davidson's saltscale	None/None/1B.2	Apr-Oct	Coastal bluff scrub, Coastal scrub; alkaline/annual herb/Apr–Oct/33–655	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 5 miles from the project site (CDFW 2021). Davidson's saltscale was not observed during rare plant surveys within the BSA.

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
Brodiaea filifolia	thread-leaved brodiaea	FT/SE/1B.1	Mar-Jun	Chaparral (openings), Cismontane woodland, Coastal scrub, Playas, Valley and foothill grassland, Vernal pools; often clay/perennial bulbiferous herb/Mar–June/82–3,670	Not expected to occur. The closest known occurrence is approximately 2 miles north of the project site (CDFW 2021). A reference check was performed for Brodiaea filifolia (blooming May 4, 2021). Thread-leaved brodiaea was not observed during rare plant surveys within the BSA.
Calochortus catalinae	Catalina mariposa lily	None/None/4.2	(Feb)Mar-Jun	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/perennial bulbiferous herb/(Feb)Mar–June/49–2,295	Not expected to occur. The closest known occurrence is less than 5 miles from the project site (CCH 2021). A reference check was performed for Catalina mariposa lily (blooming May 10, 2021). Catalina mariposa lily was not observed during rare plant surveys within the BSA.
Calochortus weedii var. *intermedius*	intermediate mariposa lily	None/None/1B.2	May-Jul	Chaparral, Coastal scrub, Valley and foothill grassland; rocky, calcareous/perennial bulbiferous herb/May–July/344–2,805	Not expected to occur. The closest known occurrence is approximately 3 miles from the project site (CDFW 2021). Intermediate mariposa lily was not observed during rare plant surveys within the BSA.
Camissoniopsis lewisii	Lewis' evening-primrose	None/None/3	Mar-May(Jun)	Coastal bluff scrub, Cismontane woodland, Coastal dunes, Coastal scrub, Valley and foothill grassland; sandy or clay/annual herb/Mar–May(June)/0–985	Not expected to occur. There are no known occurrences within 5 miles of the project site (CCH 2021). Lewis' evening primrose was not observed during rare plant surveys within the BSA.

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
Caulanthus simulans	Payson's jewelflower	None/None/4.2	(Feb)Mar-May(Jun)	Chaparral, Coastal scrub; sandy, granitic/annual herb/(Feb)Mar–May(June)/295–7,215	Not expected to occur. No suitable vegetation present. There are no known occurrences within 5 miles of the project site (CCH 2021). Payson's jewelflower was not observed during rare plant surveys within the BSA.
Centromadia parryi ssp. *australis*	southern tarplant	None/None/1B.1	May-Nov	Marshes and swamps (margins), Valley and foothill grassland (vernally mesic), Vernal pools/annual herb/May–Nov/0–1,570	Not expected to occur. The closest known occurrence is less than 5 miles from the project site (CDFW 2021). Southern tarplant was not observed during rare plant surveys within the BSA.
Chaenactis glabriuscula var. *orcuttiana*	Orcutt's pincushion	None/None/1B.1	Jan-Aug	Coastal bluff scrub (sandy), Coastal dunes/annual herb/Jan–Aug/0–330	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 5 miles from the project site along the coast (CDFW 2021).Orcutt's pincushion was not observed during rare plant surveys within the BSA.
Chorizanthe leptotheca	Peninsular spineflower	None/None/4.2	May-Aug	Chaparral, Coastal scrub, Lower montane coniferous forest; alluvial fan, granitic/annual herb/May–Aug/984–6,230	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. There are no known occurrences within 5 miles of the project site (CCH 2021). Peninsular spineflower was not observed during rare plant surveys within the BSA.

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
Chorizanthe polygonoides var. *longispina*	long-spined spineflower	None/None/1B.2	Apr-Jul	Chaparral, Coastal scrub, Meadows and seeps, Valley and foothill grassland, Vernal pools; often clay/annual herb/Apr–July/98–5,015	Not expected to occur. The closest known occurrence is approximately 10 miles from the project site (CDFW 2021). Long-spined spineflower was not observed during rare plant surveys within the BSA.
Cistanthe maritima	seaside cistanthe	None/None/4.2	(Feb)Mar-Jun(Aug)	Coastal bluff scrub, Coastal scrub, Valley and foothill grassland; sandy/annual herb/(Feb)Mar–June(Aug)/16–985	Not expected to occur. The closest known occurrence is approximately 5 miles from the project site along the coast (CCH 2021). Seaside cistanthe was not observed during rare plant surveys within the BSA.
Clinopodium chandleri	San Miguel savory	None/None/1B.2	Mar-Jul	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland, Valley and foothill grassland; Rocky, gabbroic or metavolcanic/perennial shrub/Mar–July/394–3,525	Not expected to occur. The site is outside of the species' known elevation range. The closest known occurrence is 10 miles from the project site (CDFW 2021). San Miguel savory was not observed during rare plant surveys within the BSA.
Comarostaphylis diversifolia ssp. *diversifolia*	summer holly	None/None/1B.2	Apr-Jun	Chaparral, Cismontane woodland/perennial evergreen shrub/Apr–June/98–2,590	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 3 miles from the project site (CDFW 2021). Summer holly can easily be observed year-round and was not observed during rare plant surveys within the BSA.
Convolvulus simulans	small-flowered morning-glory	None/None/4.2	Mar-Jul	Chaparral (openings), Coastal scrub, Valley and foothill grassland; clay, serpentinite	Not expected to occur. The closest known occurrence is less than 5 miles from the

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
				seeps/annual herb/Mar–July/98–2,425	project site (CCH 2021). A reference check was performed for small-flowered morning glory (blooming May 1, 2021). The BSA is too disturbed for small-flowered morning glory to persist. Small flowered morning glory was not observed during rare plant surveys within the BSA.
Deinandra paniculata	paniculate tarplant	None/None/4.2	(Mar)Apr-Nov(Dec)	Coastal scrub, Valley and foothill grassland, Vernal pools; usually vernally mesic, sometimes sandy/annual herb/(Mar)Apr–Nov(Dec)/82–3,080	Not expected to occur. The closest known occurrence is less than 5 miles from the project site (CCH 2021). A reference check was performed for paniculate tarplant (July 25, 2021 blooming). Paniculate tarplant was not observed during rare plant surveys within the BSA.
Dichondra occidentalis	western dichondra	None/None/4.2	(Jan)Mar-Jul	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland/perennial rhizomatous herb/(Jan)Mar–July/164–1,640	Not expected to occur. The closest known occurrence is less than 5 miles from the project site (CCH 2021). Western dichondra was not observed during rare plant surveys within the BSA.
Diplacus clevelandii	Cleveland's bush monkeyflower	None/None/4.2	Apr-Jul	Chaparral, Cismontane woodland, Lower montane coniferous forest; Gabbroic, often in disturbed areas, openings, rocky/perennial rhizomatous herb/Apr–July/1,475–6,560	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. There are no known occurrences within 5 miles of the project site (CCH 2021).

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
Dodecahema leptoceras	slender-horned spineflower	FE/SE/1B.1	Apr-Jun	Chaparral, Cismontane woodland, Coastal scrub (alluvial fan); sandy/annual herb/Apr–June/656–2,490	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. There are no known occurrences within 5 miles of the project site (CDFW 2021, CCH 2021).
Dudleya blochmaniae ssp. *blochmaniae*	Blochman's dudleya	None/None/1B.1	Apr-Jun	Coastal bluff scrub, Chaparral, Coastal scrub, Valley and foothill grassland; rocky, often clay or serpentinite/perennial herb/Apr–June/16–1,475	Not expected to occur. The closest known occurrence is approximately 5 miles from the project site along the coast (CDFW 2021). Blochman's Dudleya was not observed during rare plant surveys within the BSA.
Dudleya cymosa ssp. *ovatifolia*	Santa Monica dudleya	FT/None/1B.1	Mar-Jun	Chaparral, Coastal scrub; volcanic or sedimentary, rocky/perennial herb/Mar–June/492–5,495	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. There are no known occurrences within 5 miles of the project site (CDFW 2021, CCH 2021). Santa Monica Dudleya was not observed during rare plant surveys.
Dudleya multicaulis	many-stemmed dudleya	None/None/1B.2	Apr-Jul	Chaparral, Coastal scrub, Valley and foothill grassland; often clay/perennial herb/Apr–July/49–2,590	Not expected to occur. The closest known occurrence is approximately 5 miles from the project site (CDFW 2021). Many-stemmed Dudleya was not observed during rare plant surveys within the BSA.

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
Dudleya stolonifera	Laguna Beach dudleya	FT/ST/1B.1	May-Jul	Chaparral, Cismontane woodland, Coastal scrub, Valley and foothill grassland; rocky/perennial stoloniferous herb/May–July/33–855	Not expected to occur. The closest known occurrence is approximately 5 miles from the project site (CDFW 2021). Laguna beach Dudleya was not observed during rare plant surveys within the BSA.
Dudleya viscida	sticky dudleya	None/None/1B.2	May-Jun	Coastal bluff scrub, Chaparral, Cismontane woodland, Coastal scrub; rocky/perennial herb/May–June/33–1,800	Not expected to occur. No suitable vegetation present. The closest known occurrence is less than 5 miles from the project site (CDFW 2021). Sticky Dudleya was not observed during rare plant surveys within the BSA.
Eryngium pendletonense	Pendleton button-celery	None/None/1B.1	Apr-Jun(Jul)	Coastal bluff scrub, Valley and foothill grassland, Vernal pools; clay, vernally mesic/perennial herb/Apr–June(July)/49–360	Not expected to occur. The closest known occurrence is more than 10 miles from the project site (CDFW 2021). Pendleton button-celery has only been observed within Camp Pendleton boundaries. In addition, it was not observed during rare plant surveys within the BSA.
Erythranthe diffusa	Palomar monkeyflower	None/None/4.3	Apr-Jun	Chaparral, Lower montane coniferous forest; sandy or gravelly/annual herb/Apr–June/4,000–6,000	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. There are no known occurrences within 5 miles of the project site (CCH 2021). Palomar monkeyflower was not observed during rare plant surveys within the BSA.

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
Euphorbia misera	cliff spurge	None/None/2B.2	Dec-Aug(Oct)	Coastal bluff scrub, Coastal scrub, Mojavean desert scrub; rocky/perennial shrub/Dec–Aug(Oct)/33–1,640	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 4 miles from the project site (CDFW 2021).Cliff spurge (large perennial shrub) can easily be observed year round. Cliff spurge was not observed during rare plant surveys within the BSA.
Harpagonella palmeri	Palmer's grapplinghook	None/None/4.2	Mar-May	Chaparral, Coastal scrub, Valley and foothill grassland; Clay; open grassy areas within shrubland/annual herb/Mar–May/66–3,130	Not expected to occur. There are no known occurrences within 5 miles of the project site (CCH 2021). A reference check was performed for Palmer;s grapplinghook (April 24, 2021 blooming and fruiting). The site is too disturbed for Palmer's grapplinghook to persist. Palmer's grapplinghook was not observed during rare plant surveys within the BSA.
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower	None/None/1A	Aug-Oct	Marshes and swamps (coastal salt and freshwater)/perennial rhizomatous herb/Aug–Oct/33–5,000	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 15 miles north of the project site (CDFW 2021). Los Angeles was not observed during rare plant surveys within the BSA.
Hesperocyparis forbesii	Tecate cypress	None/None/1B.1	N.A.	Closed-cone coniferous forest, Chaparral; clay, gabbroic or	Not expected to occur. No suitable vegetation present. The closest known occurrence

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
				metavolcanic/perennial evergreen tree/N.A./262–4,920	is approximately 15 miles north of the project site (CDFW 2021). Tecate cypress can easily be observed year-round. Additionally, Tecate cypress was not observed during rare plant surveys within the BSA.
Hordeum intercedens	vernal barley	None/None/3.2	Mar-Jun	Coastal dunes, Coastal scrub, Valley and foothill grassland (saline flats and depressions), Vernal pools/annual herb/Mar–June/16–3,280	Not expected to occur. The closest known occurrence is less than 5 miles from the project site (CCH 2021). Vernal barley habitat was not present within the BSA. In addition, vernal barley was not observed during rare plant surveys within the BSA.
Horkelia cuneata var. *puberula*	mesa horkelia	None/None/1B.1	Feb-Jul(Sep)	Chaparral (maritime), Cismontane woodland, Coastal scrub; sandy or gravelly/perennial herb/Feb–July(Sep)/230–2,655	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 5 miles from the project site (CDFW 2021). Mesa horkelia was not observed during rare plant surveys within the BSA.
Imperata brevifolia	California satintail	None/None/2B.1	Sep-May	Chaparral, Coastal scrub, Mojavean desert scrub, Meadows and seeps (often alkali), Riparian scrub; mesic/perennial rhizomatous herb/Sep–May/0–3,985	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 5 miles from the project site (CDFW 2021). California satintails was not observed during rare plant surveys within the BSA.
Isocoma menziesii var. *decumbens*	decumbent goldenbush	None/None/1B.2	Apr-Nov	Chaparral, Coastal scrub (sandy, often in disturbed areas)/perennial shrub/Apr–Nov/33–445	Not expected to occur. No suitable vegetation present. The closest known occurrence

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
					is approximately 5 miles from the project site along the coast (CDFW 2021). Decumbent goldenbush was not observed during rare plant surveys within the BSA.
Lasthenia glabrata ssp. *coulteri*	Coulter's goldfields	None/None/1B.1	Feb-Jun	Marshes and swamps (coastal salt), Playas, Vernal pools/annual herb/Feb–June/3–4,000	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 10 miles from the project site (CDFW 2021). Coulter's goldfields was not observed during rare plant surveys within the BSA.
Lepechinia cardiophylla	heart-leaved pitcher sage	None/None/1B.2	Apr-Jul	Closed-cone coniferous forest, Chaparral, Cismontane woodland/perennial shrub/Apr–July/1,705–4,490	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. The closest known occurrence is approximately 15 miles north of the project site (CDFW 2021). Heart-leaved pitcher sage was not observed during rare plant surveys within the BSA.
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None/None/4.3	Jan-Jul	Chaparral, Coastal scrub/annual herb/Jan–July/3–2,900	Not expected to occur. No suitable vegetation present. There are no known occurrences within 5 miles of the project site (CCH 2021). Robinson's pepper-grass was not observed during rare plant surveys within the BSA.

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
Lycium brevipes var. *hassei*	Santa Catalina Island desert-thorn	None/None/3.1	Jun(Aug)	Coastal bluff scrub, Coastal scrub/perennial deciduous shrub/June(Aug)/213–985	Not expected to occur. No suitable vegetation present. There are no known occurrences within 5 miles of the project site (CCH 2021). Santa Catalina Island desert-thorn was not observed during rare plant surveys within the BSA.
Lycium californicum	California box-thorn	None/None/4.2	(Dec)Mar,Jun,Jul,Aug	Coastal bluff scrub, Coastal scrub/perennial shrub/(Dec)Mar,June,July,Aug/16–490	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 5 miles from the project site along the coast (CCH 2021). California box thorn was not observed during rare plant surveys within the BSA.
Malacothrix saxatilis var. *saxatilis*	cliff malacothrix	None/None/4.2	Mar-Sep	Coastal bluff scrub, Coastal scrub/perennial rhizomatous herb/Mar–Sep/10–655	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 5 miles from the project site along the coast (CCH 2021). A reference check was performed for cliff malacothrix (July 25, 2021 blooming).
Microseris douglasii ssp. *platycarpha*	small-flowered microseris	None/None/4.2	Mar-May	Cismontane woodland, Coastal scrub, Valley and foothill grassland, Vernal pools; clay/annual herb/Mar–May/49–3,510	Not expected to occur. The closest known occurrence is less than 5 miles from the project site (CCH 2021). The site is too disturbed for small flowered microseris. In addition, small flowered microseries was not observed

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
					during rare plant surveys within the BSA.
Monardella hypoleuca ssp. *intermedia*	intermediate monardella	None/None/1B.3	Apr-Sep	Chaparral, Cismontane woodland, Lower montane coniferous forest (sometimes); Usually understory/perennial rhizomatous herb/Apr–Sep/1,310–4,100	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. The closest known occurrence is approximately 10 miles from the project site (CDFW 2021). Intermediate monardella was not observed during rare plant surveys within the BSA.
Monardella hypoleuca ssp. *lanata*	felt-leaved monardella	None/None/1B.2	Jun-Aug	Chaparral, Cismontane woodland/perennial rhizomatous herb/June–Aug/984–5,165	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. There are no known occurrences within 5 miles from the project site (CDFW 2021, CCH 2021). Felt-leaved monardella was not observed during rare plant surveys within the BSA.
Monardella macrantha ssp. *hallii*	Hall's monardella	None/None/1B.3	Jun-Oct	Broadleafed upland forest, Chaparral, Cismontane woodland, Lower montane coniferous forest, Valley and foothill grassland/perennial rhizomatous herb/June–Oct/2,395–7,200	Not expected to occur. The site is outside of the species' known elevation range. The closest known occurrence is approximately 15 miles from the project site (CDFW 2021). Hall's monardella was not observed during rare plant surveys within the BSA.

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
Myosurus minimus ssp. *apus*	little mousetail	None/None/3.1	Mar-Jun	Valley and foothill grassland, Vernal pools (alkaline)/annual herb/Mar–June/66–2,095	Not expected to occur. The BSA has no vernal pools and the site is too disturbed for this species. There are no known occurrences within 5 miles of the project site (CCH 2021). In addition, little mousetails was not observed during rare plant surveys within the BSA.
Nama stenocarpa	mud nama	None/None/2B.2	Jan-Jul	Marshes and swamps (lake margins, riverbanks)/annual / perennial herb/Jan–July/16–1,640	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 3 miles east of the project site (CDFW 2021). Mud nama was not observed during rare plant surveys within the BSA.
Nasturtium gambelii	Gambel's water cress	FE/ST/1B.1	Apr-Oct	Marshes and swamps (freshwater or brackish)/perennial rhizomatous herb/Apr–Oct/16–1,080	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 15 miles north of the project site (CDFW 2021). Gambel's water cress was not observed during rare plant surveys within the BSA.
Navarretia prostrata	prostrate vernal pool navarretia	None/None/1B.2	Apr-Jul	Coastal scrub, Meadows and seeps, Valley and foothill grassland (alkaline), Vernal pools; Mesic/annual herb/Apr–July/10–3,965	Not expected to occur. The BSA does not have any vernal pools and is too disturbed for prostrate vernal pool nararretia. The closest known occurrence is approximately 5 miles from the project site (CDFW 2021). In addition, it was not observed during rare plant surveys within the BSA.

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
Nolina cismontana	chaparral nolina	None/None/1B.2	(Mar)May-Jul	Chaparral, Coastal scrub; sandstone or gabbro/perennial evergreen shrub/(Mar)May–July/459–4,180	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. The closest known occurrence is approximately 10 miles from the project site (CDFW 2021). Chaparral nolina was not observed during rare plant surveys within the BSA.
Orcuttia californica	California Orcutt grass	FE/CE/1B.1/None	Apr–Aug	An annual herb that primarily occurs within vernal pools at 49–2165 feet	Low potential to occur. Not observed during focused rare plant surveys.
Pentachaeta aurea ssp. *allenii*	Allen's pentachaeta	None/None/1B.1	Mar-Jun	Coastal scrub (openings), Valley and foothill grassland/annual herb/Mar–June/246–1,705	Not expected to occur. The closest known occurrence is approximately 5 miles from the project site along the coast (CDFW 2021). In addition, Allen's pentachaeta was not observed during rare plant surveys within the BSA and the site is too disturbed for this species to survive onsite.
Phacelia keckii	Santiago Peak phacelia	None/None/1B.3	May-Jul	Closed-cone coniferous forest, Chaparral/annual herb/May–July/1,785–5,245	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. The closest known occurrence is approximately 15 miles north of the project site (CDFW 2021). Santiago peak phacelia was not observed during rare plant surveys within the BSA.

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
Phacelia ramosissima var. *austrolitoralis*	south coast branching phacelia	None/None/3.2	Mar-Aug	Chaparral, Coastal dunes, Coastal scrub, Marshes and swamps (coastal salt); sandy, sometimes rocky/perennial herb/Mar–Aug/16–985	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 5 miles from the project site along the coast (CCH 2021). South coast branching phacelia was not observed during rare plant surveys within the BSA.
Piperia cooperi	chaparral rein orchid	None/None/4.2	Mar-Jun	Chaparral, Cismontane woodland, Valley and foothill grassland/perennial herb/Mar–June/49–5,200	Not expected to occur. The BSA is too disturbed for chaparral rein orchid. The closest known occurrence is approximately 5 miles from the project site along the coast (CCH 2021). In addition, chaparral rein orchid was not observed during rare plant surveys within the BSA.
Piperia leptopetala	narrow-petaled rein orchid	None/None/4.3	May-Jul	Cismontane woodland, Lower montane coniferous forest, Upper montane coniferous forest/perennial herb/May–July/1,245–7,295	Not expected to occur. The site is too disturbed for narrow petaled rein orchid. The site is outside of the species' known elevation range and there is no suitable vegetation present. There are no known occurrences within 5 miles of the project site (CCH 2021). Narrow petaled rein orchid was not observed during rare plant surveys within the BSA.
Polygala cornuta var. *fishiae*	Fish's milkwort	None/None/4.3	May-Aug	Chaparral, Cismontane woodland, Riparian woodland/perennial deciduous shrub/May–Aug/328–3,280	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 5 miles from

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
					the project site along the coast (CCH 2021). Fish's milkwort was not observed during rare plant surveys within the BSA.
Pseudognaphalium leucocephalum	white rabbit-tobacco	None/None/2B.2	(Jul)Aug-Nov(Dec)	Chaparral, Cismontane woodland, Coastal scrub, Riparian woodland; sandy, gravelly/perennial herb/(July)Aug–Nov(Dec)/0–6,885	Not expected to occur. No suitable vegetation present. The closest known occurrence is less than 1 mile south of the project site (CDFW 2021). White rabbit-tobacco was not observed during rare plant surveys within the BSA.
Quercus dumosa	Nuttall's scrub oak	None/None/1B.1	Feb-Apr(May-Aug)	Closed-cone coniferous forest, Chaparral, Coastal scrub; sandy, clay loam/perennial evergreen shrub/Feb–Apr(May–Aug)/49–1,310	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 2 miles south of the project site (CDFW 2021). Nuttal's scrub oak was not observed during rare plant surveys within the BSA.
Romneya coulteri	Coulter's matilija poppy	None/None/4.2	Mar-Jul(Aug)	Chaparral, Coastal scrub; Often in burns/perennial rhizomatous herb/Mar–July(Aug)/66–3,935	Not expected to occur. No suitable vegetation present. There are no known occurrences within 5 miles of the project site (CCH 2021). Coulter's matilija poppy was not observed during rare plant surveys within the BSA.
Senecio aphanactis	chaparral ragwort	None/None/2B.2	Jan-Apr(May)	Chaparral, Cismontane woodland, Coastal scrub; sometimes alkaline/annual herb/Jan–Apr(May)/49–2,620	Not expected to occur. No suitable vegetation present. The site is too disturbed for chaparral ragwort to persist. The closest known occurrence is approximately 5 miles from the project site along the coast

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
					(CDFW 2021). A reference check was performed for chaparral ragwort (April 15, 2021). Chaparral ragwort was not observed during rare plant surveys within the BSA.
Sidalcea neomexicana	salt spring checkerbloom	None/None/2B.2	Mar-Jun	Chaparral, Coastal scrub, Lower montane coniferous forest, Mojavean desert scrub, Playas; alkaline, mesic/perennial herb/Mar–June/49–5,015	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 4 miles from the project site (CDFW 2021). Salt spring checkerbloom was not observed during rare plant surveys within the BSA.
Suaeda esteroa	estuary seablite	None/None/1B.2	(May)Jul-Oct(Jan)	Marshes and swamps (coastal salt)/perennial herb/(May)July–Oct(Jan)/0–15	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. Estuary seablite typically occurs in marshes and swamps with coastal salt which is not present within the BSA. The closest known occurrence is approximately 10 miles from the project site (CDFW 2021). Estuary seablite was not observed during rare plant surveys within the BSA.
Suaeda taxifolia	woolly seablite	None/None/4.2	Jan-Dec	Coastal bluff scrub, Coastal dunes, Marshes and swamps (margins of coastal salt)/perennial evergreen shrub/Jan–Dec/0–165	Not expected to occur. No suitable vegetation present. Woolly seablite typically occurs in marshes and swamps with coastal salt which is not present within the BSA. The

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
					closest known occurrence is less than 5 miles from the project site (CCH 2021). Wooly seablite was not observed during rare plant surveys within the BSA.
Symphyotrichum defoliatum	San Bernardino aster	None/None/1B.2	Jul-Nov(Dec)	Cismontane woodland, Coastal scrub, Lower montane coniferous forest, Meadows and seeps, Marshes and swamps, Valley and foothill grassland (vernally mesic); near ditches, streams, springs/perennial rhizomatous herb/July–Nov(Dec)/7–6,690	Not expected to occur. The closest known occurrence is approximately 15 miles north of the project site (CDFW 2021). San Bernardino aster was not observed during rare plant surveys within the BSA.
Tetracoccus dioicus	Parry's tetracoccus	None/None/1B.2	Apr-May	Chaparral, Coastal scrub/perennial deciduous shrub/Apr–May/541–3,280	Not expected to occur. The site is outside of the species' known elevation range and there is no suitable vegetation present. There are no known occurrences within 5 miles from the project site (CDFW 2021, CCH 2021). Parry's tetracoccus is a large perennial that can easity be observed year-round. Parry's tetracoccus was not observed during rare plant surveys within the BSA.
Verbesina dissita	big-leaved crownbeard	FT/ST/1B.1	(Mar)Apr-Jul	Chaparral (maritime), Coastal scrub/perennial herb/(Mar)Apr–July/148–675	Not expected to occur. No suitable vegetation present. The closest known occurrence is less than 5 miles from the project site (CDFW 2021). A reference check was performed for big-leaved

Scientific name	Common name	Status	Bloom period	Habitat	Potential to occur
					crownbeard (May 10, 2021 blooming).
Viguiera laciniata	San Diego County viguiera	None/None/4.3	Feb-Jun(Aug)	Chaparral, Coastal scrub/perennial shrub/Feb–June(Aug)/197–2,460	Not expected to occur. No suitable vegetation present. The closest known occurrence is approximately 5 miles from the project site along the coast (CCH 2021). San Diego Viguiera was not observed during rare plant surveys within the BSA.