Amazing 34 Distribution Center

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Lead Agency:

City of San Bernardino

201 North E Street, 3rd Floor

San Bernardino, CA 92401

Travis Martin, Associate Planner

(909) 384-5313

Applicant:

Orly Corp.

15 W 34th Street 7th Floor

New York, NY 10001

Contact: Nabeel Shaikh

Phone: (212) 695-0998

Consultant:

Adkan Engineers

6879 Airport Drive

Riverside, CA 92504

Michael Brendecke, PE, LS

(951) 688-0241

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1.0 INTRODUCTION

1.1 Project Overview

This Initial Study/ Mitigated Negative Declaration (IS/MND) was prepared by Adkan Engineers for the City of San Bernardino (City) to assess whether or not there may be significant environmental impact associated with the proposed Amazing 34 Distribution Center Project ("Project or Proposed Project"), located at 791 South Waterman Ave (Northeast corner of Waterman Ave. and Central Ave.) in the City of San Bernardino, California. This IS/MND was prepared consistent with the requirements of the California Environmental Quality Act (CEQA) on the basis that there was no substantial evidence that there might be significant environmental impacts on specific environmental areas. Where a potentially significant impact may occur, the most appropriate mitigation measure(s) have been identified and would avoid or mitigate the potential impact to a level of less than significant.

1.2 Lead Agency

The lead agency is the public agency with primary responsibility for a proposed project. Where two or more public agencies will be involved with a project, CEQA Guidelines §15051 establishes criteria for identifying the lead agency. In accordance with CEQA Guidelines §15051(b) (1), "the lead agency will normally be the agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose." Pursuant to State CEQA Guidelines §15367 and based on the criterion above, the City of San Bernardino is the lead agency for the proposed Amazing 34 Distribution Center Project.

1.3 Purpose and Scope of the Initial Study

In accordance with CEQA (California Public Resources Code [PRC] §21000 et seq.) and its Guidelines (California Code of Regulations [CCR], Title 14, §15000 et seq.), this IS/MND has been prepared to evaluate the potential environmental effects associated with the construction and operation of the Project.

Per State CEQA Guidelines, §15070, a public agency shall prepare or have prepared a proposed negative declaration or MND for a project subject to CEQA when:

a) The initial study shows no substantial evidence, in light of the whole record before the agency, that the project may have a significant effect on the environment, or

b) The initial study identifies potentially significant effects, but:

    1) Revisions in the project plans or proposals made by, or agreed to by the applicant before the proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur.

    2) There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment.

1.4 Mitigation Measures

Per State CEQA Guidelines, §15041, Authority to Mitigate, a lead agency for a project has the authority to require feasible changes in any or all activities involved in the project in order to substantially lessen or avoid significant effects on the environment, consistent with applicable constitutional requirements such as the "nexus" and "rough proportionality" standards. As defined by State CEQA Guidelines, §15364, "feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal social, and technological factors. If significant impacts are identified, then mitigation measures are adopted to reduce the impact to less than significant levels. State CEQA Guidelines, §15126.4 states that mitigation measures must be consistent with all applicable constitutional requirements, including the following:

- There must be an essential nexus (i.e., connection) between the mitigation measure and legitimate governmental interest.
- The mitigation measure must be "roughly proportional" to the impacts of the project.

There are several forms of mitigation under CEQA (see State CEQA Guidelines, §15370). These are summarized below.

- **Avoiding** the impact altogether by not taking a certain action or parts of an action.
- **Minimizing** impacts by limiting the degree or magnitude of the action and its implementation.
- **Rectifying** the impact by repairing, rehabilitating, or restoring the impacted environment.
- **Reducing** or eliminating the impact over time by preservation and maintenance operations during the life of the action.
- **Compensating** for the impact by replacing or providing substitute resources or environment.

Avoiding impacts is the preferred form of mitigation, followed by minimizing or rectifying the impact to less than significant levels. Compensating for impacts would be used only when the other mitigation measures are not feasible.

1.5 Environmental Resource Topics

This IS/MND evaluates the proposed Project's impacts on the following resource topics:

- Aesthetics
- Agricultural and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Land Use and Planning
- Mineral Resources
- Noise
- Population and Housing
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Transportation
- Tribal Cultural Resources
- Utilities and Service Systems
- Wildfire

- Public Service
- Recreation
- Mandatory Findings of Significance

Comments submitted to the City during the 20-day public review period will be considered and addressed prior to the adoption of the MND by the City.

1.6 Document Organization

This IS/MND is divided into the following sections:

Section 1.0. Introduction – This section describes the purpose and organization of the document.

Section 2.0. Project Information – This section describes the whole of the proposed Project in detail. It also identifies any other public agencies whose review, approval, and/or permits may be required.

Section 3.0. Initial Study Environmental Checklist – This section describes the environmental setting and overview for each of the environmental resource topics. It evaluates a range of impacts classified as "no impact," "less than significant impact," "less than significant impact with mitigation incorporated," and "potentially significant impact" in response to the CEQA Appendix G: Environmental Checklist Form (Environmental Checklist).

1.7 Required Permits and Approvals

The following permits, agreements, and regulatory review processes must be approved by the City before any construction or operation of the Project, as proposed, is permitted:

- Development Code Amendment (Zoning Map Amendment) 20-02
- Design Review Committee (DRC)

Other permits required for the Project will include but are not limited to the following: issuance of encroachment permits for driveways, sidewalks, and connection to utilities; lighting; ~~demolition permits~~; building permits; grading permits; tenant improvement permits; and permits for new utility connections.

1.8 Summary of Findings

Section 3.0 of this document contains the Environmental Checklist that was prepared for the proposed Project pursuant to Appendix G of the State CEQA Guidelines. The Environmental Checklist indicates that the proposed Project would not result in significant impacts with the implementation of mitigation measures, as identified where applicable throughout this document.

1.9 Initial Study Review Process

The IS and a Notice of Intent (NOI) to adopt an MND will be distributed to responsible and trustee agencies, other affected agencies, the California Office of Planning and Research State Clearinghouse, and other parties for a 20-day public review period. Written comments regarding this MND should be addressed to:

Travis Martin

Community & Economic Development Department

City of San Bernardino

201 North E Street, 3rd Floor

San Bernardino, CA 92401

909-384-5313 and martin_tr@sbcity.org

Comments submitted to the City during the 20-day public review period will be considered and addressed prior to the adoption of the MND by the City.

1.10 Project Applicant(s)/Sponsor(s)

Project Applicant:

Orly Corp.

15 W. 34th Street, 7th Floor

New York, NY 10001

Contact: Nabeel Shaikh

Phone: (212) 695-0998

2.0 PROJECT INFORMATION

2.1 Regional Location

The City is located approximately 60 miles east of the City of Los Angeles in the upper Santa Ana River Valley. The valley is framed by the San Bernardino Mountains on the northeast and east, the Blue Mountains and Box Springs Mountains abutting the cities of Loma Linda and Redlands to the south, and the San Gabriel Mountains and the Jurupa Hills to the northwest and southwest, respectively. The City of San Bernardino is surrounded by the cities of Rialto to the west, Colton to the southwest, Loma Linda to the south, Redlands to the southeast, Highland to the east, and the San Bernardino National Forest to the north; refer to **Exhibit 1**, *Regional Location*.

2.2 Project Site Location

The site is comprised of 3 parcels on a 3.8 acre site. The proposed site is in the South portion of the City and located at the Northeast corner of Waterman Avenue and Central Avenue, in the City of San Bernardino. The project is bounded by Waterman Avenue on the West and Central Avenue on the South. There are various retail stores, restaurants, a smog check facility and truck driving school to the West; residential to the East; residential and A&B Trucking school to the South; Apartments to the North; refer to **Exhibit 2,** *Local Vicinity Map.* Local access to the project site is provided via Waterman Avenue, and Central Avenue. Regional Access is provided via Interstate 10 (I-10) via the Waterman Avenue Drive Ramp. Refer to **Exhibit 3**, *Aerial View* for a view of the Project Site and its immediate surroundings, and **Exhibit 4**, *Project Site Assessor Parcel Numbers, to view the location of all associated parcels.*

2.3 Existing Conditions

~~The Project site is currently development with 2 warehouses distribution buildings to be demolished, one of which recently caught fire and was destroyed. The site has been completely developed with asphalt, concrete and warehouse buildings~~. The Project site previously had 2 warehouse buildings located onsite. A fire caused by trespassing vagrants had destroyed one of the warehouse buildings at which point it had become a hazard. On March 2, 2021, the San Bernardino County Fire Protection District sent a letter to the City of San Bernardino Code Enforcement stating “A Fire and Life Safety inspection was conducted at a vacant building located at 791 S. Waterman Ave., San Bernardino. This building has prior fire damage and the condition of the structure constitutes a clear and imminent threat to human life, safety, and/or health and is deemed and attractive nuisance for vagrants, illegal activities, and an immediate life safety hazard for neighboring residences and businesses.” The San Bernardino County Fire Protection District therefore declared the property unsafe and subject to immediate demolition. A permit application for demolition was submitted to the City on March 3, 2021, and demolition permit #D2100012 was issued on April 29, 2021. The demolition permit also covered the second warehouse building because the trespassing vagrants had stripped out the electrical and mechanical infrastructure in the second building, making it susceptible to hazards. The demolition work was completed April through June 2021 and included the removal of the

associated asphalt parking lot. The existing areas consist of graded dirt. At the time environmental review commenced the 2 warehouse buildings were in place, so impacts were analyzed to include their demolition, resulting in a more conservative environmental impact analysis. However, demolition of the prior buildings is not part of the proposed project because the demolition work has already been completed pursuant to the emergency orders. Trespassing by vagrants on the vacant project site (including illegal camping, fires, and trash dumping) continue to be an issue, despite the applicant's efforts to prevent trespassing with fencing and other measures.

No wildlife or other native habitat exists on-site; refer to **Exhibit 5**, *Project Site Photos.* Site drainage appears to be via sheet flow to 2 under-sidewalk drains, located on Central Avenue and Waterman Avenue, which drain to existing drains to the South on Waterman Avenue. The site is not located within a FEMA flood hazard zone. The Project site is located in Zone X, which is known as an area of low flood potential.[1]

2.4 General Plan and Zoning Designations

Zoning is the primary mechanism for implementing the General Plan. It provides detailed regulations pertaining to permitted and conditional uses, the site development standards, and performance criteria to implement the goals and policies of the General Plan. San Bernardino's Development Code (Title 19 of the San Bernardino Municipal Code [MC]) was adopted in May 1991 and has been periodically revised since that time. In particular, the Land Use Element of the City's General Plan establishes the primary basis for consistency with the City's Development Code. The City's Zoning Map corresponds with the General Plan designations[2]; 2 refer to Table 1, Existing Land Use, General Plan Land Use and Zoning Designations, for official area designations. The property is located on the United States Geological Survey (USGS) 7.5-Minute Series Topographic Map, San Bernardino South, California Quadrangle.

[1] FEMA. 2016. FEMA Flood Map Service center: Flood Map # 06071C7930J. Available at https://msc.fema.gov/arcgis/rest/directories/arcgisjobs/nfhl_print/mscprint_gpserver/jcc1ea44353ec4758af3bda9795544c2d/scratch/FIRMET TE_063fc075-6f47-46a3-acaf-c73f0271a9d0.pdf. Accessed November 2, 2021.

[2] City of San Bernardino. 2005. General Plan. Retrieved from City of San Bernardino Website: http://www.sbcity.org/civicax/filebank/blobdload.aspx?blobid=26199, page 2-2. Accessed November 2, 2021.

Table 1: Existing Land Use, General Plan Land Use and Zoning Designations

Location		Existing Use	Existing General Plan Land Use Designation	Existing Zoning District
Project Site	0280-021-047	The Project site's condition ~~has an asphalt parking lot and~~ consists of graded dirt areas. No wildlife or other native habitat exists on-site.	Industrial	Office Industrial Park (OIP) Industrial Light (IL)
	0280-021-044			
	0280-021-034			
North		Commercial Services	Industrial	Office Industrial Park (OIP)
West		Retail / Commercial Services & Restaurants	Industrial	Office Industrial Park (OIP)
East		Single-Family Residence	Industrial	Industrial Light (IL)
South		Single-Family Residence Vacant Land	Industrial	Office Industrial Park (OIP)

Source: City of San Bernardino. 2020. Public Zoning Map. Available at http://sbcity.maps.arcgis.com/apps/webappviewer/index.html?id=dcca6aa4816b4021bd9364888ba669fd, accessed on October 28, 2020.

The existing zoning provides for a wide range of allowable uses, including uses that are very similar to the proposed Project (i.e., retail stores, restaurants, and industrial), for example local and regional serving retail, personal service, office, related commercial uses and limited residential uses.[3] The project is anticipated to require a zone change from Office Park Industrial (OIP) to Industrial Light (IL). The Project is not anticipated to require a General Plan amendment from the current designation.

2.5 Proposed Project Characteristics

~~The Project involves the demolition of existing warehouse building to make way for a single new distribution warehouse at the Northeast corner of Waterman Avenue and Central Avenue~~. The Project involves the construction of a single new distribution warehouse at the Northeast corner of Waterman Avenue and Central Avenue. The project site is 3.84 acres and will consist approximately of a 77,562 sf warehouse

[3] General Plan. 2005. Table LU-2, Land Use Designations, page 2-18. Available at http://www.sbcity.org/civicax/filebank/blobdload.aspx?blobid=26199.

(high pile storage), 7,353 sf warehouse mezzanine, 2,280 sf first floor (wholesale), and 2,280 sf 2nd floor office. The Project will handle commercial shipping traffic via the entrance on Central Avenue which provides access to loading docks at the North side of the Warehouse. The proposed Project would amend the zoning map from Office Industrial Park (OIP) to Industrial Light (IL) and require consideration by the Design Review Committee (DRC).

Table 2: Project Summary

Project Element	Proposed Project
Existing Land Use	~~The current site has been completely developed with asphalt, concrete and 2 warehouse buildings~~. The Project sites condition has graded dirt areas.
Site Area	3.84 Acres
Existing Land Use Designation	Industrial
Proposed Land Use Designation	Industrial
Existing Zoning District	Office Industrial Park (OIP) and Industrial Light (IL)
Proposed Zoning District	Industrial Light (IL)
Building Area Warehouse (High Pile Area) Warehouse Mezzanine First Floor Wholesale Office 2nd Floor Total Building Area	 77,562 sf 7,353 sf 2,280 sf 2,280 sf 89,475 sf (51.1% Site Coverage)
Paved Area Existing Proposed	 67,390 sf
Landscaping[4] Required: Provided:	 15% of Surface Parking Area (67,390 sf x 15%= 10,109 sf of Landscape Required) 37.7% or 23,389 sf provided
Building Height[5] Max Building Height Allowed: Max Proposed Building Height:	 50' Feet 50' Feet
Parking[6]	
Building Setbacks Required: Front Setback Rear Setback Side Setback Provided Setbacks Front Setback Rear Setback	 10' Feet 10' Feet 10' Feet 10' Feet 10' Feet
Side Setback	10' Feet

[4] City of San Bernardino. Municipal Code – 19.28.050 Landscape Standards for Parking Areas.
[5] City of San Bernardino. Municipal Code – Table 08.02 Industrial Zone Development Standards.
[6] City of San Bernardino. Municipal Code – 19.24.040 Number of Parking Spaces Required.

Project Element	Proposed Project
Employment:	Approximately 22 Full-Time Employees
Operations:	Monday – Saturday 7am – 6pm
Grading Quantities: Cut: Fill: Net:	 400 CY 400CY 0 CY

Site Access

Regional Access is provided on the I-10 via the Waterman Avenue Off-Ramp. Local Access is provided via Waterman Avenue and Central Avenue. Driveway 1 is a 32' full movement passenger car driveway located on Waterman Avenue at the South end of the site. Driveway 2 is a 42' commercial driveway located on Waterman Avenue at the North end of the site. Driveway 3 is a 42' commercial driveway located on Central Avenue at the south end of the site; refer to **Exhibit 6**, *Preliminary Site Plan.*

Fencing

Wrought Iron fencing and a gate will be installed to partition the Western parking lot along Waterman from the back of the building. A wrought iron dual-swing gate will be installed in the Central Avenue entrance.

Emergency Access

Emergency access would be available on all three driveways. Additionally, the Project will provide a heavy-duty, high-security key vault to keep keys, key cards and other small items to allow emergency personnel fast access to building. The proposed Project would ensure that the minimum right-of-way widths on City streets would be maintained, which would continue to ensure that various evacuation routes are accessible to employees and visitors. Individual Project review by the City including the SBCFD would also be required. The Project would incorporate all applicable design and safety requirements in the California Building and Fire Codes during construction activities.

Trash Enclosure

A trash enclosure serving the site will be located behind the wrought iron fence at the North end of the site. See **Exhibit 6,** *Preliminary Site Plan.*

Utilities

- Sewer Service – San Bernardino Public Works Department
- Wastewater treatment – San Bernardino Municipal Water Department

- Gas Service – SoCal Gas Company
- Phone Service – AT&T
- Water Service – San Bernardino Municipal Water Department
- Electrical Service – Southern California Edison
- Cable Service – Spectrum

Construction

~~Demolition activities are necessary as the Project site has existing buildings and parking lots~~. Project-related grading is anticipated to be limited to minimal cuts and fills in order to accomplish the desired pad elevation and to provide adequate gradients for site drainage. Grading activities are anticipated to commence ~~July 15, 2022~~ May 1, 2024, and construction is anticipated to occur in one phase starting ~~September 15, 2022~~ July 15, 2024. The Project is anticipated to be operational ~~July 30, 2024~~ September 1, 2024.

Construction activities would incorporate site preparation activities, trenching for utilities, excavation and grading, pavement and concrete walkways, and building construction activities such as laying foundation, two underground infiltration chambers, landscaped areas. Construction equipment would include excavators, backhoes, forklifts, compactors, concrete mixers and pumps, scrapers, front loaders, jackhammers, and electric lifts. The City's Municipal Code (8.54.020 of the Municipal Code) prohibits the operation or use between the hours of 10:00 p.m. to 8:00 a.m. any pile driver, steam shovel, pneumatic hammers, derrick, steam or electric hoist, power-driven saw, or any other tool or apparatus, the use of which is attended by loud and excessive noise, except with the approval of the City. The project would not include any night time construction activities given the proximity to residential uses.

The Project is anticipated to result in approximately 400 cubic yards (CY) of cut and will require approximately 400 CY of fill material with a net export of 0 CY.

Hours of Operation

Projected hours of operation will be Monday through Saturday 7am – 6pm.

2.6 Project Approvals

The City of San Bernardino is the Lead Agency under CEQA and is responsible for reviewing and approving the MND. The City will consider the following discretionary approvals for the Amazing 34 Warehouse Distribution Center Project:

- Development Code Amendment (Zoning Map Amendment) 20-05
- Development Permit Type-D 20-03

Additional permits may be required upon review of construction documents. Other permits required for the Project may include but are not limited to the following: the issuance of encroachment permits for driveways, sidewalks, and utilities; security and parking area lighting; ~~demolition permits~~; building permits; grading permits; tenant improvement permits; and permits for new utility connections.

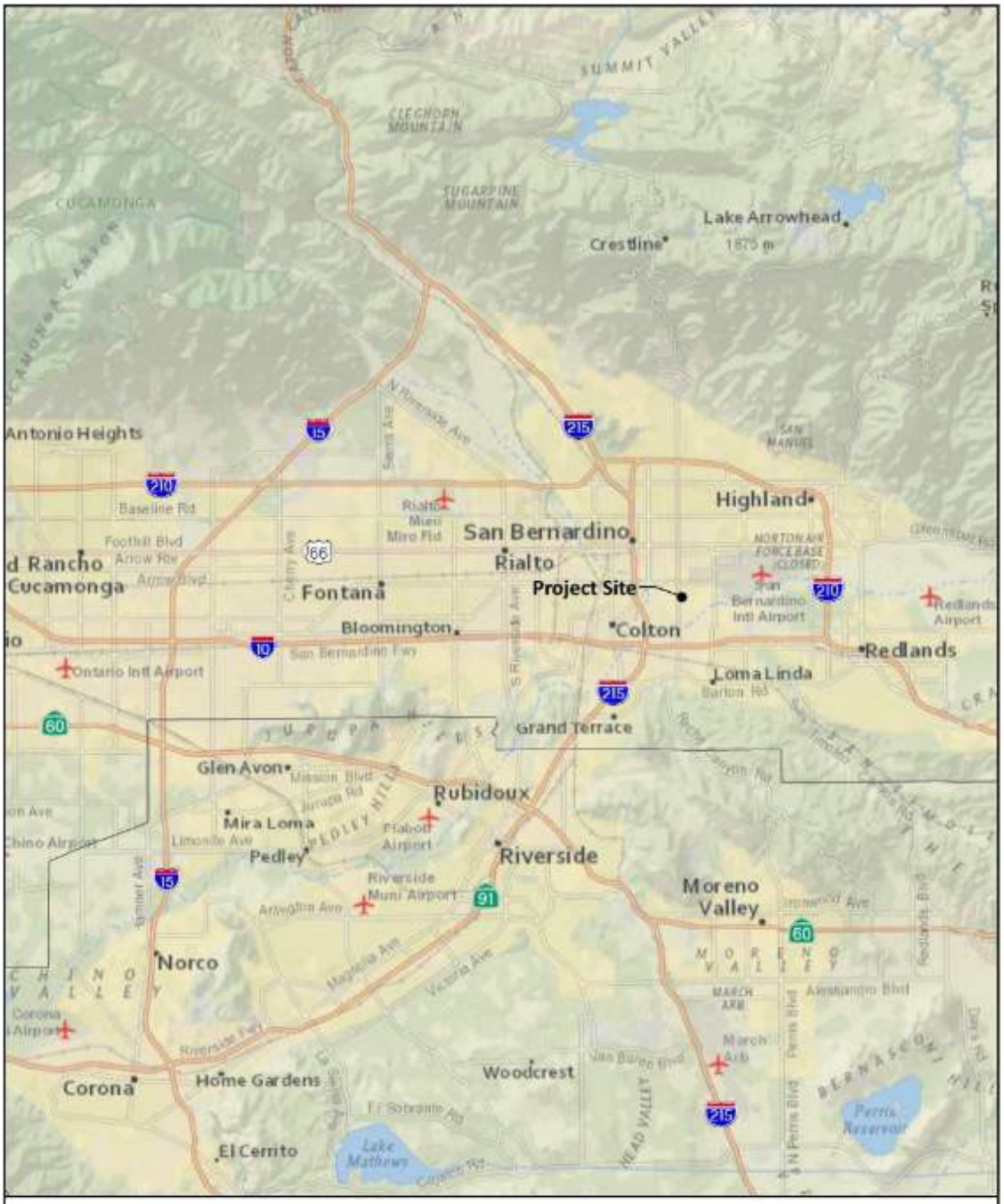

Exhibit 1: Regional Location
Amazing 34 Distribution center
City of San Bernardino

adkan ENGINEERS

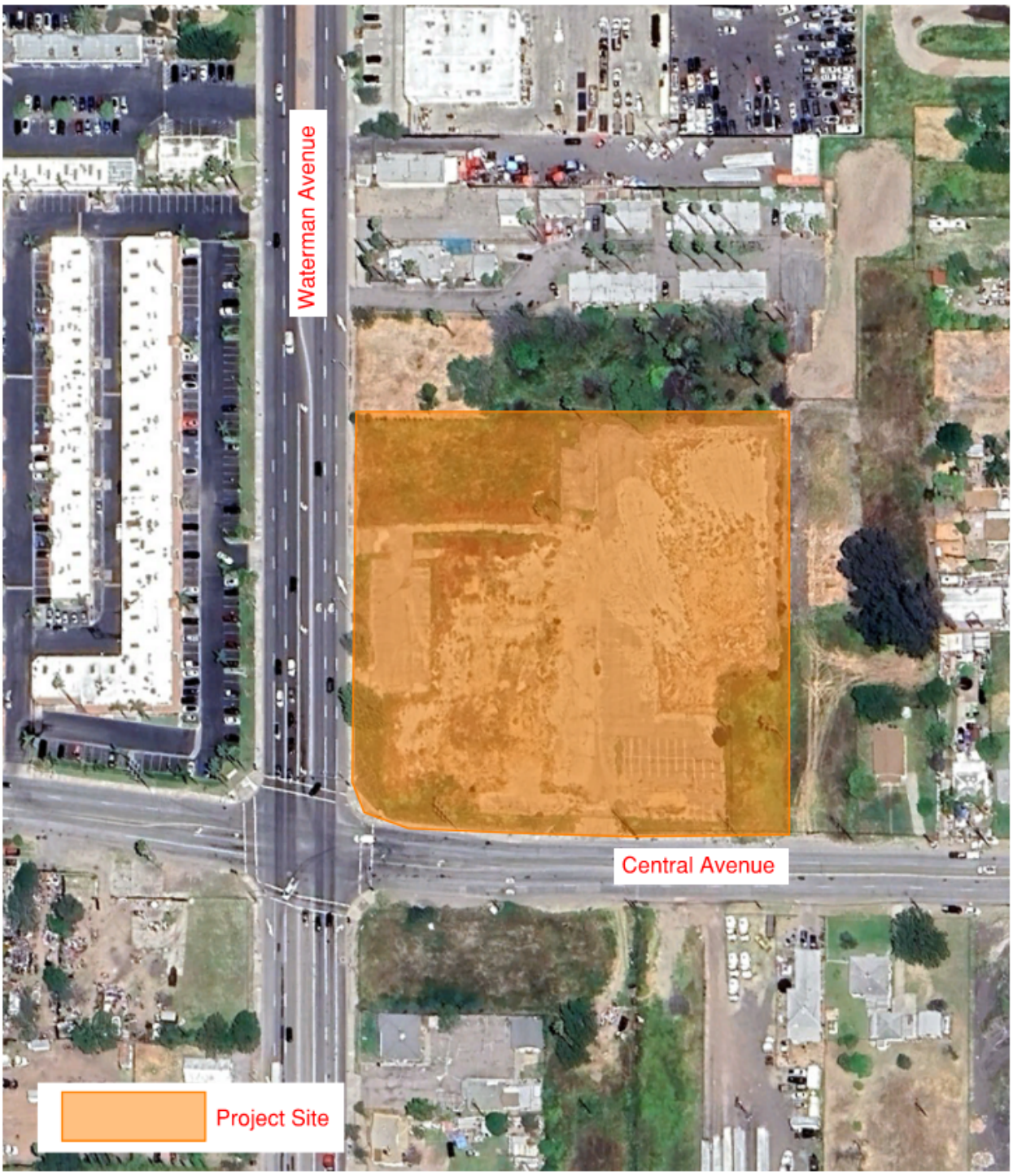

Exhibit 2: Local Vicinity Map
Amazing 34 Distribution Center
City of San Bernardino

adkan ENGINEERS

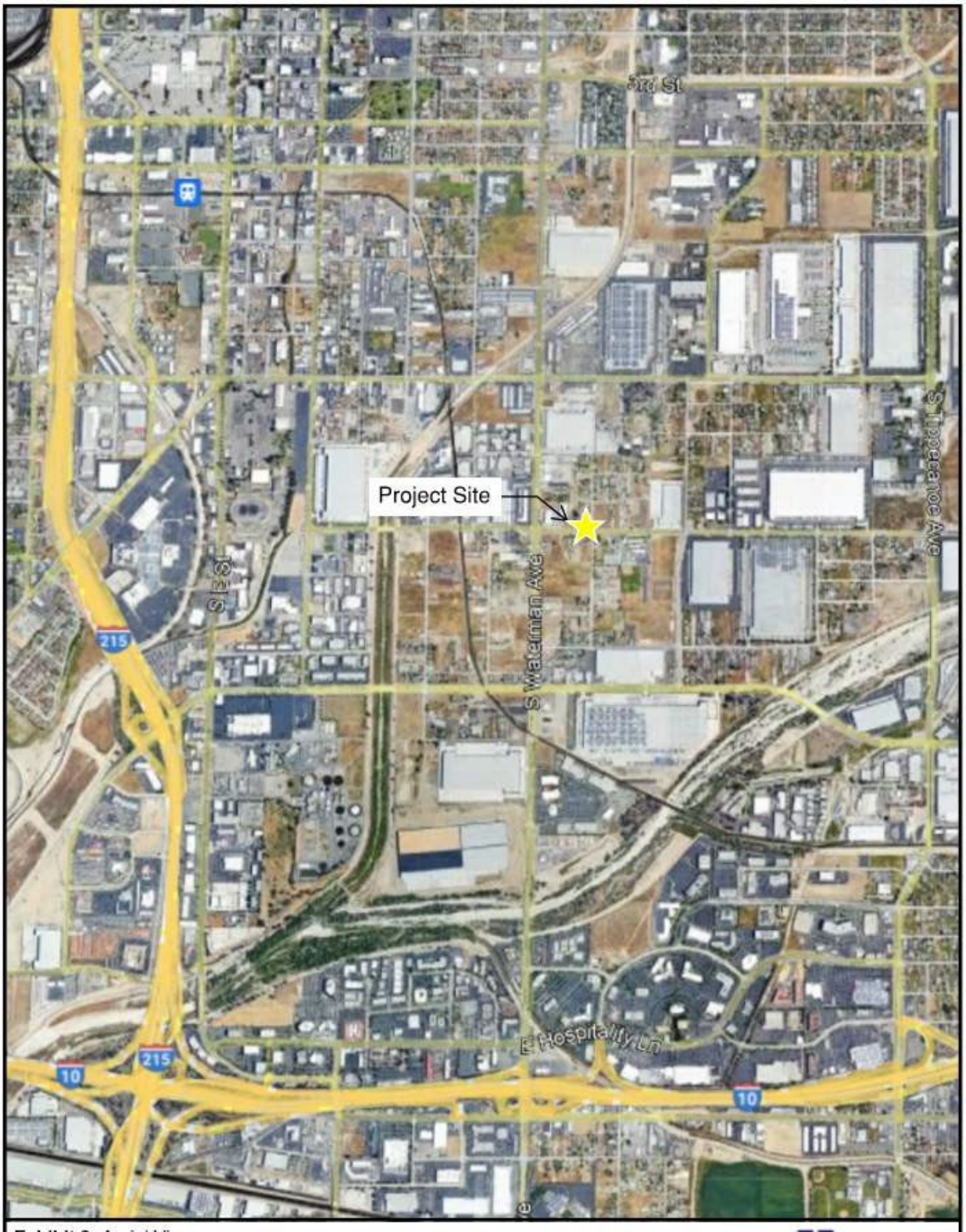

Exhibit 3: Aerial View
Amazing 34 Distribution Center
City of San Bernardino

adkan ENGINEERS

Exhibit 4: Project Site Assessor Parcel Numbers
Amazing 34 Distribution Center
City of San Bernardino

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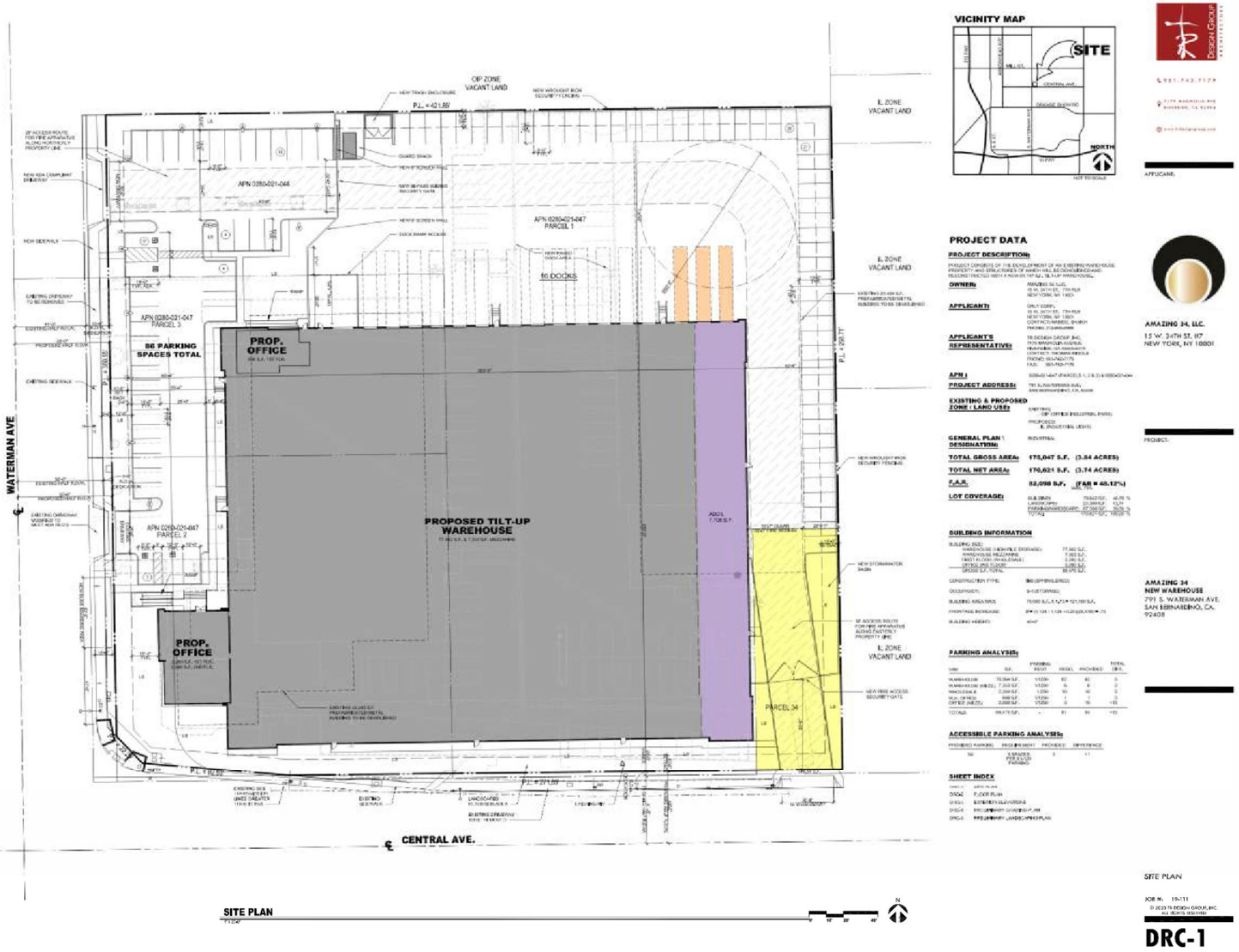
Norhtern Property Line Facing East

Southern Property Line Facing East

Western Property Line Facing North

Exhibit 5: Project Site Photos
Amazing 34 Distribution Center
City of San Bernardino

adkan ENGINEERS



PROJECT DATA

PROJECT DESCRIPTION:

OWNER:

APPLICANT:

APPLICANT'S REPRESENTATIVE:

APN:

PROJECT ADDRESS:

EXISTING & PROPOSED ZONE / LAND USE:

GENERAL PLAN / DESIGNATION:

TOTAL GROSS AREA: 173,047 S.F. (3.84 ACRES)

TOTAL NET AREA: 170,621 S.F. (3.74 ACRES)

F.A.R. 82,098 S.F. (FAR = 48.12%)

LOT COVERAGE:

BUILDING INFORMATION

PARKING ANALYSIS:

ACCESSIBLE PARKING ANALYSIS:

SHEET INDEX

DRC-1 FLOOR PLAN

DRC-2 ELEVATION VARIATIONS

DRC-3 PRELIMINARY GRADING PLAN

DRC-4 PRELIMINARY LANDSCAPE PLAN

APPLICANT:

AMAZING 34, LLC.
12 W. 34TH ST, R7
NEW YORK, NY 10001

PROJECT:

AMAZING 34
NEW WAREHOUSE
791 S. WATERMAN AVE.
SAN BERNARDINO, CA.
92408

SITE PLAN

JOB N. 19-111

DRC-1

NORTHWEST VIEW

SOUTHWEST VIEW

SOUTHWEST AERIAL VIEW

VIEW FROM CENTRAL AVE

APPLICANT:

ORLY CORP.
15 W. 34TH ST. #7
NEW YORK, NY 10001

PROJECT:

AMAZING 34
WAREHOUSE
EXPANSION
791 S. WATERMAN AVE
SAN BERNARDINO, CA

3D VIEWS

DATE: 02/21/20
JOB#: 19-111

DR-4


ORLY
WEST ELEVATION
ORLY
SOUTH ELEVATION
EAST ELEVATION
NORTH ELEVATION
APPLICANT:
ORLY CORP.
15 W. 34TH ST. #7
NEW YORK, NY 10001
PROJECT:
AMAZING 34
NEW WAREHOUSE BUILDING
791 S. WATERMAN AVE.
SAN BERNARDINO, CA
EXTERIOR
ELEVATIONS
DR-3

PLANTING LEGEND:

	BOTANIC NAME	COMMON NAME	SIZE / SPACING	WUCOLS
TREES				
	CHITALPA TASHKENTENSIS	PINK CHITALPA	24" BOX	MOD
	LAGERSTROEMIA MUSKOGEE	CRAPE MYRTLE	36" BOX	MOD
	LOPHOSTEMON CONFERTA	BRISBANE BOX	15 GAL	MOD
	PLATANUS ACERIFOLIA 'BLOODGOOD'	LONDON PLANE TREE	24" BOX	MOD
	ULMUS PARVIFOLIA 'TRUE GREEN'	EVERGREEN CHINESE ELM	24" BOX	MOD
SHRUBS / VINES				
	ARBUTUS UNEDO COMPACTA	COMPACT STRAWBERRY TREE	5 GAL/60" O.C.	LOW
	BACCHARIS PILULARIS 'PIGEON POINT'	DWARF COYOTE BUSH	1 GAL/72" O.C.	LOW
	CALLIANDRA CALIFORNICA	BAJA FAIRY DUSTER	5 GAL/60" O.C.	LOW
	CAREX DIVULSA	EUROPEAN GRAY SEDGE	1 GAL/18" O.C.	LOW
	CISTUS PURPUREUS	ORCHID ROCKROSE	5 GAL/48" O.C.	LOW
	LANTANA 'SPREADING SUNSET'	SPREADING SUNSET LANTANA	1 GAL/72" O.C.	LOW
	LEUCOPHYLLUM FRUTESCENS	TEXAS RANGER	5 GAL/72" O.C.	LOW
	MUHLENBERGIA CAPILLARIS 'REGAL MIST'	PINK MUHLY	1 GAL/42" O.C.	LOW
	ROSMARINUS 'BLUE SPIRES'	BLUE SPIRES ROSEMARY	5 GAL/48" O.C.	LOW
	SALVIA LEUCANTHA 'MIDNIGHT'	MEXICAN BUSH SAGE	5 GAL/54" O.C.	LOW
ACCENT PLANTING				
	AGAVE DESMETTIANA 'VARIEGATA'	VARIEGATED SMOOTH AGAVE	5 GAL/42" O.C.	LOW
	ANIGOZANTHOS 'PINK JOEY'	DWARF KANGAROO PAW	1 GAL/24" O.C.	LOW
	DALEA GREGGII	TRAILING INDIGO BUSH	1 GAL/60" O.C.	LOW
	HELIANTHEMUM NUMMULARIUM	ROCK ROSE	1 GAL/24" O.C.	LOW
	HESPERALOE PARVIFLORA	RED YUCCA	5 GAL/48" O.C.	LOW
WATER QUALITY AREAS				
	CAREX TUMICOLA	BERKELEY SEDGE	4" POTS/18" O.C.	LOW
	DESCHAMPSIA CAESPITOSA	TUFTED HAIR GRASS	4" POTS/18" O.C.	LOW
	JUNCUS PATENS	CALIFORNIA GRAY RUSH	4" POTS/18" O.C.	LOW
	MUHLENBERGIA RIGENS	DEER GRASS	1 GAL/42" O.C.	MOD
EMPLOYEE BREAK AREA				
	3" MIN. DEPTH STABILIZED DECOMPOSED GRANITE WITH ALUMINUM EDGING. COLOR TO BE 'CALIFORNIA GOLD'			
FLOW LINES				
	10" MIN. DEPTH 6"-10"Ø 'ARIZONA RIVER ROCK' COBBLE ROCK			

NOTES:
- ALL TREES WITHIN 6' OF HARDSCAPE TO RECEIVE ROOTBARRIER
- ALL PLANTER AREAS TO RECEIVE A 3" MINIMUM DEPTH LAYER OF SHREDDED WOOD BARK MULCH
- PLANT WATER USE VALUES ARE PER WUCOLS IV PLANT LIST

PRELIMINARY LANDSCAPE PLAN
AMAZING 34
CITY OF SAN BERNARDINO

NORTH
0 30' 60' 120'
DATE: 7/29/21
PROJECT #: 200324

4845 Brockton Ave.
Riverside, CA 92506
(951) 368-0700
Fax (951) 368-4039
http://www.conwestdsdg.com

3.0 Initial Study Checklist

1. **Project Title**
   Amazing 34 Distribution Center Project

2. **Lead Agency Name and Address**
   City of San Bernardino
   201 North E Street, 3rd Floor
   San Bernardino, CA 92401

3. **Lead Agency Contact Person and Phone Number**
   Travis Martin, Associate Planner
   (909) 384-5313

4. **Project Location**
   The Project is located at 791 S Waterman Avenue, in the City of San Bernardino

5. **Project Applicant(s)/Sponsor(s) Name and Address**
   Orly Corp.
   15 W 34th Street 7th Floor
   New York, NY 10001
   Contact: Nabeel Shaikh
   Phone: (212) 695-0998

6. **Existing General Plan Designation**
   Industrial

7. **Existing Zoning District**
   Office Industrial Park (OIP) and Industrial Light (IL)

8. **Other public agencies whose approval is required**
   South Coast Air Quality Management District
   Regional Water Quality Control Board

9. **Project Summary**
   The Project site previously had two warehouse buildings located onsite. A fire had destroyed one of the warehouse buildings at which point it had become a hazard. On March 2, 2021, San Bernardino County Fire Protection District sent a letter to the City of San Bernardino Code Enforcement stating "A Fire and Life Safety inspection was conducted at a vacant building located at 791 S. Waterman Ave., San Bernardino. This building has prior fire damage and the condition of the structure constitutes a clear and imminent threat to human life, safety, and/or health and is deemed and attractive nuisance for vagrants, illegal activities, and an immediate life safety hazard for neighboring residences and businesses." The San Bernardino County Fire Protection District therefore declared the property unsafe and subject to immediate demolition. A permit application for demolition was

submitted to the City on March 3, 2021, and demolition permit #D2100012 was issued on April 29, 2021. The demolition permit also covered the second warehouse building because the trespassing vagrants had stripped out the electrical and mechanical infrastructure in the second building, making it susceptible to hazards. The demolition work was completed April through June 2021 and included the removal of the associated asphalt parking lot. The existing areas consist of graded dirt.

At the time environmental review commenced the two warehouse buildings were in place, so impacts were analyzed to include their demolition, resulting in a more conservative environmental impact analysis. However, demolition of the prior buildings is not part of the proposed project because the demolition work has already been completed pursuant to the emergency orders. Trespassing by vagrants on the vacant project site (including illegal camping, fires, and trash dumping) continues to be an issue, despite the applicant's efforts to prevent trespassing with fencing and other measures.

~~The Project involves the demolition of two existing warehouse building to make way for a single new distribution warehouse at the Northeast corner of Waterman Avenue and Central Avenue~~. The Project involves the construction of a single new distribution warehouse at the Northeast corner of Waterman Avenue and Central Avenue. The project site is 3.84 acres and will consist approximately of a 77,562 sf warehouse (high pile storage), 7,353 sf warehouse mezzanine, 2,280 sf first floor (wholesale), and 2,280 sf 2nd floor office. The Project will handle commercial shipping traffic via the entrance on Central Avenue which provides access to loading docks at the North side of the Warehouse. The proposed Project would amend the zoning map from Office Industrial Park (OIP) to Industrial Light (IL) and require consideration by the Design Review Committee (DRC).

3.1 Environmental Factors Potentially Affected by the Project

Determination

3.2 Evaluation of Environmental Impacts

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project would not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect is significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) “Negative Declaration: Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from a “Potentially Significant Impact” to a "Less than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level.

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

    a) Earlier Analyses Used. Identify and state where they are available for review.

    b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

6) Mitigation Measures. For effects that are “Less than Significant with Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project:

Aesthetics

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
1. AESTHETICS. Except as provided in Public Resources Code Section 21099, Would the project:				
a) Have a substantial adverse effect on a scenic vista?				X
b) Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?				X
c) Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with the applicable zoning and other regulations governing scenic quality?			X	
d) Create new source of substantial light or glare, which would adversely affect day or nighttime views in the area?			X	

Project Site

As shown in Table 1, and shown in **Exhibit 5** *Project Site Photos*, the project site is bounded by Waterman Avenue and Central Avenue, commercial to the North, single-family residences to the East, commercial and single-family to the South and retail, commercial, and restaurants to the West; refer to **Exhibit 3**, *Aerial View.*

Scenic Vistas

Under CEQA, a scenic vista is defined as a viewpoint that provides expansive views of a highly valued landscape for the benefit of the general public. The City of San Bernardino General Plan does not officially designate any scenic vistas in the vicinity of the Project site or in the City.

Scenic Resources within Scenic Highways

Scenic highways and routes are a unique component of the circulation system as they traverse areas of unusual scenic or aesthetic value. Two roadways within the City have been nominated as eligible Scenic Highway status; however, they are not officially designated. The portions of State Route (SR) 30, south of SR 330, and SR 330 that pass through the City are designated as Eligible State Scenic Highways. However, either of these highway segments are near the Project site, and therefore are not applicable to the proposed Project.

(a) Have a substantial adverse effect on a scenic vista?

No Impact. Prominent natural features of the Inland Empire include the San Bernardino, and Box Springs Mountains which offer the most prominent views in the general area. They are located approximately 6.0 miles North/Northeast, and 7.0 miles south of the Project site, respectively. In its existing condition, the Project site does not block or hinder views of the surrounding mountains. As noted on Table 1, the Project site is surrounded by existing commercial, industrial and vacant uses.

The proposed Project, associated buildings and amenities would not be located in an area designated as an official scenic vista, nor would it block the view of a scenic vista. There are no sensitive land uses adjacent to the site that would have views of the San Bernardino National Forest blocked. Site development would be consistent with existing zoning relative to building height. Furthermore, the Project site is adjacent to I-10 in a heavily urbanized travel corridor, with Similar uses in the surrounding area. Therefore, there would be no impact.

(b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

No Impact. The Project site is not located near any State Designated Scenic Highways. Two State Routes within the City of San Bernardino have been designated as Eligible Scenic Highways (SR-30and SR-330). However, these highway segments are not near the Project site (they are approximately 10 miles east of the Project) and are not officially designated as State Designated Scenic Highways.

Therefore, the proposed Project would not substantially damage scenic resources within a State scenic highway.[7] There are no significant natural scenic resources on the site as it is vacant/undeveloped and heavily disturbed, without any natural resources. The site does not contain rock outcroppings or historic buildings. There are no significant natural scenic resources on the site. No impact would occur.

(c) Substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less than Significant. Refer to Response 1(a) above. ~~The Project site is currently developed with 2 warehouse buildings, one of which was destroyed by fire~~. The Project proposes the construction of a single large distribution warehouse. ~~The site has been fully developed~~ The site formerly had a parking lot and any existing trees will be protected-in-place. The proposed Project would not degrade the existing visual character or quality of the site. On the contrary, the proposed Project would be developed in a manner consistent with the City's landscape, lighting and architectural standards for similar commercial uses, and therefore not conflict with the applicable zoning and other regulations governing scenic quality.

[7] Caltrans. 2019. List of eligible and officially designated State Scenic Highways (XLSX). Available at https://dot.ca.gov/programs/design/lap- landscape-architecture-and-community-livability/lap-liv-i-scenic-highways,July 7, 2020

Site development would replace the burned building and old warehouse with a coordinated planned development including appropriate landscaping, lighting and architectural features consistent with this heavily urbanized commercial industrial corridor along Waterman Avenue.

Short-Term Construction Visual Impacts

Short-term construction impacts would include typical heavy construction equipment and machinery (e.g., grading) and staging of the machinery. Construction will be visible from both Waterman Avenue and Central Avenue; however, the surrounding developments will obstruct views of the site from the North and West. Construction will be visible from residences to the East and West; however, construction equipment and activities would be screened using privacy fencing around the Project site's perimeter. No aesthetic resources would be destroyed as a result of construction-related activities. Construction impacts are temporary and would cease upon Project completion.

Long-Term Visual Impacts

~~The Project site consists of 2 developed parcels, which include 2 warehouse buildings~~. The Project site consists of 3 parcels. The proposed Project's permanent buildings and associated amenities would be built generally using colors, materials, and textures consistent with the surrounding commercial uses, to be compatible with the aesthetic qualities of the community and consistent with §19.08, Industrial Zones, which includes Light Industrial (IL), of the City's Development Code. Compared to existing conditions, the proposed structure would add features including landscaping, and structures that would be aesthetically inviting and consisting with the general area. No long-term visual impacts are anticipated from the implementation of the proposed Project. Therefore, in an urbanized area, the proposed Project would not conflict with the applicable zoning and other regulations governing scenic quality. As such, a less than significant impact would occur.

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

Less than Significant. The Project site ~~currently~~ formerly emitted lighting from ~~existing~~ building lights and a parking lot light pole. The proposed Project's lighting would be typical of commercial and industrial uses in this heavily urbanized corridor along I-10. Outdoor lighting would be consistent with all of the City of San Bernardino Municipal Code including Section 19.20 -14, Lighting, which states that "Exterior lighting shall be energy-efficient and shielded or recessed so that direct glare and reflections are contained within the boundaries of the parcel and shall be directed downward and away from adjoining properties and public rights-of-way. No lighting shall blink, flash, or be of unusually high intensity or brightness. All lighting fixtures shall be appropriate in scale, intensity, and height to the use it is serving. Security lighting shall be provided at all entrances/exits." The lighting of the proposed Project will be reviewed for compliance with the municipal code by the City at the time of building permit issuance. No sensitive land uses are located near the Project site. As such, no night lighting would spill onto sensitive receptors.

Furthermore, lighting plans would be reviewed by the City to ensure conformance with the latest California Green Building Standard Code (Part 11 of Title 24, CCR) such that only the minimum amount of lighting is used, and no light spillage occurs.

With respect to daytime glare, the proposed Project would be consistent with Development Code 19.20-11, which states that no glare incidental to any use shall be visible beyond any boundary line of the parcel.

Agricultural and Forestry Resources

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
2. AGRICULTURE AND FOREST RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				X

Agricultural Resources

According to the California Department of Conservation (DOC) California Important Farmland Finder, the Project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The Project site is designated as Urban and Built-Up Land and Other Land. The nearest Farmland of

Statewide Importance is approximately 15.0 miles southeast. The Project site is not subject to a Williamson Act contract.[8]

Forestry Resources

The Project site is in an area surrounded by existing and planned development.[9] The Project site does not meet the definition of lands designated as forestland or timberland as defined by PRC Sections 12220(g), 4526, and 51104(g).

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

No Impact. As stated above, the Project site is not used for any type of agricultural activity. According to the California DOC Important Farmland Map, the Project site is not designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. The Project site is designated as Urban and Built-Up Land and Other Land.[10] As such, the Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use.

(b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?

No Impact. The Project site is not subject to a Williamson Act contract.[11] Therefore, the Project would not conflict with existing zoning for agricultural use or a Williamson Act contract and the Project would have no impact on agricultural or Williamson Act contract areas.

(c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

No Impact. Refer to response 2(a). As described above, the Project site is in an urban area surrounded by existing urban development and neither the site, nor the surrounding area is zoned or used for agricultural or forestry uses. The site has never served as a forestry resource. No changes would occur from Project implementation that would trigger or result in the rezoning of forest land, or timberland.

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

No Impact. The Project site does not meet the definition of forestland or timberland, as defined by PRC Sections 12220(g), 4526, and 51104(g). Therefore, the Project would have no impact on these lands.

[8] DOC. 2019. California Important Farmland Finder – Williamson Act Map. Available at https://maps.conservation.ca.gov/dlrp/ciff/, accessed on November 5, 2021.

[9] General Plan. 2005. Land Use Map, Figure LU-2.

[10] DOC. 2019. California Important Farmland Finder. Available at. https://maps.conservation.ca.gov/dlrp/ciff/, accessed on November 6, 2021

[11] DOC. 2019. California Important Farmland Finder – Williamson Act Map. Available at. https://maps.conservation.ca.gov/dlrp/ciff/, accessed on November 6, 2021

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

No Impact. As described above, the Project site is in an urban area surrounded by existing urban development and neither the site, nor the surrounding area is zoned or used for agricultural or forestry uses. The Project would not involve changes in the existing environment and would not result in conversion of farmland to nonagricultural use. Therefore, the Project would have no impact.

Air Quality

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
3. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan			X	
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is attainment under an applicable federal or state ambient air quality standard?			X	
c) Expose sensitive receptors to substantial pollutant concentrations?			X	
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X	

(a) Conflict with or obstruct implementation of the applicable air quality plan?

Less than significant. The proposed project would not conflict with or obstruct implementation of the SCAQMD Air Quality Management Plan (AQMP). The following section discusses the proposed project's consistency with the SCAQMD AQMP.

Criterion 1 - Increase in the Frequency or Severity of Violations?

Based on the air quality modeling analysis contained in this report, short-term regional construction air emissions would not result in significant impacts based on SCAQMD regional thresholds of significance discussed above in Section 8.1 or local thresholds of significance discussed above in Section 8.2. The ongoing operation of the proposed project would generate air pollutant emissions that are inconsequential on a regional basis and would not result in significant impacts based on SCAQMD thresholds of

significance discussed above in Section 8.1. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not be projected to exceed the air quality standards. Therefore, a less than significant long-term impact would occur and no mitigation would be required.

Therefore, based on the information provided above, the proposed project would be consistent with the first criterion.

Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to ensure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The AQMP is developed through use of the planning forecasts provided in the RTP/SCS and FTIP. The RTP/SCS is a major planning document for the regional transportation and land use network within Southern California. The RTP/SCS is a long-range plan that is required by federal and state requirements placed on SCAG and is updated every four years. The FTIP provides long-range planning for future transportation improvement projects that are constructed with state and/or federal funds within Southern California. Local governments are required to use these plans as the basis of their plans for the purpose of consistency with applicable regional plans under CEQA. For this project, the City of San Bernardino General Plan defines the assumptions that are represented in AQMP.

The proposed project is currently designated as Industrial (I) in the General Plan and is zoned Office Industrial Park (OIP). The proposed project will require a zone change to Industrial (IL) to make the project site consistent with the General Plan. Since the proposed project does not require a General Plan Amendment, implementation of the proposed project would not result in an inconsistency with the current land use designations with respect to the regional forecasts utilized by the AQMPs. As such, the proposed project is not anticipated to exceed the AQMP assumptions for the project site and is found to be consistent with the AQMP for the second criterion.

Based on the above, the proposed project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur in relation to implementation of the AQMP.

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

The proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard. The following section calculates the potential air emissions associated with the construction and operations of the proposed project and compares the emissions to the SCAQMD standards.

Demolition

As explained further in Section 2.3 on the existing project site conditions, the demolition work occurred in 2021 pursuant to emergency orders. For purposes of the project's air quality analysis, the demolition phase was assumed to consist of the two former industrial buildings, which totals approximately 27,500 square feet of building space. In addition, the former parking lots and truck loading areas on the project site were included in the demolition assumptions, which were estimated to cover 68,000 square feet of the project site. The pavement was assumed to be an average of 4-inches thick and weigh 145 pounds per square foot, which results in 1,643 tons of pavement that would be removed from the project site. CalEEMod utilizes a factor of 0.046 tons of debris of building material per building square foot. This results in 2,185 tons of debris that would be generated from demolition of the prior structures assumed in the analysis. Therefore, the combined demolition of the structure and pavement area in the air quality analysis assumptions includes the removal of 3,828 tons of debris exported from the site and a total of 379 haul truck trips (average 19 haul truck trips per day).

The demolition phase has been modeled as starting in March 2021 and occurring over four weeks. The demolition activities were assumed to generate 15 worker trips per day. In order to account for water truck emissions, six vendor truck emissions were added to the demolition phase. The onsite equipment was assumed to consist of one concrete/industrial saw, three excavators, and two of either tractors, loaders, or backhoes, which is based on the CalEEMod default equipment mix. The mitigation of water all exposed areas two times per day was chosen in order to account for the fugitive dust reduction that would occur through adhering to SCAQMD Rule 403, which requires that the Best Available Control Measures be utilized to reduce fugitive dust emissions.

Construction Emissions

The construction activities for the proposed project ~~are anticipated~~ were assumed to include demolition of the two ~~existing~~ former warehouse structures, site preparation and grading of the 3.84 gross acre project site, building construction of the proposed warehouse, paving, and application of architectural coatings. The construction emissions have been analyzed for both regional and local air quality impacts.

Construction-Related Regional Impacts

The CalEEMod model has been utilized to calculate the construction-related regional emissions from the proposed project and the input parameters utilized in this analysis have been detailed in Section 8.1. The worst-case summer or winter daily construction-related criteria pollutant emissions from the proposed project for each phase of construction activities are shown below in Table 3. Since it is possible that building construction, paving, and architectural coating activities may occur concurrently towards the end of the building construction phase, Table 3 also shows the combined regional criteria pollutant emissions from building construction (year 2023), paving and architectural coating phases of construction.

Table 3 – Construction-Related Regional Criteria Pollutant Emissions

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Demolition (Year 2022)[1]						
Onsite[2]	2.64	25.72	20.59	0.04	3.09	1.43
Offsite[3]	0.15	3.03	1.39	0.01	0.57	0.18
Total	**2.78**	**28.75**	**21.98**	**0.05**	**3.65**	**1.61**
Site Preparation (Year 2022)[1]						
Onsite[2]	3.17	33.08	19.70	0.04	10.46	6.03
Offsite[3]	0.09	0.33	0.84	<0.00	0.24	0.07
Total	**3.26**	**33.41**	**20.54**	**0.04**	**10.70**	**6.10**
Grading (Year 2022)[1]						
Onsite[2]	1.95	20.86	15.27	0.03	4.13	2.41
Offsite[3]	0.07	0.32	0.71	<0.00	0.21	0.06
Total	**2.02**	**21.17**	**15.99**	**0.03**	**4.34**	**2.47**
Building Construction (Year 2022)						
Onsite	1.71	15.62	16.36	0.03	0.81	0.76
Offsite	0.32	1.38	3.14	0.01	0.92	0.26
Total	**2.03**	**17.00**	**19.50**	**0.04**	**1.73**	**1.02**
Combined Year 2023 Building Construction, Paving, and Architectural Coatings						
Onsite	50.03	24.48	30.25	0.05	1.20	1.13
Offsite	0.42	1.21	4.12	0.01	1.28	0.35
Total	**50.45**	**25.69**	**34.36**	**0.06**	**2.49**	**1.48**
Maximum Daily Construction Emissions	**50.45**	**33.41**	**34.36**	**0.06**	**10.70**	**6.10**
SCQAMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Demolition, Site Preparation and Grading based on adherence to fugitive dust suppression requirements from SCAQMD Rule 403.
[2] Onsite emissions from equipment not operated on public roads.
[3] Offsite emissions from vehicles operating on public roads.
Source: CalEEMod Version 2020.4.0.

Table 3 shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds during either demolition, site preparation, grading, or the combined building construction, paving and architectural coatings phases. Therefore, a less than significant regional air quality impact would occur from construction of the proposed project, especially considering that the demolition phase included in the analysis has already been completed due to emergency orders.

Construction-Related Local Impacts

Construction-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin.

The local air quality emissions from construction were analyzed through utilizing the methodology described in *Localized Significance Threshold Methodology* (LST Methodology), prepared by SCAQMD, revised October 2009. The LST Methodology found the primary criteria pollutant emissions of concern are NOx, CO, PM10, and PM2.5. In order to determine if any of these pollutants require a detailed analysis of the local air quality impacts, each phase of construction was screened using the SCAQMD's Mass Rate LST Look-up Tables. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily onsite emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality.

Table 4 shows the onsite emissions from the CalEEMod model for the different construction phases and the calculated localized emissions thresholds that have been detailed above in Section 9.2. Since it is possible that building construction, paving, and architectural coating activities may occur concurrently towards the end of the building construction phase, Table 4Table also shows the combined local criteria pollutant emissions from year 2023 building construction, paving and architectural coating phases of construction.

Table 4 – Construction-Related Local Criteria Pollutant Emissions

Construction Phase	Pollutant Emissions (pounds/day)[1]			
	NOx	CO	PM10	PM2.5
Demolition[2]	26.10	20.77	3.16	1.46
Site Preparation[2]	33.12	19.80	10.49	6.04
Grading[2]	20.89	15.36	4.15	2.41
Building Construction (Year 2022)	15.79	16.76	0.92	0.79
Combined Building Construction (Year 2023), Paving and Architectural Coatings	25.89	30.91	1.48	1.28
Maximum Daily Construction Emissions	**33.12**	**30.91**	**10.49**	**6.04**
SCAQMD Local Construction Thresholds[3]	**231.3**	**1,446.7**	**11.3**	**6.5**
Exceeds Threshold?	No	No	No	No

Notes:
[1] The Pollutant Emissions include 100% of the On-Site emissions (off-road equipment and fugitive dust) and 1/8 of the Off-Site emissions (on road trucks and worker vehicles), in order to account for the on-road emissions that occur within a ¼ mile of the project site.
[2] Demolition, Site Preparation and Grading phases based on adherence to fugitive dust suppression requirements from SCAQMD Rule 403.
[3] The nearest offsite sensitive receptor to the project site is a single-family home located as near as 85 feet (26 meters) to the east of the project site. In order to provide a conservative analysis, the 25-meter threshold was utilized.
Source: Calculated from SCAQMD's Mass Rate Look-up Tables for two and five acres in Air Monitoring Area 34, Central San Bernardino Valley.

The data provided in Table 4 shows that none of the analyzed criteria pollutants would exceed the local emissions thresholds during either demolition, site preparation, grading, or the combined building construction, paving, and architectural coatings phases. Therefore, a less than significant local air quality impact would occur from construction of the proposed project, especially considering that the demolition phase included in the analysis has already been completed due to emergency orders.

Operational Emissions

The ongoing operation of the proposed project would result in a long-term increase in air quality emissions. This increase would be due to emissions from the project-generated vehicle trips, emissions from energy usage, onsite area source emissions, and off-road equipment created from the on-going use of the proposed project. The following section provides an analysis of potential long-term air quality impacts due to regional air quality and local air quality impacts with the on-going operations of the proposed project.

Operations-Related Regional Criteria Pollutant Analysis

The operations-related regional criteria air quality impacts created by the proposed project have been analyzed through use of the CalEEMod model and the input parameters utilized in this analysis have been detailed in Section 7.1. The worst-case summer or winter VOC, NOx, CO, SO_2, PM10, and PM2.5 daily emissions created from the proposed project's long-term operations have been calculated and are summarized below in Table 5 and the CalEEMod daily emissions printouts are shown in Appendix A.

Table 5 – Operational Regional Criteria Pollutant Emissions

	Pollutant Emissions (pounds/day)					
Activity	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Area Sources[1]	2.03	<0.00	0.01	<0.00	<0.00	<0.00
Energy Usage[2]	<0.00	0.05	0.04	<0.00	<0.00	<0.00
Mobile Sources[3]	0.24	2.73	2.47	0.02	0.93	0.27
Off-Road Equipment[4]	0.01	0.44	5.79	<0.00	0.01	0.01
Total Emissions	**2.28**	**3.22**	**8.31**	**0.02**	**0.94**	**0.28**
SCQAMD Operational Thresholds[5]	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consist of emissions from natural gas usage.
[3] Mobile sources consist of emissions from vehicles and road dust.
[4] Off-road equipment consists of emissions from forklifts utilized onsite (Project Design Feature 1 restricts the operation of diesel-powered forklifts, so forklifts have been analyzed as CNG-powered.
[5] The SCAQMD operational thresholds for the Coachella Valley are the same as the construction thresholds.
Source: Calculated from CalEEMod Version 2020.4.0.

The data provided in Table 5 shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from operation of the proposed project.

Operations-Related Local Air Quality Impacts

Project-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. The proposed project has been analyzed for the potential local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts

from on-site operations. The following analyzes the vehicular CO emissions and local impacts from on-site operations.

Local CO Hotspot Impacts from Project-Generated Vehicular Trips

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with project CO levels to the State and Federal CO standards of 20 ppm over one hour or 9 ppm over eight hours.

At the time of the 1993 Handbook, the Air Basin was designated nonattainment under the CAAQS and NAAQS for CO. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the Air Basin and in the state have steadily declined. According to the SCAQMD Air Quality Data Tables, in 2007 Central San Bernardino Valley had maximum CO concentrations of 4.0 ppm for 1 hour and 2.3 ppm for 8-hours and in 2019 Central San Bernardino Valley had maximum CO concentrations of 1.3 ppm for 1-hour and 1.1 ppm for 8-hours, which represent decreases in CO concentrations of 68 percent and 52 percent, respectively between 2019 and 2007. In 2007, the Air Basin was designated in attainment for CO under both the CAAQS and NAAQS. SCAQMD conducted a CO hot spot analysis for attainment at the busiest intersections in Los Angeles during the peak morning and afternoon periods and did not predict a violation of CO standards. (*The four intersections analyzed by the SCAQMD were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning and LOS F in the evening peak hour)*

Since the nearby intersections to the proposed project are much smaller with less traffic than what was analyzed by the SCAQMD and since the CO concentrations are now at least 52 percent lower than when CO was designated “Attainment” in 2007, no local CO Hotspot are anticipated to be created from the proposed project and no CO Hotspot modeling was performed. Therefore, a less than significant long-term air quality impact is anticipated to local air quality with the on-going use of the proposed project.

Local Criteria Pollutant Impacts from Onsite Operations

Project-related air emissions from onsite sources such as architectural coatings, landscaping equipment, and onsite usage of natural gas appliances may have the potential to create emissions areas that exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin.

The local air quality emissions from onsite operations were analyzed using the SCAQMD’s Mass Rate LST Look-up Tables and the methodology described in LST Methodology. The Look-up Tables were

developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. Table 6 shows the onsite emissions from the CalEEMod model that includes area sources, energy usage, onsite off-road equipment, and vehicles operating in the immediate vicinity of the project site and the calculated emissions thresholds.

Table 6 – Operations-Related Local Criteria Pollutant Emissions

Onsite Emission Source	Pollutant Emissions (pounds/day)			
	NOx	CO	PM10	PM2.5
Area Sources	<0.00	0.01	<0.00	<0.00
Energy Usage	0.05	0.04	<0.00	<0.00
Mobile Sources[1]	0.34	0.31	0.12	0.03
Off-Road Equipment[2]	0.44	5.79	0.01	0.01
Total Emissions	**0.83**	**6.15**	**0.13**	**0.04**
SCAQMD Local Operational Thresholds[3]	**231.3**	**1,446.7**	**3.2**	**1.6**
Exceeds Threshold?	No	No	No	No

Notes:
[1] Mobile sources based on 1/8 of the gross vehicular emissions, which is the estimated portion of vehicle emissions occurring within a quarter mile of the project site.
[2] Off-road equipment consists of emissions from forklifts utilized onsite (Project Design Feature 1 restricts the operation of diesel-powered forklifts, so forklifts have been analyzed as CNG-powered
[3] The nearest sensitive receptor to the project site is a single-family home located as near as 85 feet (26 meters) to the east of the project site. In order to provide a conservative analysis, the 25-meter threshold was utilized.
Source: Calculated from SCAQMD's Mass Rate Look-up Tables for two and five acres in Air Monitoring Area 34, Central San Bernardino Valley.

The data provided in Table 6 shows that the on-going operations of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 9.2. Therefore, the on-going operations of the proposed project would create a less than significant operations-related impact to local air quality due to onsite emissions and no mitigation would be required.

Therefore, the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant.

(c) Expose sensitive receptors to substantial pollutant concentrations?

The proposed project would not expose sensitive receptors to substantial pollutant concentrations. The local concentrations of criteria pollutant emissions produced in the nearby vicinity of the proposed project, which may expose sensitive receptors to substantial concentrations have been calculated above in Section 9.3 for both construction and operations, which are discussed separately below. The discussion below also includes an analysis of the potential impacts from toxic air contaminant emissions. The nearest sensitive receptor to the project site is a single-family home located as near as 85 feet to the east of the project site. There are also multi-family homes located as near as 115 feet to the north of the project site and a single-family home located as near as 135 feet to the south of the project site.

Construction-Related Sensitive Receptor Impacts

Construction activities may expose sensitive receptors to substantial pollutant concentrations of localized criteria pollutant concentrations and from toxic air contaminant emissions created from onsite construction equipment, which are described below.

Local Criteria Pollutant Impacts from Construction

The local air quality impacts from construction of the proposed project has been analyzed above in Section 9.3 and found that the construction of the proposed project would not exceed the SCAQMD's local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 8.2. Therefore, construction of the proposed project would create a less than significant construction-related impact to local air quality and no mitigation would be required.

Toxic Air Contaminants Impacts from Construction

The greatest potential for toxic air contaminant emissions would be related to diesel particulate matter (DPM) emissions associated with heavy equipment operations during construction of the proposed project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of "individual cancer risk". "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. It should be noted that the most current cancer risk assessment methodology recommends analyzing a 30 year exposure period for the nearby sensitive receptors (OEHHA, 2015).

Given the relatively limited number of heavy-duty construction equipment, the varying distances that construction equipment would operate to the nearby sensitive receptors, and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 30 or 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes, requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet's usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet, and currently no commercial operator is allowed to purchase Tier 0 or Tier 1 equipment and by January 2023 no commercial operator is allowed to purchase Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become more stringent each year between years 2014 and 2023. By January, 2022, 50 percent or more of all contractors' equipment fleets must be Tier 2 or higher. Therefore, due to the limited duration of construction, distances to the nearby sensitive receptors, and through adherence to State off-road equipment regulations, a less than significant short-term toxic air contaminant impacts would occur during construction of the proposed project. As such, construction of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

Operations-Related Sensitive Receptor Impacts

The on-going operations of the proposed project may expose sensitive receptors to substantial pollutant concentrations of local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts from onsite operations. The following analyzes the vehicular CO emissions. Local criteria pollutant impacts from onsite operations, and toxic air contaminant impacts.

Local CO Hotspot Impacts from Project-Generated Vehicle Trips

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential impacts to sensitive receptors. The analysis provided above in Section 9.3 shows that no local CO Hotspots are anticipated to be created at any nearby intersections from the vehicle traffic generated by the proposed project. Therefore, operation of the proposed project would result in a less than significant exposure of offsite sensitive receptors to substantial pollutant concentrations.

Local Criteria Pollutant Impacts from Onsite Operations

The local air quality impacts from the operation of the proposed project would occur from onsite sources such as architectural coatings, landscaping equipment, and onsite usage of natural gas appliances. The analysis provided above in Section 9.3 found that the operation of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 8.2. Therefore, the on-going operations of the proposed project would create a less than significant operations-related impact to local air quality due to on-site emissions and no mitigation would be required.

Operations-Related Toxic Air Contaminant Impacts

The proposed project consists of development of a warehouse that would generate DPM emissions from diesel truck deliveries to the project site. Particulate matter (PM) from diesel exhaust is the predominant TAC in most areas and according to *The California Almanac of Emissions and Air Quality 2013 Edition*, prepared by CARB, about 80 percent of the outdoor TAC cancer risk is from diesel exhaust. Some chemicals in diesel exhaust, such as benzene and formaldehyde have been listed as carcinogens by State Proposition 65 and the Federal Hazardous Air Pollutants program.

According to *Health Risk Assessments for Proposed Land Use Project*, prepared by CAPCOA, July 2009, recommends that if sensitive receptors are placed within 1,000 feet of distribution centers that generate more than 100 trucks deliveries per day or more than 40 trucks deliveries per day with transport refrigeration units (TRUs) a quantitative Health Risk Assessment (HRA) should be prepared to calculate the health risks. According to the VMT Memo (Urban Crossroads, 2021), the proposed project would generate a net total of 20 daily truck trips, since a trip is generated when a truck either arrives at the project site or leaves the project site, the 20 daily truck trips equates to 10 truck deliveries per day, which is well below the CAPCOA guidelines provided above for preparation of a quantitative HRA.

Since the proposed project would generate less truck deliveries than CAPCOA recommends for the preparation of a quantitative HRA, it can be reasonably concluded that the DPM emissions created from the on-going operation of the proposed project would result in a less than significant TAC impact to the nearby sensitive receptors and no mitigation would be required.

Therefore, operation of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

(d) Result in other emissions (such as those leasing to odors) adversely affecting a substantial number of people?

The proposed project would not create objectionable odors affecting a substantial number of people. Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity in which he or she is engaged; and the sensitivity of the impacted receptor.

Sensory perception has four major components: detectability, intensity, character, and hedonic tone. The detection (or threshold) of an odor is based on a panel of responses to the odor. There are two types of thresholds: the odor detection threshold and the recognition threshold. The detection threshold is the lowest concentration of an odor that will elicit a response in a percentage of the people that live and work in the immediate vicinity of the project site and is typically presented as the mean (or 50 percent of the population). The recognition threshold is the minimum concentration that is recognized as having a characteristic odor quality, this is typically represented by recognition by 50 percent of the population. The intensity refers to the perceived strength of the odor. The odor character is what the substance smells like. The hedonic tone is a judgment of the pleasantness or unpleasantness of the odor. The hedonic tone varies in subjective experience, frequency, odor character, odor intensity, and duration. Potential odor impacts have been analyzed separately for construction and operations below.

Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of coatings such as asphalt pavement, paints and solvents and from emissions from diesel equipment. Standard construction requirements that limit the time of day when construction may occur as well as SCAQMD Rule 1108 that limits VOC content in asphalt and Rule 1113 that limits the VOC content in paints and solvents would minimize odor impacts from construction. As such, the objectionable odors that may be

produced during the construction process would be temporary and would not likely be noticeable for extended periods of time beyond the project site's boundaries. Through compliance with the applicable regulations that reduce odors and due to the transitory nature of construction odors, a less than significant odor impact would occur and no mitigation would be required.

Operations-Related Odor Impacts

The proposed project would consist of the development of a warehouse. Operation of the proposed project may create odors from diesel truck emissions, and from trash storage bins. Pursuant to City regulations, permanent trash enclosures that protect trash bins from rain as well as limit air circulation would be required for the trash storage areas. Diesel truck emissions odors would be generated intermittently from truck loading and unloading activities at the project site and would not likely be noticeable for extended periods of time beyond the project site boundaries. Due to the distance of the nearest receptors from the project site and through compliance with SCAQMD's Rule 402 and City trash storage regulations, no significant impact related to odors would occur during the on-going operations of the proposed project. Therefore, a less than significant odor impact would occur and no mitigation would be required.

Biological Resources

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
4. BIOLOGICAL RESOURCES, Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		X		~~X~~
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?		X		~~X~~
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means				X
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?		X		~~X~~

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

~~A Biological Resources Screening Memo has been prepared by Gonzales Environmental Consulting, July 15, 2021. The report is available in Appendix H to this IS/MND~~. A General Biological Resource Assessment and Habitat Assessment was prepared by Gonzales Environmental Consulting, LLC on July 15, 2021. The 2021 Biological Report is available in Appendix F to this IS/MND. The 2021 Report concluded the project would not have a significant impact on sensitive species or habitat and stated the survey results for sensitive species was good for one year. For this reason, an updated database search and field survey were completed in order to update the biological information for the project. The updated review was performed in October of 2023 and is included in Appendix G to this IS/MND.

Rare, Endangered or Sensitive Species and Habitats

According to the CNDDB, no special-status species have been documented on the proposed project site (Rarefind 5 2021). However, fourteen special-status species (all records are from the 1800's -early 1900's and not on or near the project site) have been documented within one mile of the proposed project site (See Table 7.1). No special-status species at the site during the field assessment.

Wildlife

The habitat around San Bernardino South is developed and utilized primarily for residential and commercial purposes. There was limited avian activity observed. Only common avian species were observed, for example: Mourning dove (*Zenaida macroura*) and English sparrow (*Passer domesticus*). There were no reptiles or amphibians observed during surveys. No special status animals were observed during field surveys.

(a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

~~**No impact**~~**. Less than significant impact with mitigation.** According to the CNDDB, no special-status species have been documented on the proposed project site (Rarefind 5 2021). However, fourteen special-status species (all records are from the 1800's -early 1900's and not on or near the project site) have been documented within one mile of the proposed project site (See Table 7.1 of Appendix F), including the burrowing owl, a California species of concern. No special-status species were found at the site during the field assessment. Though the General Biological Resources Assessment and Habitat Assessment in Appendix F and the 2023 update in Appendix G found there is no appropriate habitat on the project site for the burrowing owl, in the unlikely event that burrowing owls could colonize the project

site prior to ground-disturbing activities, compliance with Mitigation Measure BIO-2 would reduce any potentially significant impacts to less than significant.

(b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

~~**No Impact.**~~ **Less than significant impact with mitigation.** No special-status plant species were found during surveys. Eleven special status plants species were documented within 1-mile of the project site from late 1800's to early 1900's. ~~In the subsequent text, we list~~ Special-status plant species documented within the San Bernardino South quadrangle and each species' possibility of occurring at the project site are set forth in Table 7.2 of Appendix F. Implementation of Mitigation Measure BIO-3 would limit plantings to non-invasives species. Mitigation Measure BIO-4 related to the maintenance and refueling of construction equipment would prevent potential impacts to any adjacent habitat during construction. And implementation of Mitigation Measures BIO-5 related to silt fencing and other sediment trapping devices would prevent run-off from entering the water systems during construction activities. With implementation of these measures, any potentially significant impacts would be reduced to less than significant.

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

No impact. There are no wetlands or streambeds on the project site.

(d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or wildlife corridors, or impede the use of native wildlife nursery sites?

~~**No impact.**~~ **Less than significant impact with mitigation.** The project was evaluated in relationship to the facilitation of wildlife movement and whether it provides links to seasonal foraging grounds or affects the exchange of genetic information between disjunct subpopulations. Portions of the project site are utilized for local movement by resident wildlife, primarily birds. Biological surveys of the study area did not detect wildlife trails, bedding areas, or burrows which could be used as dens for smaller and larger mammals.

Currently the project site provides fly over connectivity. Land usage and altering of native vegetation have compromised the integrity of wildlife dispersion on the project site. Birds, due to their movement capabilities, are able to disperse via flying over the project site. In the event construction must occur during the Migratory Bird Treaty Act (MBTA) nesting cycle (February 1-September 30), compliance with Mitigation Measure BIO-1 would reduce any potentially significant impacts to less than significant.

(e) Conflict with any local policies or ordinances protecting biological resources, such as tree preservation policy ordinance?

No Impact. San Bernardino County has several ordinances regarding plant protection and management (Chapter 88.01: Plant Protection and Management). There are none that apply to the project site.

(f) Conflict with the provision of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No impact. The project does not impact any of the sensitive species or habitat provided in this section of the report. Therefore, the project will not conflict with the provision of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Mitigation Measures

MM BIO-1 Migratory Birds

If construction is to occur during the MBTA nesting cycle (February 1-September 30) than a nesting bird survey should be conducted by a qualified biologist. Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) may be considered take and is potentially punishable by fines or imprisonment. Active bird nests should be mapped utilizing a hand-held global positioning system (GPS) and a 300' buffer will be flagged around the nest (500' buffer for raptor nests). Construction should not be permitted within the buffer areas while the nest continues to be active (eggs, chicks, etc.).

MM BIO-2 Burrowing Owls

A 30-day pre-construction survey for burrowing owls is required prior to initial ground-disturbing activities (including but not limited to vegetation clearing, clearing and grubbing, tree removal, site watering) to ensure that no owls have colonized the site in the days or weeks preceding the ground-disturbing activities. If burrowing owls have colonized the project site prior to the initiation of ground-disturbing activities, the project proponent will immediately inform San Bernardino County and the Wildlife Agencies, and will need to coordinate further with San Bernardino County and the Wildlife Agencies, including the possibility of preparing a Burrowing Owl Protection and Relocation Plan, prior to initiating ground disturbance. If ground-disturbing activities occur but the site is left undisturbed for more than 30 days, a pre-construction survey will again be necessary to ensure burrowing owl has not colonized the site since it was last disturbed. If burrowing owl is found, the same coordination described above will be necessary.

MM BIO-3 Exotics

The project landscaping design should limit plantings to non-invasives, avoiding those species listed by the California Exotic Plant Pest Council (CalEPPC) as the "exotic pest plants of greatest concern" (CalEPPC).

MM BIO-4 Maintenance and Refueling

Maintenance and refueling of construction equipment shall be limited to areas specified as appropriate by the project biologist. Storage of potentially hazardous materials, including but not limited to fuel, paint, stains, pesticides, herbicides, solvents, and oils will not be permitted within 50 feet of any habitat area to be retained by the project. During construction, disposal of such

material will occur in a controlled area that is physically separated from potential storm water runoff.

MM BIO-5 Runoff

Silt fencing or other sediment trapping devices should be installed and maintained in order to prevent run-off from entering the water systems during construction activities.

Cultural Resources

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
5. CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?		X		
b) Cause a substantial adverse change in the significance of an archeological resource pursuant to §15064.5?		X		
c) Disturb and human remains, including those interred outside of dedicated commentaries?		X		

The Cultural Resources investigation included background research, outreach with the Native American Heritage Commission (NAHC) and local Native American groups, and a pedestrian survey. The purpose of the investigation was to determine the potential for the Project to impact historical and archaeological resources under CEQA.

Methodology

Records search. As part of the background research, PaleoWest conducted a records search at the South Central Coastal Information System to identify previously recorded cultural resources and studies located within 0.5-mile radius of the Project area. The records search indicated that no fewer than 12 previous studies have been conducted within the record search area. Four cultural resources have been previously documented within 0.5 mile of the Project area, all of which date to the historic period. No previously recorded cultural resources are mapped within the Project area. As part of the cultural resource assessment of the Project area, PaleoWest requested a search of the Sacred Lands File (SLF) from the NAHC on June 18, 2021. Results of the SLF search were obtained on July 9, 2021. The SLF search had positive results and the NAHC recommended that PaleoWest contact the San Manuel Band of Mission Indians for additional information. The NAHC provided a contact list of 10 individuals representing seven

Native American tribal groups. Outreach letters were sent to each of the Native American tribes on July 9, 2021 with follow up conducted on July 26, 2021. Three responses have been received to date.

Field survey. PaleoWest conducted a pedestrian cultural resource survey of the proposed Project area on June 23, 2021. The survey identified no prehistoric or historic period cultural resources on the Project property. A geoarchaeological assessment of the Project area indicates the area is characterized by very young alluvial-valley deposits adjacent to the Santa Ana River. Due to the age of the sediments and high energy of these deposits, there is a low potential for encountering intact buried archaeological deposits in the Project area. Based on these findings, PaleoWest recommends a finding of no impact to historical or archaeological resources under CEQA. No additional cultural resource management is recommended for the proposed Project.

The Project area encompasses three contiguous parcels, the largest of which (APN 0280-121-47) once contained two warehouse buildings that had been recently demolished in 2021 in response to emergency orders, as further explained in Section 2.3. This parcel was covered with the pulverized pieces of concrete and other remnants of parking lots (Figures 5-1 and 5-2). Although the demolition debris reduced ground visibility, native sediments were observed throughout the area. All exposed soils appeared highly disturbed and consisted of a light reddish-brown, loamy sand with small gravel inclusions.

The remaining two parcels (APNs 0280-121-34 and -44) were undeveloped open areas covered by weeds and grasses with scattered trees and shrubs. Visibility in these areas was generally less than five percent. The two parcels were littered with modern trash.

The survey identified no prehistoric or historic period cultural resources in the Project area.

The data review indicates that no fewer than 12 previous investigations have been conducted and documented within 0.5-mile of the Project area since 1994. One of these previous studies (SB-07959) encompassed the entire Project area; the study consisted of an architectural assessment of 50 historic buildings in the city of San Bernardino (Hatheway & Associates 1998). A list of the previous cultural studies is provided in Table 7.

Table 7 Previous Cultural Studies within 0.5-Mile of the Project Area

Report No.	Date	Author(s)	Title
SB-03009	1994	Lukkarila, Dave Walter	The Summer of 1861: Establishing a Military Camp in San Bernardino at the Civil War's Beginning; A Review of the Official War Records
SB-03286	1998	Love, Bruce And Bai Tom Tang	Historic Significance Evaluation of Buildings Scheduled for Demolition During Phase I of Mayor's Demolition Initiative, City of San Bernardino, CA.
SB-04639	2004	Bonner, Wayne	Record Search Results and Site Visit for Cingular Wireless Facility Candidate SB-369-01 (Gifford Business Park), 766-791 South Gifford Avenue, San Bernardino, San Bernardino County, California
SB-06562	2003	Hale, John P.	Archaeological Resources Survey Report: Range 500 Upgrades, Cleghorn Pass Training Area, Marine Corps Air Ground Combat Center, Twentynine Palms, San Bernardino County, California.
SB-07371	2013	Billat, Lorna	BTS Waterman Visayan/MLAX 04211A.

Table 7 Previous Cultural Studies within 0.5-Mile of the Project Area

Report No.	Date	Author(s)	Title
SB-07528		Hogan, Michael, Bai Tom Tang, Terri Jacquemain, Daniel Ballester, and Nina Gallardo	Identification and Evaluation of Historic Properties: Cleanwater Factory Project, City of San Bernardino, San Bernardino County, California.
SB-07913	2015	Quinn, Harry M. and Terri Jacquemain	Paleontological Resources Assessment Report Clean Water Factory Project
SB-07914	2015	Hogan, Michael and Bai Tang	Identification and Evaluation of Historic Properties: Clean Water Factory Project, City of San Bernardino, San Bernardino County, California
SB-07916	2016	Quinn, Harry M. and Terri Jacquemain	Paleontological Resources Assessment Report Clean Water Factory Project
SB-07917	2015	Hogan, Michael, Bai Tang, and Terri Jacquemain	Identification and Evaluation of Historic Properties: Clean Water Factory Project, City of San Bernardino, San Bernardino County, California
SB-07959	1998	Hatheway, Roger G.	Determination of Eligibility for 50 Buildings in the City of San Bernardino
SB-08141	2014	Brunzell, David	Cultural Resources Assessment Home Lumber Property Project, City of San Bernardino, San Bernardino County, California

Cultural Resources reported Within the Study area

The data review indicated that no fewer than four cultural resources have been previously documented within 0.5-mile of the Project area (Table 8). All of these resources date to the historic period and consist of a railroad, single-family residence, flour mill, and building foundations. The Mormon Flour Mill Site, which no longer appears to be extant, was designated as a Point of Historical Interest in 1975. One of these resources, the AT&SF Railroad (P-36-006103), has been determined ineligible for listing in the National Register of Historic Resources. None of the previously recorded cultural resources are located in the Project area.

Table 8 Cultural Resources Recorded within 0.5-Mile of the Project Area

Primary No.	Trinomial	Type	Age	Description
P-36-006847	CA-SBR-6847H	Site; Structure	Historic	Old Kite Route/Atchison, Topeka, and Santa Fe Railroad
P-36-017668		Building	Historic	1176 Amos Avenue (Single-family residence)
P-36-017723		Site	Historic	Mormon Flour Mill Site
P-36-023628	CA-SBR-14924H	Site	Historic	Two building foundations/structure pads

(a, b & c) Cause a substantial adverse change in the significance of a historical or archeological resource pursuant to §15064.5? Disturb and human remains, including those interred outside of dedicated commentaries?

Potentially Significant Unless Mitigation Incorporated. The cultural resources assessment completed by PaleoWest identified no archaeological or historical resources in the Project area. Results of the study indicate that the area has been extensively disturbed by development. The proximity of the Project area to the Santa Ana River suggests the area may have been attractive to prehistoric groups both for its

proximity to water and to resource procurement locales. However, the young age of the sediments and high energy of the deposits in the Project area indicate there is a low potential for encountering intact buried archaeological deposits. Based on these findings, PaleoWest recommends a finding of no impacts to cultural resources under CEQA. No further cultural resources management is recommended for the Project. However, after consultation with the San Manuel Band of Mission Indians it has been requested that Mitigation Measures CUL-1, CUL-2 and CUL-3 be implemented in the event that any culturally significant resources, as defined by CEQA (as amended, 2015), be encountered.

Mitigation

CUL-1

In the event that cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on other portions of the project outside the buffered area may continue during this assessment period. Additionally, the San Manuel Band of Mission Indians Cultural Resources Department (SMBMI) shall be contacted, as detailed within TCR-1, regarding any pre-contact and/or historic-era finds and be provided Tribal input with regards to significance and treatment.

CUL-2

If significant pre-contact and/or historic-era cultural resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, the archeologist shall develop a Monitoring and Treatment Plan, the drafts of which shall be provided to SMBMI for review and comment, as detailed in TCR-1. The archeologist shall monitor the remainder of the project and implement the Plan accordingly.

CUL-3

If human remains or funerary objects are encountered during any activities associated with the project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to the Sate Health and Safety Code §7050.5 and that code enforced for the duration of the project.

Energy

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
6. ENERGY. Would the project:				
a) Result in a potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?			X	
b) Conflict or obstruct a state or local plan for renewable energy or energy efficiency?				X

Building Energy Conservation Standards

Energy conservation standards for new residential and non-residential buildings were adopted by the California Energy Resources Conservation and Development Commission (now the California Energy Commission) in June 1977 and are updated every three years (Title 24, Part 6, of the CCR). Title 24 requires the design of building shells and building components to conserve energy. The standards are updated periodically to allow for consideration and possible incorporation of new energy efficiency technologies and methods. On June 10, 2015, the California Energy Commission (CEC) adopted the 2016 Building Energy Efficiency Standards, which went into effect on January 1, 2017. On May 9, 2018, the CEC adopted the 2019 Building Energy Efficiency Standards, which took effect on January 1, 2020. The 2019 Standards improve upon the 2016 Standards. Under the 2019 Title 24 standards, residential buildings are expected to be about seven percent more energy-efficient and nonresidential buildings will use about 30 percent less energy due mainly to lighting upgrades. On August 11, 2021, the CEC adopted the 2022 Energy Code. Buildings with permit applications applied for on or after January 1, 2023, must comply with the 2022 Energy Code. The application for the proposed project was submitted prior to January 1, 2023.

(a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during Project construction or operation?

Less than significant impact. Energy usage includes emissions from electricity and natural gas used onsite. The energy usage was based on the ongoing use of the proposed project in the CalEEMod Model. No changes were made to the default energy usage parameters in the CalEEMod model.

According to *2019 Building Energy Efficiency Standards Frequently Asked Questions*, prepared by the California Energy Commission, March 2018, the 2019 Title 24, Part 6 building energy efficiency standards that went into effect January 1, 2020 result in 7 percent more efficient building energy efficiency than the

2016 Title 24 standards and require new lighting energy improvements that are 30 percent more efficient than the prior 2016 building standards. In order to account for the new standards, the CalEEMod "mitigation" of exceed Title 24 by 7 percent and provide a 30 percent lighting energy improvement was selected. Further, the proposed project will include solar panels as a condition of project approval. More specifically, the Project will be consistent with the new Nonresidential Mandatory Requirements of the 2022 California Energy Code – Sub Chapter 5 – Section 140.10 – Photovoltaic Generation and Battery Storage Systems and 2022 California Green Code - Chapter 5 for Electric Vehicle Charging. This would generate enough energy to offset the building's lighting, general power and air conditioning and would further reduce energy use. Impacts would be less than significant.

(b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

No impact. Based on the analysis in the preceding discussion, the proposed Project will not conflict with current State energy efficiency or electricity supply requirements or any local plans or programs for renewable energy or energy efficiency requirements. The City of San Bernardino has adopted State energy efficiency standards as part of its Municipal Code. Project design and operation would comply with State Building Energy Efficiency Standards, appliance efficiency regulations, and green building standards. Project development would not cause inefficient, wasteful and unnecessary energy consumption, and no impact would occur.

Geology and Soils

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
7. GEOLOGY AND SOILS. Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
I. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?			X	
II. Strong seismic ground shaking?			X	
III. Seismic-related ground failure, including liquefaction?			X	
IV. Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil			X	

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?			X	
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X	

A Geotechnical Investigation and a Percolation/Infiltration Testing have been prepared by Sladden Engineering, dated June 29, 2020. The Geotechnical Investigation was used as a resource in completing this section.

(a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?

Based on the CGS Probabilistic Seismic Hazards Ground Motion Interpolator (2008), the peak ground acceleration for stiff soil conditions (assumed Vs = 360 m/s) at the site is reported to be 0.70g with a 10% probability of being exceeded in 50 years. The estimated ground shaking is derived from statewide seismic hazard evaluation released cooperatively by the California Division of Mines and Geology and United States Geological Survey based on long-term slip rate, maximum earthquake magnitude and rupture geometry, and historical seismicity associated with known fault sources in the site vicinity. The subject site, as is the case with most of the tectonically active California area, will be periodically subject to moderate to intense earthquake-induced ground shaking from nearby faults. Significant damage can occur to the site and structural improvements during a strong seismic event. Neither the location nor magnitude of earthquakes can accurately be predicted at this time.

ii) Strong seismic ground shaking?

Less than significant impact. The subject site is within the Peninsular Ranges geomorphic province south of the Transverse Ranges geomorphic province. The Peninsular Ranges are dominated by northwest-trending, strike-slip faults. The Transverse Ranges are dominated by east-west trending, reverse and thrust faults.

According to the Geologic Map of the San Bernardino North/North 1/2 of San Bernardino South Quadrangles (Dibblee Foundation Map DF-127), the regional area is underlain by younger alluvium (Qa and Qg).

There are no mapped active or potentially active faults with surface expression that trend through or are adjacent to the subject property, according to those references cited herein. The site does not lie within a designated Alquist-Priolo Earthquake Fault Zone (CDMG, 2000). According to the California Department of Conservation, Fault Activity Map of California 2010, the site is located approximately 0.33 miles north of the San Jacinto Fault Zone.

iii) Seismic-related ground failure, including liquefaction?

Less than significant impact. Liquefaction is a seismic phenomenon in which loose, saturated, granular soils behave similarly to a fluid when subject to high-intensity ground shaking. Liquefaction occurs when three general conditions coexist: 1) shallow groundwater; 2) low density non-cohesive (granular) soils; and 3) high-intensity ground motion. Studies indicate that saturated, loose to medium dense, near surface cohesionless soils exhibit the highest liquefaction potential, while dry, dense, cohesionless soils and cohesive soils exhibit low to negligible liquefaction potential. In general, cohesive soils are not considered susceptible to liquefaction. Effects of liquefaction on level ground include settlement, sand boils, and bearing capacity failures below structures. Dynamic settlement of dry loose sands can occur as the sand particles tend to settle and densify as a result of a seismic event.

According to the City of San Bernardino General Plan, the site is located in an area considered to be susceptible to liquefaction. Therefore, the potential for liquefaction and dynamic settlement has been evaluated as outlined in Chapter 6 of the California Division of Mines and Geology (DMC) Special Publication 117 (“Guidelines for Evaluation and Mitigation of Seismic Hazards in California”) and “Recommended Procedures for Implementation of DMG Special Publication 117 - Guidelines for Analyzing and Mitigating Liquefaction in California”, published by the Southern California Earthquake Center, 2008 edition. The design and construction recommendations presented in this report include results of liquefaction and dynamic settlement evaluation.

iv) Landslides?

No impact. The project does not fall within a risk area of landslides.

(b) Result in substantial soil erosion or the loss of topsoil?

Less than significant impact. Based on laboratory test results, we estimate that shrinkage of soils onsite should be approximately 14 (±5) percent. Shrinkage is defined as the decrease in volume of soil upon removal and re-compaction expressed as a percentage of the in-place volume. The following table summarizes the calculated shrinkage values used in determining the total estimated amount.

This shrinkage is exclusive of any losses due to removal of roots, oversized rocks, or any underground structures and is based on an average 92 percent relative compaction. An increase in relative compaction obtained would increase the shrinkage factor.

Furthermore, a subsidence of approximately 0.10 (± 0.05) feet may also be considered during site preparation. The above shrinkage and subsidence estimates should be used with caution since they are not absolute values. We recommend that an earthwork balance area should be designated to allow for variations in the indicated shrinkage and subsidence estimates.

(c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less than significant impact. Soil hydro-consolidation (hydro-collapse) is a phenomenon that results in relatively rapid settlement of soil deposits due to addition of water. This generally occurs in soils having a loose particle structure cemented together with soluble minerals or with small quantities of clay. Water infiltration into such soils can break down the interparticle cementation, resulting in collapse of the soil structure. Collapsible soils are found primarily in Holocene alluvial fan deposits.

A couple soil samples, representing the upper ten feet of native soil, was tested in the laboratory for collapse potential. Test results indicate that less than 1% of hydro-collapse occurred in the tested samples. Therefore, the severity of hydro-collapse potential onsite is considered “No Problem” based on NAVFACDM7.01.

(d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less than significant impact. Based on laboratory classification, the upper foundation soil onsite is expected to have a very low expansion potential (EI<20), as defined in ASTM D4829. However, some sandy lean clay was encountered throughout the site, especially in the artificial fill soils. We anticipate that the proposed building pad will be composed of a clayey sand matrix that will be low in expansion potential (EI<50). This would require verification subsequent to completion of new footing excavations.

(e) Soil capability to support waste water disposal, including septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

No Impact. The proposed Project would connect to the City’s sewer collection system, which provides service to the surrounding vicinity and would not require an alternative method of wastewater conveyance. The project does not propose a septic tank system. Therefore, no impacts associated with septic or alternative wastewater disposal systems would occur.

(f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less than significant impact. The geologic units underlying this Project are mapped primarily as alluvial sand and gravel deposits dating from the Holocene period, with a small segment of Mesozoic schist along the southern Project border. Schist is considered to be of low paleontological sensitivity, and while Holocene alluvial units are considered to be of high preservation value, material found is unlikely to be fossil material due to the relatively modern associated dates of the deposits. However, if development requires any substantial depth of disturbance, the likelihood of reaching Pleistocene alluvial sediments would increase. The Western Science Center (WSC) does not have localities within the Project area or within a 1-mile radius.

While the presence of any fossil material is unlikely, if excavation activity disturbs deeper sediment dating to the earliest parts of the Holocene or Late Pleistocene periods, the material could be scientifically significant. Excavation activity associated with the development of the Project area is unlikely to be paleontologically sensitive, but caution during development should be observed, pursuant to MM CUL-1 above.

According to the Cultural Resources Assessment, the entirety of the Project site has been subject to ground disturbance. While the presence of any fossil material is unlikely, if excavation activity disturbs deeper sediment dating to the earliest parts of the Holocene or Late Pleistocene periods (i.e., usually deeper than 5 feet), the material would be scientifically significant.

Greenhouse Gas Emissions

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
8. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

(a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than significant impact. The proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The proposed project would consist

of the development of a warehouse. The proposed project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste disposal, water usage, and construction equipment. The project's GHG emissions have been calculated with the CalEEMod model based on the construction and operational parameters. A summary of the results is shown below in Table 9.

Table 9 – Project Related Greenhouse Gas Annual Emissions

	Greenhouse Gas Emissions (Metric Tons per Year)			
Category	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Area Sources[1]	<0.00	<0.00	<0.00	<0.00
Energy Usage[2]	42.75	<0.00	<0.00	42.97
Mobile Sources[3]	300.07	0.01	0.04	311.75
Off-Road Equipment[4]	14.25	<0.00	<0.00	14.37
Solid Waste[5]	8.54	0.50	<0.00	21.15
Water and Wastewater[6]	45.86	0.57	0.01	64.30
Construction[7]	15.81	<0.00	<0.00	16.00
Total Emissions	427.27	1.10	0.05	**470.54**
SCAQMD Draft Threshold				**3,000**
Exceed Threshold?				**No**

Notes:
[1] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consists of GHG emissions from electricity and natural gas usage.
[3] Mobile sources consist of GHG emissions from vehicles.
[4] Off-road equipment consists of emissions from forklifts utilized onsite (Project Design Feature 1 restricts the operation of diesel-powered forklifts, so forklifts have been analyzed as CNG-powered).
[5] Waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.
[6] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[7] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
Source: CalEEMod Version 2020.4.0.

The data provided in Table 9 shows that the proposed project would create 470.54 $MTCO_2e$ per year. According to the SCAQMD draft threshold of significance detailed above in Section 8.5, a cumulative global climate change impact would occur if the GHG emissions created from the on-going operations would exceed 3,000 $MTCO_2e$ per year. Therefore, a less than significant generation of greenhouse gas emissions would occur from development of the proposed project. Impacts would be less than significant.

(b) Conflict with applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than significant impact. The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. The proposed project would consist of development of a warehouse. As detailed above in Section 9.6, the proposed project is anticipated to create 470.54 $MTCO_2e$ per year, which is well below the SCAQMD draft threshold of significance of 3,000 $MTCO_2e$ per year. The SCAQMD developed this threshold through a Working

Group, which also developed detailed methodology for evaluating significance under CEQA. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual threshold of 3,000 $MTCO_2e$ for all land use type projects, which was based on substantial evidence supporting the use of the recommended thresholds. Therefore, the proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Hazardous Materials

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
9. HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			X	
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?			X	
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X	
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?				X

Methane and Hydrogen Sulfide Potential

The review of aerial photographs identifies the Project site as being undeveloped as early as 1995. Based on the site's lack of intense agricultural uses or landfills on the Project site, the potential for generation of methane or hydrogen sulfide is very low.

Radon

Radon is a naturally occurring colorless, odorless gas that is a by-product of the decay of radioactive materials potentially present in bedrock and soil. The EPA guidance action level for annual residential exposure to radon is 4.0 picoCuries per liter of air (pCi/L). The guidance action level is not a regulatory requirement for private owners of commercial real estate but is commonly used for comparison purposes to suggest whether further action at a building may be prudent. According to the United States Environmental Protection Agency (EPA), the Project site is located in Zone 2. Zone 2 areas have a predicted radon concentration between 2.0 to 4.0 pCi/L.

Fire Hazard

The City of San Bernardino is susceptible to wildland fires due to the steep terrain and highly flammable chaparral vegetation of the foothills of the San Bernardino Mountains and high winds that correspond with seasonal dry periods. The characteristics of the San Bernardino Mountains and winds in the area indicate that large uncontrollable fires on a recurring basis are inevitable. According to General Plan Figure S-8, Wind Hazards, the Project site is subject to high winds. However, according to General Plan Figure S-9, Fire Hazard Areas, the Project site is not located near any of the hazard areas such as: Extreme Fire Hazard Area (EFHA), Moderate Fire Hazard Area (MFHA), or City High Fire Hazard Area (CHFHA).

(a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Less than Significant Impact

Construction

Both the EPA and the U.S. Department of Transportation (DOT) regulate the transport of hazardous waste and material, including transport via highway. The EPA administers permitting, tracking, reporting, and operations requirements established by the Resource Conservation and Recovery Act. The DOT regulates the transportation of hazardous materials through enforcement of the Hazardous Materials Transportation Act. This act includes requirements for container design and labeling, as well as for driver training. The established regulations are intended to track and manage the safe interstate transportation of hazardous materials and waste. Additionally, State and local agencies enforce the application of these acts and coordinate safety and mitigation responses in the case that accidents involving hazardous materials occur. Project construction activities may include refueling and minor maintenance of

construction equipment on-site, which could lead to minor fuel and oil spills. The use and handling of hazardous materials during construction would occur in accordance with applicable federal, State, and local laws, including California Division of Occupational Safety and Health (Cal/OSHA) requirements. However, all construction activities would be subject to the NPDES permit process that requires the preparation of a Stormwater Pollution Prevention Plan (SWPPP), which would be reviewed and approved by the Santa Ana RWQCB, and the latest industry BMPs. Additionally, the Project site is vacant and not included on the list of hazardous waste sites (Cortese List) compiled by the Department of Toxic Substances Control (DTSC) pursuant to Government Code §65962.5 and therefore would not release known hazardous materials due to ground-disturbing activities. Following the required NPDES process and then implementing the latest industry BMPs, the Project would cause a less than significant impact to the public or the environment due to construction activities.

Operations

Project operations include warehouse storage and associated transport such as forklifts. The sites day to day operations would not include products that would require the project to obtain a hazardous material permit and submit a business plan to its local Certified Unified Program Agency (CUPA). Therefore, a less than significant impact would occur.

(b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less than Significant. No structures exist onsite. The demolition work assumed as part of the construction impacts for the project already occurred in 2021 pursuant to emergency orders, as further explained in Section 2.3. No demolition of any ~~existing~~ additional structures would occur. As such, no demolitions hazardous building materials are anticipated to occur onsite. As noted above, the Project site is not part of a hazardous/spill site as noted by EnviroStor. As such, the potential for the creation of a significant hazard to the public or the environment is low. Therefore, the Project would have a less than significant impact.

(c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less than Significant. No schools are located within ¼ mile of the proposed Project. The nearest school is Monterey Elementary School, located approximately 1.5 miles Northeast. As discussed above in Responses (a) and (b), the Project is not anticipated to generate significant hazardous materials impacts. As discussed in the Air Quality Assessment in Appendix A, ~~the Project's Health Risk Assessment determined that~~ the Project will not impact nearby sensitive receptors. Therefore, the Project would have a less than significant impact.

(d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

No Impact. The Project site is not included on the EnviroStor list of hazardous waste sites (Cortese List) compiled by the DTSC pursuant to Government Code §65962.5. Therefore, the Project would have no impact.

(e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the Project area?

Less than Significant. The Project site is not within an airport land use plan. The nearest airport is the San Bernardino International Airport which is located approximately 1.5 miles to the East. Additionally, the Project would be consistent with MC §19.20.015 Noise Standards. Therefore, a less than significant impact would occur.

(f) Impair implementation of an emergency response plan or emergency evacuation plan?

Less than Significant. The City of San Bernardino adopted an Emergency Management Plan to identify evacuation routes, emergency facilities, and City personnel and equipment available to effectively deal with emergency situations. No revisions to the adopted Emergency Management Plan would be required as a result of the proposed Project. Additionally, San Bernardino County Consolidated Fire District (SBCFD) is responsible for planning emergency response for the City, maintaining the emergency operations plan (EOP), and operating the City's Emergency Operations Center. The City's EOP anticipates that all major streets within the City would serve as evacuation routes. Highways and arterial streets that connect to the major freeways, including Interstate 10 (I-10), would serve as potential evacuation routes in the event of an unusual emergency situation.

The Proposed Project would ensure that the minimum right-of-way widths on City streets would be maintained during construction and operations, which would continue to ensure that various evacuation routes are accessible. Individual project review by the City including the SBCFD would also be required. The Project would incorporate all applicable design and safety requirements in the California Building and Fire Codes during construction activities. Access to the Project site would be via four driveways. Refer to Section 2.0, Project Description for a detailed description. All driveways would allow for emergency vehicle ingress and egress. However, an additional gated entrance with a knock box would be located along the west access road/Industrial Parkway. The City will ensure emergency access and/or the need for signed detours during any road closure through the encroachment permit process required before any work can be done in the City right of way. Design and circulation access would adhere to all applicable

requirements from the City and San Bernardino County Fire District. Therefore, impacts to an emergency response plan would be less than significant.

(g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

No Impact. As outlined above, although the Project site is approximately 1.5-miles and 3.0-miles from the nearest Moderate Fire Hazard Area (MFHA) and the Extreme Fire Hazard Area (EFHA) areas, respectively, the Project site is not mapped for fire risk. Fire hazard areas are located predominately in the foothills of the San Bernardino Mountains to the north and west. Therefore, the proposed Project would not expose people or structures to a risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. No impact would occur.

Hydrology and Water Quality

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
10. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?			X	
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?			X	
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:			X	
i. Result in substantial erosion or siltation on- or off-site			X	
ii. Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?			X	
iii. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			X	

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			X	
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			X	

Water Providers

The San Bernardino Valley Water Management District (SBVWMD) prepared the Urban Water Management Plan (Plan) which is a tool that provides a summary of anticipated supplies and Groundwater The SBMWD provides domestic water for the City and unincorporated areas of San Bernardino County as well as back-up to the City of Loma Linda. Water service is provided for single-family, multiple-family, commercial, light industrial, governmental, and landscaping purposes. Other water agencies in the general area include East Valley Water District on the east, Redlands Mutual, Loma Linda Municipal, Riverside, and Colton water providers to the south, and West San Bernardino and Rialto to the west. Figure U-2 of the City's General Plan shows the service boundaries of the water providers in the planning area. Since the City has no jurisdiction over water supply, transmission, distribution, and storage facilities administered by other entities, this discussion addresses facilities owned and maintained by the City. Groundwater from the Bunker Hill Basin provides 100 percent of water for the SBMWD, which is an adjudicated groundwater basin shared with 20 other local public and private suppliers. Groundwater withdrawals from the Bunker Hill Basin is closely monitored and regulated by the Western-San Bernardino Watermaster and stakeholder agencies. While groundwater is the principal source of supply for the City.

Flooding

According to the Federal Emergency Management Administration (FEMA) Flood Insurance Rate Map (FIRM) Panel 06071C7930J, dated September 2, 2016, the Project site is located in Zone X. Flood Zone X is defined by FEMA as the area determined to be outside the 500-year flood. No portion of the site is located within the special flood hazard area inundated by the 100-year flood.

(a) Violate water quality or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?

Less than Significant. The California Porter-Cologne Water Quality Control Act (§13000 of the California Water Code), and the Federal Water Pollution Control Act Amendment of 1972 (also referred to as the Clean Water Act [CWA]) require comprehensive water quality control plans be developed for all waters within the State of California. The Project site is located within the jurisdiction of the Santa Ana RWQCB.

~~Demolition and~~ Construction

Construction of the proposed Project would involve grading, paving, utility installation, building construction, and landscaping activities, which would result in the generation of potential water quality pollutants such as silt, debris, chemicals, paints, and other solvents with the potential to adversely affect water quality. As such, short-term water quality impacts have the potential to occur during construction of the proposed Project in the absence of any protective or avoidance measures.

As part of the proposed Project at this time there is no intended utility work with exception of new connections to existing underground utilities. Additionally, two bio-retention basins are proposed as part of the Project to catch runoff for infiltration/treatment purposes. Furthermore, the project will hold existing line and grades, add impervious area and landscaping along with 2 bio-retention basins. This will yield a net negative in pollutants introduced to the public storm water system compared to the existing condition on-site.

The proposed Project would disturb more than one acre of land surface and would, therefore, be required to obtain coverage under the NPDES stormwater program. The City of San Bernardino is a co-permittee under San Bernardino County's NPDES Permit (No. CAS618036), and as such is required to adhere to the County-wide NPDES permit requirements. To minimize water quality impacts during construction, construction activities would be required to comply with a SWPPP consistent with the General Permit for Storm Water Discharge Associated with Construction Activity (Construction Activity General Permit). To obtain coverage, the Project Applicant is required to submit a Notice of Intent prior to construction activities and develop and implement an SWPPP and monitoring plan. The SWPPP identifies erosion-control and sediment-control BMPs that would meet or exceed measures required by the Construction Activity General Permit to control potential construction-related pollutants. Erosion-control BMPs are designed to prevent erosion, whereas sediment controls are designed to trap sediment once it has been mobilized. Typical BMPs include but are not limited to construction scheduling, proper construction equipment staging, hydroseeding, straw mulch, sandbags and silt fences. These requirements would ensure that potential Project impacts related to soil erosion, siltation, and sedimentation remain less than significant and avoid violation to any water quality standards or waste discharge requirements.

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

Less than Significant. The proposed Project's potable water supply would be served by the SBVMWD; refer to Section 19, Utilities and Service Systems, Response 19(b), which notes the anticipated domestic water use from the proposed Project. The SBMWD obtains its water supply from the Bunker Hill Groundwater Basin. The proposed Project does not include new potable groundwater wells. The proposed Project includes construction and operation of a proposed 79,842 sf distribution warehouse with associated commercial landscaping, concrete hardscape, asphalt paving parking. However, the grading for the proposed development will maintain the natural flow pattern of the existing site, draining in the

southwest direction to the maximum extent possible. In the proposed condition storm water will drain into a proposed bio-retention basin and into the existing storm drain system located South of the site on Waterman Avenue.

(c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

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

Less Than Significant Impact. As shown in Exhibit 3, Aerial View, and Exhibit 5 Project Site Photos, the site does not include any streams or rivers which could be altered by the proposed Project. The proposed on-site detention/infiltration basins would limit the release of stormwater from the site, thereby minimizing the potential for substantial erosion or siltation to occur on-site or off-site. Additionally, the Project would comply with Policy 9.4.10 (NPDES), Policy 9.4.11 (BMPs), and BMP Inspection and Maintenance, of the General Plan as referenced in the Geology and Soils Section. Therefore, impacts would be less than significant.

ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?

Less Than Significant. As noted above, the site does not include any streams or rivers which could be altered by the proposed Project. The development of the existing site into the proposed Project will not create any adverse impacts downstream for storm events up to the 100-year storm. There will not be an increase in the existing discharge from the site in both the 10-year and 100-year storm events due to the proposed infiltration basins and the two underground infiltration chamber systems. All water from the proposed Project will sheet flow through the site and be routed into one of two bio-retention basins to mitigate the flows expected from the Project site while allowing stormwater to be treated through bio-retention.

(ii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Less Than Significant. As noted in Response (c)(ii) above, the Project will fully mitigate stormwater runoff such that runoff water will not exceed that of existing conditions and is not otherwise anticipated to exceed the capacity of downstream drainage facilities. As discussed in Response (a) and (c)(iii) above, the proposed onsite retention basins, infiltration and operational BMPs will reduce impacts to less than significant for stormwater runoff water quality pursuant to the WQMP and City Municipal Code requirements.

(d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundations?

Less than Significant. The Project site is located approximately 60 miles inland from the Pacific Ocean. Given the distance from the coast, the Project site does not have the potential to be inundated by a large, catastrophic tsunami. No steep slopes are in the Project vicinity; therefore, the risk of mudflow is insignificant. Additionally, the Project site is not located in flood path of the Seven Oaks Dam. Moreover, FEMA identifies the Project area as Zone X,an area identified as having a 0.2 percent chance of flood. Additionally, the geology study concluded that no signs of flooding or erosion were observed during the field investigation. Impacts from flooding, tsunami, or seiche potentially releasing pollutants are less than significant.

(e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than Significant. The proposed Project's potable water supply would be served by the SBMWD. The SBMWD obtains its water supply from the Bunker Hill Groundwater Basin. The proposed Project does not include any uses which involve potable groundwater wells. Furthermore, the Bunker Hill basin is not currently listed as a critically over-drafted basin or a medium or high priority basin under the State's Sustainable Groundwater Management Act (SGMA).

As discussed in Response (b), the Project's water demand is not otherwise anticipated to result in significant groundwater impacts. As discussed in Response (a) above, the Project is anticipated to result in less than significant water quality impacts, either during construction or operation and would not obstruct implementation of a water quality control plan or sustainable groundwater management plan.

Land Use and Planning

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
11. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?			X	
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?			X	

As shown in Table 1, Existing Land Use, General Plan Land Use and Zoning Designations, the Project site currently contains 3 parcels. As designated by the City's Zoning Code, the parcels have a Office Industrial Park (OIP) Zoning district and ~~a Commerical~~ an Industrial General Plan land use designation.

Although the current zoning allows for similar uses as the proposed Project (including an auto service station and restaurants), the Zoning district is proposed to be amended to Industrial Light (IL).

(a) Physically divide an established community?

Less than Significant. As shown in Exhibit 3, Aerial View, the Project site ~~is currently developed with 2 existing warehouses~~ consists of graded dirt areas. The Project site is not part of an established community. There are no trails, easements, or pathways that traverse the site. The proposed Project site is a privately-owned site that would be contained within the property boundaries and will not alter the existing roadway configuration. Once the proposed Project is fully built, it will generally blend in with the mix of surrounding uses along the I-10 corridor and would not physically divide an established community. Therefore, the proposed Project would have a less than significant impact.

Mineral Resources

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
12. MINERAL RESOURCES. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?			X	
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?			X	

The Surface Mining and Reclamation Act of 1975 (SMARA) requires classification of land into MRZs according to the known or inferred mineral potential of the area. Under SMARA, areas are categorized into MRZs as follows:

MRZ-1 Areas where the available geologic information indicates no significant mineral deposits or a minimal likelihood of significant mineral deposits.

MRZ-2 Areas where the available geologic information indicates that there are significant mineral deposits or that there is a likelihood of significant mineral deposits.

However, the significance of the deposit is undetermined.

MRZ-3 Areas where the available geologic information indicates that mineral deposits are inferred to exist; however, the significance of the deposit is undetermined.

MRZ-4 Areas where there is not enough information available to determine the presence or absence of mineral deposits.

A large portion of the City of San Bernardino is designated as Mineral Resource Zone-2 (MRZ-2) and smaller portions are designated as MRZ-1. Other areas of the City are not mapped. The Project site is within an MRZ-2 zone. The General Plan designates MRZ-2 zones as having a high potential for mineral resources. However, the California Data Basin for Mineral Resources, which gets its data from the California Geological Survey, does not designate the Project site as site containing mineral resources area. Additionally, neither the Project site nor the surrounding area is used for mining purposes. As such, the Project site is not designated for mineral resource recovery and does not contain any known mineral resources and is not used for mining or mineral production.

(a & b) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? And result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

Less than Significant. The Project site is within an MRZ-2, meaning significant mineral deposits or likelihood of significant mineral deposits exist; however, the significance of the deposit is undetermined. Implementation of the proposed Project would not deplete mineral deposits or involve mining activities. Furthermore, the Project site is not located in an area identified as a locally important mineral resource recovery site and is not a mining area. The proposed Project would not result in the loss of availability of a known mineral resource. Impacts would be less than significant.

Noise

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
13. NOISE. Would the project:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?			X	
b) Generation of excessive ground borne vibration or ground borne noise levels?			X	
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?			X	

A Noise Technical Memorandum was prepared by Vista Environmental for the project on October 6, 2023. The report is available in Appendix H to this IS/MND. The report further supports the conclusion in the draft IS/MND that both short term construction and long term operational impacts would have a less than significant impact.

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity and that interferes with or disrupts normal activities. The human environment is generally characterized by a certain consistent noise level that varies by area. This is called ambient, or background noise. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, perceived importance of the noise and its appropriateness in the setting; time of day and type of activity during which the noise occurs, and sensitivity of the individual.

Sound is a physical phenomenon consisting of vibrations that travel through a medium, such as air, and are sensed by the human ear. Sound is generally characterized by several variables, including frequency and intensity. Frequency describes the sound's pitch and is measured in cycles per second, or hertz (Hz). Intensity describes the sound's loudness and is measured in decibels (dB). A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB. Sound levels above about 120 dB begin to be felt inside the human ear as discomfort and eventually as pain at still higher levels. The minimum change in the sound level of individual events that an average human ear can detect is about 3 dB. Decibels are measured using a logarithmic scale; thus, the average person perceives a change in sound level of about 10 dB as a doubling (or halving) of the sound's loudness. This relation holds true for sounds of any loudness.

The normal human ear can detect sounds that range in frequency from about 20 Hz to 20,000 Hz. However, all sounds in this wide range of frequencies are not heard equally well by the human ear, which is most sensitive to frequencies in the range of 1,000 Hz to 4,000 Hz. This frequency dependence can be taken into account by applying a correction to each frequency range to approximate the human ear's sensitivity within each range. This is called A-weighting and is commonly used in measurements of community environmental noise. The A-weighted sound pressure level (abbreviated as dBA) is the sound level with the "A-weighting" frequency correction. In practice, the level of a noise source is conveniently measured using a sound level meter that includes a filter corresponding to the dBA curve.

Because community noise fluctuates over time, a single measure called the Equivalent Sound Level (Leq) is often used to describe the time-varying character of community noise. The Leq is the energy-averaged A-weighted sound level during a measured time interval and is equal to the level of a continuous steady sound containing the same total acoustical energy over the averaging time period as the actual time-

varying sound. It is often desirable to know the acoustic range of the noise source being measured. This is accomplished through the Lmax and Lmin indicators, which represent the root-mean-square maximum and minimum noise levels obtained during the measurement interval. The Lmin value obtained for a particular monitoring location is often called the “acoustic floor” for that location.

To describe the time-varying character of environmental noise, the statistical noise descriptors L10, L50, and L90 are commonly used. They are the noise levels equaled or exceeded during 10, 50, and 90 percent of a stated time, respectively. Sound levels associated with L10 typically describe transient or short-term events, whereas levels associated with L90 describe the steady-state (or most prevalent) noise conditions.

Another sound measure known as the Community Noise Equivalent Level (CNEL) is an adjusted average A-weighted sound level for a 24-hour day. It is calculated by adding a 5-dB adjustment to sound levels during evening hours (7:00 p.m. to 10:00 p.m.) and a 10-dB adjustment to sound levels during nighttime hours (10:00 p.m. to 7:00 a.m.). These adjustments compensate for the increased sensitivity to noise during the typically quieter evening and nighttime hours. The CNEL is used by the State of California and the City to evaluate land use compatibility with respect to transportation noise.

The City’s Noise Ordinance (19.20.030.15 of the Development Code) specifies that no exterior noise level shall exceed 65 dBA and no interior noise level shall exceed 45 dBA in residential areas. The City does not specify noise level limits for uses other than residential.

Additionally, the City’s Municipal Code (8.54.020 of the Municipal Code) prohibits the operation or use between the hours of 10:00 p.m. and 8:00 a.m. of any pile driver, steam shovel, pneumatic hammers, derrick, steam or electric hoist, power-driven saw, or any other tool or apparatus, the use of which is attended by loud and excessive noise, except with the approval of the City.

Furthermore, City Municipal Code Section 8.54.070 “Disturbances from Construction Activity” shall be adhered to. This states that “No person shall be engaged or employed, or cause any other person to be engaged or employed, in any work of construction, erection, alteration, repair, addition, movement, demolition, or improvement to any building or structure except within the hours of 7:00 a.m. and 8:00 p.m. Any of the above activities laid out above shall halt during “nighttime hours” defined as the time between 8:00 p.m. and 7:00 a.m.

Existing Noise Environment

Some land uses are considered sensitive to noise. Noise-sensitive receptors are associated with indoor or outdoor activities subject to stress or significant interference from noise, such as residential dwellings, transient lodging, dormitories, hospitals, educational facilities, public assembly facilities, amphitheaters, playgrounds, congregate care facilities, childcare facilities, and libraries. Industrial and commercial land uses are generally not considered sensitive to noise. The City of San Bernardino is impacted by various noise sources. Mobile sources of noise, especially cars and trucks, are the most common and significant

sources of noise in most communities. Other sources of noise are the various land uses (i.e., residential, commercial, industrial, and recreational and parks activities) throughout the City that generate stationary-source noise.

Per the Noise Technical Memorandum in Appendix H, in order to determine the existing noise levels, two short-term (15 minute) ambient noise measurements were taken on the project site between 12:11 p.m. and 12:47 p.m. on Thursday, September 21, 2023. The field survey noted that noise within the proposed project area is generally characterized by vehicles traveling on Waterman Avenue and Central Avenue. The results of the noise level measurements are presented in Table 10 below.

Table 10 – Existing (Ambient) Noise Measurement Results

Site No.	Description	Primary Noise Sources	Start Time of Measurement	Measured Noise Level	
				dBA Leq	dBA Lmax
1	Located on the southeastern most paved parking space on the project site, approximately 50 feet north of Central Avenue centerline.	Vehicles on Central Avenue	12:11 p.m.	61.8	76.2
2	Located near the northwest corner of the project site, approximately 55 feet east of Waterman Avenues centerline.	Vehicles on Waterman Avenue	12:32 p.m.	68.9	82.4

Notes:
Noise measurements taken with a Larson-Davis Model 831 Type 1 precision sound level meter on Thursday, September 21, 2023

(a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?

Less than Significant.

Short-Term Construction Noise Impacts

Construction noise typically occurs intermittently and varies depending on the nature or phase of construction (e.g., land clearing, grading, excavation, paving). Noise generated by construction equipment, including earthmovers, material handlers, and portable generators, can reach high levels. The Project site is located adjacent to the I-10, Waterman Avenue and Central Avenue with high ambient noise levels. ~~The nearest sensitive receptors are single-family residence located 175 feet to the East. Construction noise generated on the Project site is not anticipated to affect exterior noise levels of sensitive receptors~~. Construction activities would include site preparation, grading, building construction, paving, and architectural coating. Such activities would require graders, scrapers, and tractors during site preparation; graders, dozers, and tractors during grading; cranes, forklifts, generators, tractors, and welders during building construction; pavers, rollers, mixers, tractors, and paving equipment during paving; and air compressors during architectural coating. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 to 4 minutes at lower power settings. Other primary sources of acoustical disturbance would be random incidents, which would last less than one minute (such as dropping large pieces of equipment or the hydraulic movement

of machinery lifts). Noise generated by construction equipment, including earthmovers, material handlers, and portable generators, can reach high levels. ~~Typical noise levels associated with individual construction equipment are listed in Table 10, Typical Noise Levels Generated by Construction Equipment, for informational purposes~~.

The noise impacts from construction of the proposed project have been analyzed through use of the FHWA's Roadway Construction Noise Model (RCNM). Table 11 below provides a list of the construction equipment anticipated to be used for each phase of construction as detailed in the *Air Quality and Greenhouse Gas Emissions Impact Analysis Amazing 34 Warehouse Project* (Air Quality Analysis), prepared by Vista Environmental, September 15, 2021.

Table 11 – Construction Equipment Noise Emissions and Usage Factors

Equipment Description	Number of Equipment	Acoustical Use Factor[1] (percent)	Spec 721.560 Lmax at 50 feet[2] (dBA, slow[3])	Actual Measured Lmax at 50 feet[4] (dBA, slow[3])
Demolition				
Concrete/Industrial Saw	1	40	85	82
Excavators	3	40	85	81
Rubber Tired Dozers	2	40	85	82
Site Preparation				
Crawler Tractor	4	40	84	N/A
Rubber Tired Dozer	3	40	85	82
Grading				
Crawler Tractor	3	40	84	N/A
Excavator	1	40	85	81
Grader	1	40	85	83
Rubber Tired Dozer	1	40	85	82
Building Construction				
Crane	1	16	85	81
Forklift (Gradall)	3	40	85	83
Generator	1	50	82	81
Tractor, Loader or Backhoe	3	40	84	N/A
Welder	1	40	73	74
Paving				
Cement & Mortar Mixer	2	50	80	80
Paver	1	50	85	77
Paving Equipment	2	50	85	77
Roller	2	20	85	80
Tractor, Loader or Backhoe	1	40	84	N/A
Architectural Coating				
Air Compressor	1	40	80	78

Notes:
[1] Acoustical use factor is the percentage of time each piece of equipment is operational during a typical workday.
[2] Spec 721.560 is the equipment noise level utilized by the RCNM program.
[3] The "slow" response averages sound levels over 1-second increments. A "fast" response averages sound levels over 0.125-second increments.
[4] Actual Measured is the average noise level measured of each piece of equipment during the Central Artery/Tunnel project in Boston, Massachusetts primarily during the 1990s.
Source: Federal Highway Administration, 2006.

Table 11 also shows the associated measured noise emissions for each piece of equipment from the RCNM model and measured percentage of typical equipment use per day. Construction noise impacts to the nearby sensitive receptors have been calculated according to the equipment noise levels and usage

factors listed in Table 11 and through use of the RCNM. For each phase of construction, all construction equipment was analyzed based on being placed in the middle of the project site, which is based on the analysis methodology detailed in FTA Manual for a General Assessment. However, in order to provide a conservative analysis, all equipment was analyzed, instead of just the two noisiest pieces of equipment as detailed in the FTA Manual. These assumptions represent a worst-case noise scenario as construction activities would routinely be spread throughout the construction site further away from noise-sensitive receptors. In addition, noise generated during the construction, paving, and painting stages, which have the potential to occur simultaneously, were added together to provide a composite construction noise level.

The construction activities for the project were anticipated to include demolition of the foundations and parking lots, site preparation and grading of the project site, building construction of the proposed warehouse building, paving of the onsite driveways and parking areas, sidewalks and hardscapes, and application of architectural coatings.

Section 8.54.060(I) of the Municipal Code exempts construction noise from the City noise standards. Section 8.54.070 of the Municipal Code restricts construction activities from occurring between 8:00 p.m. and 7:00 a.m. However, the City construction noise standards do not provide any limits to the noise levels that may be created from construction activities during the allowable hours of construction and even with adherence to the City standards, the resultant construction noise levels may result in a significant substantial temporary noise increase to the nearby residents.

In order to determine if the proposed construction activities would create a significant substantial temporary noise increase, the National Occupational Safety and Health Administration (OSHA) provides a construction noise exposure standard of 85 dB, which has been utilized in this analysis.

Construction noise impacts to the nearby homes have been calculated through use of the RCNM and the parameters and assumptions are detailed above. The results are shown below in Table 12.

Table 12 – Construction Noise Levels at the Nearby Homes

	Construction Noise Level (dBA Leq) at:		
Construction Phase	**Single-Family Home to East[1]**	**Multi-Family Homes to North[2]**	**Single-Family Home to Southeast[3]**
Demolition	71	70	70
Site Preparation	71	70	70
Grading	70	70	69
Building Construction	72	71	70
Paving	69	68	68
Painting	58	58	57
OSHA Construction Noise Thresholds	**85**	**85**	**85**
Exceed Thresholds?	**No**	**No**	**No**

[1] The single-family home to east is located as near as 300 feet from the center of the project site.
[2] The multi-family homes to north is located as near as 320 feet from the center of the project site.
[3] The single-family home to southeast is located as near as 340 feet from the center of the project site.
Source: RCNM, Federal Highway Administration, 2006

Table 12 shows that greatest construction noise impacts would occur during the building construction phase, with a noise level as high as 72 dBA Leq at the nearest home to the east, 71 dBA Leq at the nearest homes to the north, and 70 dBA Leq at the nearest home to the southeast. The calculated construction noise levels are within the OSHA construction noise standard of 85 dBA for the nearby homes. Therefore, through adherence to the limitation of allowable construction times provided in Section 8.54.070 of the Municipal Code, construction-related noise levels would not exceed any standards established in the General Plan or Noise Ordinance nor would construction activities create a substantial temporary increase in ambient noise levels from construction of the proposed project. Impacts would be less than significant.

Long-Term Operational Noise Impact

Onsite Noise Impacts

The operation of the project may create an increase in onsite noise levels from truck operations, including truck loading/unloading activities, rooftop mechanical equipment, forklift activities, and automobile parking lot activities.

Section 19.20.030(15) of the Municipal Code limits the noise created from on the project site to 65 dBA at the nearby residential areas. In order to determine the noise impacts from the operation of rooftop mechanical equipment, automobile parking lots, forklifts, and truck loading/unloading activities, reference noise measurements were taken of each noise source. The noise levels at the nearby homes were calculated based on standard geometric spreading of noise, which provides an attenuation rate of 6 dB per doubling the distance between source and receptor. The operational noise levels were calculated at the nearby homes and the results are shown in Table 13.

Table 13 – Operational Noise Levels at the Nearby Homes

	Home to East		Homes to North		Home to Southeast	
Noise Source	**Source to Home (feet)**	**Noise Level (dBA Leq)**	**Source to Home (feet)**	**Noise Level (dBA Leq)**	**Source to Home (feet)**	**Noise Level (dBA Leq)**
Rooftop Equipment[1]	140	43.7	275	37.8	170	42.0
Auto Parking Lot[2]	80	39.0	115	35.9	265	28.6
Onsite Truck Operations[3]	100	43.3	135	40.7	135	40.7
Forklift[4]	250	46.4	135	51.8	450	41.3
Combined Noise Level		**49.9**		**52.4**		**46.2**
City Residential Exterior Noise Standard		**65**		**65**		**65**
Exceed City Noise Standard?		**No**		**No**		**No**

Notes:
[1] Rooftop equipment is based on a reference noise measurement of 66.6 dBA at 10 feet.
[2] Parking lot is based on a reference noise measurement of 63.1 dBA at 5 feet.
[3] Onsite truck operations is based on a reference noise measurement of 63.3 dBA at 10 feet.
[4] Forklift activities is based on a reference noise measurement of 74.4 dBA at 10 feet.

Table 13 shows that the proposed project's worst-case operational noise from the simultaneous operation of all noise sources on the project site would create a noise level as high as 52.4 dBA at the nearest homes to the north. The worst-case operational noise levels are within the City's residential exterior noise

standard of 65 dBA. Since homes typically provide 20 dB or more of exterior to interior noise reduction, the operational noise levels would also be below the City's residential interior noise standard of 45 dBA. Therefore, the onsite operational noise impacts would be less than significant

(b) Generation of excessive ground borne vibration or ground borne noise levels?

Less than Significant. Project construction can generate varying degrees of ground-borne vibration, depending on the construction procedure and the construction equipment used. Operation of construction equipment generates vibrations that spread through the ground and diminish in amplitude with distance from the source. The effect on buildings located in the vicinity of the construction site often varies depending on soil type, ground strata, and construction characteristics of the receiver building(s). The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibration at moderate levels, to slight damage at the highest levels. Ground-borne vibrations from construction activities rarely reach levels that damage structures.

The Federal Transit Administration (FTA) has published standard vibration velocities for construction equipment operations. In general, the FTA architectural damage criterion for continuous vibrations (i.e., 0.20 inches per second) appears to be conservative. The types of construction vibration impact include human annoyance and building damage. Human annoyance occurs when construction vibration rises significantly above the threshold of human perception for extended periods of time. Building damage can be cosmetic or structural. Typical vibration produced by construction equipment is illustrated in Table 14, Typical Vibration Levels for Construction Equipment.

Table 14: Typical Vibration Levels for Construction Equipment

Equipment	Approximate Peak Particle Velocity Distance (Inches Per Second)	
	25 Feet	90 Feet
Large Bulldozer	0.089	0.013
Caisson drilling	0.089	0.013
Loader Trucks	0.076	0.011
Rock Breaker	0.059	0.008
Jackhammer	0.035	0.005
Small Bulldozer/Tractor	0.003	0.0004
Notes: Calculated using the following formula: PPVequip = PPVref x (25/D)1.5; where PPVequip= the peak particle velocity in inches per second of the equipment adjusted for the distance; PPVref= the reference vibration level in inches per second from Table 7-4 of the FTA Transit Noise and Vibration Impact Assessment Manual; D=distance from equipment to receiver.		

The nearest sensitive receptors are the residential uses approximately 175 feet to the East and the nearest structures, commercial and retail to the West and are approximately 90 feet or more from the active construction zone. Using the calculation shown in Table 9, at 90 feet the vibration velocities from construction equipment would not exceed 0.016 in/sec PPV, which is below the FTA's 0.20 PPV threshold. It is also acknowledged that construction activities would occur throughout the Project site and would not

be concentrated at the point closest to the nearest residential structure. Therefore, vibration impacts associated with the proposed Project would be less than significant.

(c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less than Significant. The nearest airport is the San Bernardino International Airport, located approximately 1.5 miles East of the Project site. ~~There are no other airports within two miles of the project site~~. The California Airport Noise Regulations in accordance with the State Aeronautics Act of the California Code of Regulations delineates parameters for aircraft noise and land use compatibility. The California Airport Noise Regulations state that the level of Noise acceptable for persons residing in the vicinity of an Airport is established as a Community Noise Equivalent Level (CNEL) Value of 65 decibels (dB). The project locations is outside of the CNEL65 Contour interval as determined in the Eastgate 2024 Airport Noise Contour analysis. Therefore, a less than significant impact would occur.

Population and Housing

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
14. POPULATION AND HOUSING. Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or othe infrastructure)?			X	
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?				X

Environmental Setting

According to the California Department of Finance (DOF), in 2019, the City of San Bernardino had a population of 218,992 residents with approximately 65,677 homes.42 The vacancy rate for housing in the City is estimated at 8.4 percent.

(a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less than significant impact. Population growth in the City of San Bernardino has continuously been on the rise since 2010. In 2010, the population in the City was 209,924 people and approximately 218,992

in 2019. Household units have seen a slight growth from approximately 65,401 in 2010 to about 65,677 in 2019.The proposed Project involves the development of a new warehouse distribution center and does not include the construction of new homes or the extension of roads. Therefore, it would not directly induce population growth in the area. The Project would generate temporary construction employment. The California Employment Development Department (EDD) estimates the August 2020 unemployment rate to be over 13 percent in all sectors suggesting that there is an adequate pool of labor to meet the construction needs of the project. In addition, construction workers generally travel from work site to work site and do not relocate for a specific project of average size, such as the Project.

(b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The proposed Project site is vacant. No structures exist onsite and no people or housing will be displaced. As a result, the construction of replacement housing would not be necessary. No impact would occur.

Public Services

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
15. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or need for new or physical altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services?				
a) Fire Protection?			X	
b) Police Protection?			X	
c) Schools?				X
d) Parks?				X
e) Other Public Facilities?				X

(a) Fire Protection?

Less than Significant. San Bernardino County Fire East Valley Division provides fire protection services to the City, inclusive of the Project site. The closest fire stations to the Project site are Station #221 at 200 East 3rd St. The former buildings and proposed uses would be very similar, just consolidated from 2 warehouses into 1. ~~Because of the nature of the existing site, compared to the proposed Project,~~ It is anticipated that the proposed Project would not generate more calls or need for fire protection services than

what is currently provided to the site. Moreover, the Project will be constructed to meet the current CBC requirements and the Project is subject to fire suppression development impact fees and other standards and conditions required by the City and County Fire. Fire protection ingress and egress will be available via three driveways. A standard condition of approval for the proposed Project includes compliance with the requirements of the San Bernardino County Fire Department and the payment of standard City development impact fees, which include a fee for fire service impacts. The proposed Project is not expected to result in activities that create unusual fire protection needs. Impacts on fire services is anticipated to be less than significant.

(b) Police Protection?

Less than Significant. Police protection services would be provided by the City of San Bernardino Police Department (SBPD). The Police Department has 225 sworn officers and 150 non-sworn employees. The closest police station is located at 710 North D Street, approximately 2.0 miles Northwest of the Project site. The Project is in an urbanized area and would be required to adhere to all standards and conditions required by the City and the SBPD. For the purpose of establishing acceptable levels of service, the Sheriff's Department strives to maintain a recommended servicing of 1.0 sworn law enforcement personnel for every 820 residents. As discussed in Section 14, Response (a), Population and Housing, there will be no population growth associated with the proposed Project. The propose Project is not expected to substantially increase the demand for police protection services. With the payment of the required development impact fees, which include a fee for police service impacts to offset potential demand associated with development, the Project would have a less than significant impact on police protection.

(c) Schools?

No Impact. The nearest school is Bob Holcomb Elementary School. The proposed Project would not induce population growth, as such the need for the construction of additional school facilities would not be required. Additionally, the payment of school fees is mandated, and the State has determined that payment of these fees is deemed sufficient to offset any potential impacts from the Project. Thus, the proposed Project will not generate a substantial increase in elementary, middle, or high school students. Therefore, any impacts are considered less than significant.

(d) Parks?

No Impact. Due to the commercial nature of the project, no new residents would be generated that would be likely to impact or create a need for additional local parks or other public facilities. The proposed Project would construct a facility serving passerby traffic, would not displace any existing park facilities, and would not result in demand on existing recreational facilities. Therefore, there would be no impact to park services.

(e) Other public facilities?

No Impact. The proposed Project would not result in or induce significant population growth because the proposed Project does not propose residential units that could introduce new population in the area; therefore, no impacts to other public facilities would occur from Project implementation.

Recreation

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
16. RECREATION. Would the project:				
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X	
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?			X	

The City of San Bernardino Parks, Recreation & Community Services Department is responsible for the development, maintenance, and operation of City facilities. The Department offers 38 parks (includes open spaces and ballfields), 31 playground areas and several park locations with walking tracks for your recreational activities.

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

No Impact. See Response 15(d), above and 16(b), below. The entire Project site is privately owned. The proposed Project is a ~~truck and auto travel center~~ fashion warehouse, would mainly serve passerby traffic, and would not induce population growth or otherwise impact recreational facilities. No impact to recreational facilities are anticipated.

(b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The proposed Project does not involve construction of recreational facilities and would not require recreational facilities. The Project would not introduce population growth and therefore would not increase the use of existing neighborhood and regional parks or other recreational facilities. While overnight parking will be permitted on the site, the parking is limited to trucks, and this is unlikely to include children. In addition, any overnight truck parking would be limited to brief stops during transit and is not intended for recreational parking. No impacts would occur.

Transportation

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
17. TRANSPORTATION. Would the project:				
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle and pedestrian facilities?			X	
b) Conflict or be inconsistent with CEQA Guidelines Section 15064.4, subdivision (b)?			X	
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
d) Result in inadequate emergency access?			X	

The following VMT Screening Analysis has been prepared for the proposed Amazing 34 Warehouse (Project), which is located at 791 South Waterman Avenue in the City of San Bernardino.

PROJECT OVERVIEW

~~It is our understanding that~~ The Project is to consist of the development of 89,475 square feet (SF) of warehouse use, replacing ~~a currently~~ the former vacant 47,521 SF industrial warehouse buildings that were demolished in 2021 pursuant to emergency orders, as further explained in Section 2.3.

BACKGROUND

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, which require all lead agencies to adopt VMT as a replacement for automobile delay-based level of service (LOS) as the new measure for identifying transportation impacts for land use projects. This statewide mandate went into effect July 1, 2020. It is our understanding that the City of San Bernardino utilizes the San Bernardino County Transportation Authority (SBCTA) VMT Screening Tool (Screening Tool). The Screening Tool allows users to input an assessor's parcel number (APN) to determine if a project's location meets one or more of the screening thresholds for land use projects as identified in San Bernardino County Transportation Authority (SBCTA) Recommended Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment (SBCTA Guidelines) that addresses both traditional automobile delay-based level of service (LOS) and new VMT analysis requirements. (2) The City of San Bernardino then used the SBCTA Guidelines to develop its City of San Bernardino Traffic Impact Analysis Guidelines (August 2020) (City Guidelines). (3) These guidelines have been used to conduct this screening analysis.

PROJECT SCREENING

The City Guidelines provides details on appropriate screening thresholds that can be used to identify when a proposed land use project is anticipated to result in a less than significant impact without conducting a more detailed project level analysis. Screening thresholds are broken into the following three steps:

- Transit Priority Area (TPA) Screening
- Low VMT Area Screening
- Project Type Screening

A land use project need only to meet one of the above screening thresholds to result in a less than significant impact.

TPA SCREENING

As described in the City Guidelines, projects located within a Transit Priority Area (TPA) (i.e., within ½ mile of an existing "major transit stop" or an existing stop along a "high-quality transit corridor" 2) may be presumed to have a less than significant impact absent substantial evidence to the contrary. However, the presumption may not be appropriate if a project:

- Has a Floor Area Ratio (FAR) of less than 0.75;
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization); or
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

Based on screening tool results, the Project is not located within ½ mile of an existing major transit stop, or along a high-quality transit corridor.

The TPA screening threshold is not met.

LOW VMT AREA SCREENING

The City Guidelines states that "residential and office projects located within a low VMT-generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition, other employment-related and mixed-use land use projects may qualify for the use of screening if the project can reasonably be expected to generate VMT per resident, per worker or per service population that is similar to the existing land uses in the low VMT area." The Screening Tool uses the sub-regional San Bernardino Transportation Analysis Model (SBTAM) to measure VMT performance within individual

traffic analysis zones (TAZ's) within the SBCTA region. The Project's physical location based on the APN is input into the Screening Tool to determine VMT generated by the existing TAZ as compared to the City's impact threshold of "better than General Plan Buildout VMT per service population". The parcel containing the proposed Project was selected and the Screening Tool was run for the Origin-Destination VMT per service population measure of VMT. Based on the Screening Tool results the Project is not located within a low VMT generating zone.

The Low VMT Area screening threshold is not met.

(a, b & d) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadways, bicycle and pedestrian facilities? Conflict or be inconsistent with CEQA Guidelines Section15064.4, subdivision (b)? Result in inadequate emergency access?

PROJECT TYPE SCREENING

Less than significant impact. The City Guidelines identifies that local serving retail projects less than 50,000 SF may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition to local serving retail, other types of local serving uses such as community institutions (public libraries, fire stations, local government, etc.) may also be presumed to have a less than significant impact as their uses are local serving in nature and would tend to shorten vehicle trips. Additionally, City Guidelines states that small projects anticipated to generate low traffic volumes (i.e., 110 daily vehicle trips or less) are presumed to have a less than significant impact absent substantial evidence to the contrary. Vehicle trips anticipated to be generated by the ~~existing~~ former industrial buildings on the project site and proposed land uses on the Project site have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017. The ~~existing~~ former industrial ~~building is~~ buildings were estimated to have generated up to 84 daily vehicle trips. Comparatively, the proposed Project is anticipated to generate 158 daily vehicle trips, which results in a net increase of only 74 daily vehicle trips, which is less than the 110 daily vehicle trip threshold.

Project Type screening threshold is met.

CONCLUSION

Based on our review of applicable VMT screening thresholds, the proposed Project meets the Project Type screening and would therefore be assumed to result in a less than significant VMT impact; no additional VMT analysis is required.

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

Less than significant impact. The project does not propose any new designs that would affect transit within the public right-of-way. Traffic will remain at the current levels. Therefore, a less than significant impact would occur.

Tribal Cultural Resources

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
18. TRIBAL CULTURAL RESOURCES. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or		X		
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		X		

(a & b) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or?

A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe?

Potentially Significant Unless Mitigation Incorporated. On July 9, 2021 Tiffany Clark with PaleoWest Archeology contacted the Native American Heritage Commission to initiate AB52 consultation with the applicable tribes, which include: Agua Caliente Band of Cahuilla Indians, Morongo Band of Mission Indians, Quechan Tribe of the Fort Yuma Reservation, San Manuel Band of Mission Indians, Santa Rosa Band of Cahuilla Indians, Serrano Nation of Mission Indians, and Soboba Band of Luiseno Indians. Letters were sent to San Manuel Band of Mission Indians, Soboba Band of Luiseno Indians and Gabrieleno Band of Mission Indians on November 10th, 2021. Soboba did not respond and Gabrieleno Band of Mission Indians elected to defer to San Manuel Band of Mission Indians on February 1, 2022. San Manuel Band of Mission Indians stated “The proposed project area exists within Serrano ancestral territory and, therefore, is of interest to the Tribe. However, due to the nature and location of the proposed project, and given the CRM

Department's present state of knowledge, SMBMI does not have any concerns with the project's implementation, as planned, at this time." As a result, San Manuel Band of Mission Indians provided their requested mitigation measures (TCR-1 and TCR-2) on February 9, 2022. In the event that any Tribal Cultural Resources be encountered, as defined by CEQA (as amended, 2015) Mitigation Measures TCR-1, and TCR-2 shall be implemented.

Mitigation

TCR-1

The San Manuel Band of Mission Indians Cultural Resources Department (SMBMI) shall be contacted, as detailed in CR-1, of any pre-contact and/or historic-era cultural resources discovered during project implementation, and be provided information regarding the nature of the find, so as to provide Tribal input with regards to significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a cultural resources Monitoring and Treatment Plan shall be created by the archeologist, in coordination with SMBMI, and all subsequent finds shall be subject to this plan. The Plan shall allow for a monitor to be present that represents SMBMI for the remainder of the project, should SMBMI elect to place a monitor on-site.

TCR-2

Any and all archeological/cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the applicant Lead Agency for dissemination to SMBMI. The Lead Agency and/or applicant shall, in good faith, consult with SMBMI throughout the life of the project.

Utilities

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
19. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment, or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			X	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X	
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project projected demand in addition to the provider's existing commitments?			X	
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			X	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?			X	

Water and Wastewater

The City Public Works Department is responsible for the design and construction of wastewater collection facilities in the City. Operation and maintenance of wastewater collection facilities is the responsibility of the Public Services Department. Wastewater collection facilities within the City are owned and operated by four different entities:

- City of San Bernardino (Public Works and Public Services Departments);
- East Valley Water District (EVWD);
- San Bernardino International Airport and Trade Center; and
- City of Loma Linda.

Water services are provided by the SBMWD.46 SBMWD obtains 100 percent of its water from the Bunker Hill Groundwater Basin, a sub-basin of the San Bernardino Basin Area (SBBA). Management of this groundwater basin is coordinated through Valley District.

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

Less than significant impact. ~~The project site is currently developed with 2 existing warehouses of similar use~~. Any extensions of existing utilities will be done on-site, and will not require work within the public right-of-way. Therefore, there will be a less than significant impact.

(b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development du\ring normal, dry and multiple dry years?

Less than Significant. The San Bernardino Municipal Water Department (SBMWD) provides domestic water for the City and unincorporated areas of San Bernardino County as well as back-up to the City of Loma Linda. Water service is provided for single-family, multiple-family, commercial, light industrial, governmental, and landscaping purposes.

Groundwater from the Bunker Hill Basin is the only source of water supply for the SBMWD and management of this groundwater basin is coordinated through Valley District. It has the capacity to provide 70,000 acre-feet per year of water from groundwater. The basin, similar to a very large underground lake, is replenished naturally by local precipitation and by stream flow from rain and snowmelt from the San Bernardino Mountains and SBMWD. While groundwater is the principal source of supply in the area, other sources of water supply include the State Water Project (SWP), the Santa Ana River, Mill Creek, and Lytle Creek.

Normal Water Year

The Normal/Average water year is a year in the historical sequence that most closely represents median runoff levels and patterns. Table 15, Normal Year Supply and Demand Comparison (AF), demonstrates that SBMWD anticipates adequate supplies for years 2020 to 2040 under normal conditions. The single-dry year is generally the lowest annual runoff for a water source in the record.

Table 15: Normal Year Supply and Demand Comparison (AF)

Totals	2020	2025	2030	2035	2040
Supply Totals	58,271	66,830	75,466	84,082	90,582
Demand Totals	45,969	49,094	53,339	57,623	59,449
Difference	12,302	17,736	22,127	26,459	31,133
Source: 2015 San Bernardino Valley Regional Urban Water Management Plan, page 10-25.					

Single Dry Year

The single-dry year may differ for various sources. In Table 16, Single Dry Year Supply and Demand Comparison (AF), demands are assumed to be 10 percent greater in a single-dry year than during a normal year. Table 16 demonstrates the SBMWD anticipates adequate supplies for years 2020 to 2040 under single-dry year conditions.

Table 16: Single Dry Year Supply and Demand Comparison (AF)

Totals	2020	2025	2030	2035	2040
Supply Totals	58,271	66,830	75,466	84,082	90,582
Demand Totals	50,566	54,003	58,673	63,386	65,394
Difference	7,705	12,872	16,793	20,696	25,188
Source: 2015 San Bernardino Valley Regional Urban Water Management Plan, page 10-25.					

Multiple-Dry Years

The multiple-dry year is generally the lowest annual runoff for a three year or more consecutive period. The multiple-dry year period may differ for various sources. In Table 17, Multiple Dry Years Supply and Demand Comparison (AF), demands are assumed to be 10 percent greater in the first year of a multiple-dry year than during an average year. During the second year of a multiple dry year period, demands are expected to be the same as an average year due to conservation and public education efforts. During the third year of a multiple dry year period, demands are expected to decrease 10 percent due to mandatory conservation measures that would be enacted in year three of a multiple dry year period.

Table 17: Multiple Dry Year Supply and Demand Comparison (AF)

	Totals	2020	2025	2030	2035	2040
First Year	Supply Totals	58,271	66,830	75,466	84,082	90,582
	Demand Totals	50,566	54,003	58,673	63,386	65,394
	Difference	7,705	12,872	16,793	20,696	25,188
Second Year	Supply Totals	58,271	66,830	75,466	84,082	90,582
	Demand Totals	45,969	49,094	53,339	57,623	59,449
	Difference	12,302	17,736	22,127	26,459	31,133
Third Year	Supply Totals	58,271	66,830	75,466	84,082	90,582
	Demand Totals	41,372	44,184	48,005	51,861	53,504
	Difference	16,889	22,646	27,461	32,221	37,078
Source: 2015 San Bernardino Valley Regional Urban Water Management Plan, page 10-25.						

As shown on Table 17, SBMWD anticipates adequate supplies for years 2020 to 2040 under multiple-dry year conditions based on current land use projections. The Project's average daily water demand is estimated at 2,005 gallons per day (gpd) based on typical water demand rates published by the California Home Building Foundation. Project water demands would be similar, if not higher, as that anticipated under current site zoning of Office Industrial Park (OIP) which could actually allow a much more intense use, as noted on Table 2, and as such are already factored into local and regional water supply planning. As noted above, SBMWD anticipates adequate water supplies to serve its customers through the current 2040 horizon year. Therefore, impacts are considered less than significant.

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

Less than Significant. The San Bernardino Municipal Water Department (SBMWD) is the wastewater treatment provider for most of the City of San Bernardino and for the Project site. The SBMWD owns and operates the San Bernardino Water Reclamation Plant (SBWRP). The SBWRP treats municipal wastewater generated in the City of San Bernardino, the City of Loma Linda, and East Valley Water District. Sewer collection systems within SBMWD's service area are not operated by the Department, but rather are operated by various agencies, including the County of San Bernardino, City of San Bernardino, City of Loma Linda, and EVWD. Collected wastewater is treated at SBWRP to a secondary treatment level. SBWRP has a current capacity of 33 MGD or 36,948 AFY, but current average annual flow is approximately 29,000 AFY. In accordance with these studies, Table 18 *Current and Projected Wastewater Collection and Treatment*, shows existing and anticipated wastewater collection and treatment at the San Bernardino Water Reclamation Plant.

Table 18: Current and Projected Wastewater Collection and Treatment

	2010	2015	2020	2025	2030	2035	Disposal Method	Treatment Level
San Bernardino Water Reclamation Plan (AFY)	29,000	30,294	31,645	32,793	33,983	35,216	Flow to RIX	Secondary
RIX (AFY)	33,000	34,472	36,010	37,316	38,670	40,073	Discharge to Santa Anna River	Tertiary
Source: San Bernardino Municipal Water Department. 2015. Water Facilities Master Plan Report, page 5-5. Available https://www.sbmwd.org/DocumentCenter/View/683/Section-5-PDF, accessed November 4, 2021.								

Existing infrastructure surrounding the Project site is adequate to convey wastewater without requiring the expansion of the facilities. In addition, the Project will pay applicable connection fees and monthly charges which offset the need for incremental wastewater conveyance and treatment system improvements.Based on this, the proposed Project will have a less than significant impact on the SBMWD's ability to collect and treat the proposed Project's waste stream.

(d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Less than Significant. The City of San Bernardino Refuse and Recycling Division provides collection services to residential and commercial customers for refuse, recyclables, and green waste. Solid waste from construction will be collected and sent to the East Valley Transfer and Recycling Materials Recovery Facility, located at 1150 and 1250 S Tippecanoe Ave, San Bernardino, CA 92408, where it is separated from recyclable materials. Solid waste is then shipped to the Mid-Valley Sanitary Landfill at 2390 N. Alder Avenue in the City of Rialto. The Mid-Valley Sanitary Landfill has a daily permitted throughput of 7,500 tons/day and a remaining capacity of 101,300,000 cubic yards.

(e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant. Solid waste disposal services must follow federal, State, and local statutes and regulations related to the collection of solid waste. Solid waste would be generated during construction and operation of the proposed Project. The Solid Waste Reuse and Recycling Access Act of 1991 requires that adequate areas be provided for collecting and loading recyclable materials such as paper, products, glass, and other recyclables. City of San Bernardino Municipal Code Section 8.24.100 Construction and Demolition Debris Recycling Program regulates solid waste handling and mandates that sufficient receptacles be in place on-site to accommodate refuse and recycling. The proposed Project is an industrial facility which would not involve the production or handling of acutely toxic or otherwise hazardous materials. Municipal Code Section 8.24.100 complies with federal, state and local solid waste regulations. As such, with compliance to Municipal Code Section 8.24.100, a less than significant impact would occur.

Standard Conditions and Requirements

1. As required by City of San Bernardino Municipal Code Section 19.30.110, Underground Utilities, the Project would comply with the installation requirements for undergrounding utilities.

2. As required by City of San Bernardino Municipal Code Section 8.24, Solid Waste Collection, Removal, Disposal, Processing and Recycling of waste must be controlled and regulated through the provisions of this chapter.

Wildfire

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
20. WILDFIRE. Would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?		X		
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from wildlife or the uncontrolled spread of a wildfire?		X		
c) Require the installation or maintenance of associated Infrastructure (such as roads, fuel breaks, emergency water resources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment				X
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?				X

In 2008, CALFIRE will produce Fire Hazard Severity Zone maps for the areas of California where local governments have financial responsibility for wildland fire protection, known as local responsibility areas (LRA). In 2008, the California Building Standards Commission adopted California Building Code Chapter 7A requiring new buildings in Very High Fire Hazard Severity Zones to use ignition-resistant construction methods and materials.

(a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact With Mitigation Incorporated. As previously noted in Checklist Section 9, Hazards and Hazardous Materials, the proposed Project is neither in an EFHA nor in a MFHA. However, according to CALFIRE, northern portions of the City of San Bernardino, including the Project site are designated Very High Fire Hazard Severity Zones (VHFHSZ). CALFIRE designates the Project site to be located in a non-VHFHSZ within the LRA. Development on the Project site would be subject to compliance with the latest CBC.

The City's Emergency Operations Plan (EOP) addresses the City of San Bernardino's planned response to extraordinary emergency situations associated with natural disasters, technological incidents, and national security emergencies. It provides an overview of operational concepts, identifies components of the City's emergency management organization within the Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS). It also describes the overall responsibilities of the federal, state, and county entities for protecting life and property and assuring the overall well-being of the population. Each organization identified in the EOP is responsible for, and expected to develop, implement, and test policies, procedures, instructions, and checklists that reflect cognizance of the emergency management concepts contained herein. Coordinated response and support roles must be defined by these organizations to facilitate the ability to respond to any given incident. The EOP meets the requirements of NIMS for the purposes of emergency management. In addition, Section 12.03.090 of the San Bernardino Municipal Code requires that any lane closure be approved prior to construction. As part of the encroachment permit approval process the City will notify public safety.

The adjacent roadways would continue to provide emergency access to the Project site and surroundings during construction and operations. In addition, implementation of Mitigation Measures **WF-1** and **WF-2**, which require conformance with the CBC and Fire Code, would be implemented. Therefore, impacts are considered less than significant with mitigations incorporated.

MM WF-1 Prior to the issuance of building permits, the Project applicant shall demonstrate, to the satisfaction of the City Building Official and the San Bernardino County Fire Chief, compliance with the latest CBC (Part 2 of Title 24 of the California Code of Regulations) and the latest California Fire Code (Part 9 of Title 24 of the California Code of Regulations), including those regulations pertaining to materials and construction methods intended to mitigate wildfire exposure as described in the CBC and California Residential Code; specifically California Building Code Chapter 7A; California Residential Code Section

R327; California Residential Code Section R337; California Referenced Standards Code Chapter 12-7A; and California Fire Code Chapter 49.

MM WF-2 Prior to the issuance of a certificate of occupancy, the applicant shall demonstrate, to the satisfaction of the City Building Official and the County Fire Chief, compliance with the vegetation management requirements prescribed in California Fire Code Section 4906, including California Government Code Section 51182.

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

Less than Significant Impact With Mitigation Incorporated. As discussed in the City's General Plan EIR, wind impact and wildfire impact have the most impact in the City of San Bernardino north of SR 210 and I-215 along the foothills. Although the Project site is relatively flat, the proposed Project is in the upper half portion of the City which is prone to high winds. However, as noted above in Response (a), the Project site is not located in an EFHA or MFHA, according to the General Plan. As noted above, CALFIRE designates the Project site as a VHFHSZ. Although the Project site is not bounded by open fields or hillsides that could be prone to fire, the general area is prone to fires. As such, the Project would have a less than significant impact with Mitigation Measures WF-1 and WF-2 incorporated.

(c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

No Impact. With the exception of roadway improvements along the property frontage roads, all proposed Project components would be within the boundaries of the Project site, and impacts associated with the development of the Project within this footprint area are analyzed throughout this document. The Project does not represent a significant impact relative to fire risk, as discussed in Response (a) above. The San Bernardino County Fire Department, as part of the City's process, will review all building permit plans for adequate fire suppression, fire access, and emergency evacuation. Adherence to standard City policies reduce the potential to exacerbate fire risk. Therefore, no impact would occur.

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

No Impact. As discussed in Section 7, Geology and Soils, and Section 10, Hydrology and Water Quality, the Project site is not located in a landslide hazard area or a flood plain and no signs of flooding or erosion were visible during the geological study site visit. There are no natural drainage courses located on-site. The Project site is relatively flat and is not located in a landslide-prone zone. Therefore, no impact would occur.

Mandatory Findings of Significance

Environmental Impacts Issues	Potentially Significant Issues	Potentially Significant Unless Mitigation Incorporated	Less Than Significant Issues	No Impact
20. MANDATORY FINDINGS OF SIGNIFICANCE. Would the project:				
a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory		X		
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of the past projects, the effects of other current projects, and the effects of probable future projects.)		X		
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?		X		

(a) Have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less Than Significant With Mitigation Incorporated. All impacts to the environment, including impacts to habitat for fish and wildlife species, fish and wildlife populations, plant and animal communities, and rare and endangered plants and animals, would be less than significant. The cultural evaluation determined that no impacts would occur to historical or archaeological resources; however, for conservative and best practices, mitigation measure **CUL-1** has been incorporated to mitigate impacts. Additionally, ~~tribal consultation is underway and mitigation measures may be added to this section and table below if applicable~~ mitigation measures TCR-1 and TCR-2 have been incorporated to address potential impacts to tribal cultural resources, as requested during tribal consultation. ~~Because of the heavy disturbed existing conditions of the site which is currently used as semi-truck overnight parking site~~ The project site is heavily disturbed and lacks significant plant or wildlife resources (refer to **Exhibit 5**, Project Site Photos). With implementation of Mitigation Measures BIO-1 through BIO-5, no significant impacts ~~it has been concluded that no impact~~ to the environment, fish, or wildlife species would occur. The Project site does not have any trees onsite, nor does it have any streams or water features. The development of the Project site would not limit/eliminate/hinder plant, animal/fish populations. Lastly, because of the existing barren condition of the site and the lack of any structures, no examples of major periods of California history exist on site. As such,

a less than significant impact would occur.

(b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of the past projects, the effects of other current projects, and the effects of probable future projects.)

Less than Significant Impact. The Project's potential significant impacts have all been mitigated to less than significant levels. The IS/MND includes quantitative analysis of the Project's cumulative contribution for air quality, greenhouse gas emissions, and traffic, all of which were determined to not be significant, nor represent a cumulatively considerable contribution to a significant cumulative impact. The Project is not considered growth-inducing, as defined by State CEQA Guidelines (http://ceres.ca.gov/ceqa/guidelines/). The potential cumulative environmental effects of implementing the proposed Project would be less than considerable and thus, less than significant impacts.

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

Less Than Significant Impact. The Project's potential to result in environmental effects that could adversely affect human beings, either directly or indirectly, has been discussed throughout this IS/MND. The Project site is not included on the list of hazardous waste sites (Cortese List) compiled by the DTSC pursuant to Government Code §65962.5. Additionally, no structures are present on-site, and no further demolition would occur beyond the demolition of the former buildings on the project site pursuant to emergency orders, as further discussed in Section 2.3. Although a number of potential impacts to humans were identified, with implementation of the identified mitigation measures and standard conditions and requirements, these impacts are less than significant.

No other environmental effects which could have substantial adverse effect on human beings, directly or indirectly, including air quality, noise, hazard and hazardous materials and wildfire would cause a significant impact with the appropriate Mitigation Measures incorporated. Therefore, a less than significant impact would occur. With required implementation of mitigation measures identified in this IS/MND, construction and operation of the proposed Project would not involve any activities that would result in environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly.

4.0 References

Project Technical Studies:

PaleoWest, July 27,2021. Cultural Assessment.

Urban Crossroads, August 13,2021. VMT Screening Evaluation.

Gonzales Environmental Consulting, July 15, 2021. General Biological Resource Assessment and Habitat Assessment.

GeoMat Testing Laboratories, March 26, 2020. Preliminary Soils Investigation Report.

Vista Environmental, September 15, 2021. Air Quality and Greenhouse Gas Emissions Impact Analysis.

Adkan Engineers, July 27, 2021. Preliminary Water Quality Management Plan.

Vista Environmental, October 6, 2023. City of San Bernardino – Proposed Amazing 34 Warehouse Project Noise Technical Memorandum.

ECORP Consulting, Inc. Environmental Consultants, October 31, 2023. Biological Constraints - Amazing 34 Distribution Center Project in the City of San Bernardino, San Bernardino County, California.

Mitigation Monitoring and Reporting Program

CEQA requires that a reporting or monitoring program be adopted for the conditions of project approval that are necessary to mitigate or avoid significant effects on the environment (Public Resources Code 21081.6). This mitigation monitoring and reporting program is intended to track and ensure compliance with adopted mitigation measures during the project implementation phase. For each mitigation measure recommended in the Draft Initial Study-Mitigated Negative Declaration (IS-MND), specifications are made herein that identify the action required, the monitoring that must occur, and the agency or department responsible for oversight.

Mitigation Monitoring and Reporting Program

Impact Category	Mitigation Measures	Action Required	Implementation Timing	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
Biological Resources	**MM BIO-1 Migratory Birds**: If construction is to occur during the MBTA nesting cycle (February 1-September 30) than a nesting bird survey should be conducted by a qualified biologist. Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) may be considered take and is potentially punishable by fines or imprisonment. Active bird nests should be mapped utilizing a hand-held global positioning system (GPS) and a 300' buffer will be flagged around the nest (500' buffer for raptor nests). Construction should not be permitted within the buffer areas while the nest continues to be active (eggs, chicks, etc.).		Prior to issuance of grading permits for the project.	City of San Bernardino – Community and Economic Development Department – Planning Division.			

	MM BIO-2 Burrowing Owls :A 30-day pre-construction survey for burrowing owls is required prior to initial ground-disturbing activities (including but not limited to vegetation clearing, clearing and grubbing, tree removal, site watering) to ensure that no owls have colonized the site in the days or weeks preceding the ground-disturbing activities. If burrowing owls have colonized the project site prior to the initiation of ground-disturbing activities, the project proponent will immediately inform San Bernardino County and the Wildlife Agencies, and will need to coordinate further with San Bernardino County and the Wildlife Agencies, including the possibility of preparing a Burrowing Owl Protection and Relocation Plan, prior to initiating ground disturbance. If ground-disturbing activities occur but the site is left undisturbed for more than 30 days, a pre-construction survey will again be necessary to ensure burrowing owl has not colonized the site since it was last disturbed. If burrow owl is found, the same coordination described above will be necessary.		Prior to issuance of grading permits for the project.	City of San Bernardino – Community and Economic Development Department – Planning Division.			

	MM BIO-3 Exotics: The project landscaping design should limit plantings to non-invasives, avoiding those species listed by the California Exotic Plant Pest Council (CalEPPC) as the "exotic pest plants of greatest concern" (CalEPPC).		Prior to issuance of grading permits for the project.	City of San Bernardino – Community and Economic Development Department – Planning Division.			
	MM BIO-4 Maintenance and Refueling: Maintenance and refueling of construction equipment shall be limited to areas specified as appropriate by the project biologist. Storage of potentially hazardous materials, including but not limited to fuel, paint, stains, pesticides, herbicides, solvents, and oils will not be permitted within 50 feet of any habitat area to be retained by the project. During construction, disposal of such material will occur in a controlled area that is physically separated from potential storm water runoff.		Prior to issuance of grading permits for the project.	City of San Bernardino – Community and Economic Development Department – Planning Division.			
	MM BIO-5 Runoff : Silt fencing or other sediment trapping devices should be installed and maintained in order to prevent run-off from entering the water systems during construction activities.		Prior to issuance of grading permits for the project.	City of San Bernardino – Community and Economic Development Department – Planning Division.			

Impact Category	Mitigation Measures	Action Required	Implementation Timing	Responsible Agency	Compliance Verification		
					Initial	Date	Comments
Cultural Resources	**MM-CUL-1:** In the event that cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on other portions of the project outside the buffered area may continue during this assessment period. Additionally, the San Manuel Band of Mission Indians Cultural Resources Department (SMBMI) shall be contacted, as detailed within TCR-1, regarding any pre-contact and/or historic-era finds and be provided Tribal input with regards to significance and treatment.	Verify that interested tribes have been notified of project changes, if any. Verify that additional consultation has occurred, if necessary. Verify that avoidance and preservation measures are implemented if site design and/or proposed grades are revised. Verify execution of tribal monitoring agreement, as needed.	Prior to issuance of grading permits for the project.	City of San Bernardino – Community and Economic Development Department – Planning Division.			

Cultural Resources	**MM-CUL-2** If significant pre-contact and/or historic-era cultural resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, the archeologist shall develop a Monitoring and Treatment Plan, the drafts of which shall be provided to SMBMI for review and comment, as detailed in TCR-1. The archeologist shall monitor the remainder of the project and implement the Plan accordingly.	Verify that interested tribes have been notified of project changes, if any. Verify that additional consultation has occurred, if necessary. Verify that avoidance and preservation measures are implemented if site design and/or proposed grades are revised. Verify execution of tribal monitoring agreement, as needed.	Prior to issuance of grading permits for the project.	City of San Bernardino – Community and Economic Development Department – Planning Division.			
Cultural Resources	**MM-CUL-3** If human remains or funerary objects are encountered during any activities associated with the project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to the State Health and Safety Code §7050.5 and that code enforced for the duration of the project.	Verify that interested tribes have been notified of project changes, if any. Verify that additional consultation has occurred, if necessary. Verify that avoidance and preservation measures are implemented if site design and/or proposed grades are revised. Verify execution of tribal monitoring agreement, as needed.	Prior to issuance of grading permits for the project.	City of San Bernardino – Community and Economic Development Department – Planning Division.			

Tribal Cultural Resources	**MM-TCR-1** The San Manuel Band of Mission Indians Cultural Resources Department (SMBMI) shall be contacted, as detailed in CR-1, of any pre-contact and/or historic-era cultural resources discovered during project implementation, and be provided information regarding the nature of the find, so as to provide Tribal input with regards to significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a cultural resources Monitoring and Treatment Plan shall be created by the archeologist, in coordination with SMBMI, and all subsequent finds shall be subject to this plan. The Plan shall allow for a monitor to be present that represents SMBMI for the remainder of the project, should SMBMI elect to place a monitor on-site.	Verify that interested tribes have been notified of project changes, if any. Verify that additional consultation has occurred, if necessary. Verify that avoidance and preservation measures are implemented if site design and/or proposed grades are revised. Verify execution of tribal monitoring agreement, as needed.	Prior to issuance of grading permits for the project.	City of San Bernardino – Community and Economic Development Department – Planning Division.			

Tribal Cultural Resources	**MM-TCR-2** Any and all archeological/cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the applicant Lead Agency for dissemination to SMBMI. The Lead Agency and/or applicant shall, in good faith, consult with SMBMI throughout the life of the project.	Verify that interested tribes have been notified of project changes, if any. Verify that additional consultation has occurred, if necessary. Verify that avoidance and preservation measures are implemented if site design and/or proposed grades are revised. Verify execution of tribal monitoring agreement, as needed.	Prior to issuance of grading permits for the project.	City of San Bernardino – Community and Economic Development Department – Planning Division.			
Wildfire	**MM-WF-1:** the Project applicant shall demonstrate, to the satisfaction of the City Building Official and the San Bernardino County Fire Chief, compliance with the latest CBC (Part 2 of Title 24 of the California Code of Regulations) and the latest California Fire Code (Part 9 of Title 24 of the California Code of Regulations), including those regulations pertaining to materials and construction methods intended to mitigate wildfire exposure as described in the CBC and California Residential Code; specifically California Building Code Chapter 7A; California Residential Code Section R327; California Residential Code Section R337; California Referenced Standards Code Chapter 12-7A; and California Fire Code Chapter 49.	Verify compliance with the latest CBC and the latest California Fire Code.	Prior to issuance of building permits for the project.	City of San Bernardino – Community and Economic Development Department – Planning Division.			

Wildfire	**MM-WF-2:** The applicant shall demonstrate, to the satisfaction of the City Building Official and the County Fire Chief, compliance with the vegetation management requirements prescribed in California Fire Code Section 4906, including California Government Code Section 51182.	Verify compliance with the vegetation management requirements prescribed in California Fire Code Section 4906.	Prior to issuance of certificate of occupancy.	City of San Bernardino – Community and Economic Development Department – Planning Division.			

Appendix – A

Air Quality/Greenhouse Gas Data/Health Risk Assessment

Appendix – B

Cultural Resources Assessment

Appendix – C

Geotechnical Investigation

Appendix – D

Preliminary Water Quality Management Plan

Appendix – E

Traffic Impact Analysis

Appendix – F

Biological Resources Memo

Appendix – G

Supplemental Bio Letter

Appendix – H

Noise Report

Appendix – A

Air Quality/Greenhouse Gas Data/Health Risk Assessment

AIR QUALITY AND GREENHOUSE GAS EMISSIONS IMPACT ANALYSIS

AMAZING 34 WAREHOUSE PROJECT

CITY OF SAN BERNARDINO

Lead Agency:

City of San Bernardino
201 North E Street
3rd Floor
San Bernardino, CA 92401

Prepared by:

Vista Environmental
1021 Didrickson Way
Laguna Beach, CA 92651
949 510 5355
Greg Tonkovich, AICP

Project No. 20103

September 15, 2021

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ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
AQMP	Air Quality Management Plan
BACT	Best Available Control Technology
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
City	City of San Bernardino
CO	Carbon monoxide
CNG	Compressed natural gas
DPM	Diesel particulate matter
EPA	Environmental Protection Agency
ºF	Fahrenheit
FTIP	Federal Transportation Improvement Program
HAP	Hazardous Air Pollutants
kW	Kilowatt
LST	Localized Significant Thresholds
MATES	Multiple Air Toxics Exposure Study
MPO	Metropolitan Planning Organization
NAAQS	National Ambient Air Quality Standards
NO_x	Nitrogen oxides
NO_2	Nitrogen dioxide
OPR	Office of Planning and Research
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PPM	Parts per million
PPB	Parts per billion

PPT	Parts per trillion
RTIP	Regional Transportation Improvement Plan
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SCAQMD	South Coast Air Quality Management District
SCAG	Southern California Association of Governments
SIP	State Implementation Plan
SO_x	Sulfur oxides
SSAB	Salton Sea Air Basin
TAC	Toxic air contaminants
VOC	Volatile organic compounds

1.0 INTRODUCTION

1.1 Purpose of Analysis and Study Objectives

This Air Quality and Greenhouse Gas (GHG) Emissions Impact Analysis has been completed to determine the air quality and GHG emissions impacts associated with the proposed Amazing 34 Warehouse project (proposed project). The following is provided in this report:

- A description of the proposed project;
- A description of the atmospheric setting;
- A description of the criteria pollutants and GHGs;
- A description of the air quality regulatory framework;
- A description of the GHG emissions regulatory framework;
- A description of the air quality and GHG emissions thresholds including the California Environmental Quality Act (CEQA) significance thresholds;
- An analysis of the conformity of the proposed project with the South Coast Air Quality Management District (SCAQMD) Air Quality Management Plan (AQMP);
- An analysis of the short-term construction related and long-term operational air quality and GHG emissions impacts; and
- An analysis of the conformity of the proposed project with all applicable GHG emissions reduction plans and policies.

1.2 Site Location and Study Area

The project site is located in the City of San Bernardino (City). The 3.84 gross acre project site consists of three parcels (APN's: 0280-021-44, 0280-021-47, and 0280-021-34) and currently contains two industrial buildings with associated parking lots and loading dock areas. The project site is bounded by vacant land and multi-family residential uses to the north, vacant land and single-family residential uses to the east, Central Avenue, vacant land and single-family residential uses to the south, and Waterman Avenue and commercial retail uses to the west. The project local study area is shown in Figure 1.

Sensitive Receptors in Project Vicinity

The nearest sensitive receptor to the project site is a single-family home located as near as 85 feet to the east of the project site. There are also multi-family homes located as near as 115 feet to the north of the project site and a single-family home located as near as 135 feet to the south of the project site. The nearest school to the project site is the Norton Science and Language Academy that is located as near as 500 feet to the southeast of the project site.

1.3 Proposed Project Description

The proposed project would consist of development of an 89,475 square foot warehouse with 16 truck loading docks that would be located on the north side of the warehouse. The proposed project would also include parking lots on the west, north and east sides of the project site with a total of 94 parking spaces. The proposed site plan is shown in Figure 2.

1.4 Executive Summary

Standard Air Quality and GHG Regulatory Conditions

The proposed project will be required to comply with the following regulatory conditions from the SCAQMD and State of California (State).

South Coast Air Quality Management District Rules

The following lists the SCAQMD rules that are applicable, but not limited to the proposed project.

- Rule 402 Nuisance – Controls the emissions of odors and other air contaminants;
- Rule 403 Fugitive Dust – Controls the emissions of fugitive dust;
- Rules 1108 and 1108.1 Cutback and Emulsified Asphalt – Controls the VOC content in asphalt;
- Rule 1113 Architectural Coatings – Controls the VOC content in paints and solvents; and
- Rule 1143 Paint Thinners – Controls the VOC content in paint thinners.

State of California Rules

The following lists the State of California Code of Regulations (CCR) air quality emission rules that are applicable, but not limited to the proposed project.

- CCR Title 13, Article 4.8, Chapter 9, Section 2449 – In use Off-Road Diesel Vehicles;
- CCR Title 13, Section 2025 – On-Road Diesel Truck Fleets;
- CCR Title 24 Part 6 – California Building Energy Standards; and
- CCR Title 24 Part 11 – California Green Building Standards.

Summary of Analysis Results

The following is a summary of the proposed project's impacts with regard to the State CEQA Guidelines air quality checklist questions.

Conflict with or obstruct implementation of the applicable air quality plan?

Less than significant impact.

Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard?

Less than significant impact.

Expose sensitive receptors to substantial pollutant concentrations?

Less than significant impact.

Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than significant impact.

Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than significant impact.

Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs?

Less than significant impact.

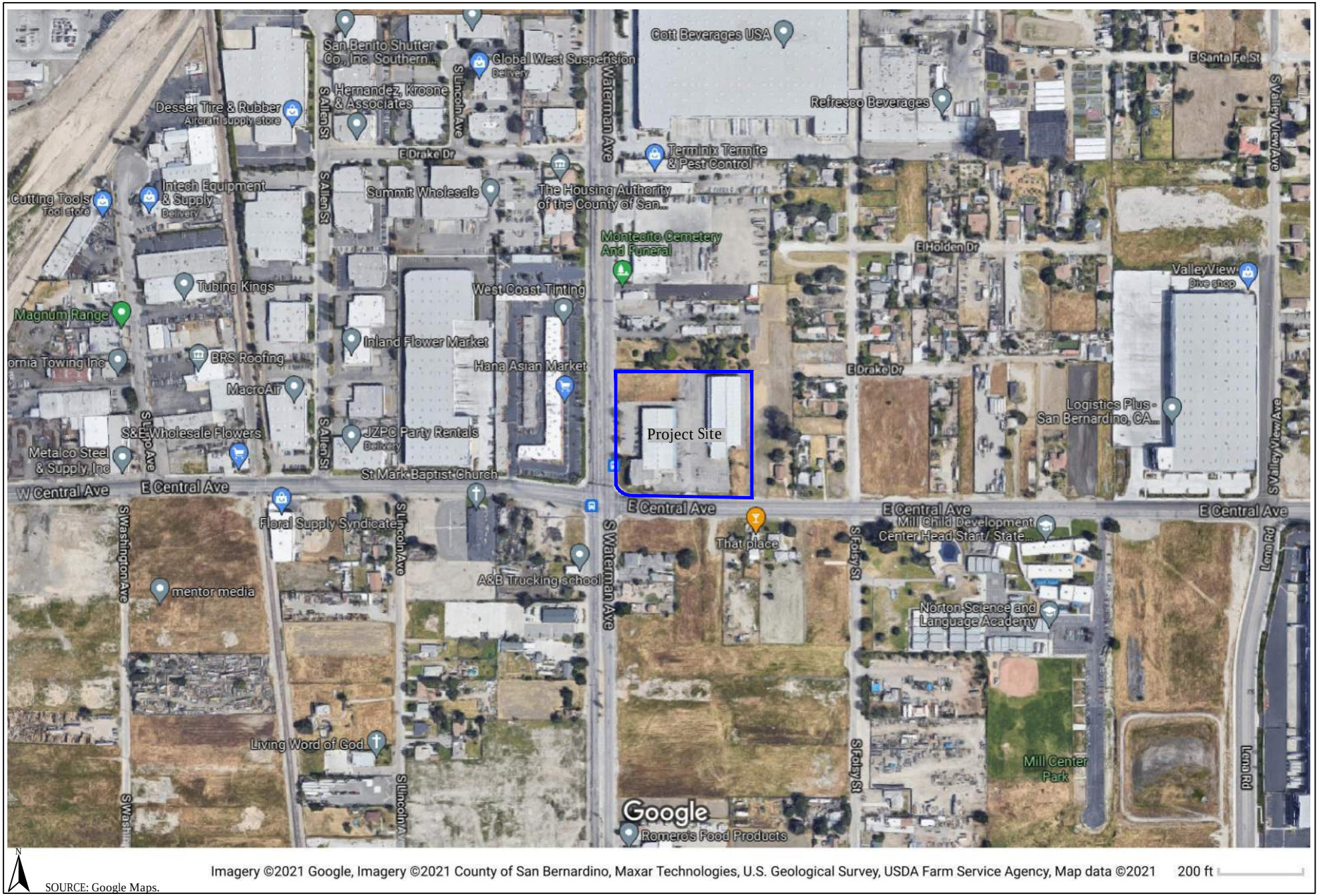
1.5 Project Design Features Incorporated into the Proposed Project

This analysis was based on implementation of the following project design features that the project applicant has committed to implementing. According to *Forklift Market Analysis, 2016-2027,* prepared by Grand View Research, 2019, currently two-thirds of all new forklifts sold are electric-powered and by 2027 three-quarter of all new forklifts will be electric-powered. As such Project Design Feature 1 is based on current market trends, as it would not be cost-effective to install the diesel tanks onsite for the limited duration of use of diesel-powered equipment onsite.

Project Design Feature 1:
All off-road equipment (non-street legal), such as forklifts and street sweepers, used onsite for warehouse operations shall be powered by alternative fuels, electrical batteries or other alternative/non-diesel fuels (e.g., propane or compressed natural gas (CNG)) that do not emit diesel particulate matter, and that are low or zero emission.

1.6 Mitigation Measures for the Proposed Project

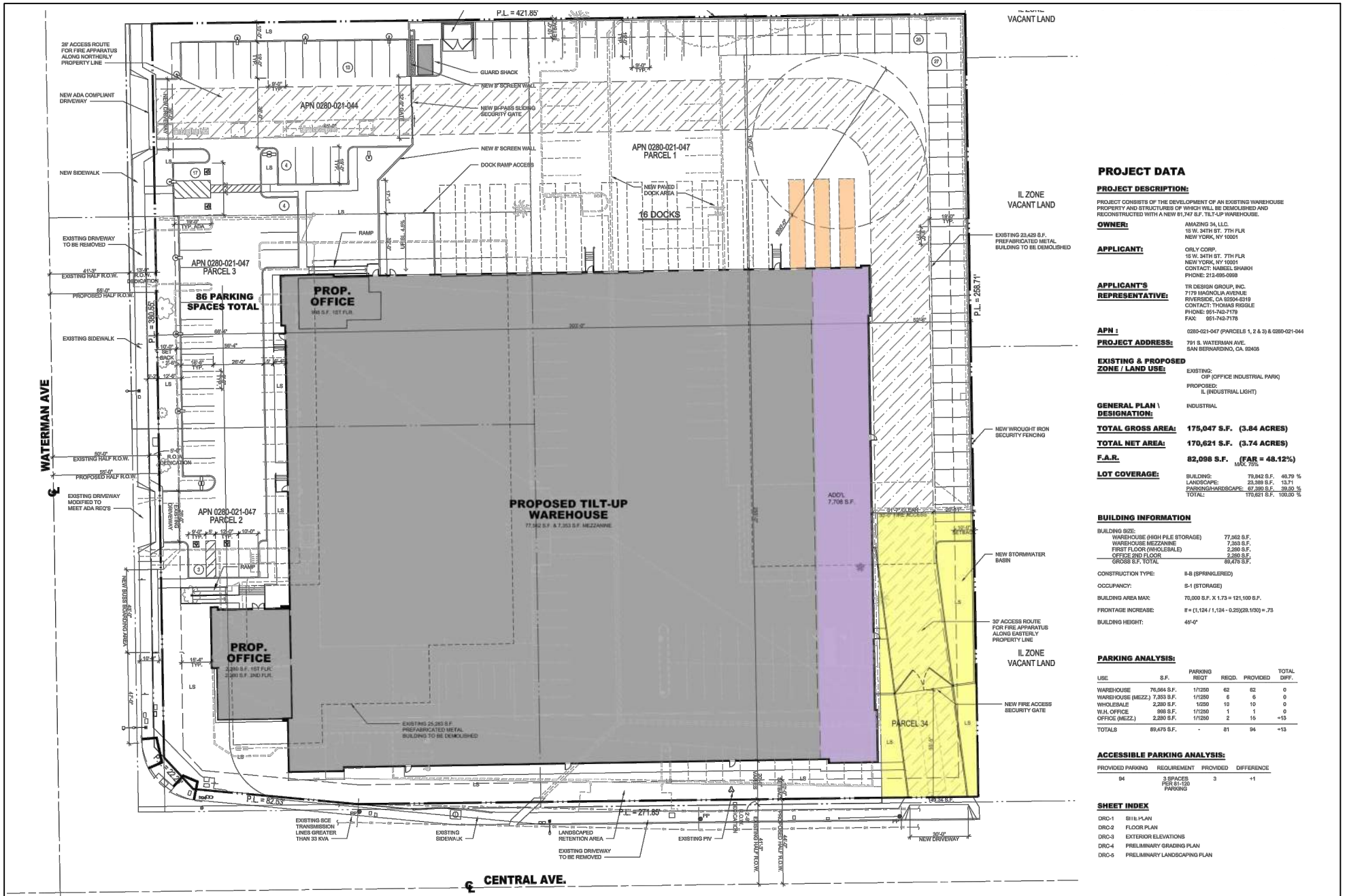
This analysis found that implementation of the State and SCAQMD air quality and GHG emissions reductions regulations were adequate to limit criteria pollutants, toxic air contaminants, odors, and GHG emissions from the proposed project to less than significant levels. No mitigation measures are required for the proposed project with respect to air quality and GHG emissions.



SOURCE: Google Maps.

VISTA ENVIRONMENTAL

Figure 1
Project Local Study Area



PROJECT DATA

PROJECT DESCRIPTION:

PROJECT CONSISTS OF THE DEVELOPMENT OF AN EXISTING WAREHOUSE PROPERTY AND STRUCTURES OF WHICH WILL BE DEMOLISHED AND RECONSTRUCTED WITH A NEW 81,747 S.F. TILT-UP WAREHOUSE.

OWNER: AMAZING 34, LLC.
15 W. 34TH ST. 7TH FLR
NEW YORK, NY 10001

APPLICANT: ORLY CORP.
15 W. 34TH ST. 7TH FLR
NEW YORK, NY 10001
CONTACT: NABEEL SHAIKH
PHONE: 212-695-0998

APPLICANT'S REPRESENTATIVE: TR DESIGN GROUP, INC.
7179 MAGNOLIA AVENUE
RIVERSIDE, CA 92504-6319
CONTACT: THOMAS RIGGLE
PHONE: 951-742-7179
FAX: 951-742-7178

APN : 0280-021-047 (PARCELS 1, 2 & 3) & 0280-021-044

PROJECT ADDRESS: 791 S. WATERMAN AVE.
SAN BERNARDINO, CA. 92408

EXISTING & PROPOSED ZONE / LAND USE:
EXISTING: OIP (OFFICE INDUSTRIAL PARK)
PROPOSED: IL (INDUSTRIAL LIGHT)

GENERAL PLAN \ DESIGNATION: INDUSTRIAL

TOTAL GROSS AREA: 175,047 S.F. (3.84 ACRES)

TOTAL NET AREA: 170,621 S.F. (3.74 ACRES)

F.A.R. 82,098 S.F. (FAR = 48.12%) MAX. 75%

LOT COVERAGE:

BUILDING:	79,842 S.F.	46.79 %
LANDSCAPE:	23,388 S.F.	13.71
PARKING/HARDSCAPE:	67,390 S.F.	39.50 %
TOTAL:	170,621 S.F.	100.00 %

BUILDING INFORMATION

BUILDING SIZE:

WAREHOUSE (HIGH PILE STORAGE)	77,562 S.F.
WAREHOUSE MEZZANINE	7,353 S.F.
FIRST FLOOR (WHOLESALE)	2,280 S.F.
OFFICE 2ND FLOOR	2,280 S.F.
GROSS S.F. TOTAL	89,475 S.F.

CONSTRUCTION TYPE: II-B (SPRINKLERED)

OCCUPANCY: S-1 (STORAGE)

BUILDING AREA MAX: 70,000 S.F. X 1.73 = 121,100 S.F.

FRONTAGE INCREASE: If = (1,124 / 1,124 - 0.25)(28.1/30) = .73

BUILDING HEIGHT: 48'-0"

PARKING ANALYSIS:

USE	S.F.	PARKING REQT	REQ'D.	PROVIDED	TOTAL DIFF.
WAREHOUSE	76,564 S.F.	1/1250	62	62	0
WAREHOUSE (MEZZ.)	7,353 S.F.	1/1250	6	6	0
WHOLESALE	2,280 S.F.	1/250	10	10	0
W.H. OFFICE	998 S.F.	1/1250	1	1	0
OFFICE (MEZZ.)	2,280 S.F.	1/1250	2	15	+13
TOTALS	89,475 S.F.	-	81	94	+13

ACCESSIBLE PARKING ANALYSIS:

PROVIDED PARKING	REQUIREMENT	PROVIDED	DIFFERENCE
94	3 SPACES PER 81-100 PARKING	3	+1

SHEET INDEX

SOURCE: Design Group Architecture.

VISTA ENVIRONMENTAL

Figure 2
Proposed Site Plan

2.0 AIR POLLUTANTS

Air pollutants are generally classified as either criteria pollutants or non-criteria pollutants. Federal ambient air quality standards have been established for criteria pollutants, whereas no ambient standards have been established for non-criteria pollutants. For some criteria pollutants, separate standards have been set for different periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). A summary of federal and state ambient air quality standards is provided in the Regulatory Framework section.

2.1 Criteria Pollutants and Ozone Precursors

The criteria pollutants consist of: ozone, nitrogen oxides (NOx), CO, sulfur oxides (SOx), lead, and particulate matter (PM). The ozone precursors consist of NO_x and VOC. These pollutants can harm your health and the environment, and cause property damage. The Environmental Protection Agency (EPA) calls these pollutants "criteria" air pollutants because it regulates them by developing human health-based and/or environmentally-based criteria for setting permissible levels. The following provides descriptions of each of the criteria pollutants and ozone precursors.

Nitrogen Oxides

NOx is the generic term for a group of highly reactive gases which contain nitrogen and oxygen. While most NOx are colorless and odorless, concentrations of nitrogen dioxide (NO_2) can often be seen as a reddish-brown layer over many urban areas. NOx form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NO_x are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuel. NOx reacts with other pollutants to form, ground-level ozone, nitrate particles, acid aerosols, as well as NO_2, which cause respiratory problems. NO_x and the pollutants formed from NO_x can be transported over long distances, following the patterns of prevailing winds. Therefore, controlling NOx is often most effective if done from a regional perspective, rather than focusing on the nearest sources.

Ozone

Ozone is not usually emitted directly into the air but in the vicinity of ground-level is created by a chemical reaction between NOx and VOC in the presence of sunlight. Motor vehicle exhaust, industrial emissions, gasoline vapors, chemical solvents as well as natural sources emit NOx and VOC that help form ozone. Ground-level ozone is the primary constituent of smog. Sunlight and hot weather cause ground-level ozone to form with the greatest concentrations usually occurring downwind from urban areas. Ozone is subsequently considered a regional pollutant. Ground-level ozone is a respiratory irritant and an oxidant that increases susceptibility to respiratory infections and can cause substantial damage to vegetation and other materials. Because NOx and VOC are ozone precursors, the health effects associated with ozone are also indirect health effects associated with significant levels of NOx and VOC emissions.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes approximately 56 percent of all CO emissions nationwide. In cities, 85 to 95 percent of all CO emissions may come from motor vehicle exhaust. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves,

gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are indoor sources of CO. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air. CO is described as having only a local influence because it dissipates quickly. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

CO is a public health concern because it combines readily with hemoglobin and thus reduces the amount of oxygen transported in the bloodstream. The health threat from lower levels of CO is most serious for those who suffer from heart disease such as angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. High levels of CO can affect even healthy people. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death.

Sulfur Oxides

SOx gases are formed when fuel containing sulfur, such as coal and oil is burned, as well as from the refining of gasoline. SOx dissolves easily in water vapor to form acid and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and the environment.

Lead

Lead is a metal found naturally in the environment as well as manufactured products. The major sources of lead emissions have historically been motor vehicles and industrial sources. Due to the phase out of leaded gasoline, metal processing is now the primary source of lead emissions to the air. High levels of lead in the air are typically only found near lead smelters, waste incinerators, utilities, and lead-acid battery manufacturers. Exposure of fetuses, infants and children to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure.

Particulate Matter

PM is the term for a mixture of solid particles and liquid droplets found in the air. PM is made up of a number of components including acids (such as nitrates and sulfates), organic chemicals, metals, and soil or dust particles. The size of particles is directly linked to their potential for causing health problems. Particles that are less than 10 micrometers in diameter (PM10) that are also known as *Respirable Particulate Matter* are the particles that generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Particles that are less than 2.5 micrometers in diameter (PM2.5) that are also known as *Fine Particulate Matter* have been designated as a subset of PM10 due to their increased negative health impacts and its ability to remain suspended in the air longer and travel further.

Volatile Organic Compounds

Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of ozone are referred to and regulated as VOCs (also

referred to as reactive organic gases). Combustion engine exhaust, oil refineries, and fossil-fueled power plants are the sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

VOC is not classified as a criteria pollutant, since VOCs by themselves are not a known source of adverse health effects. The primary health effects of VOCs result from the formation of ozone and its related health effects. High levels of VOCs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered TACs. There are no separate health standards for VOCs as a group.

2.2 Other Pollutants of Concern

Toxic Air Contaminants

In addition to the above-listed criteria pollutants, TACs are another group of pollutants of concern. TACs is a term that is defined under the California Clean Air Act and consists of the same substances that are defined as Hazardous Air Pollutants (HAPs) in the Federal Clean Air Act. There are over 700 hundred different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes such as petroleum refining and chrome plating operations, commercial operations such as gasoline stations and dry cleaners, and motor vehicle exhaust. Cars and trucks release at least 40 different toxic air contaminants. The most important of these TACs, in terms of health risk, are diesel particulates, benzene, formaldehyde, 1,3-butadiene, and acetaldehyde. Public exposure to TACs can result from emissions from normal operations as well as from accidental releases. Health effects of TACs include cancer, birth defects, neurological damage, and death.

TACs are less pervasive in the urban atmosphere than criteria air pollutants, however they are linked to short-term (acute) or long-term (chronic or carcinogenic) adverse human health effects. There are hundreds of different types of TACs with varying degrees of toxicity. Sources of TACs include industrial processes, commercial operations (e.g., gasoline stations and dry cleaners), and motor vehicle exhaust.

According to *The California Almanac of Emissions and Air Quality 2013 Edition*, the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important of which is DPM. DPM is a subset of PM2.5 because the size of diesel particles are typically 2.5 microns and smaller. The identification of DPM as a TAC in 1998 led the California Air Resources Board (CARB) to adopt the Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-fueled Engines and Vehicles in September 2000. The plan's goals are a 75-percent reduction in DPM by 2010 and an 85-percent reduction by 2020 from the 2000 baseline. Diesel engines emit a complex mixture of air pollutants, composed of gaseous and solid material. The visible emissions in diesel exhaust are known as particulate matter or PM, which includes carbon particles or "soot." Diesel exhaust also contains a variety of harmful gases and over 40 other cancer-causing substances. California's identification of DPM as a toxic air contaminant was based on its potential to cause cancer, premature deaths, and other health problems. Exposure to DPM is a health hazard, particularly to children whose lungs are still developing and the elderly who may have other serious health problems. Overall, diesel engine emissions are responsible for the majority of California's potential airborne cancer risk from combustion sources.

Asbestos

Asbestos is listed as a TAC by CARB and as a HAP by the EPA. Asbestos occurs naturally in mineral formations and crushing or breaking these rocks, through construction or other means, can release

asbestiform fibers into the air. Asbestos emissions can result from the sale or use of asbestos-containing materials, road surfacing with such materials, grading activities, and surface mining. The risk of disease is dependent upon the intensity and duration of exposure. When inhaled, asbestos fibers may remain in the lungs and with time may be linked to such diseases as asbestosis, lung cancer, and mesothelioma. The nearest likely locations of naturally occurring asbestos, as identified in the *General Location Guide for Ultramafic Rocks in California*, prepared by the California Division of Mines and Geology, is located in Santa Barbara County. The nearest historic asbestos mine to the project site, as identified in the *Reported Historic Asbestos Mines, Historic Asbestos Prospects, and Other Natural Occurrences of Asbestos in California,* prepared by U.S. Geological Survey, is located at Asbestos Mountain, which is approximately 55 miles southeast of the project site in the San Jacinto Mountains. Due to the distance to the nearest natural occurrences of asbestos, the project site is not likely to contain asbestos.

3.0 GREENHOUSE GASES

3.1 Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric GHGs, play a critical role in the Earth's radiation amount by trapping infrared radiation from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO_2), methane (CH_4), ozone, water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Emissions of CO_2 and N_2O are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO_2, where CO_2 is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean. The following provides a description of each of the greenhouse gases and their global warming potential.

Water Vapor

Water vapor is the most abundant, important, and variable GHG in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. The feedback loop in which water is involved is critically important to projecting future climate change. As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to "hold" more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop will continue is unknown as there is also dynamics that put the positive feedback loop in check. As an example, when water vapor increases in the atmosphere, more of it will eventually also condense into clouds, which are more able to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up).

Carbon Dioxide

The natural production and absorption of CO_2 is achieved through the terrestrial biosphere and the ocean. However, humankind has altered the natural carbon cycle by burning coal, oil, natural gas, and wood. Since the industrial revolution began in the mid 1700s, each of these activities has increased in scale and distribution. CO_2 was the first GHG demonstrated to be increasing in atmospheric concentration with the first conclusive measurements being made in the last half of the 20th century. Prior to the industrial revolution, concentrations were fairly stable at 280 parts per million (ppm). The International Panel on Climate Change (IPCC) indicates that concentrations were 379 ppm in 2005, an increase of more than 30 percent. Left unchecked, the IPCC projects that concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources. This

could result in an average global temperature rise of at least two degrees Celsius or 3.6 degrees Fahrenheit.

Methane

CH_4 is an extremely effective absorber of radiation, although its atmospheric concentration is less than that of CO_2. Its lifetime in the atmosphere is brief (10 to 12 years), compared to some other GHGs (such as CO_2, N_2O, and CFCs). CH_4 has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide

Concentrations of N_2O also began to rise at the beginning of the industrial revolution. In 1998, the global concentration of this GHG was documented at 314 parts per billion (ppb). N_2O is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. N_2O is also commonly used as an aerosol spray propellant (i.e., in whipped cream bottles, in potato chip bags to keep chips fresh, and in rocket engines and race cars).

Chlorofluorocarbons

CFCs are gases formed synthetically by replacing all hydrogen atoms in methane or ethane with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants, and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and in 1989 the European Community agreed to ban CFCs by 2000 and subsequent treaties banned CFCs worldwide by 2010. This effort was extremely successful, and the levels of the major CFCs are now remaining level or declining. However, their long atmospheric lifetimes mean that some of the CFCs will remain in the atmosphere for over 100 years.

Hydrofluorocarbons

Hydrofluorocarbons (HFCs) are synthetic man-made chemicals that are used as a substitute for CFCs. Out of all the GHGs, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF_3), HFC-134a (CF_3CH_2F), and HFC-152a (CH_3CHF_2). Prior to 1990, the only significant emissions were HFC-23. HFC-134a use is increasing due to its use as a refrigerant. Concentrations of HFC-23 and HFC-134a in the atmosphere are now about 10 parts per trillion (ppt) each. Concentrations of HFC-152a are about 1 ppt. HFCs are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons

Perfluorocarbons (PFCs) have stable molecular structures and do not break down through the chemical processes in the lower atmosphere. High-energy ultraviolet rays about 60 kilometers above Earth's surface are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF_4) and hexafluoroethane (C_2F_6).

Concentrations of CF_4 in the atmosphere are over 70 ppt. The two main sources of PFCs are primary aluminum production and semiconductor manufacturing.

Sulfur Hexafluoride

Sulfur Hexafluoride (SF_6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. SF_6 has the highest global warming potential of any gas evaluated; 23,900 times that of CO_2. Concentrations in the 1990s were about 4 ppt. Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Aerosols

Aerosols are particles 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. Cloud formation can also be affected by aerosols. Sulfate aerosols are emitted when fuel containing sulfur is burned. Black carbon (or soot) is emitted during biomass burning due to the incomplete combustion of fossil fuels. Particulate matter regulation has been lowering aerosol concentrations in the United States; however, global concentrations are likely increasing.

3.2 Global Warming Potential

GHGs have varying global warming potential (GWP). The GWP is the potential of a gas or aerosol to trap heat in the atmosphere; it is the cumulative radiative forcing effects of a gas over a specified time horizon resulting from the emission of a unit mass of gas relative to the reference gas, CO_2. The GHGs listed by the IPCC and the CEQA Guidelines are discussed in this section in order of abundance in the atmosphere. Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic (human-made) sources. To simplify reporting and analysis, GHGs are commonly defined in terms of their GWP. The IPCC defines the GWP of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of CO_2 equivalent (CO_2e). As such, the GWP of CO_2 is equal to 1. The GWP values used in this analysis are based on the 2007 IPCC Fourth Assessment Report, which are used in CARB's 2014 Scoping Plan Update and the CalEEMod Model Version 2016.3.2 and are detailed in Table A. The IPCC has updated the Global Warming Potentials of some gases in their Fifth Assessment Report, however the new values have not yet been incorporated into the CalEEMod model that has been utilized in this analysis.

Table A – Global Warming Potentials, Atmospheric Lifetimes and Abundances of GHGs

Gas	Atmospheric Lifetime (years)[1]	Global Warming Potential (100 Year Horizon)[2]	Atmospheric Abundance
Carbon Dioxide (CO_2)	50-200	1	379 ppm
Methane (CH_4)	9-15	25	1,774 ppb
Nitrous Oxide (N_2O)	114	298	319 ppb
HFC-23	270	14,800	18 ppt
HFC-134a	14	1,430	35 ppt
HFC-152a	1.4	124	3.9 ppt
PFC: Tetrafluoromethane (CF_4)	50,000	7,390	74 ppt
PFC: Hexafluoroethane (C_2F_6)	10,000	12,200	2.9 ppt
Sulfur Hexafluoride (SF_6)	3,200	22,800	5.6 ppt

Notes:

[1] Defined as the half-life of the gas.
[2] Compared to the same quantity of CO_2 emissions and is based on the Intergovernmental Panel On Climate Change (IPCC) 2007 standard, which is utilized in CalEEMod (Version 2016.3.2),that is used in this report (CalEEMod user guide: Appendix A).
Definitions: ppm = parts per million; ppb = parts per billion; ppt = parts per trillion
Source: IPCC 2007, EPA 2015

3.3 Greenhouse Gas Emissions Inventory

According to the Carbon Dioxide Information Analysis Center[1], 9,855 million metric tons (MMT) of CO_2e emissions were created globally in the year 2014. According to the Environmental Protection Agency (EPA), the breakdown of global GHG emissions by sector consists of: 25 percent from electricity and heat production; 21 percent from industry; 24 percent from agriculture, forestry and other land use activities; 14 percent from transportation; 6 percent from building energy use; and 10 percent from all other sources of energy use[2].

According to *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2019,* prepared by EPA, in 2019 total U.S. GHG emissions were 6,558 million metric tons (MMT) of CO_2e emissions. Total U.S. emissions have increased by 4 percent between 1990 and 2016 and GHG emissions decreased by 13 percent between 2005 and 2019. The recent decrease in GHG emissions was a result of multiple factors, including population, economic growth, energy markets, and technological changes the include energy efficiency and energy fuel choices. Between 2018 and 2019, GHG emissions decreased by almost 2 percent due to multiple factors, including a one percent decrease in total energy use.

According to the California Air Resources Board (CARB) the State of California created 425 million metric tons of carbon dioxide equivalent ($MMTCO_2e$) in 2018. The breakdown of California GHG emissions by sector consists of: 39.9 percent from transportation; 21.0 percent from industrial; 14.8 percent from electricity generation; 7.7 percent from agriculture; 9.7 percent from residential and commercial buildings; 4.8 percent from high global warming potential sources, and 2.1 percent from waste. In 2018, GHG emissions were 0.8 $MMTCO_2e$ higher than 2017 levels and 6 $MMTCO_2e$ below the 2020 GHG limit of 431 $MMTCO_2e$.[3]

1 Obtained from: https://cdiac.ess-dive.lbl.gov/trends/emis/tre_glob_2014.html
2 Obtained from: https://www.epa.gov/ghgemissions/global-greenhouse-gas-emissions-data
3 Obtained from: https://www.arb.ca.gov/cc/inventory/data/data.htm

4.0 AIR QUALITY MANAGEMENT

The air quality at the project site is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality are discussed below.

4.1 Federal – United States Environmental Protection Agency

The Clean Air Act, first passed in 1963 with major amendments in 1970, 1977 and 1990, is the overarching legislation covering regulation of air pollution in the United States. The Clean Air Act has established the mandate for requiring regulation of both mobile and stationary sources of air pollution at the state and federal level. The EPA was created in 1970 in order to consolidate research, monitoring, standard-setting and enforcement authority into a single agency.

The EPA is responsible for setting and enforcing the National Ambient Air Quality Standards (NAAQS) for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives. NAAQS pollutants were identified using medical evidence and are shown below in Table B.

Table B – State and Federal Criteria Pollutant Standards

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Ozone	0.09 ppm / 1-hour 0.07 ppm / 8-hour	0.070 ppm, / 8-hour	(a) Pulmonary function decrements and localized lung edema in humans and animals; (b) Risk to public health implied by alterations in pulmonary morphology and host defense in animals; (c) Increased mortality risk; (d) Risk to public health implied by altered connective tissue metabolism and altered pulmonary morphology in animals after long-term exposures and pulmonary function decrements in chronically exposed humans; (e) Vegetation damage; and (f) Property damage.
Carbon Monoxide (CO)	20.0 ppm / 1-hour 9.0 ppm / 8-hour	35.0 ppm / 1-hour 9.0 ppm / 8-hour	(a) Aggravation of angina pectoris and other aspects of coronary heart disease; (b) Decreased exercise tolerance in persons with peripheral vascular disease and lung disease; (c) Impairment of central nervous system functions; and (d) Possible increased risk to fetuses.
Nitrogen Dioxide (NO_2)	0.18 ppm / 1-hour 0.030 ppm / annual	100 ppb / 1-hour 0.053 ppm / annual	(a) Potential to aggravate chronic respiratory disease and respiratory symptoms in sensitive groups; (b) Risk to public health implied by pulmonary and extra-pulmonary biochemical and cellular changes and pulmonary structural changes; and (c) Contribution to atmospheric discoloration.
Sulfur Dioxide (SO_2)	0.25 ppm / 1-hour 0.04 ppm / 24-hour	75 ppb / 1-hour 0.14 ppm/annual	(a) Bronchoconstriction accompanied by symptoms which may include wheezing, shortness of breath and chest tightness, during exercise or physical activity in persons with asthma.
Suspended Particulate Matter (PM_{10})	50 µg/m^3 / 24-hour 20 µg/m^3 / annual	150 µg/m^3 / 24-hour	(a) Exacerbation of symptoms in sensitive patients with respiratory or cardiovascular disease; (b) Declines in pulmonary function growth in children; and (c) Increased risk of premature death from heart or lung diseases in elderly.

Air Pollutant	Concentration / Averaging Time		Most Relevant Effects
	California Standards	Federal Primary Standards	
Suspended Particulate Matter ($PM_{2.5}$)	12 µg/m^3 / annual	35 µg/m^3 / 24-hour 12 µg/m^3 / annual	
Sulfates	25 µg/m^3 / 24-hour	No Federal Standards	(a) Decrease in ventilatory function; (b) Aggravation of asthmatic symptoms; (c) Aggravation of cardio-pulmonary disease; (d) Vegetation damage; (e) Degradation of visibility; and (f) Property damage.
Lead	1.5 µg/m^3 / 30-day	0.15 µg/m^3 /3-month rolling	(a) Learning disabilities; and (b) Impairment of blood formation and nerve conduction.
Visibility Reducing Particles	Extinction coefficient of 0.23 per kilometer - visibility of ten miles or more due to particles when relative humidity is less than 70 percent.	No Federal Standards	Visibility impairment on days when relative humidity is less than 70 percent.

Source: http://www.arb.ca.gov/research/aaqs/aaqs2.pdf .

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the national standards. The SIP must integrate federal, state, and local components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP. The CARB defines attainment as the category given to an area with no violations in the past three years. As indicated below in Table C, the Air Basin has been designated by EPA for the national standards as a non-attainment area for ozone and PM2.5 and partial non-attainment for lead. Currently, the Air Basin is in attainment with the national ambient air quality standards for CO, PM10, SO_2, and NO_2.

Table C – South Coast Air Basin Attainment Status

Criteria Pollutant	Standard	Averaging Time	Designation[a)]	Attainment Date[b)]
1-Hour Ozone[c)]	NAAQS	1979 1-Hour (0.12 ppm)	Nonattainment (Extreme)	2/6/2023 (revised deadline)
	CAAQS	1-Hour (0.09 ppm)	Nonattainment	N/A
8-Hour Ozone[d)]	NAAQS	1997 8-Hour (0.08 ppm)	Nonattainment (Extreme)	6/15/2024
	NAAQS	2008 8-Hour (0.075 ppm)	Nonattainment (Extreme)	8/3/2038
	NAAQS	2015 8-Hour (0.070 ppm)	Pending – Expect Nonattainment (Extreme)	Pending (beyond 2032)
	CAAQS	8-Hour (0.070 ppm)	Nonattainment	Beyond 2032
CO	NAAQS	1-Hour (35 ppm) 8-Hour (9 ppm)	Attainment (Maintenance)	6/11/2007 (attained)

Criteria Pollutant	Standard	Averaging Time	Designation[a)]	Attainment Date[b)]
	CAAQS	1-Hour (20 ppm) 8-Hour (9 ppm)	Attainment	6/11/2007 (attained)
NO_2[e)]	NAAQS	2010 1-Hour (0.10 ppm)	Unclassifiable/ Attainment	N/A (attained)
	NAAQS	1971 Annual (0.053 ppm)	Attainment (Maintenance)	9/22/1998 (attained)
	CAAQS	1-Hour (0.18 ppm) Annual (0.030 ppm)	Attainment	---
SO_2[f)]	NAAQS	2010 1-Hour (75 ppb)	Designations Pending (expect Unclassifiable/ Attainment)	N/A (attained)
	NAAQS	1971 24-Hour (0.14 ppm) 1971 Annual (0.03 ppm)	Unclassifiable/ Attainment	3/19/1979 (attained)
PM10	NAAQS	1987 24-hour (150 µg/m^3)	Attainment (Maintenance)[g)]	7/26/2013 (attained)
	CAAQS	24-hour (50 µg/m^3) Annual (20 µg/m^3)	Nonattainment	N/A
PM2.5[h)]	NAAQS	2006 24-Hour (35 µg/m^3)	Nonattainment (Serious)	12/31/2019
	NAAQS	1997 Annual (15.0 µg/m^3)	Attainment (final determination pending)	8/24/2016 (attained 2013)
	NAAQS	2012 Annual (12.0 µg/m^3)	Nonattainment (Moderate)	12/31/2025
	CAAQS	Annual (12.0 µg/m^3)	Nonattainment	N/A
Lead[i)]	NAAQS	2008 3-Months Rolling (0.15 µg/m^3)	Nonattainment (Partial) (Attainment determination requested)	12/31/2015

Source: SCAQMD, February 2016

Notes:

a) U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable

b) A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for attainment demonstration

c) The 1979 1-hour O_3 standard (0.12 ppm) was revoked, effective June 15, 2005; however, the Basin has not attained this standard and therefore has some continuing obligations with respect to the revoked standard

d) The 2008 8-hour ozone NAAQS (0.075 ppm) was revised to 0.070 ppm. Effective 12/28/15 with classifications and implementation goals to be finalized by 10/1/17; the 1997 8-hour O_3 NAAQS (0.08 ppm) was revoked in the 2008 O_3 implementation rule, effective 4/6/15;there are continuing obligations under the revoked 1997 and revised 2008 O_3 until they are attained.

e) New NO_2 1-hour standard, effective August 2, 2010; attainment designations January 20, 2012; annual NO_2 standard retained

f) The 1971 annual and 24-hour SO_2 standards were revoked, effective August 23, 2010; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO_2 1-hour standard. Area designations are still pending, with Basin expected to be designated Unclassifiable /Attainment.

g) Annual PM10 standard was revoked, effective December 18, 2006; 24-hour PM10 NAAQS deadline was 12/31/2006; SCAQMD request for attainment redesignation and PM10 maintenance plan was approved by U.S. EPA on June 26, 2013, effective July 26, 2013.

h) The attainment deadline for the 2006 24-Hour PM2.5 NAAQS was 12/31/15 for the former "moderate" classification; EPA approved reclassification to "serious", effective 2/12/16 with an attainment deadline of 12/31/19; the 2012 (proposal year) annual PM2.5 NAAQS was revised on 1/15/13, effective 3/18/13, from 15 to 12 µg/m^3; new annual designations were final 1/15/15, effective 4/15/15; on July 25, 2016 EPA finalized a determination that the Basin attained the 1997 annual (15.0 µg/m^3) and 24-hour PM2.5 (65 µg/m^3) NAAQS, effective August 24, 2016

i) Partial Nonattainment designation – Los Angeles County portion of Basin only for near-source monitors. Expect to remain in attainment based on current monitoring data; attainment re-designation request pending.

In 2015, one or more stations in the Air Basin exceeded the most current federal standards on a total of 146 days (40 percent of the year), including: 8-hour ozone (113 days over 2015 ozone NAAQS), 24-hour PM2.5 (30 days, including near-road sites; 25 days for ambient sites only), PM10 (2 days), and NO_2 (1 day). Despite substantial improvement in air quality over the past few decades, some air monitoring stations in the Air Basin still exceed the NAAQS for ozone more frequently than any other area in the United States.

Seven of the top 10 stations in the nation most frequently exceeding the 2015 8-hour ozone NAAQS in 2015 were located within the Air Basin, including stations in San Bernardino, Riverside, and Los Angeles Counties (SCAQMD, 2016).

PM2.5 levels in the Air Basin have improved significantly in recent years. By 2013 and again in 2014 and 2015, there were no stations measuring PM2.5 in the Air Basin that violated the former 1997 annual PM2.5 NAAQS (15.0 µg/m^3) for the 3-year design value period. On July 25, 2016 the EPA finalized a determination that the Basin attained the 1997 annual (15.0 µg/m^3) and 24-hour PM2.5 (65 µg/m^3) NAAQS, effective August 24, 2016. Of the 17 federal PM2.5 monitors at ambient stations in the Air Basin for the 2013-2015 period, five stations had design values over the current 2012 annual PM2.5 NAAQS (12.0 µg/m^3), including: Mira Loma (Air Basin maximum at 14.1 µg/m^3), Rubidoux, Fontana, Ontario, Central Los Angeles, and Compton. For the 24-hour PM2.5 NAAQS (35.0 µg/m^3) there were 14 stations in the Air Basin in 2015 that had one or more daily exceedances of the standard, with a combined total of 25 days over that standard in the Air Basin. While it was previously anticipated that the Air Basin's 24-hour PM2.5 NAAQS would be attained by 2015, this did not occur based on the data for 2013 through 2015. The higher number of days exceeding the 24-hour PM2.5 NAAQS over what was expected is largely attributed to the severe drought conditions over this period that allowed for more stagnant conditions in the Air Basin with multi-day buildups of higher PM2.5 concentrations. This was caused by the lack of storm-related dispersion and rain-out of PM and its precursors (SCAQMD, 2016).

The Air Basin is currently in attainment for the federal standards for SO_2, CO, NO_2, and PM10 and the San Bernardino County portion of the Air Basin is currently in attainment for the federal standards for lead. While the concentration level of the 1-hour NO_2 federal standard (100 ppb) was exceeded in the Air Basin for one day in 2015 (Long Beach Hudson Station), the NAAQS NO_2 design value has not been exceeded. Therefore, the Air Basin remains in attainment of the NO_2 NAAQS (SCAQMD, 2016).

4.2 State – California Air Resources Board

The CARB, which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets the California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. The CAAQS for criteria pollutants are shown above in Table B. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

The Air Basin has been designated by the CARB as a non-attainment area for ozone, PM10 and PM2.5. Currently, the Air Basin is in attainment with the ambient air quality standards for CO, NO_2, SO_2, lead, and sulfates and is unclassified for visibility reducing particles and Hydrogen Sulfide.

The following lists the State of California Code of Regulations (CCR) air quality emission rules that are applicable, but not limited to all development projects in the State.

Assembly Bill 2588

The Air Toxics "Hot Spots" Information and Assessment Act (Assembly Bill [AB] 2588, 1987, Connelly) was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. AB 2588, as amended, establishes a process that requires stationary sources to report the type and

quantities of certain substances their facilities routinely release in California. The data is ranked by high, intermediate, and low categories, which are determined by: the potency, toxicity, quantity, volume, and proximity of the facility to nearby receptors.

CARB Regulation for In-Use Off-Road Diesel Vehicles

On July 26, 2007, the CARB adopted California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 to reduce DPM and NOx emissions from in-use off-road heavy-duty diesel vehicles in California. Such vehicles are used in construction, mining, and industrial operations. The regulation limits idling to no more than five consecutive minutes, requires reporting and labeling, and requires disclosure of the regulation upon vehicle sale. Performance requirements of the rule are based on a fleet's average NOx emissions, which can be met by replacing older vehicles with newer, cleaner vehicles or by applying exhaust retrofits. The regulation was amended in 2010 to delay the original timeline of the performance requirement making the first compliance deadline January 1, 2014 for large fleets (over 5,000 horsepower), 2017 for medium fleets (2,501-5,000 horsepower), and 2019 for small fleets (2,500 horsepower or less). Currently, no commercial operation in California may add any equipment to their fleet that has a Tier 0 or Tier 1 engine. By January 1, 2018 medium and large fleets will be restricted from adding Tier 2 engines to their fleets and by January 2023, no commercial operation will be allowed to add Tier 2 engines to their fleets. It should be noted that commercial fleets may continue to use their existing Tier 0 and 1 equipment, if they can demonstrate that the average emissions from their entire fleet emissions meet the NOx emissions targets.

CARB Resolution 08-43 for On-Road Diesel Truck Fleets

On December 12, 2008 the CARB adopted Resolution 08-43, which limits NOx, PM10 and PM2.5 emissions from on-road diesel truck fleets that operate in California. On October 12, 2009 Executive Order R-09-010 was adopted that codified Resolution 08-43 into Section 2025, title 13 of the California Code of Regulations. This regulation requires that by the year 2023 all commercial diesel trucks that operate in California shall meet model year 2010 (Tier 4 Final) or latter emission standards. In the interim period, this regulation provides annual interim targets for fleet owners to meet. By January 1, 2014, 50 percent of a truck fleet is required to have installed Best Available Control Technology (BACT) for NOx emissions and 100 percent of a truck fleet installed BACT for PM10 emissions. This regulation also provides a few exemptions including a onetime per year 3-day pass for trucks registered outside of California. All on-road diesel trucks utilized during construction of the proposed project will be required to comply with Resolution 08-43.

4.3 Regional – Southern California

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin. To that end, as a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state agencies.

South Coast Air Quality Management District

SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. It has responded to this requirement by preparing a sequence of AQMPs. The *Final 2016 Air Quality Management Plan* (2016 AQMP) was adopted by the SCAQMD Board on March 3, 2016 and was

adopted by CARB on March 23, 2017 for inclusion into the SIP. The 2016 AQMP was prepared in order to meet the following standards:

- 8-hour Ozone (75 ppb) by 2032
- Annual PM2.5 (12 µg/m3) by 2021-2025
- 8-hour Ozone (80 ppb) by 2024 (updated from the 2007 and 2012 AQMPs)
- 1-hour Ozone (120 ppb) by 2023 (updated from the 2012 AQMP)
- 24-hour PM2.5 (35 µg/m^3) by 2019 (updated from the 2012 AQMP)

In addition to meeting the above standards, the 2016 AQMP also includes revisions to the attainment demonstrations for the 1997 8-hour ozone NAAQS and the 1979 1-hour ozone NAAQS. The prior 2012 AQMP was prepared in order to demonstrate attainment with the 24-hour PM2.5 standard by 2014 through adoption of all feasible measures. The prior 2007 AQMP demonstrated attainment with the 1997 8-hour ozone (80 ppb) standard by 2023, through implementation of future improvements in control techniques and technologies. These "black box" emissions reductions represent 65 percent of the remaining NOx emission reductions by 2023 in order to show attainment with the 1997 8-hour ozone NAAQS. Given the magnitude of these needed emissions reductions, additional NOx control measures have been provided in the 2012 AQMP even though the primary purpose was to show compliance with 24-hour PM2.5 emissions standards.

The 2016 AQMP provides a new approach that focuses on available, proven and cost effective alternatives to traditional strategies, while seeking to achieve multiple goals in partnership with other entities to promote reductions in greenhouse gas emissions and TAC emissions as well as efficiencies in energy use, transportation, and goods movement. The 2016 AQMP recognizes the critical importance of working with other agencies to develop funding and other incentives that encourage the accelerated transition of vehicles, buildings and industrial facilities to cleaner technologies in a manner that benefits not only air quality, but also local businesses and the regional economy.

Although SCAQMD is responsible for regional air quality planning efforts, it does not have the authority to directly regulate air quality issues associated with plans and new development projects throughout the SSAB. Instead, this is controlled through local jurisdictions in accordance to CEQA. In order to assist local jurisdictions with air quality compliance issues the *CEQA Air Quality Handbook* (SCAQMD CEQA Handbook), prepared by SCAQMD, 1993, with the most current updates found at http://www.aqmd.gov/ceqa/hdbk.html, was developed in accordance with the projections and programs detailed in the AQMPs. The purpose of the SCAQMD CEQA Handbook is to assist Lead Agencies, as well as consultants, project proponents, and other interested parties in evaluating a proposed project's potential air quality impacts. Specifically, the SCAQMD CEQA Handbook explains the procedures that SCAQMD recommends be followed for the environmental review process required by CEQA. The SCAQMD CEQA Handbook provides direction on how to evaluate potential air quality impacts, how to determine whether these impacts are significant, and how to mitigate these impacts. The SCAQMD intends that by providing this guidance, the air quality impacts of plans and development proposals will be analyzed accurately and consistently throughout the SSAB, and adverse impacts will be minimized.

The following lists the SCAQMD rules that are applicable but not limited to all industrial projects in the Air Basin.

Rule 402 - Nuisance

Rule 402 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property. Compliance with Rule 402 will reduce local air quality and odor impacts to nearby sensitive receptors.

Rule 403- Fugitive Dust

Rule 403 governs emissions of fugitive dust during construction activities and requires that no person shall cause or allow the emissions of fugitive dust such that dust remains visible in the atmosphere beyond the property line or the dust emission exceeds 20 percent opacity, if the dust is from the operation of a motorized vehicle. Compliance with this rule is achieved through application of standard Best Available Control Measures, which include but are not limited to the measures below. Compliance with these rules would reduce local air quality impacts to nearby sensitive receptors.

- Utilize either a pad of washed gravel 50 feet long, 100 feet of paved surface, a wheel shaker, or a wheel washing device to remove material from vehicle tires and undercarriages before leaving project site.
- Do not allow any track out of material to extend more than 25 feet onto a public roadway and remove all track out at the end of each workday.
- Water all exposed areas on active sites at least three times per day and pre-water all areas prior to clearing and soil moving activities.
- Apply nontoxic chemical stabilizers according to manufacturer specifications to all construction areas that will remain inactive for 10 days or longer.
- Pre-water all material to be exported prior to loading, and either cover all loads or maintain at least 2 feet of freeboard in accordance with the requirements of California Vehicle Code Section 23114.
- Replant all disturbed area as soon as practical.
- Suspend all grading activities when wind speeds (including wind gusts) exceed 25 miles per hour.
- Restrict traffic speeds on all unpaved roads to 15 miles per hour or less.

Rules 1108 and 1108.1 – Cutback and Emulsified Asphalt

Rules 1108 and 1108.1 govern the sale, use, and manufacturing of asphalt and limits the VOC content in asphalt. This rule regulates the VOC contents of asphalt used during construction as well as any on-going maintenance during operations. Therefore, all asphalt used during construction and operation of the proposed project must comply with SCAQMD Rules 1108 and 1108.1.

Rule 1113 – Architectural Coatings

Rule 1113 governs the sale, use, and manufacturing of architectural coatings and limits the VOC content in sealers, coatings, paints and solvents. This rule regulates the VOC contents of paints available during construction. Therefore, all paints and solvents used during construction and operation of the proposed project must comply with SCAQMD Rule 1113.

Rule 1143 – Paint Thinners

Rule 1143 governs the sale, use, and manufacturing of paint thinners and multi-purpose solvents that are used in thinning of coating materials, cleaning of coating application equipment, and other solvent cleaning operations. This rule regulates the VOC content of solvents used during construction. Solvents used during construction and operation of the proposed project must comply with SCAQMD Rule 1143.

Southern California Association of Governments

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated Metropolitan Planning Organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the *2020-2045 Regional Transportation Plan/Sustainable Communities Strategy* (Connect SoCal), adopted September 3, 2020 and the *2019 Federal Transportation Improvement* Program (2019 FTIP), adopted September 2018, which addresses regional development and growth forecasts. Although the Connect SoCal and 2019 FTIP are primarily planning documents for future transportation projects a key component of these plans is to integrate land use planning with transportation planning that promotes higher density infill development in close proximity to existing transit service. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The Connect SoCal, 2019 FTIP, and AQMP are based on projections originating within the City and County General Plans.

4.4 Local – City of San Bernardino

Local jurisdictions, such as the City of San Bernardino, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City is also responsible for the implementation of transportation control measures as outlined in the AQMPs. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

In accordance with the CEQA requirements, the City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the City and region will meet federal and state standards. Instead, the City relies on the expertise of the SCAQMD and utilizes the SCAQMD CEQA Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

5.0 GLOBAL CLIMATE CHANGE MANAGEMENT

The regulatory setting related to global climate change is addressed through the efforts of various international, federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to reduce GHG emissions through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for global climate change regulations are discussed below.

5.1 International

In 1988, the United Nations established the IPCC to evaluate the impacts of global climate change and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling GHG emissions. The parties of the UNFCCC adopted the Kyoto Protocol, which set binding GHG reduction targets for 37 industrialized countries, the objective of reducing their collective GHG emissions by five percent below 1990 levels by 2012. The Kyoto Protocol has been ratified by 182 countries, but has not been ratified by the United States. It should be noted that Japan and Canada opted out of the Kyoto Protocol and the remaining developed countries that ratified the Kyoto Protocol have not met their Kyoto targets. The Kyoto Protocol expired in 2012 and the amendment for the second commitment period from 2013 to 2020 has not yet entered into legal force. The Parties to the Kyoto Protocol negotiated the Paris Agreement in December 2015, agreeing to set a goal of limiting global warming to less than 2 degrees Celsius compared with pre-industrial levels. The Paris Agreement has been adopted by 195 nations with 147 ratifying it, including the United States by President Obama, who ratified it by Executive Order on September 3, 2016. O On June 1, 2017, President Trump announced that the United States is withdrawing from the Paris Agreement and on January 21, 2021 President Biden signed an executive order rejoining the Paris Agreement.

Additionally, the Montreal Protocol was originally signed in 1987 and substantially amended in 1990 and 1992. The Montreal Protocol stipulates that the production and consumption of compounds that deplete ozone in the stratosphere—CFCs, halons, carbon tetrachloride, and methyl chloroform—were to be phased out, with the first three by the year 2000 and methyl chloroform by 2005.

5.2 Federal – United States Environmental Protection Agency

The United States Environmental Protection Agency (EPA) is responsible for implementing federal policy to address global climate change. The Federal government administers a wide array of public-private partnerships to reduce U.S. GHG intensity. These programs focus on energy efficiency, renewable energy, methane, and other non-CO_2 gases, agricultural practices and implementation of technologies to achieve GHG reductions. EPA implements several voluntary programs that substantially contribute to the reduction of GHG emissions.

In Massachusetts v. Environmental Protection Agency (Docket No. 05–1120), argued November 29, 2006 and decided April 2, 2007, the U.S. Supreme Court held that not only did the EPA have authority to regulate greenhouse gases, but the EPA's reasons for not regulating this area did not fit the statutory requirements. As such, the U.S. Supreme Court ruled that the EPA should be required to regulate CO2 and other greenhouse gases as pollutants under the federal Clean Air Act (CAA).

In response to the FY2008 Consolidations Appropriations Act (H.R. 2764; Public Law 110-161), EPA proposed a rule on March 10, 2009 that requires mandatory reporting of GHG emissions from large sources in the United States. On September 22, 2009, the Final Mandatory Reporting of GHG Rule was signed and published in the Federal Register on October 30, 2009. The rule became effective on December 29, 2009. This rule requires suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions to submit annual reports to EPA.

On December 7, 2009, the EPA Administrator signed two distinct findings under section 202(a) of the Clean Air Act. One is an endangerment finding that finds concentrations of the six GHGs in the atmosphere threaten the public health and welfare of current and future generations. The other is a cause or contribute finding, that finds emissions from new motor vehicles and new motor vehicle engines contribute to the GHG pollution which threatens public health and welfare. These actions did not impose any requirements on industry or other entities, however, since 2009 the EPA has been providing GHG emission standards for vehicles and other stationary sources of GHG emissions that are regulated by the EPA. On September 13, 2013 the EPA Administrator signed 40 CFR Part 60, that limits emissions from new sources to 1,100 pounds of CO_2 per mega-watt hour (MWh) for fossil fuel-fired utility boilers and 1,000 pounds of CO_2 per MWh for large natural gas-fired combustion units.

On August 3, 2015, the EPA announced the Clean Power Plan, emissions guidelines for U.S. states to follow in developing plans to reduce GHG emissions from existing fossil fuel-fired power plants (Federal Register Vol. 80, No. 205, October 23 2015). On February 9, 2016 the Supreme Court stayed implementation of the Clean Power Plan due to a legal challenge from 29 states and in April 2017, the Supreme Court put the case on a 60 day hold and directed both sides to make arguments for whether it should keep the case on hold indefinitely or close it and remand the issue to the EPA. On October 11, 2017, the EPA issued a formal proposal to repeal the Clean Power Plan and on June 19, 2019, the EPA issued the Affordable Clean Energy Rule that replaces the Clean Power Plan.

On April 30, 2020, the EPA and the National Highway Safety Administration published the Final Rule for the *Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021-2026 Passenger Cars and Light Trucks* (SAFE Vehicles Rule). Part One of the Rule revokes California's authority to set its own GHG emissions standards and zero-emission vehicle mandates in California, which results in one emission standard to be used nationally for all passenger cars and light trucks that is set by the EPA.

5.3 State

The California Air Resources Board (CARB) has the primary responsible for implementing state policy to address global climate change, however there are State regulations related to global climate change that affect a variety of State agencies. CARB, which is a part of the California Environmental Protection Agency, is responsible for the coordination and administration of both the federal and state air pollution control programs within California. In this capacity, the CARB conducts research, sets California Ambient Air Quality Standards (CAAQS), compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. In addition, the CARB establishes emission standards for motor vehicles sold in California, consumer products (e.g. hairspray, aerosol paints, and barbeque lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

In 2008, CARB approved a Climate Change Scoping Plan that proposes a "comprehensive set of actions designed to reduce overall carbon GHG emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health" (CARB 2008). The Climate Change Scoping Plan has a range of GHG reduction actions which include direct regulations; alternative compliance mechanisms; monetary and non-monetary incentives; voluntary actions; market-based mechanisms such as a cap-and-trade system. In 2014, CARB approved the First Update to the Climate Change Scoping Plan (CARB, 2014) that identifies additional strategies moving beyond the 2020 targets to the year 2050. On December 14, 2017 CARB adopted the California's 2017 Climate Change Scoping Plan, November 2017 (CARB, 2017) that provides specific statewide policies and measures to achieve the 2030 GHG reduction target of 40 percent below 1990 levels by 2030 and the aspirational 2050 GHG reduction target of 80 percent below 1990 levels by 2050. In addition, the State has passed the following laws directing CARB to develop actions to reduce GHG emissions, which are listed below in chronological order, with the most current first.

California Code of Regulations (CCR) Title 24, Part 6

CCR Title 24, Part 6: *California's Energy Efficiency Standards for Residential and Nonresidential Buildings* (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The California Energy Commission (CEC) is the agency responsible for the standards that are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. In 2008 the State set an energy-use reduction goal of zero-net-energy use of all new homes by 2020 and the CEC was mandated to meet this goal through revisions to the Title 24, Part 6 regulations.

The Title 24 standards are updated on a three-year schedule and since 2008 the standards have been incrementally moving to the 2020 goal of the zero-net-energy use. On January 1, 2020 the 2019 standards went into effect, that have been designed so that the average new home built in California will now use zero-net-energy and that non-residential buildings will use about 30 percent less energy than the 2016 standards due mainly to lighting upgrades. The 2019 standards also encourage the use of battery storage and heat pump water heaters, require the more widespread use of LED lighting, as well as improve the building's thermal envelope through high performance attics, walls and windows. The 2019 standards also require improvements to ventilation systems by requiring highly efficient air filters to trap hazardous air particulates as well as improvements to kitchen ventilation systems.

California Code of Regulations (CCR) Title 24, Part 11

CCR Title 24, Part 11: *California Green Building Standards* (CalGreen) was developed in response to continued efforts to reduce GHG emissions associated with energy consumption. The CalGreen Building Standards are also updated every three years and the current version is the 2019 California Green Building Standard Code that become effective on January 1, 2020.

The CALGreen Code contains requirements for construction site selection; storm water control during construction; construction waste reduction; indoor water use reduction; material selection; natural resource conservation; site irrigation conservation; and more. The code provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. The code also requires building commissioning, which is a process for verifying that all building systems (e.g., heating and cooling equipment and lighting systems) are functioning at their maximum efficiency.

The CALGreen Code provides standards for bicycle parking, carpool/vanpool/electric vehicle spaces, light and glare reduction, grading and paving, energy efficient appliances, renewable energy, graywater systems, water efficient plumbing fixtures, recycling and recycled materials, pollutant controls (including moisture control and indoor air quality), acoustical controls, storm water management, building design, insulation, flooring, and framing, among others. Implementation of the CALGreen Code measures reduces energy consumption and vehicle trips and encourages the use of alternative-fuel vehicles, which reduces pollutant emissions.

Some of the notable changes in the 2019 CALGreen Code over the prior 2016 CALGreen Code include: an alignment of building code engineering requirements with the national standards that include anchorage requirements for solar panels, provides design requirements for buildings in tsunami zones, increases Minimum Efficiency Reporting Value (MERV) for air filters from 8 to 13, increased electric vehicle charging requirements in parking areas, and sets minimum requirements for use of shade trees.

Executive Order N-79-20

The California Governor issued Executive Order N-79-20 on September 23, 2020 that requires all new passenger cars and trucks and commercial drayage trucks sold in California to be zero-emissions by the year 2035 and all medium- heavy-duty vehicles (commercial trucks) sold in the state to be zero-emission by 2045 for all operations where feasible. Executive Order N-79-20 also requires all off-road vehicles and equipment to transition to 100 percent zero-emission equipment, where feasible by 2035.

Senate Bill 100

Senate Bill 100 (SB 100) was adopted September 2018 and requires that by December 1, 2045 that 100 percent of retail sales of electricity to be generated from renewable or zero-carbon emission sources of electricity. SB 100 supersedes the renewable energy requirements set by SB 350, SB 1078, SB 107, and SB X1-2. However, the interim renewable energy thresholds from the prior Bills of 44 percent by December 31, 2024, 52 percent by December 31, 2027, and 60 percent by December 31, 2030, will remain in effect.

Executive Order B-48-18 and Assembly Bill 2127

The California Governor issued Executive Order B-48-18 on January 26, 2018 that orders all state entities to work with the private sector to put at least five million zero-emission vehicles on California roads by 2030 and to install 200 hydrogen fueling stations and 250,000 electric vehicle chargers by 2025. Currently there are approximately 350,000 electric vehicles operating in California, which represents approximately 1.5 percent of the 24 million vehicles total currently operating in California. Implementation of Executive Order B-48-18 would result in approximately 20 percent of all vehicles in California to be zero emission electric vehicles. Assembly Bill 2127 (AB 2127) was codified into statute on September 13, 2018 and requires that the California Energy Commission working with the State Air Resources Board prepare biannual assessments of the statewide electric vehicle charging infrastructure needed to support the levels of zero emission vehicle adoption required for the State to meet its goals of putting at least 5 million zero-emission vehicles on California roads by 2030.

Executive Order B-30-15, Senate Bill 32 and Assembly Bill 197

The California Governor issued Executive Order B-30-15 on April 29, 2015 that aims to reduce California's GHG emissions 40 percent below 1990 levels by 2030. This executive order aligns California's GHG reduction targets with those of other international governments, such as the European Union that set the same target for 2030 in October, 2014. This target will make it possible to reach the ultimate goal of

reducing GHG emissions 80 percent under 1990 levels by 2050 that is based on scientifically established levels needed in the U.S.A to limit global warming below 2 degrees Celsius – the warming threshold at which scientists say there will likely be major climate disruptions such as super droughts and rising sea levels. Assembly Bill 197 (AB 197) (September 8, 2016) and Senate Bill 32 (SB 32) (September 8, 2016) codified into statute the GHG emissions reduction targets of at least 40 percent below 1990 levels by 2030 as detailed in Executive Order B-30-15. AB 197 also requires additional GHG emissions reporting that is broken down to sub-county levels and requires CARB to consider the social costs of emissions impacting disadvantaged communities.

Executive Order B-29-15

The California Governor issued Executive Order B-29-15 on April 1, 2015 and directed the State Water Resources Control Board to impose restrictions to achieve a statewide 25% reduction in urban water usage and directed the Department of Water Resources to replace 50 million square feet of lawn with drought tolerant landscaping through an update to the State's Model Water Efficient Landscape Ordinance. The Ordinance also requires installation of more efficient irrigation systems, promotion of greywater usage and onsite stormwater capture, and limits the turf planted in new residential landscapes to 25 percent of the total area and restricts turf from being planted in median strips or in parkways unless the parkway is next to a parking strip and a flat surface is required to enter and exit vehicles. Executive Order B-29-15 would reduce GHG emissions associated with the energy used to transport and filter water.

Assembly Bill 341 and Senate Bills 939 and 1374

Senate Bill 939 (SB 939) requires that each jurisdiction in California to divert at least 50 percent of its waste away from landfills, whether through waste reduction, recycling or other means. Senate Bill 1374 (SB 1374) requires the California Integrated Waste Management Board to adopt a model ordinance by March 1, 2004 suitable for adoption by any local agency to require 50 to 75 percent diversion of construction and demolition of waste materials from landfills. Assembly Bill 341 (AB 341) was adopted in 2011 and builds upon the waste reduction measures of SB 939 and 1374, and sets a new target of a 75 percent reduction in solid waste generated by the year 2020.

Senate Bill 375

Senate Bill 375 (SB 375) was adopted September 2008 in order to support the State's climate action goals to reduce GHG emissions through coordinated regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires CARB to set regional targets for GHG emissions reductions from passenger vehicle use. In 2010, CARB established targets for 2020 and 2035 for each Metropolitan Planning Organizations (MPO) within the State. It was up to each MPO to adopt a sustainable communities strategy (SCS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP) to meet CARB's 2020 and 2035 GHG emission reduction targets. These reduction targets are required to be updated every eight years and the most current targets are detailed at: https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets, which provides GHG emissions reduction targets for SCAG of 8 percent by 2020 and 19 percent by 2035.

The Connect SoCal (SCAG, 2020) provides a 2035 GHG emission reduction target of 19 percent reduction over the 2005 per capita emissions levels. The Connect SoCal include new initiatives of land use, transportation and technology to meet the new 19 percent GHG emission reduction target for 2035. CARB is also charged with reviewing SCAG's RTP/SCS for consistency with its assigned targets.

City and County land use policies, including General Plans, are not required to be consistent with the RTP and associated SCS. However, new provisions of CEQA incentivize, through streamlining and other provisions, qualified projects that are consistent with an approved SCS and categorized as "transit priority projects."

Assembly Bill 1109

California Assembly Bill 1109 (AB 1109) was adopted October 2007, also known as the Lighting Efficiency and Toxics Reduction Act, prohibits the manufacturing of lights after January 1, 2010 that contain levels of hazardous substances prohibited by the European Union pursuant to the RoHS Directive. AB 1109 also requires reductions in energy usage for lighting and is structured to reduce lighting electrical consumption by: (1) At least 50 percent reduction from 2007 levels for indoor residential lighting; and (2) At least 25 percent reduction from 2007 levels for indoor commercial and all outdoor lighting by 2018. AB 1109 would reduce GHG emissions through reducing the amount of electricity required to be generated by fossil fuels in California.

Executive Order S-1-07

Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Executive Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

In 2009 CARB approved the proposed regulation to implement the LCFS. The standard was challenged in the courts, but has been in effect since 2011 and was re-approved by the CARB in 2015. The LCFS is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. The LCFS is designed to provide a framework that uses market mechanisms to spur the steady introduction of lower carbon fuels. The framework establishes performance standards that fuel producers and importers must meet annually. Reformulated gasoline mixed with corn-derived ethanol and low-sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel. Compressed natural gas and liquefied natural gas also may be low-carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles, are also considered as low-carbon fuels.

Senate Bill 97

Senate Bill 97 (SB 97) was adopted August 2007 and acknowledges that climate change is a prominent environmental issue that requires analysis under CEQA. SB 97 directed the Governor's Office of Planning and Research (OPR), which is part of the State Natural Resources Agency, to prepare, develop, and transmit to CARB guidelines for the feasible mitigation of GHG emissions or the effects of GHG emissions, as required by CEQA, by July 1, 2009. The Natural Resources Agency was required to certify and adopt those guidelines by January 1, 2010.

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009 the Natural Resources Agency adopted amendments to the State CEQA guidelines that addresses GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporated GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance were provided and no

specific mitigation measures were identified. The GHG emission reduction amendments went into effect on March 18, 2010 and are summarized below:

- Climate Action Plans and other greenhouse gas reduction plans can be used to determine whether a project has significant impacts, based upon its compliance with the plan.
- Local governments are encouraged to quantify the GHG emissions of proposed projects, noting that they have the freedom to select the models and methodologies that best meet their needs and circumstances. The section also recommends consideration of several qualitative factors that may be used in the determination of significance, such as the extent to which the given project complies with state, regional, or local GHG reduction plans and policies. OPR does not set or dictate specific thresholds of significance. Consistent with existing CEQA Guidelines, OPR encourages local governments to develop and publish their own thresholds of significance for GHG impacts assessment.
- When creating their own thresholds of significance, local governments may consider the thresholds of significance adopted or recommended by other public agencies, or recommended by experts.
- New amendments include guidelines for determining methods to mitigate the effects of GHG emissions in Appendix F of the CEQA Guidelines.
- OPR is clear to state that "to qualify as mitigation, specific measures from an existing plan must be identified and incorporated into the project; general compliance with a plan, by itself, is not mitigation."
- OPR's emphasizes the advantages of analyzing GHG impacts on an institutional, programmatic level. OPR therefore approves tiering of environmental analyses and highlights some benefits of such an approach.
- Environmental impact reports must specifically consider a project's energy use and energy efficiency potential.

Assembly Bill 32

In 2006, the California State Legislature adopted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires CARB, to adopt rules and regulations that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020 through an enforceable statewide emission cap which will be phased in starting in 2012. Emission reductions shall include carbon sequestration projects that would remove carbon from the atmosphere and utilize best management practices that are technologically feasible and cost effective.

In 2007 CARB released the calculated Year 1990 GHG emissions of 431 $MMTCO_2e$. The 2020 target of 431 $MMTCO_2e$ requires the reduction of 78 $MMTCO_2e$, or approximately 16 percent from the State's projected 2020 business as usual emissions of 509 $MMTCO_2e$ (CARB, 2014). Under AB 32, CARB was required to adopt regulations by January 1, 2011 to achieve reductions in GHGs to meet the 1990 cap by 2020. Early measures CARB took to lower GHG emissions included requiring operators of the largest industrial facilities that emit 25,000 metric tons of CO_2 in a calendar year to submit verification of GHG emissions by December 1, 2010. The CARB Board also approved nine discrete early action measures that include regulations affecting landfills, motor vehicle fuels, refrigerants in cars, port operations and other sources, all of which became enforceable on or before January 1, 2010.

CARB's Scoping Plan that was adopted in 2009, proposes a variety of measures including: strengthening energy efficiency and building standards; targeted fees on water and energy use; a market-based cap-and-trade system; achieving a 33 percent renewable energy mix; and a fee regulation to fund the program. The 2014 update to the Scoping Plan identifies strategies moving beyond the 2020 targets to the year 2050.

The Cap and Trade Program established under the Scoping Plan sets a statewide limit on sources responsible for 85 percent of California's GHG emissions, and has established a market for long-term investment in energy efficiency and cleaner fuels since 2012.

Executive Order S-3-05

In 2005 the California Governor issued Executive Order S 3-05, GHG Emission, which established the following reduction targets:

- 2010: Reduce greenhouse gas emissions to 2000 levels;
- 2020: Reduce greenhouse gas emissions to 1990 levels;
- 2050: Reduce greenhouse gas emissions to 80 percent below 1990 levels.

The Executive Order directed the secretary of the California Environmental Protection Agency (CalEPA) to coordinate a multi-agency effort to reduce GHG emissions to the target levels. To comply with the Executive Order, the secretary of CalEPA created the California Climate Action Team (CAT), made up of members from various state agencies and commissions. The team released its first report in March 2006. The report proposed to achieve the targets by building on the voluntary actions of businesses, local governments, and communities and through State incentive and regulatory programs. The State achieved its first goal of reducing GHG emissions to 2000 levels by 2010.

Assembly Bill 1493

California Assembly Bill 1493 (also known as the Pavley Bill, in reference to its author Fran Pavley) was enacted on July 22, 2002 and required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2004, CARB approved the "Pavley I" regulations limiting the amount of GHGs that may be released from new passenger automobiles that are being phased in between model years 2009 through 2016. These regulations will reduce GHG emissions by 30 percent from 2002 levels by 2016. In June 2009, the EPA granted California the authority to implement GHG emission reduction standards for light duty vehicles, in September 2009, amendments to the Pavley I regulations were adopted by CARB and implementation of the "Pavley I" regulations started in 2009.

The second set of regulations "Pavley II" was developed in 2010, and is being phased in between model years 2017 through 2025 with the goal of reducing GHG emissions by 45 percent by the year 2020 as compared to the 2002 fleet. The Pavley II standards were developed by linking the GHG emissions and formerly separate toxic tailpipe emissions standards previously known as the "LEV III" (third stage of the Low Emission Vehicle standards) into a single regulatory framework. The new rules reduce emissions from gasoline-powered cars as well as promote zero-emissions auto technologies such as electricity and hydrogen, and through increasing the infrastructure for fueling hydrogen vehicles. In 2009, the U.S. EPA granted California the authority to implement the GHG standards for passenger cars, pickup trucks and sport utility vehicles and these GHG emissions standards are currently being implemented nationwide. However, EPA has performed a midterm evaluation of the longer-term standards for model years 2022-2025, and based on the findings of this midterm evaluation, the EPA proposed The Safer Affordable Fuel

Efficient (SAFE) Vehicles Proposed Rule for Model Years 2021-2026 that amends the corporate average fuel economy (CAFE) and GHG emissions standards for light vehicles for model years 2021 through 2026. The EPA's proposed amendments do not include any extension of the legal waiver granted to California by the 1970 Clean Air Act and which has allowed the State to set tighter standards for vehicle pipe emissions than the EPA standards. On September 20, 2019, California filed suit over the EPA decision to revoke California's legal waiver that has been joined by 22 other states.

5.4 Regional – Southern California

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the South Coast Air Basin. To that end, as a regional agency, the SCAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state agencies.

South Coast Air Quality Management District

SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emission sources, and enforces such measures through educational programs or fines, when necessary. SCAQMD is directly responsible for reducing emissions from stationary, mobile, and indirect sources. The SCAQMD is also responsible for GHG emissions for projects where it is the lead agency. However, for other projects in the Air Basin where it is not the lead agency, it is limited to providing resources to other lead agencies in order to assist them in determining GHG emission thresholds and GHG reduction measures. In order to assist local agencies with direction on GHG emissions, the SCAQMD organized a working group, which is described below.

SCAQMD Working Group

Since neither CARB nor the OPR has developed GHG emissions threshold, the SCAQMD formed a Working Group to develop significance thresholds related to GHG emissions. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that either provides a quantitative annual thresholds of 3,500 $MTCO_2e$ for residential uses, 1,400 $MTCO_2e$ for commercial uses, and 3,000 $MTCO_2e$ for mixed uses. An alternative annual threshold of 3,000 $MTCO_2e$ for all land use types is also proposed.

Southern California Association of Governments

The SCAG is the regional planning agency for Los Angeles, Orange, Ventura, Riverside, San Bernardino, and Imperial Counties and addresses regional issues relating to transportation, the economy, community development and the environment. SCAG is the federally designated Metropolitan Planning Organization (MPO) for the majority of the southern California region and is the largest MPO in the nation. With respect to air quality planning, SCAG has prepared the Connect SoCal and 2019 FTIP addresses regional development and growth forecasts. Although the Connect SoCal and 2019 FTIP are primarily planning documents for future transportation projects a key component of these plans is to integrate land use planning with transportation planning that promotes higher density infill development in close proximity to existing transit service. These plans form the basis for the land use and transportation components of the AQMP, which are utilized in the preparation of air quality forecasts and in the consistency analysis included in the AQMP. The Connect SoCal, 2019FTIP, and AQMP are based on projections originating within the City and County General Plans.

5.5 Local – City of San Bernardino

Local jurisdictions, such as the City of San Bernardino, have the authority and responsibility to reduce GHG emissions through their police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of GHG emissions resulting from its land use decisions. In accordance with CEQA requirements and the CEQA review process, the City assesses the global climate change potential of new development projects, requires mitigation of potentially significant global climate change impacts by conditioning discretionary permits, and monitors and enforces implementation of such mitigation.

6.0 ATMOSPHERIC SETTING

6.1 South Coast Air Basin

The project site is located within western San Bernardino County, which is part of the South Coast Air Basin (Air Basin) that includes the non-desert portions of Riverside, San Bernardino, and Los Angeles Counties and all of Orange County. The Air Basin is located on a coastal plain with connecting broad valleys and low hills to the east. Regionally, the Air Basin is bounded by the Pacific Ocean to the southwest and high mountains to the east forming the inland perimeter.

6.2 Local Climate

The climate of western San Bernardino County, technically called an interior valley subclimate of the Southern California's Mediterranean-type climate, is characterized by hot dry summers, mild moist winters with infrequent rainfall, moderate afternoon breezes, and generally fair weather. Occasional periods of strong Santa Ana winds and winter storms interrupt the otherwise mild weather pattern. The clouds and fog that form along the area's coastline rarely extend as far inland as western San Bernardino County. When morning clouds and fog form, they typically burn off quickly after sunrise. The most important weather pattern from an air quality perspective is associated with the warm season airflow across the densely populated areas located west of the project site. This airflow brings polluted air into western San Bernardino County late in the afternoon. This transport pattern creates unhealthful air quality that may extend to the project site particularly during the summer months.

Winds are an important parameter in characterizing the air quality environment of a project site because they both determine the regional pattern of air pollution transport and control the rate of dispersion near a source. Daytime winds in western San Bernardino County are usually light breezes from off the coast as air moves regionally onshore from the cool Pacific Ocean to the warm Mojave Desert interior of Southern California. These winds allow for good local mixing, but as discussed above, these coastal winds carry significant amounts of industrial and automobile air pollutants from the densely urbanized western portion of the Air Basin into the interior valleys which become trapped by the mountains that border the eastern and northern edges of the Air Basin.

In the summer, strong temperature inversions may occur that limit the vertical depth through which air pollution can be dispersed. Air pollutants concentrate because they cannot rise through the inversion layer and disperse. These inversions are more common and persistent during the summer months. Over time, sunlight produces photochemical reactions within this inversion layer that creates ozone, a particularly harmful air pollutant. Occasionally, strong thermal convections occur which allows the air pollutants to rise high enough to pass over the mountains and ultimately dilute the smog cloud.

In the winter, light nocturnal winds result mainly from the drainage of cool air off of the mountains toward the valley floor while the air aloft over the valley remains warm. This forms a type of inversion known as a radiation inversion. Such winds are characterized by stagnation and poor local mixing and trap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution "hot spots" in heavily developed coastal areas of the Air Basin, there is not enough traffic in inland valleys to cause any winter air pollution problems. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the project vicinity.

The temperature and precipitation levels for the San Bernardino Fire Station 226 Monitoring Station, which is the nearest weather station to the project site with historical data are shown below in Table D. Table D shows that August is typically the warmest month and January is typically the coolest month. Rainfall in the project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

Table D – Monthly Climate Data

Month	Average Maximum Temperature (°F)	Average Minimum Temperature (°F)	Average Total Precipitation (inches)
January	66.2	38.5	3.22
February	68.1	40.9	3.25
March	70.4	43.0	2.86
April	75.6	46.3	1.29
May	80.4	50.6	0.47
June	88.6	54.3	0.09
July	96.2	59.1	0.04
August	96.2	59.4	0.15
September	92.1	55.9	0.33
October	83.2	49.7	0.71
November	74.6	42.4	1.32
December	67.7	38.6	2.38
Annual	**79.9**	**48.2**	**16.12**

Source: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7723

6.3 Monitored Local Air Quality

The air quality at any site is dependent on the regional air quality and local pollutant sources. Regional air quality is determined by the release of pollutants throughout the Air Basin. Estimates of the existing emissions in the Air Basin provided in the 2012 AQMP, indicate that collectively, mobile sources account for 59 percent of the VOC, 88 percent of the NOx emissions and 40 percent of directly emitted PM2.5, with another 10 percent of PM2.5 from road dust. The 2016 AQMP found that since 2012 AQMP projections were made stationary source VOC emissions have decreased by approximately 12 percent, but mobile VOC emissions have increased by 5 percent. The percentage of NOx emissions remain unchanged between the 2012 and 2016 projections.

SCAQMD has divided the Air Basin into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The project site is located in Air Monitoring Area 34, Central San Bernardino Valley, which covers the area from Fontana to the base of the San Bernardino Mountains. The nearest air monitoring station to the project site is the San Bernardino-4th Street Monitoring Station (San Bernardino Station), which is located approximately 1.4 miles north of the project site at 24302 4th Street, San Bernardino. However, it should be noted that due to the air monitoring station's distance from the project site, recorded air pollution levels at the San Bernardino Station reflect with varying degrees of accuracy, local air quality conditions at the project site. The monitoring data is presented in Table E and shows the most recent three years of monitoring data from CARB. CO measurements have not been

provided, since CO is currently in attainment in the Air Basin and monitoring of CO within the Air Basin ended on March 31, 2013.

Table E – Local Area Air Quality Monitoring Summary

Pollutant [1] (Standard)	Year[1] 2018	2019	2020
Ozone:			
Maximum 1-Hour Concentration (ppm)	0.138	0.127	0.162
Days > CAAQS (0.09 ppm)	**63**	**63**	**89**
Maximum 8-Hour Concentration (ppm)	0.116	0.114	0.128
Days > NAAQS (0.070 ppm)	**102**	**96**	**130**
Days > CAAQs (0.070 ppm)	**107**	**96**	**132**
Nitrogen Dioxide:			
Maximum 1-Hour Concentration (ppb)	57.3	59.3	54.0
Days > NAAQS (100 ppb)	0	0	0
Days > CAAQS (180 ppb)	0	0	0
Inhalable Particulates (PM10) :			
Maximum 24-Hour National Measurement (ug/m^3)	130.2	112.7	174.8
Days > NAAQS (150 ug/m^3)	0	0	**1**
Days > CAAQS (50 ug/m^3)	**5**	**4**	**8**
Annual Arithmetic Mean (AAM) (ug/m^3)	30.7	30.4	41.1
Annual > NAAQS (50 ug/m^3)	No	No	No
Annual > CAAQS (20 ug/m^3)	**Yes**	**Yes**	**Yes**
Ultra-Fine Particulates (PM2.5):			
Maximum 24-Hour National Measurement (ug/m^3)	30.1	60.5	56.6
Days > NAAQS (35 ug/m^3)	0	**1**	**2**
Annual Arithmetic Mean (AAM) (ug/m^3)	11.1	ND	12.2
Annual > NAAQS and CAAQS (12 ug/m^3)	No	No	No

Notes: Exceedances are listed in **bold.** CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million; ppb = parts per billion; ND = no data available.
[1] Data obtained from the San Bernardino Station.
Source: http://www.arb.ca.gov/adam/

Ozone

During the last three years, the State 1-hour concentration standard for ozone has been exceeded between 63 and 89 days each year at the San Bernardino Station. The State 8-hour ozone standard has been exceeded between 96 and 132 days each year over the last three years at the San Bernardino Station. The Federal 8-hour ozone standard has been exceeded between 96 and 130 days each year over the last three years at the San Bernardino Station. Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO_2, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react

during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of Southern California contribute to the ozone levels experienced at this monitoring station, with the more significant areas being those directly upwind.

Nitrogen Dioxide

The San Bernardino Station did not record an exceedance of either the Federal or State 1-hour NO_2 standards for the last three years.

Particulate Matter

The State 24-hour concentration standard for PM10 has been exceeded between 4 and 8 days each year over the past three years at the San Bernardino Station. Over the past three years the Federal 24-hour standard for PM10 has only been exceeded for one day at the San Bernardino Station. The annual PM10 concentration at the San Bernardino Station has exceeded the State standard for the past three years and has not exceeded the Federal standard for the past three years.

Over the past three years the federal 24-hour concentration standard for PM2.5 has been exceeded between 0 and 2 days each year over the past three years at the San Bernardino Station. The annual PM2.5 concentrations at the San Bernardino Station has been within both the State and Federal standards for the past three years. There does not appear to be a noticeable trend for PM10 or PM2.5 in either maximum particulate concentrations or days of exceedances in the area. Particulate levels in the area are due to natural sources, grading operations, and motor vehicles.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive, because many breathe through their mouths during exercise.

6.2 Toxic Air Contaminant Levels

In order to determine the risks associated with major airborne carcinogens, the SCAQMD conducted the Multiple Air Toxics Exposure Study (MATES) studies. According to the SCAQMD's MATES-IV study, the project site has an estimated cancer risk of 838 per million persons chance of cancer. In comparison, the average cancer risk for Southern California is 991 per million persons, which is based on the use of age-sensitivity factors detailed in the OEHHA Guidelines (OEHHA, 2015).

In order to provide a perspective of risk, it is often estimated that the incidence in cancer over a lifetime for the U.S. population ranges between 1 in 3 to 4 and 1 in 3, or a risk of about 300,000 per million persons. The MATES-III study referenced a Harvard Report on Cancer Prevention, which estimated that of cancers associated with known risk factors, about 30 percent were related to tobacco, about 30 percent were related to diet and obesity, and about 2 percent were associated with environmental pollution related exposures that includes hazardous air pollutants.

7.0 MODELING PARAMETERS AND ASSUMPTIONS

7.1 CalEEMod Model Input Parameters

The criteria air pollution and year 2030 GHG emissions impacts created by the proposed project have been analyzed through use of CalEEMod Version 2020.4.0. CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2017 computer program to calculate the emission rates specific for the South Coast Air Basin portion of San Bernardino County for employee, vendor and haul truck vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy equipment operations. EMFAC2017 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour.

The project characteristics in the CalEEMod model were set to a project location of the South Coast Air Basin portion of San Bernardino County, a Climate Zone of 10, utility company of Southern California Edison, and an opening year of 2023.

Land Use Parameters

The proposed project consists of development of an 89,475 square foot warehouse with 16 truck loading dock doors and would provide 94 automobile parking spaces. The proposed project's land use parameters that were entered into the CalEEMod model are shown in Table F.

Table F – CalEEMod Land Use Parameters

Proposed Land Use	Land Use Subtype in CalEEMod	Land Use Size[1]	Lot Acreage[2]	Building/Paving[3] (square feet)
Unrefrigerated Warehouse	Unrefrigerated Warehouse No Rail	89.475 TSF	2.29	89,475
Paved Area (Truck Loading Area, Driveways, and Parking Lots)	Parking Lot	94 PS	1.55	67,518

Notes:
[1] TSF = Thousand Square Feet; PS = Parking Space
[2] Lot acreage calculated based on the total project site of 3.84-acres.
[3] Building/Paving square feet represent area where architectural coatings will be applied. Paved area based on CalEEMod default values.

Construction Parameters

Construction activities have been modeled as starting in March 2022 and taking 14 months to complete, which is based on the CalEEMod model default timing. The phases of construction activities that have been analyzed are detailed below and include: 1) Demolition, 2) Site Preparation, 3) Grading, 4) Building construction, 5) Paving, and 6) Application of architectural coatings.

Demolition

The demolition phase would consist of demolishing the existing two industrial buildings, which totals approximately 27,500 square feet of building space to be demolished. In addition, the existing parking lots and truck loading areas on the project site would also need to be demolished, which has been estimated to cover 68,000 square feet of the project site. The pavement was assumed to be an average of 4-inches thick and weigh 145 pounds per square foot, which results in 1,643 tons of pavement that would be removed from the project site. For the existing structures to be demolished, CalEEMod utilizes a factor of 0.046 tons of debris of building material per building square foot. This results in 2,185 tons of

debris that would be generated from demolition of the existing structures. Therefore, the combined demolition of the structure and pavement area would require the removal of 3,828 tons of debris that would be exported from the site and would require a total of 379 haul truck trips (average 19 haul truck trips per day).

The demolition phase has been modeled as starting in March 2021 and occurring over four weeks. The demolition activities would generate 15 worker trips per day. In order to account for water truck emissions, six vendor truck emissions were added to the demolition phase. The onsite equipment would consist of one concrete/industrial saw, three excavators, and two of either tractors, loaders, or backhoes, which is based on the CalEEMod default equipment mix. The mitigation of water all exposed areas two times per day was chosen in order to account for the fugitive dust reduction that would occur through adhering to SCAQMD Rule 403, which requires that the Best Available Control Measures be utilized to reduce fugitive dust emissions.

Site Preparation

The site preparation phase would consist of removing any vegetation, tree stumps, and stones onsite prior to grading. The site preparation phase was modeled as starting after completion of the demolition phase and occurring over one week. The site preparation activities would require 18 worker trips per day. In order to account for water truck emissions, six vendor truck emissions were added to the site preparation phase. The onsite equipment would consist of three rubber-tired dozers and four of either tractors, loaders, or backhoes, which is based on the CalEEMod default equipment mix. The mitigation of water all exposed areas two times per day was chosen in order to account for the fugitive dust reduction that would occur through adhering to SCAQMD Rule 403, which requires that the Best Available Control Measures be utilized to reduce fugitive dust emissions.

Grading

The grading phase was modeled as starting after the completion of the site preparation phase and was based on occurring over eight working days. The grading would likely be balanced, which would result in no dirt being imported or exported from the project site. The grading phase would generate 15 worker trips per day. In order to account for water truck emissions, six daily vendor truck trips were added to the grading phase. The onsite equipment would consist of one excavator, one grader, one rubber-tired dozer, and three of either tractors, loaders, or backhoes, which is based on the CalEEMod default equipment mix. The mitigation of water all exposed areas two times per day was chosen in order to account for the fugitive dust reduction that would occur through adhering to SCAQMD Rule 403, which requires that the Best Available Control Measures be utilized to reduce fugitive dust emissions.

Building Construction

The building construction would occur after the completion of the grading phase and was modeled as occurring over 11 months. The building construction would generate an average of 66 worker trips and 26 vendor trips per day. The onsite equipment would consist of the simultaneous operation of one crane, three forklifts, one generator, one welder, and three of either tractors, loaders, or backhoes, which is based on the CalEEMod default equipment mix.

Paving

The paving phase would consist of paving the onsite driveways, parking lots and truck loading area. The paving phase would occur after the completion of the building construction phase and was modeled as

occurring over 18 working days. The paving phase would generate 20 worker trips per day. The onsite equipment would consist of the simultaneous operation of two cement and mortar mixers, one paver, two paving equipment, two rollers, and two of either tractors, loaders, or backhoes, which is based on the CalEEMod default equipment mix.

Architectural Coating

The application of architectural coatings phase would occur after the completion of the paving phase and was modeled as occurring over 18 working days. The architectural coating phase was modeled based on covering 134,213 square feet of non-residential interior area, 44,738 square feet of non-residential exterior area, and 4,051 square feet of paved area. The architectural coating phase would generate 13 worker trips per day. The onsite equipment would consist of one air compressor, which is based on the CalEEMod default equipment mix.

Operational Emissions Modeling

The operations-related criteria air pollutant emissions created by the proposed project have been analyzed through use of the CalEEMod model. The proposed project was analyzed in the CalEEMod model based on the land use parameters provided above and all of the operational sources analyzed by the CalEEMod model are described below.

Mobile Sources

Mobile sources include emissions the additional vehicle miles generated from the proposed project. The daily vehicle trip rates associated with the proposed project have been obtained from *Amazing 34 Warehouse Vehicle Miles Traveled (VMT) Screening Evaluation* (VMT Memo), prepared by Urban Crossroads, August 13, 2021. The VMT Memo found that the two existing warehouse buildings on the project site generate a total of 84 daily trips and the proposed warehouse would generate a total of 158 daily trips. The proposed project would generate a net total of 74 daily trips, of which would consist of the following breakdown: 54 passenger cars, 4 2-axle trucks, 4 3-axle trucks, and 12 4+-axle trucks.

According to *Review of SCAQMD Staff Comments and Testimony on Warehouse Projects*, prepared by Southern California Leadership Council, March 14, 2014, SCAQMD requires that truck trip length should be set to 40 miles in CalEEMod. In order to account for the longer truck trip length in CalEEMod, the 20 net daily truck trips were analyzed under the "Parking Lot" land use because the parking lot use generates no vehicle trips on its own (the row's default are "zeros") so it was an available placeholder allowing analysis solely of the project's trucks without mixing the trucks with any other trip-generating use. The passenger car trip lengths were based on the default trip lengths. The vehicle trips rates utilized for each land use are provided in Table G.

Table G – Net Inventory of Vehicle Trips During Full Operation of Proposed Project

		Net Daily Trip Generation Rates	
Land Use Type in CalEEMod	**Land Use Size[1]**	**Trips Rates[2]**	**Total Daily Trips**
Unrefrigerated Warehouse No Rail - Autos	89.475 TSF	0.60 per TSF	54
Parking Lot - Trucks	1.55 AC	12.93 per AC	20

Notes:
[1] TSF = Thousand Square Foot, AC = Acre
[2] Daily Trip rates obtained from the VMT Memo (Urban Crossroads, 2021).

In order to account for the four 2-axle trucks, four 3-axle trucks, and 12 4+-axle trucks trips generated by the proposed project, the vehicle mixes utilized in the CalEEMod model for the Parking Lot land use were adjusted to match the truck generation rates provided in the Traffic Analysis. In addition, the vehicle mix for the Unrefrigerated Warehouse was also adjusted to remove the truck trips from this land use, since all truck trips generated from the proposed project were analyzed under the Parking Lot land use. The vehicle mixes utilized in the CalEEMod model are shown in Table H. No other changes were made to the CalEEMod default mobile source parameters.

Table H – Fleet Mix During Full Operation of Proposed Project

Land Use	LDA	LDT1	LDT2	MDV	LHD2	MHD	HHD	MCY
Unrefrigerated Warehouse No Rail – Autos	0.579	0.059	0.185	0.150	0	0	0	0.027
Parking Lot - Trucks	0	0	0	0	0.200	0.200	0.600	0

Notes:
LDA = Light Duty Auto; LDT1 = Light-Duty Trucks (less than 3,750 pounds gross vehicle weight rating [GVWR]); LDT2 = Light-Duty Trucks (3,751 to 6,000 pounds GVWR); MDV = Medium-Duty Trucks (6,000 to 8,500 pounds GVWR); LHD1 = Light-Heavy-Duty Trucks 1 (8,501 to 10,000 pounds GVWR); LHD2 = Light-Heavy-Duty Trucks 2 (GVWR 10,001 to 14,000 pounds); MHD = Medium-Heavy-Duty Trucks (GVWR 19,501 to 33,000 pounds); HHD = Heavy-Heavy-Duty Trucks (GVWR 33,000+ pounds); and MCY = motorcycles.
[1] The Truck fleet mix was based on the Truck Fleet Mix provided in the VMT Memo (Urban Crossroads, 2021), with 2-axle trucks analyzed as LHD2, 3-axle trucks analyzed as MHD, and 4+-axle trucks analyzed as HHD.
.

The CalEEMod model provides the selection of "mitigation" to account for project conditions that would result in less emissions than a project without these conditions, however it should be noted that this "mitigation" may represent current conditions, such as development that is in close proximity to an existing transit facility, where a project built at such location would create less vehicle trips and associated emissions than a project that was not built in close proximity to an existing transit facility. The mobile source emissions analysis for the project included the CalEEMod "mitigation" of improved pedestrian network on project site and increase transit accessibility with 0.01 mile to the nearest transit to account for the existing Omnitrans Bus Stop located, adjacent to the project site on Waterman Avenue.

Area Sources

Area sources include emissions from consumer products, landscape equipment and architectural coatings. The area source emissions were based on the on-going use of the proposed project in the CalEEMod model. No changes were made to the default area source parameters in the CalEEMod model.

Energy Usage

Energy usage includes emissions from electricity and natural gas used onsite. The energy usage was based on the ongoing use of the proposed project in the CalEEMod Model. The energy usage was based on the ongoing use of the proposed project in the CalEEMod Model. No changes were made to the default energy usage parameters in the CalEEMod model.

According to *2019 Building Energy Efficiency Standards Frequently Asked Questions*, prepared by the California Energy Commission, March 2018, the 2019 Title 24, Part 6 building energy efficiency standards that went into effect January 1, 2020 result in 7 percent more efficient building energy efficiency than the 2016 Title 24 standards and require new lighting energy improvements that are 30 percent more efficient than the prior 2016 building standards. In order to account for the new standards, the CalEEMod "mitigation" of exceed Title 24 by 7 percent and provide a 30 percent lighting energy improvement was selected.

Solid Waste

Waste includes the emissions associated with the processing of waste from the proposed project as well as the emissions from the waste once it is interred into a landfill. The analysis was based on the default CalEEMod waste generation rates of 98 tons of solid waste per year from the proposed project. No changes were made to the default solid waste parameters or mitigation measures in the CalEEMod model.

The CalEEMod "mitigation" of a 50 percent reduction in landfill waste was selected to account for implementation of AB 341 that provides strategies to reduce, recycle or compost solid waste by 75 percent by 2020. Only 50 percent was selected, since AB 341 builds upon the waste reduction measures of SB 939 and 1374 and therefore, it was assumed approximately 25 percent of the waste reduction target has already been accounted for in the CalEEMod model.

Water and Wastewater

Water includes the water used for the interior of the building as well as for landscaping and is based on the emissions associated with the energy used to transport and filter the water. The analysis was based on the default CalEEMod water usage rate of 3,953,377 gallons per year of indoor water usage and 2,423,037 gallons per year of outdoor water usage. No changes were made to the default water and wastewater parameters in the CalEEMod model.

The CalEEMod "mitigation" of the use of low flow faucets and toilets and use of smart irrigation system controllers were selected to account for the implementation of the 2016 CCR Title 24 Part 11 (CalGreen) requirements.

Off-Road Equipment

The primary activity that would require the use of off-road equipment would be associated with forklifts unloading/loading of truck deliveries. As detailed above, operation of the proposed project is anticipated to generate a net increase of 20 daily truck trips, which equates to 10 truck deliveries per day. Based on 15 minutes of unloading/loading activities per truck delivery, this would result in 5 hours of forklift activities per day, which was analyzed in CalEEMod as one forklift operating 5 hours per day. In order to account for Project Design Feature 1, that restricts the operation of diesel-powered off-road equipment on the project site during long-term operations of the project, the forklift was analyzed as being powered with compressed natural gas (CNG).

8.0 THRESHOLDS OF SIGNIFICANCE

8.1 Regional Air Quality

Many air quality impacts that derive from dispersed mobile sources, which are the dominant pollution generators in the Air Basin, often occurs hours later and miles away after photochemical processes have converted primary exhaust pollutants into secondary contaminants such as ozone. The incremental regional air quality impact of an individual project is generally very small and difficult to measure. Therefore, SCAQMD has developed significance thresholds based on the volume of pollution emitted rather than on actual ambient air quality because the direct air quality impact of a project is not quantifiable on a regional scale. The SCAQMD CEQA Handbook states that any project in the Air Basin with daily emissions that exceed any of the identified significance thresholds should be considered as having an individually and cumulatively significant air quality impact. For the purposes to this air quality impact analysis, a regional air quality impact would be considered significant if emissions exceed the SCAQMD significance thresholds identified in Table I.

Table I – SCAQMD Regional Criteria Pollutant Emission Thresholds of Significance

	Pollutant Emissions (pounds/day)						
	VOC	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**	**Lead**
Construction	75	100	550	150	150	55	3
Operation	55	55	550	150	150	55	3

Source: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf?sfvrsn=2

8.2 Local Air Quality

Project-related construction air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. In order to assess local air quality impacts the SCAQMD has developed Localized Significant Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. SCAQMD has also provided *Final Localized Significance Threshold Methodology* (LST Methodology), July 2008, which details the methodology to analyze local air emission impacts. The LST Methodology found that the primary emissions of concern are NO_2, CO, PM10, and PM2.5.

The LST Methodology provides Look-Up Tables with different thresholds based on the location and size of the project site and distance to the nearest sensitive receptors. As detailed above in Section 6.3, the project site is located in Air Monitoring Area 34, which covers Central San Bernardino Valley. The Look-Up Tables provided in the LST Methodology include project site acreage sizes of 1-acre, 2-acres and 5-acres. Since the project site is 3.84 gross acres, the 2-acre and 5-acre project sites shown in the Look-Up Tables were interpolated in order to calculate the 3.84-acre threshold that has been utilized in this analysis.

The nearest sensitive receptor is a single-family home located as near as 85 feet (26 meters) to the east of the project site. In order to provide a conservative analysis, the 25 meter threshold was utilized. Table J below shows the LSTs for NOx, CO, PM10 and PM2.5 for both construction and operational activities.

Table J – SCAQMD Local Air Quality Thresholds of Significance

Activity	Allowable Emissions (pounds/day)[1]			
	NOx	CO	PM10	PM2.5
Construction	231.3	1,446.7	11.3	6.5
Operation	231.3	1,446.7	3.2	1.6

Notes:

[1] The nearest sensitive receptor to the project site is a single-family home located as near as 85 feet (26 meters) to the east of the project site. In order to provide a conservative analysis, the 25-meter threshold was utilized.

Source: Calculated from SCAQMD's Mass Rate Look-up Tables for two and five acres in Air Monitoring Area 34, Central San Bernardino Valley.

8.3 Toxic Air Contaminants

According to the SCAQMD CEQA Handbook, any project that has the potential to expose the public to toxic air contaminants in excess of the following thresholds would be considered to have a significant air quality impact:

- If the Maximum Incremental Cancer Risk is 10 in one million or greater; or
- Toxic air contaminants from the proposed project would result in a Hazard Index increase of 1 or greater.

In order to determine if the proposed project may have a significant impact related to toxic air contaminants (TACs), the *Health Risk Assessment Guidance for analyzing Cancer Risks from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*, (Diesel Analysis) prepared by SCAQMD, August 2003, recommends that if the proposed project is anticipated to create TACs through stationary sources or regular operations of diesel trucks on the project site, then the proximity of the nearest receptors to the source of the TAC and the toxicity of the hazardous air pollutant (HAP) should be analyzed through a comprehensive facility-wide health risk assessment (HRA).

8.4 Odor Impacts

The SCAQMD CEQA Handbook states that an odor impact would occur if the proposed project creates an odor nuisance pursuant to SCAQMD Rule 402, which states:

> "A person shall not discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.
>
> The provisions of this rule shall not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals."

If the proposed project results in a violation of Rule 402 with regards to odor impacts, then the proposed project would create a significant odor impact.

8.5 Greenhouse Gas Emissions

The proposed project is located within the jurisdiction of the SCAQMD. In order to identify significance criteria under CEQA for development projects, SCAQMD initiated a Working Group, which provided detailed methodology for evaluating significance under CEQA. At the September 28, 2010 Working Group

meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual threshold of 3,000 $MTCO_2e$ for all land use projects. Although the SCAQMD provided substantial evidence supporting the use of the above threshold, as of November 2017, the SCAQMD Board has not yet considered or approved the Working Group's thresholds.

It should be noted that SCAQMD's Working Group's thresholds were prepared prior to the issuance of Executive Order B-30-15 on April 29, 2015 that provided a reduction goal of 40 percent below 1990 levels by 2030. This target was codified into statute through passage of AB 197 and SB 32 in September 2016. However, to date no air district or local agency within California has provided guidance on how to address AB 197 and SB 32 with relation to land use projects. In addition, the California Supreme Court's ruling on *Cleveland National Forest Foundation v. San Diego Association of Governments* (Cleveland v. SANDAG), Filed July 13, 2017 stated:

> SANDAG did not abuse its discretion in declining to adopt the 2050 goal as a measure of significance in light of the fact that the Executive Order does not specify any plan or implementation measures to achieve its goal. In its response to comments, the EIR said: "It is uncertain what role regional land use and transportation strategies can or should play in achieving the EO's 2050 emissions reduction target. A recent California Energy Commission report concludes, however, that the primary strategies to achieve this target should be major 'decarbonization' of electricity supplies and fuels, and major improvements in energy efficiency [citation].

Although, the above court case was referencing California's GHG emission targets for the year 2050, at this time it is also unclear what role land use strategies can or should play in achieving the AB 197 and SB 32 reduction goal of 40 percent below 1990 levels by 2030. As such this analysis has relied on the SCAQMD Working Group's recommended thresholds. Therefore, the proposed project would be considered to create a significant cumulative GHG impact if the proposed project would exceed the annual threshold of 3,000 $MTCO_2e$.

The GHG emissions analysis for both construction and operation of the proposed project can be found below in Sections 9.6 and 9.7.

9.0 IMPACT ANALYSIS

9.1 CEQA Thresholds of Significance

Consistent with CEQA and the State CEQA Guidelines, a significant impact related to air quality and GHG emissions would occur if the proposed project is determined to:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people;
- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment; or
- Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of GHGs.

9.2 Air Quality Compliance

The proposed project would not conflict with or obstruct implementation of the SCAQMD Air Quality Management Plan (AQMP). The following section discusses the proposed project's consistency with the SCAQMD AQMP.

SCAQMD Air Quality Management Plan

The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable General Plans and regional plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the SCAQMD AQMP. Therefore, this section discusses any potential inconsistencies of the proposed project with the AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed project would interfere with the region's ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency.

The SCAQMD CEQA Handbook states that "New or amended GP Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

(2) Whether the project will exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

Criterion 1 - Increase in the Frequency or Severity of Violations?

Based on the air quality modeling analysis contained in this report, short-term regional construction air emissions would not result in significant impacts based on SCAQMD regional thresholds of significance discussed above in Section 8.1 or local thresholds of significance discussed above in Section 8.2. The ongoing operation of the proposed project would generate air pollutant emissions that are inconsequential on a regional basis and would not result in significant impacts based on SCAQMD thresholds of significance discussed above in Section 8.1. The analysis for long-term local air quality impacts showed that local pollutant concentrations would not be projected to exceed the air quality standards. Therefore, a less than significant long-term impact would occur and no mitigation would be required.

Therefore, based on the information provided above, the proposed project would be consistent with the first criterion.

Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to insure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The AQMP is developed through use of the planning forecasts provided in the RTP/SCS and FTIP. The RTP/SCS is a major planning document for the regional transportation and land use network within Southern California. The RTP/SCS is a long-range plan that is required by federal and state requirements placed on SCAG and is updated every four years. The FTIP provides long-range planning for future transportation improvement projects that are constructed with state and/or federal funds within Southern California. Local governments are required to use these plans as the basis of their plans for the purpose of consistency with applicable regional plans under CEQA. For this project, the City of San Bernardino General Plan defines the assumptions that are represented in AQMP.

The proposed project is currently designated as Industrial (I) in the General Plan and is zoned Office Industrial Park (OIP). The proposed project will require a zone change to Industrial (IL) to make the project site consistent with the General Plan. Since the proposed project does not require a General Plan Amendment, implementation of the proposed project would not result in an inconsistency with the current land use designations with respect to the regional forecasts utilized by the AQMPs. As such, the proposed project is not anticipated to exceed the AQMP assumptions for the project site and is found to be consistent with the AQMP for the second criterion.

Based on the above, the proposed project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur in relation to implementation of the AQMP.

Level of Significance

Less than significant impact.

9.3 Cumulative Net Increase in Non-Attainment Pollution

The proposed project would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality

standard. The following section calculates the potential air emissions associated with the construction and operations of the proposed project and compares the emissions to the SCAQMD standards.

Construction Emissions

The construction activities for the proposed project are anticipated to include demolition of the two existing warehouse structures, site preparation and grading of the 3.84 gross acre project site, building construction of the proposed warehouse, paving, and application of architectural coatings. The construction emissions have been analyzed for both regional and local air quality impacts.

Construction-Related Regional Impacts

The CalEEMod model has been utilized to calculate the construction-related regional emissions from the proposed project and the input parameters utilized in this analysis have been detailed in Section 8.1. The worst-case summer or winter daily construction-related criteria pollutant emissions from the proposed project for each phase of construction activities are shown below in Table K and the CalEEMod daily printouts are shown in Appendix A. Since it is possible that building construction, paving, and architectural coating activities may occur concurrently towards the end of the building construction phase, Table K also shows the combined regional criteria pollutant emissions from building construction (year 2023), paving and architectural coating phases of construction.

Table K – Construction-Related Regional Criteria Pollutant Emissions

	Pollutant Emissions (pounds/day)					
Activity	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Demolition (Year 2022)[1]						
Onsite[2]	2.64	25.72	20.59	0.04	3.09	1.43
Offsite[3]	0.15	3.03	1.39	0.01	0.57	0.18
Total	**2.78**	**28.75**	**21.98**	**0.05**	**3.65**	**1.61**
Site Preparation (Year 2022)[1]						
Onsite[2]	3.17	33.08	19.70	0.04	10.46	6.03
Offsite[3]	0.09	0.33	0.84	<0.00	0.24	0.07
Total	**3.26**	**33.41**	**20.54**	**0.04**	**10.70**	**6.10**
Grading (Year 2022)[1]						
Onsite[2]	1.95	20.86	15.27	0.03	4.13	2.41
Offsite[3]	0.07	0.32	0.71	<0.00	0.21	0.06
Total	**2.02**	**21.17**	**15.99**	**0.03**	**4.34**	**2.47**
Building Construction (Year 2022)						
Onsite	1.71	15.62	16.36	0.03	0.81	0.76
Offsite	0.32	1.38	3.14	0.01	0.92	0.26
Total	**2.03**	**17.00**	**19.50**	**0.04**	**1.73**	**1.02**
Combined Year 2023 Building Construction, Paving, and Architectural Coatings						
Onsite	50.03	24.48	30.25	0.05	1.20	1.13
Offsite	0.42	1.21	4.12	0.01	1.28	0.35
Total	**50.45**	**25.69**	**34.36**	**0.06**	**2.49**	**1.48**
Maximum Daily Construction Emissions	**50.45**	**33.41**	**34.36**	**0.06**	**10.70**	**6.10**
SCQAMD Thresholds	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Threshold?	No	No	No	No	No	No

Notes:

[1] Demolition, Site Preparation and Grading based on adherence to fugitive dust suppression requirements from SCAQMD Rule 403.
[2] Onsite emissions from equipment not operated on public roads.
[3] Offsite emissions from vehicles operating on public roads.
Source: CalEEMod Version 2020.4.0.

Table K shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds during either demolition, site preparation, grading, or the combined building construction, paving and architectural coatings phases. Therefore, a less than significant regional air quality impact would occur from construction of the proposed project.

Construction-Related Local Impacts

Construction-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin.

The local air quality emissions from construction were analyzed through utilizing the methodology described in *Localized Significance Threshold Methodology* (LST Methodology), prepared by SCAQMD, revised October 2009. The LST Methodology found the primary criteria pollutant emissions of concern are NOx, CO, PM10, and PM2.5. In order to determine if any of these pollutants require a detailed analysis of the local air quality impacts, each phase of construction was screened using the SCAQMD's Mass Rate LST Look-up Tables. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily onsite emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality.

Table L shows the onsite emissions from the CalEEMod model for the different construction phases and the calculated localized emissions thresholds that have been detailed above in Section 9.2. Since it is possible that building construction, paving, and architectural coating activities may occur concurrently towards the end of the building construction phase, Table L also shows the combined local criteria pollutant emissions from year 2023 building construction, paving and architectural coating phases of construction.

Table L – Construction-Related Local Criteria Pollutant Emissions

Construction Phase	Pollutant Emissions (pounds/day)[1]			
	NOx	**CO**	**PM10**	**PM2.5**
Demolition[2]	26.10	20.77	3.16	1.46
Site Preparation[2]	33.12	19.80	10.49	6.04
Grading[2]	20.89	15.36	4.15	2.41
Building Construction (Year 2022)	15.79	16.76	0.92	0.79
Combined Building Construction (Year 2023), Paving and Architectural Coatings	25.89	30.91	1.48	1.28
Maximum Daily Construction Emissions	**33.12**	**30.91**	**10.49**	**6.04**
SCAQMD Local Construction Thresholds[3]	**231.3**	**1,446.7**	**11.3**	**6.5**
Exceeds Threshold?	No	No	No	No

Notes:
[1] The Pollutant Emissions include 100% of the On-Site emissions (off-road equipment and fugitive dust) and 1/8 of the Off-Site emissions (on road trucks and worker vehicles), in order to account for the on-road emissions that occur within a ¼ mile of the project site.
[2] Demolition, Site Preparation and Grading phases based on adherence to fugitive dust suppression requirements from SCAQMD Rule 403.

[3] The nearest offsite sensitive receptor to the project site is a single-family home located as near as 85 feet (26 meters) to the east of the project site. In order to provide a conservative analysis, the 25-meter threshold was utilized.
Source: Calculated from SCAQMD's Mass Rate Look-up Tables for two and five acres in Air Monitoring Area 34, Central San Bernardino Valley.

The data provided in Table L shows that none of the analyzed criteria pollutants would exceed the local emissions thresholds during either site preparation, grading, or the combined building construction, paving, and architectural coatings phases. Therefore, a less than significant local air quality impact would occur from construction of the proposed project.

Operational Emissions

The ongoing operation of the proposed project would result in a long-term increase in air quality emissions. This increase would be due to emissions from the project-generated vehicle trips, emissions from energy usage, onsite area source emissions, and off-road equipment created from the on-going use of the proposed project. The following section provides an analysis of potential long-term air quality impacts due to regional air quality and local air quality impacts with the on-going operations of the proposed project.

Operations-Related Regional Criteria Pollutant Analysis

The operations-related regional criteria air quality impacts created by the proposed project have been analyzed through use of the CalEEMod model and the input parameters utilized in this analysis have been detailed in Section 7.1. The worst-case summer or winter VOC, NOx, CO, SO_2, PM10, and PM2.5 daily emissions created from the proposed project's long-term operations have been calculated and are summarized below in Table M and the CalEEMod daily emissions printouts are shown in Appendix A.

Table M – Operational Regional Criteria Pollutant Emissions

	Pollutant Emissions (pounds/day)					
Activity	**VOC**	**NOx**	**CO**	**SO_2**	**PM10**	**PM2.5**
Area Sources[1]	2.03	<0.00	0.01	<0.00	<0.00	<0.00
Energy Usage[2]	<0.00	0.05	0.04	<0.00	<0.00	<0.00
Mobile Sources[3]	0.24	2.73	2.47	0.02	0.93	0.27
Off-Road Equipment[4]	0.01	0.44	5.79	<0.00	0.01	0.01
Total Emissions	**2.28**	**3.22**	**8.31**	**0.02**	**0.94**	**0.28**
SCQAMD Operational Thresholds[5]	**75**	**100**	**550**	**150**	**150**	**55**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consist of emissions from natural gas usage.
[3] Mobile sources consist of emissions from vehicles and road dust.
[4] Off-road equipment consists of emissions from forklifts utilized onsite (Project Design Feature 1 restricts the operation of diesel-powered forklifts, so forklifts have been analyzed as CNG-powered.
[5] The SCAQMD operational thresholds for the Coachella Valley are the same as the construction thresholds.
Source: Calculated from CalEEMod Version 2020.4.0.

The data provided in Table M shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds. Therefore, a less than significant regional air quality impact would occur from operation of the proposed project.

Friant Ranch Case

The operations-related regional criteria air quality impacts In *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502 (also referred to as "*Friant Ranch*"), the California Supreme Court held that when an EIR concluded that when a project would have significant impacts to air quality impacts, an EIR should "make a reasonable effort to substantively connect a project's air quality impacts to likely health consequences." In order to determine compliance with this Case, the Court developed a multi-part test that includes the following:

1) The air quality discussion shall describe the specific health risks created from each criteria pollutant, including diesel particulate matter.

This Analysis details the specific health risks created from each criteria pollutant above in Section 4.1 and specifically in Table B. In addition, the specific health risks created from diesel particulate matter is detailed above in Section 2.2 of this analysis. As such, this analysis meets the part 1 requirements of the Friant Ranch Case.

2) The analysis shall identify the magnitude of the health risks created from the Project. The Ruling details how to identify the magnitude of the health risks. Specifically, on page 24 of the ruling it states "The Court of Appeal identified several ways in which the EIR could have framed the analysis so as to adequately inform the public and decision makers of possible adverse health effects. The County could have, for example, identified the Project's impact on the days of nonattainment per year."

The Friant Ranch Case found that an EIR's air quality analysis must meaningfully connect the identified air quality impacts to the human health consequences of those impacts, or meaningfully explain why that analysis cannot be provided. As noted in the Brief of Amicus Curiae by the SCAQMD in the Friant Ranch case (https://www.courts.ca.gov/documents/9-s219783-ac-south-coast-air-quality-mgt-dist-041315.pdf) (Brief), SCAQMD has among the most sophisticated air quality modeling and health impact evaluation capability of any of the air districts in the State, and thus it is uniquely situated to express an opinion on how lead agencies should correlate air quality impacts with specific health outcomes. The SCAQMD discusses that it may be infeasible to quantify health risks caused by projects similar to the proposed Project, due to many factors. It is necessary to have data regarding the sources and types of air toxic contaminants, location of emission points, velocity of emissions, the meteorology and topography of the area, and the location of receptors (worker and residence). The Brief states that it may not be feasible to perform a health risk assessment for airborne toxics that will be emitted by a generic industrial building that was built on "speculation" (i.e., without knowing the future tenant(s)). Even where a health risk assessment can be prepared, however, the resulting maximum health risk value is only a calculation of risk, it does not necessarily mean anyone will contract cancer as a result of the Project. The Brief also cites the author of the CARB methodology, which reported that a PM2.5 methodology is not suited for small projects and may yield unreliable results. Similarly, SCAQMD staff does not currently know of a way to accurately quantify ozone-related health impacts caused by NOX or VOC emissions from relatively small projects, due to photochemistry and regional model limitations. The Brief concludes, with respect to the Friant Ranch EIR, that although it may have been technically possible to plug the data into a methodology, the results would not have been reliable or meaningful.

On the other hand, for extremely large regional projects (unlike the proposed project), the SCAQMD states that it has been able to correlate potential health outcomes for very large emissions sources – as part of

their rulemaking activity, specifically 6,620 pounds per day of NOx and 89,180 pounds per day of VOC were expected to result in approximately 20 premature deaths per year and 89,947 school absences due to ozone. As shown above in Table K, project-related construction activities would generate a maximum of 50.45 pounds per day of VOC and 33.41 pounds per day of NOx and as shown above in Table M, operation of the proposed project would generate 2.28 pounds per day of VOC and 3.22 pounds per day NOx. The proposed project would not generate anywhere near these levels of 6,620 pounds per day of NOx or 89,190 pounds per day of VOC emissions. Therefore, the proposed project's emissions are not sufficiently high enough to use a regional modeling program to correlate health effects on a basin-wide level.

Notwithstanding, this analysis does evaluate the proposed project's localized impact to air quality for emissions of CO, NOX, PM10, and PM2.5 by comparing the proposed project's onsite emissions to the SCAQMD's applicable LST thresholds. As evaluated in this analysis, the proposed project would not result in emissions that exceeded the SCAQMD's LSTs. Therefore, the proposed project would not be expected to exceed the most stringent applicable federal or state ambient air quality standards for emissions of CO, NOX, PM10, and PM2.5.

Operations-Related Local Air Quality Impacts

Project-related air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin. The proposed project has been analyzed for the potential local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts from on-site operations. The following analyzes the vehicular CO emissions and local impacts from on-site operations.

Local CO Hotspot Impacts from Project-Generated Vehicular Trips

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with project CO levels to the State and Federal CO standards of 20 ppm over one hour or 9 ppm over eight hours.

At the time of the 1993 Handbook, the Air Basin was designated nonattainment under the CAAQS and NAAQS for CO. With the turnover of older vehicles, introduction of cleaner fuels, and implementation of control technology on industrial facilities, CO concentrations in the Air Basin and in the state have steadily declined. According to the SCAQMD Air Quality Data Tables, in 2007 Central San Bernardino Valley had maximum CO concentrations of 4.0 ppm for 1 hour and 2.3 ppm for 8-hours and in 2019 Central San Bernardino Valley had maximum CO concentrations of 1.3 ppm for 1-hour and 1.1 ppm for 8-hours, which represent decreases in CO concentrations of 68 percent and 52 percent, respectively between 2019 and 2007. In 2007, the Air Basin was designated in attainment for CO under both the CAAQS and NAAQS. SCAQMD conducted a CO hot spot analysis for attainment at the busiest intersections in Los Angeles during the peak morning and afternoon periods and did not predict a violation of CO standards. (*The four intersections analyzed by the SCAQMD were: Long Beach Boulevard and Imperial Highway; Wilshire Boulevard and Veteran Avenue; Sunset Boulevard and Highland Avenue; and La Cienega Boulevard and Century Boulevard. The busiest intersection evaluated (Wilshire and Veteran) had a daily traffic volume of approximately 100,000 vehicles per day with LOS E in the morning and LOS F in the evening peak hour)*

Since the nearby intersections to the proposed project are much smaller with less traffic than what was analyzed by the SCAQMD and since the CO concentrations are now at least 52 percent lower than when CO was designated "Attainment" in 2007, no local CO Hotspot are anticipated to be created from the proposed project and no CO Hotspot modeling was performed. Therefore, a less than significant long-term air quality impact is anticipated to local air quality with the on-going use of the proposed project.

Local Criteria Pollutant Impacts from Onsite Operations

Project-related air emissions from onsite sources such as architectural coatings, landscaping equipment, and onsite usage of natural gas appliances may have the potential to create emissions areas that exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the Air Basin.

The local air quality emissions from onsite operations were analyzed using the SCAQMD's Mass Rate LST Look-up Tables and the methodology described in LST Methodology. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed project could result in a significant impact to the local air quality. Table N shows the onsite emissions from the CalEEMod model that includes area sources, energy usage, onsite off-road equipment, and vehicles operating in the immediate vicinity of the project site and the calculated emissions thresholds.

Table N – Operations-Related Local Criteria Pollutant Emissions

Onsite Emission Source	Pollutant Emissions (pounds/day)			
	NOx	**CO**	**PM10**	**PM2.5**
Area Sources	<0.00	0.01	<0.00	<0.00
Energy Usage	0.05	0.04	<0.00	<0.00
Mobile Sources[1]	0.34	0.31	0.12	0.03
Off-Road Equipment[2]	0.44	5.79	0.01	0.01
Total Emissions	**0.83**	**6.15**	**0.13**	**0.04**
SCAQMD Local Operational Thresholds[3]	**231.3**	**1,446.7**	**3.2**	**1.6**
Exceeds Threshold?	No	No	No	No

Notes:

[3] Mobile sources based on 1/8 of the gross vehicular emissions, which is the estimated portion of vehicle emissions occurring within a quarter mile of the project site.

[2] Off-road equipment consists of emissions from forklifts utilized onsite (Project Design Feature 1 restricts the operation of diesel-powered forklifts, so forklifts have been analyzed as CNG-powered

[3] The nearest sensitive receptor to the project site is a single-family home located as near as 85 feet (26 meters) to the east of the project site. In order to provide a conservative analysis, the 25-meter threshold was utilized.

Source: Calculated from SCAQMD's Mass Rate Look-up Tables for two and five acres in Air Monitoring Area 34, Central San Bernardino Valley.

The data provided in Table N shows that the on-going operations of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 9.2. Therefore, the on-going operations of the proposed project would create a less than significant operations-related impact to local air quality due to onsite emissions and no mitigation would be required.

Therefore, the proposed project would not result in a cumulatively considerable net increase of any criteria pollutant.

Level of Significance

Less than significant impact.

9.4 Sensitive Receptors

The proposed project would not expose sensitive receptors to substantial pollutant concentrations. The local concentrations of criteria pollutant emissions produced in the nearby vicinity of the proposed project, which may expose sensitive receptors to substantial concentrations have been calculated above in Section 9.3 for both construction and operations, which are discussed separately below. The discussion below also includes an analysis of the potential impacts from toxic air contaminant emissions. The nearest sensitive receptor to the project site is a single-family home located as near as 85 feet to the east of the project site. There are also multi-family homes located as near as 115 feet to the north of the project site and a single-family home located as near as 135 feet to the south of the project site.

Construction-Related Sensitive Receptor Impacts

Construction activities may expose sensitive receptors to substantial pollutant concentrations of localized criteria pollutant concentrations and from toxic air contaminant emissions created from onsite construction equipment, which are described below.

Local Criteria Pollutant Impacts from Construction

The local air quality impacts from construction of the proposed project has been analyzed above in Section 9.3 and found that the construction of the proposed project would not exceed the SCAQMD's local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 8.2. Therefore, construction of the proposed project would create a less than significant construction-related impact to local air quality and no mitigation would be required.

Toxic Air Contaminants Impacts from Construction

The greatest potential for toxic air contaminant emissions would be related to diesel particulate matter (DPM) emissions associated with heavy equipment operations during construction of the proposed project. According to SCAQMD methodology, health effects from carcinogenic air toxics are usually described in terms of "individual cancer risk". "Individual Cancer Risk" is the likelihood that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. It should be noted that the most current cancer risk assessment methodology recommends analyzing a 30 year exposure period for the nearby sensitive receptors (OEHHA, 2015).

Given the relatively limited number of heavy-duty construction equipment, the varying distances that construction equipment would operate to the nearby sensitive receptors, and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 30 or 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk. In addition, California Code of Regulations Title 13, Article 4.8, Chapter 9, Section 2449 regulates emissions from off-road diesel equipment in California. This regulation limits idling of equipment to no more than five minutes, requires equipment operators to label each piece of equipment and provide annual reports to CARB of their fleet's usage and emissions. This regulation also requires systematic upgrading of the emission Tier level of each fleet, and currently no commercial operator is allowed to purchase Tier 0 or Tier 1 equipment and by January 2023 no commercial operator is allowed to purchase Tier 2 equipment. In addition to the purchase restrictions, equipment operators need to meet fleet average emissions targets that become

more stringent each year between years 2014 and 2023. By January, 2022, 50 percent or more of all contractors' equipment fleets must be Tier 2 or higher. Therefore, due to the limited duration of construction, distances to the nearby sensitive receptors, and through adherence to State off-road equipment regulations, a less than significant short-term toxic air contaminant impacts would occur during construction of the proposed project. As such, construction of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

Operations-Related Sensitive Receptor Impacts

The on-going operations of the proposed project may expose sensitive receptors to substantial pollutant concentrations of local CO emission impacts from the project-generated vehicular trips and from the potential local air quality impacts from onsite operations. The following analyzes the vehicular CO emissions. Local criteria pollutant impacts from onsite operations, and toxic air contaminant impacts.

Local CO Hotspot Impacts from Project-Generated Vehicle Trips

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential impacts to sensitive receptors. The analysis provided above in Section 9.3 shows that no local CO Hotspots are anticipated to be created at any nearby intersections from the vehicle traffic generated by the proposed project. Therefore, operation of the proposed project would result in a less than significant exposure of offsite sensitive receptors to substantial pollutant concentrations.

Local Criteria Pollutant Impacts from Onsite Operations

The local air quality impacts from the operation of the proposed project would occur from onsite sources such as architectural coatings, landscaping equipment, and onsite usage of natural gas appliances. The analysis provided above in Section 9.3 found that the operation of the proposed project would not exceed the local NOx, CO, PM10 and PM2.5 thresholds of significance discussed above in Section 8.2. Therefore, the on-going operations of the proposed project would create a less than significant operations-related impact to local air quality due to on-site emissions and no mitigation would be required.

Operations-Related Toxic Air Contaminant Impacts

The proposed project consists of development of a warehouse that would generate DPM emissions from diesel truck deliveries to the project site. Particulate matter (PM) from diesel exhaust is the predominant TAC in most areas and according to *The California Almanac of Emissions and Air Quality 2013 Edition*, prepared by CARB, about 80 percent of the outdoor TAC cancer risk is from diesel exhaust. Some chemicals in diesel exhaust, such as benzene and formaldehyde have been listed as carcinogens by State Proposition 65 and the Federal Hazardous Air Pollutants program.

According to *Health Risk Assessments for Proposed Land Use Project*, prepared by CAPCOA, July 2009, recommends that if sensitive receptors are placed within 1,000 feet of distribution centers that generate more than 100 trucks deliveries per day or more than 40 trucks deliveries per day with transport refrigeration units (TRUs) a quantitative Health Risk Assessment (HRA) should be prepared to calculate the health risks. According to the VMT Memo (Urban Crossroads, 2021), the proposed project would generate a net total of 20 daily truck trips, since a trip is generated when a truck either arrives at the project site or leaves the project site, the 20 daily truck trips equates to 10 truck deliveries per day, which is well below the CAPCOA guidelines provided above for preparation of a quantitative HRA.

Since the proposed project would generate less truck deliveries than CAPCOA recommends for the preparation of a quantitative HRA, it can be reasonably concluded that the DPM emissions created from the on-going operation of the proposed project would result in a less than significant TAC impact to the nearby sensitive receptors and no mitigation would be required.

Therefore, operation of the proposed project would result in a less than significant exposure of sensitive receptors to substantial pollutant concentrations.

Level of Significance

Less than significant impact.

9.5 Odor Emissions Adversely Affecting a Substantial Number of People

The proposed project would not create objectionable odors affecting a substantial number of people. Individual responses to odors are highly variable and can result in a variety of effects. Generally, the impact of an odor results from a variety of factors such as frequency, duration, offensiveness, location, and sensory perception. The frequency is a measure of how often an individual is exposed to an odor in the ambient environment. The intensity refers to an individual's or group's perception of the odor strength or concentration. The duration of an odor refers to the elapsed time over which an odor is experienced. The offensiveness of the odor is the subjective rating of the pleasantness or unpleasantness of an odor. The location accounts for the type of area in which a potentially affected person lives, works, or visits; the type of activity in which he or she is engaged; and the sensitivity of the impacted receptor.

Sensory perception has four major components: detectability, intensity, character, and hedonic tone. The detection (or threshold) of an odor is based on a panel of responses to the odor. There are two types of thresholds: the odor detection threshold and the recognition threshold. The detection threshold is the lowest concentration of an odor that will elicit a response in a percentage of the people that live and work in the immediate vicinity of the project site and is typically presented as the mean (or 50 percent of the population). The recognition threshold is the minimum concentration that is recognized as having a characteristic odor quality, this is typically represented by recognition by 50 percent of the population. The intensity refers to the perceived strength of the odor. The odor character is what the substance smells like. The hedonic tone is a judgment of the pleasantness or unpleasantness of the odor. The hedonic tone varies in subjective experience, frequency, odor character, odor intensity, and duration. Potential odor impacts have been analyzed separately for construction and operations below.

Construction-Related Odor Impacts

Potential sources that may emit odors during construction activities include the application of coatings such as asphalt pavement, paints and solvents and from emissions from diesel equipment. Standard construction requirements that limit the time of day when construction may occur as well as SCAQMD Rule 1108 that limits VOC content in asphalt and Rule 1113 that limits the VOC content in paints and solvents would minimize odor impacts from construction. As such, the objectionable odors that may be produced during the construction process would be temporary and would not likely be noticeable for extended periods of time beyond the project site's boundaries. Through compliance with the applicable regulations that reduce odors and due to the transitory nature of construction odors, a less than significant odor impact would occur and no mitigation would be required.

Operations-Related Odor Impacts

The proposed project would consist of the development of a warehouse. Operation of the proposed project may create odors from diesel truck emissions, and from trash storage bins. Pursuant to City regulations, permanent trash enclosures that protect trash bins from rain as well as limit air circulation would be required for the trash storage areas. Diesel truck emissions odors would be generated intermittently from truck loading and unloading activities at the project site and would not likely be noticeable for extended periods of time beyond the project site boundaries. Due to the distance of the nearest receptors from the project site and through compliance with SCAQMD's Rule 402 and City trash storage regulations, no significant impact related to odors would occur during the on-going operations of the proposed project. Therefore, a less than significant odor impact would occur and no mitigation would be required.

Level of Significance

Less than significant impact.

9.6 Generation of Greenhouse Gas Emissions

The proposed project would not generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment. The proposed project would consist of the development of a warehouse. The proposed project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste disposal, water usage, and construction equipment. The project's GHG emissions have been calculated with the CalEEMod model based on the construction and operational parameters detailed in Section 7.1 above. A summary of the results is shown below in Table O and the CalEEMod model run annual printouts are provided in Appendix F.

Table O – Project Related Greenhouse Gas Annual Emissions

	Greenhouse Gas Emissions (Metric Tons per Year)			
Category	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Area Sources[1]	<0.00	<0.00	<0.00	<0.00
Energy Usage[2]	42.75	<0.00	<0.00	42.97
Mobile Sources[3]	300.07	0.01	0.04	311.75
Off-Road Equipment[4]	14.25	<0.00	<0.00	14.37
Solid Waste[5]	8.54	0.50	<0.00	21.15
Water and Wastewater[6]	45.86	0.57	0.01	64.30
Construction[7]	15.81	<0.00	<0.00	16.00
Total Emissions	427.27	1.10	0.05	**470.54**
SCAQMD Draft Threshold				**3,000**
Exceed Threshold?				**No**

Notes:
[1] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscaping equipment.
[2] Energy usage consists of GHG emissions from electricity and natural gas usage.
[3] Mobile sources consist of GHG emissions from vehicles.
[4] Off-road equipment consists of emissions from forklifts utilized onsite (Project Design Feature 1 restricts the operation of diesel-powered forklifts, so forklifts have been analyzed as CNG-powered).
[5] Waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.
[6] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[7] Construction emissions amortized over 30 years as recommended in the SCAQMD GHG Working Group on November 19, 2009.
Source: CalEEMod Version 2020.4.0.

The data provided in Table O shows that the proposed project would create 470.54 $MTCO_2e$ per year. According to the SCAQMD draft threshold of significance detailed above in Section 8.5, a cumulative global climate change impact would occur if the GHG emissions created from the on-going operations would exceed 3,000 $MTCO_2e$ per year. Therefore, a less than significant generation of greenhouse gas emissions would occur from development of the proposed project. Impacts would be less than significant.

Level of Significance

Less than significant impact.

9.7 Greenhouse Gas Plan Consistency

The proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing GHG emissions. The proposed project would consist of development of a warehouse. As detailed above in Section 9.6, the proposed project is anticipated to create 470.54 $MTCO_2e$ per year, which is well below the SCAQMD draft threshold of significance of 3,000 $MTCO_2e$ per year. The SCAQMD developed this threshold through a Working Group, which also developed detailed methodology for evaluating significance under CEQA. At the September 28, 2010 Working Group meeting, the SCAQMD released its most current version of the draft GHG emissions thresholds, which recommends a tiered approach that provides a quantitative annual threshold of 3,000 $MTCO_2e$ for all land use type projects, which was based on substantial evidence supporting the use of the recommended thresholds. Therefore, the proposed project would not conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Level of Significance

Less than significant impact.

10.0 REFERENCES

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APPENDIX A

CalEEMod Model Daily Printouts

Amazing 34 Warehouse - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Amazing 34 Warehouse

San Bernardino-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	89.47	1000sqft	2.29	89,475.00	0
Parking Lot	1.55	Acre	1.55	67,518.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Site 3.84 acres

Trips and VMT - 6 vendor trips added to Demo, Site Prep, and Grading to account for water truck emissions

Demolition - 2,185 tons of building materiial and 1,643 tons of pavement = 3,828 tons of demolition

Vehicle Trips - Truck Trips analyzed under Parking Lot Land use and the Auto Trips analyzed under the Unrefrigerated Warehouse Land Use

Construction Off-road Equipment Mitigation - Water Exposed Area 2x per day selected to account for SCAQMD Rule 403 minimum requirements

Mobile Land Use Mitigation - Improve Pedestrian Network on Project Site and 0.01 mile to nearest Transit Station

Energy Mitigation - 7% improvement to Title 24 and 30% Lighting Energy Reduction selected to account for 2019 Title 24 Improvements

Water Mitigation - Install Low-Flow fixtures and use water-efficient Irrigation Systems selected to account for Title 24 Part 11 requirements

Waste Mitigation - 50% reduction in solid waste selected to account for AB 341

Operational Off-Road Equipment - 1 forklift 5 hours per day. Per PDF 1, analyzed as CNG fuel

Amazing 34 Warehouse - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Fleet Mix - Vehicle Mix set to match TIA

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.02	0.60
tblFleetMix	HHD	0.02	0.00
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDA	0.54	0.58
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LDT2	0.17	0.19
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	7.1960e-003	0.20
tblFleetMix	LHD2	7.1960e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MCY	0.03	0.03
tblFleetMix	MDV	0.14	0.00
tblFleetMix	MDV	0.14	0.15
tblFleetMix	MH	5.0710e-003	0.00
tblFleetMix	MH	5.0710e-003	0.00
tblFleetMix	MHD	0.01	0.20
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	5.5900e-004	0.00
tblFleetMix	OBUS	5.5900e-004	0.00
tblFleetMix	SBUS	9.5400e-004	0.00
tblFleetMix	SBUS	9.5400e-004	0.00
tblFleetMix	UBUS	2.5400e-004	0.00
tblFleetMix	UBUS	2.5400e-004	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblLandUse	LandUseSquareFeet	89,470.00	89,475.00
tblLandUse	LotAcreage	2.05	2.29
tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	5.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	CC_TL	8.40	40.00
tblVehicleTrips	CC_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	0.00	12.93
tblVehicleTrips	ST_TR	1.74	0.60
tblVehicleTrips	SU_TR	0.00	12.93
tblVehicleTrips	SU_TR	1.74	0.60
tblVehicleTrips	WD_TR	0.00	12.93
tblVehicleTrips	WD_TR	1.74	0.60

2.0 Emissions Summary

Amazing 34 Warehouse - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.2568	33.3945	21.9823	0.0526	19.8967	1.6168	21.5134	10.1669	1.4875	11.6544	0.0000	5,237.9390	5,237.9390	1.2003	0.2140	5,329.5079
2023	47.3655	15.4526	19.1156	0.0382	0.9043	0.7102	1.6145	0.2436	0.6683	0.9119	0.0000	3,728.4984	3,728.4984	0.6370	0.0896	3,771.1070
Maximum	**47.3655**	**33.3945**	**21.9823**	**0.0526**	**19.8967**	**1.6168**	**21.5134**	**10.1669**	**1.4875**	**11.6544**	**0.0000**	**5,237.9390**	**5,237.9390**	**1.2003**	**0.2140**	**5,329.5079**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.2568	33.3945	21.9823	0.0526	9.0853	1.6168	10.7020	4.6105	1.4875	6.0981	0.0000	5,237.9390	5,237.9390	1.2003	0.2140	5,329.5079
2023	47.3655	15.4526	19.1156	0.0382	0.9043	0.7102	1.6145	0.2436	0.6683	0.9119	0.0000	3,728.4984	3,728.4984	0.6370	0.0896	3,771.1070
Maximum	**47.3655**	**33.3945**	**21.9823**	**0.0526**	**9.0853**	**1.6168**	**10.7020**	**4.6105**	**1.4875**	**6.0981**	**0.0000**	**5,237.9390**	**5,237.9390**	**1.2003**	**0.2140**	**5,329.5079**

Amazing 34 Warehouse - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**51.98**	**0.00**	**46.75**	**53.37**	**0.00**	**44.22**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.0288	8.0000e-005	9.2900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0199	0.0199	5.0000e-005		0.0212
Energy	5.3100e-003	0.0483	0.0406	2.9000e-004		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003		57.9677	57.9677	1.1100e-003	1.0600e-003	58.3122
Mobile	0.2794	3.3685	3.1305	0.0229	1.1974	0.0375	1.2348	0.3295	0.0358	0.3652		2,442.9961	2,442.9961	0.0871	0.3051	2,536.0958
Offroad	9.1000e-003	0.4433	5.7930	9.6000e-004		7.1500e-003	7.1500e-003		7.1500e-003	7.1500e-003	0.0000	120.8537	120.8537	0.0391		121.8308
Total	**2.3225**	**3.8603**	**8.9733**	**0.0242**	**1.1974**	**0.0483**	**1.2457**	**0.3295**	**0.0466**	**0.3761**	**0.0000**	**2,621.8374**	**2,621.8374**	**0.1273**	**0.3062**	**2,716.2600**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.0288	8.0000e-005	9.2900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0199	0.0199	5.0000e-005		0.0212
Energy	4.9500e-003	0.0450	0.0378	2.7000e-004		3.4200e-003	3.4200e-003		3.4200e-003	3.4200e-003		53.9705	53.9705	1.0300e-003	9.9000e-004	54.2912
Mobile	0.2417	2.5981	2.4717	0.0173	0.8979	0.0282	0.9261	0.2471	0.0269	0.2739		1,843.3045	1,843.3045	0.0672	0.2311	1,913.8582
Offroad	9.1000e-003	0.4433	5.7930	9.6000e-004		7.1500e-003	7.1500e-003		7.1500e-003	7.1500e-003	0.0000	120.8537	120.8537	0.0391		121.8308
Total	**2.2846**	**3.0865**	**8.3117**	**0.0185**	**0.8979**	**0.0388**	**0.9367**	**0.2471**	**0.0375**	**0.2845**	**0.0000**	**2,018.1485**	**2,018.1485**	**0.1073**	**0.2321**	**2,090.0015**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.63**	**20.05**	**7.37**	**23.35**	**25.01**	**19.75**	**24.81**	**25.01**	**19.57**	**24.34**	**0.00**	**23.03**	**23.03**	**15.69**	**24.19**	**23.06**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/1/2022	3/28/2022	5	20	
2	Site Preparation	Site Preparation	3/29/2022	4/4/2022	5	5	
3	Grading	Grading	4/5/2022	4/14/2022	5	8	
4	Building Construction	Building Construction	4/15/2022	3/2/2023	5	230	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5	Paving	Paving	3/3/2023	3/28/2023	5	18	
6	Architectural Coating	Architectural Coating	3/29/2023	4/21/2023	5	18	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 1.55

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 134,213; Non-Residential Outdoor: 44,738; Striped Parking Area: 4,051 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	6.00	379.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	66.00	26.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.0958	0.0000	4.0958	0.6201	0.0000	0.6201			0.0000			0.0000
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553		3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**	**4.0958**	**1.2427**	**5.3384**	**0.6201**	**1.1553**	**1.7754**		**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0717	2.5827	0.6739	0.0112	0.3319	0.0271	0.3590	0.0910	0.0260	0.1170		1,213.6813	1,213.6813	0.0520	0.1923	1,272.2947
Vendor	0.0105	0.2627	0.0964	1.1200e-003	0.0384	3.1300e-003	0.0416	0.0111	2.9900e-003	0.0141		120.0413	120.0413	3.2400e-003	0.0178	125.4161
Worker	0.0635	0.0402	0.6179	1.5500e-003	0.1677	8.8000e-004	0.1685	0.0445	8.1000e-004	0.0453		157.4352	157.4352	4.0900e-003	3.9200e-003	158.7050
Total	**0.1457**	**2.8857**	**1.3882**	**0.0138**	**0.5380**	**0.0311**	**0.5691**	**0.1465**	**0.0298**	**0.1763**		**1,491.1578**	**1,491.1578**	**0.0593**	**0.2140**	**1,556.4159**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.8431	0.0000	1.8431	0.2791	0.0000	0.2791			0.0000			0.0000
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553	0.0000	3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**	**1.8431**	**1.2427**	**3.0858**	**0.2791**	**1.1553**	**1.4343**	**0.0000**	**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0717	2.5827	0.6739	0.0112	0.3319	0.0271	0.3590	0.0910	0.0260	0.1170		1,213.6813	1,213.6813	0.0520	0.1923	1,272.2947
Vendor	0.0105	0.2627	0.0964	1.1200e-003	0.0384	3.1300e-003	0.0416	0.0111	2.9900e-003	0.0141		120.0413	120.0413	3.2400e-003	0.0178	125.4161
Worker	0.0635	0.0402	0.6179	1.5500e-003	0.1677	8.8000e-004	0.1685	0.0445	8.1000e-004	0.0453		157.4352	157.4352	4.0900e-003	3.9200e-003	158.7050
Total	**0.1457**	**2.8857**	**1.3882**	**0.0138**	**0.5380**	**0.0311**	**0.5691**	**0.1465**	**0.0298**	**0.1763**		**1,491.1578**	**1,491.1578**	**0.0593**	**0.2140**	**1,556.4159**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**19.6570**	**1.6126**	**21.2696**	**10.1025**	**1.4836**	**11.5860**		**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0105	0.2627	0.0964	1.1200e-003	0.0384	3.1300e-003	0.0416	0.0111	2.9900e-003	0.0141		120.0413	120.0413	3.2400e-003	0.0178	125.4161
Worker	0.0762	0.0483	0.7415	1.8600e-003	0.2012	1.0600e-003	0.2023	0.0534	9.7000e-004	0.0543		188.9222	188.9222	4.9100e-003	4.7000e-003	190.4461
Total	**0.0867**	**0.3110**	**0.8380**	**2.9800e-003**	**0.2396**	**4.1900e-003**	**0.2438**	**0.0644**	**3.9600e-003**	**0.0684**		**308.9635**	**308.9635**	**8.1500e-003**	**0.0225**	**315.8622**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.8457	0.0000	8.8457	4.5461	0.0000	4.5461			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**8.8457**	**1.6126**	**10.4582**	**4.5461**	**1.4836**	**6.0297**	**0.0000**	**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0105	0.2627	0.0964	1.1200e-003	0.0384	3.1300e-003	0.0416	0.0111	2.9900e-003	0.0141		120.0413	120.0413	3.2400e-003	0.0178	125.4161
Worker	0.0762	0.0483	0.7415	1.8600e-003	0.2012	1.0600e-003	0.2023	0.0534	9.7000e-004	0.0543		188.9222	188.9222	4.9100e-003	4.7000e-003	190.4461
Total	**0.0867**	**0.3110**	**0.8380**	**2.9800e-003**	**0.2396**	**4.1900e-003**	**0.2438**	**0.0644**	**3.9600e-003**	**0.0684**		**308.9635**	**308.9635**	**8.1500e-003**	**0.0225**	**315.8622**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656		2,872.0464	2,872.0464	0.9289		2,895.2684
Total	**1.9486**	**20.8551**	**15.2727**	**0.0297**	**7.0826**	**0.9409**	**8.0234**	**3.4247**	**0.8656**	**4.2903**		**2,872.0464**	**2,872.0464**	**0.9289**		**2,895.2684**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0105	0.2627	0.0964	1.1200e-003	0.0384	3.1300e-003	0.0416	0.0111	2.9900e-003	0.0141		120.0413	120.0413	3.2400e-003	0.0178	125.4161
Worker	0.0635	0.0402	0.6179	1.5500e-003	0.1677	8.8000e-004	0.1685	0.0445	8.1000e-004	0.0453		157.4352	157.4352	4.0900e-003	3.9200e-003	158.7050
Total	**0.0740**	**0.3030**	**0.7144**	**2.6700e-003**	**0.2061**	**4.0100e-003**	**0.2101**	**0.0555**	**3.8000e-003**	**0.0593**		**277.4765**	**277.4765**	**7.3300e-003**	**0.0217**	**284.1212**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.1872	0.0000	3.1872	1.5411	0.0000	1.5411			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656	0.0000	2,872.0464	2,872.0464	0.9289		2,895.2684
Total	**1.9486**	**20.8551**	**15.2727**	**0.0297**	**3.1872**	**0.9409**	**4.1280**	**1.5411**	**0.8656**	**2.4067**	**0.0000**	**2,872.0464**	**2,872.0464**	**0.9289**		**2,895.2684**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0105	0.2627	0.0964	1.1200e-003	0.0384	3.1300e-003	0.0416	0.0111	2.9900e-003	0.0141		120.0413	120.0413	3.2400e-003	0.0178	125.4161
Worker	0.0635	0.0402	0.6179	1.5500e-003	0.1677	8.8000e-004	0.1685	0.0445	8.1000e-004	0.0453		157.4352	157.4352	4.0900e-003	3.9200e-003	158.7050
Total	**0.0740**	**0.3030**	**0.7144**	**2.6700e-003**	**0.2061**	**4.0100e-003**	**0.2101**	**0.0555**	**3.8000e-003**	**0.0593**		**277.4765**	**277.4765**	**7.3300e-003**	**0.0217**	**284.1212**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Amazing 34 Warehouse - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0453	1.1385	0.4178	4.8500e-003	0.1666	0.0136	0.1801	0.0480	0.0130	0.0609		520.1790	520.1790	0.0141	0.0770	543.4698
Worker	0.2795	0.1770	2.7189	6.8100e-003	0.7377	3.8700e-003	0.7416	0.1957	3.5700e-003	0.1992		692.7148	692.7148	0.0180	0.0172	698.3022
Total	**0.3248**	**1.3156**	**3.1368**	**0.0117**	**0.9043**	**0.0174**	**0.9217**	**0.2436**	**0.0165**	**0.2601**		**1,212.8938**	**1,212.8938**	**0.0321**	**0.0942**	**1,241.7720**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Amazing 34 Warehouse - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0453	1.1385	0.4178	4.8500e-003	0.1666	0.0136	0.1801	0.0480	0.0130	0.0609		520.1790	520.1790	0.0141	0.0770	543.4698
Worker	0.2795	0.1770	2.7189	6.8100e-003	0.7377	3.8700e-003	0.7416	0.1957	3.5700e-003	0.1992		692.7148	692.7148	0.0180	0.0172	698.3022
Total	**0.3248**	**1.3156**	**3.1368**	**0.0117**	**0.9043**	**0.0174**	**0.9217**	**0.2436**	**0.0165**	**0.2601**		**1,212.8938**	**1,212.8938**	**0.0321**	**0.0942**	**1,241.7720**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Amazing 34 Warehouse - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0304	0.9120	0.3827	4.6500e-003	0.1666	6.8500e-003	0.1734	0.0480	6.5600e-003	0.0545		498.9873	498.9873	0.0130	0.0737	521.2720
Worker	0.2581	0.1557	2.4889	6.5900e-003	0.7377	3.6400e-003	0.7414	0.1957	3.3500e-003	0.1990		674.3012	674.3012	0.0161	0.0159	679.4290
Total	**0.2885**	**1.0677**	**2.8716**	**0.0112**	**0.9043**	**0.0105**	**0.9148**	**0.2436**	**9.9100e-003**	**0.2535**		**1,173.2885**	**1,173.2885**	**0.0292**	**0.0896**	**1,200.7010**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0304	0.9120	0.3827	4.6500e-003	0.1666	6.8500e-003	0.1734	0.0480	6.5600e-003	0.0545		498.9873	498.9873	0.0130	0.0737	521.2720
Worker	0.2581	0.1557	2.4889	6.5900e-003	0.7377	3.6400e-003	0.7414	0.1957	3.3500e-003	0.1990		674.3012	674.3012	0.0161	0.0159	679.4290
Total	**0.2885**	**1.0677**	**2.8716**	**0.0112**	**0.9043**	**0.0105**	**0.9148**	**0.2436**	**9.9100e-003**	**0.2535**		**1,173.2885**	**1,173.2885**	**0.0292**	**0.0896**	**1,200.7010**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9181	8.7903	12.1905	0.0189		0.4357	0.4357		0.4025	0.4025		1,805.4304	1,805.4304	0.5673		1,819.6122
Paving	0.2256					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1437**	**8.7903**	**12.1905**	**0.0189**		**0.4357**	**0.4357**		**0.4025**	**0.4025**		**1,805.4304**	**1,805.4304**	**0.5673**		**1,819.6122**

Amazing 34 Warehouse - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0782	0.0472	0.7542	2.0000e-003	0.2236	1.1000e-003	0.2247	0.0593	1.0200e-003	0.0603		204.3337	204.3337	4.8800e-003	4.8000e-003	205.8876
Total	**0.0782**	**0.0472**	**0.7542**	**2.0000e-003**	**0.2236**	**1.1000e-003**	**0.2247**	**0.0593**	**1.0200e-003**	**0.0603**		**204.3337**	**204.3337**	**4.8800e-003**	**4.8000e-003**	**205.8876**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9181	8.7903	12.1905	0.0189		0.4357	0.4357		0.4025	0.4025	0.0000	1,805.4304	1,805.4304	0.5673		1,819.6122
Paving	0.2256					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1437**	**8.7903**	**12.1905**	**0.0189**		**0.4357**	**0.4357**		**0.4025**	**0.4025**	**0.0000**	**1,805.4304**	**1,805.4304**	**0.5673**		**1,819.6122**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0782	0.0472	0.7542	2.0000e-003	0.2236	1.1000e-003	0.2247	0.0593	1.0200e-003	0.0603		204.3337	204.3337	4.8800e-003	4.8000e-003	205.8876
Total	**0.0782**	**0.0472**	**0.7542**	**2.0000e-003**	**0.2236**	**1.1000e-003**	**0.2247**	**0.0593**	**1.0200e-003**	**0.0603**		**204.3337**	**204.3337**	**4.8800e-003**	**4.8000e-003**	**205.8876**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.1230					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**47.3147**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0508	0.0307	0.4902	1.3000e-003	0.1453	7.2000e-004	0.1460	0.0385	6.6000e-004	0.0392		132.8169	132.8169	3.1700e-003	3.1200e-003	133.8269
Total	**0.0508**	**0.0307**	**0.4902**	**1.3000e-003**	**0.1453**	**7.2000e-004**	**0.1460**	**0.0385**	**6.6000e-004**	**0.0392**		**132.8169**	**132.8169**	**3.1700e-003**	**3.1200e-003**	**133.8269**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.1230					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**47.3147**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0508	0.0307	0.4902	1.3000e-003	0.1453	7.2000e-004	0.1460	0.0385	6.6000e-004	0.0392		132.8169	132.8169	3.1700e-003	3.1200e-003	133.8269
Total	**0.0508**	**0.0307**	**0.4902**	**1.3000e-003**	**0.1453**	**7.2000e-004**	**0.1460**	**0.0385**	**6.6000e-004**	**0.0392**		**132.8169**	**132.8169**	**3.1700e-003**	**3.1200e-003**	**133.8269**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2417	2.5981	2.4717	0.0173	0.8979	0.0282	0.9261	0.2471	0.0269	0.2739		1,843.3045	1,843.3045	0.0672	0.2311	1,913.8582
Unmitigated	0.2794	3.3685	3.1305	0.0229	1.1974	0.0375	1.2348	0.3295	0.0358	0.3652		2,442.9961	2,442.9961	0.0871	0.3051	2,536.0958

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	20.04	20.04	20.04	291,804	218,820
Unrefrigerated Warehouse-No Rail	53.68	53.68	53.68	230,066	172,523
Total	73.72	73.72	73.72	521,870	391,343

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	16.60	40.00	6.90	0.00	100.00	0.00	100	0	0
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.000000	0.000000	0.000000	0.000000	0.000000	0.200000	0.200000	0.600000	0.000000	0.000000	0.000000	0.000000	0.000000
Unrefrigerated Warehouse-No Rail	0.579000	0.059000	0.185000	0.150000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.027000	0.000000	0.000000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	4.9500e-003	0.0450	0.0378	2.7000e-004		3.4200e-003	3.4200e-003		3.4200e-003	3.4200e-003		53.9705	53.9705	1.0300e-003	9.9000e-004	54.2912
NaturalGas Unmitigated	5.3100e-003	0.0483	0.0406	2.9000e-004		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003		57.9677	57.9677	1.1100e-003	1.0600e-003	58.3122

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	492.725	5.3100e-003	0.0483	0.0406	2.9000e-004		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003		57.9677	57.9677	1.1100e-003	1.0600e-003	58.3122
Total		**5.3100e-003**	**0.0483**	**0.0406**	**2.9000e-004**		**3.6700e-003**	**3.6700e-003**		**3.6700e-003**	**3.6700e-003**		**57.9677**	**57.9677**	**1.1100e-003**	**1.0600e-003**	**58.3122**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0.458749	4.9500e-003	0.0450	0.0378	2.7000e-004		3.4200e-003	3.4200e-003		3.4200e-003	3.4200e-003		53.9705	53.9705	1.0300e-003	9.9000e-004	54.2912
Total		**4.9500e-003**	**0.0450**	**0.0378**	**2.7000e-004**		**3.4200e-003**	**3.4200e-003**		**3.4200e-003**	**3.4200e-003**		**53.9705**	**53.9705**	**1.0300e-003**	**9.9000e-004**	**54.2912**

6.0 Area Detail

Amazing 34 Warehouse - San Bernardino-South Coast County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.0288	8.0000e-005	9.2900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0199	0.0199	5.0000e-005		0.0212
Unmitigated	2.0288	8.0000e-005	9.2900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0199	0.0199	5.0000e-005		0.0212

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2324					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.7955					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.6000e-004	8.0000e-005	9.2900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0199	0.0199	5.0000e-005		0.0212
Total	**2.0288**	**8.0000e-005**	**9.2900e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0199**	**0.0199**	**5.0000e-005**		**0.0212**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2324					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.7955					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.6000e-004	8.0000e-005	9.2900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0199	0.0199	5.0000e-005		0.0212
Total	**2.0288**	**8.0000e-005**	**9.2900e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0199**	**0.0199**	**5.0000e-005**		**0.0212**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Forklifts	1	5.00	260	89	0.20	CNG

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Forklifts	9.1000e-003	0.4433	5.7930	9.6000e-004		7.1500e-003	7.1500e-003		7.1500e-003	7.1500e-003	0.0000	120.8537	120.8537	0.0391		121.8308
Total	**9.1000e-003**	**0.4433**	**5.7930**	**9.6000e-004**		**7.1500e-003**	**7.1500e-003**		**7.1500e-003**	**7.1500e-003**	**0.0000**	**120.8537**	**120.8537**	**0.0391**		**121.8308**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Amazing 34 Warehouse - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Amazing 34 Warehouse

San Bernardino-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	89.47	1000sqft	2.29	89,475.00	0
Parking Lot	1.55	Acre	1.55	67,518.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Site 3.84 acres

Trips and VMT - 6 vendor trips added to Demo, Site Prep, and Grading to account for water truck emissions

Demolition - 2,185 tons of building materiial and 1,643 tons of pavement = 3,828 tons of demolition

Vehicle Trips - Truck Trips analyzed under Parking Lot Land use and the Auto Trips analyzed under the Unrefrigerated Warehouse Land Use

Construction Off-road Equipment Mitigation - Water Exposed Area 2x per day selected to account for SCAQMD Rule 403 minimum requirements

Mobile Land Use Mitigation - Improve Pedestrian Network on Project Site and 0.01 mile to nearest Transit Station

Energy Mitigation - 7% improvement to Title 24 and 30% Lighting Energy Reduction selected to account for 2019 Title 24 Improvements

Water Mitigation - Install Low-Flow fixtures and use water-efficient Irrigation Systems selected to account for Title 24 Part 11 requirements

Waste Mitigation - 50% reduction in solid waste selected to account for AB 341

Operational Off-Road Equipment - 1 forklift 5 hours per day. Per PDF 1, analyzed as CNG fuel

Amazing 34 Warehouse - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Fleet Mix - Vehicle Mix set to match TIA

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.02	0.60
tblFleetMix	HHD	0.02	0.00
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDA	0.54	0.58
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LDT2	0.17	0.19
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	7.1960e-003	0.20
tblFleetMix	LHD2	7.1960e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MCY	0.03	0.03
tblFleetMix	MDV	0.14	0.00
tblFleetMix	MDV	0.14	0.15
tblFleetMix	MH	5.0710e-003	0.00
tblFleetMix	MH	5.0710e-003	0.00
tblFleetMix	MHD	0.01	0.20
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	5.5900e-004	0.00
tblFleetMix	OBUS	5.5900e-004	0.00
tblFleetMix	SBUS	9.5400e-004	0.00
tblFleetMix	SBUS	9.5400e-004	0.00
tblFleetMix	UBUS	2.5400e-004	0.00
tblFleetMix	UBUS	2.5400e-004	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblLandUse	LandUseSquareFeet	89,470.00	89,475.00
tblLandUse	LotAcreage	2.05	2.29
tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	5.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	CC_TL	8.40	40.00
tblVehicleTrips	CC_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	0.00	12.93
tblVehicleTrips	ST_TR	1.74	0.60
tblVehicleTrips	SU_TR	0.00	12.93
tblVehicleTrips	SU_TR	1.74	0.60
tblVehicleTrips	WD_TR	0.00	12.93
tblVehicleTrips	WD_TR	1.74	0.60

2.0 Emissions Summary

Amazing 34 Warehouse - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.2534	33.4101	21.8906	0.0525	19.8967	1.6168	21.5134	10.1669	1.4875	11.6544	0.0000	5,224.1307	5,224.1307	1.2003	0.2143	5,315.7852
2023	47.3637	15.5119	18.6870	0.0376	0.9043	0.7103	1.6146	0.2436	0.6684	0.9120	0.0000	3,666.3071	3,666.3071	0.6369	0.0903	3,709.1337
Maximum	**47.3637**	**33.4101**	**21.8906**	**0.0525**	**19.8967**	**1.6168**	**21.5134**	**10.1669**	**1.4875**	**11.6544**	**0.0000**	**5,224.1307**	**5,224.1307**	**1.2003**	**0.2143**	**5,315.7852**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.2534	33.4101	21.8906	0.0525	9.0853	1.6168	10.7021	4.6105	1.4875	6.0981	0.0000	5,224.1307	5,224.1307	1.2003	0.2143	5,315.7852
2023	47.3637	15.5119	18.6870	0.0376	0.9043	0.7103	1.6146	0.2436	0.6684	0.9120	0.0000	3,666.3071	3,666.3071	0.6369	0.0903	3,709.1337
Maximum	**47.3637**	**33.4101**	**21.8906**	**0.0525**	**9.0853**	**1.6168**	**10.7021**	**4.6105**	**1.4875**	**6.0981**	**0.0000**	**5,224.1307**	**5,224.1307**	**1.2003**	**0.2143**	**5,315.7852**

Amazing 34 Warehouse - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**51.98**	**0.00**	**46.75**	**53.37**	**0.00**	**44.22**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.0288	8.0000e-005	9.2900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0199	0.0199	5.0000e-005		0.0212
Energy	5.3100e-003	0.0483	0.0406	2.9000e-004		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003		57.9677	57.9677	1.1100e-003	1.0600e-003	58.3122
Mobile	0.2524	3.5388	2.8561	0.0225	1.1974	0.0375	1.2348	0.3295	0.0358	0.3652		2,404.0911	2,404.0911	0.0874	0.3060	2,497.4635
Offroad	9.1000e-003	0.4433	5.7930	9.6000e-004		7.1500e-003	7.1500e-003		7.1500e-003	7.1500e-003	0.0000	120.8537	120.8537	0.0391		121.8308
Total	**2.2956**	**4.0305**	**8.6989**	**0.0238**	**1.1974**	**0.0483**	**1.2457**	**0.3295**	**0.0466**	**0.3761**	**0.0000**	**2,582.9324**	**2,582.9324**	**0.1276**	**0.3071**	**2,677.6278**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	2.0288	8.0000e-005	9.2900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0199	0.0199	5.0000e-005		0.0212
Energy	4.9500e-003	0.0450	0.0378	2.7000e-004		3.4200e-003	3.4200e-003		3.4200e-003	3.4200e-003		53.9705	53.9705	1.0300e-003	9.9000e-004	54.2912
Mobile	0.2153	2.7315	2.2792	0.0170	0.8979	0.0282	0.9261	0.2471	0.0269	0.2740		1,814.4311	1,814.4311	0.0676	0.2319	1,885.2188
Offroad	9.1000e-003	0.4433	5.7930	9.6000e-004		7.1500e-003	7.1500e-003		7.1500e-003	7.1500e-003	0.0000	120.8537	120.8537	0.0391		121.8308
Total	**2.2581**	**3.2199**	**8.1192**	**0.0182**	**0.8979**	**0.0388**	**0.9367**	**0.2471**	**0.0375**	**0.2846**	**0.0000**	**1,989.2752**	**1,989.2752**	**0.1078**	**0.2329**	**2,061.3621**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.63**	**20.11**	**6.66**	**23.31**	**25.01**	**19.74**	**24.81**	**25.01**	**19.56**	**24.34**	**0.00**	**22.98**	**22.98**	**15.52**	**24.16**	**23.02**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/1/2022	3/28/2022	5	20	
2	Site Preparation	Site Preparation	3/29/2022	4/4/2022	5	5	
3	Grading	Grading	4/5/2022	4/14/2022	5	8	
4	Building Construction	Building Construction	4/15/2022	3/2/2023	5	230	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5	Paving	Paving	3/3/2023	3/28/2023	5	18	
6	Architectural Coating	Architectural Coating	3/29/2023	4/21/2023	5	18	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 1.55

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 134,213; Non-Residential Outdoor: 44,738; Striped Parking Area: 4,051 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	6.00	379.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	66.00	26.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					4.0958	0.0000	4.0958	0.6201	0.0000	0.6201			0.0000			0.0000
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553		3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**	**4.0958**	**1.2427**	**5.3384**	**0.6201**	**1.1553**	**1.7754**		**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

Amazing 34 Warehouse - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0687	2.7117	0.6891	0.0112	0.3319	0.0272	0.3590	0.0910	0.0260	0.1170		1,214.5875	1,214.5875	0.0518	0.1925	1,273.2401
Vendor	0.0101	0.2758	0.0998	1.1200e-003	0.0384	3.1400e-003	0.0416	0.0111	3.0000e-003	0.0141		120.1737	120.1737	3.2200e-003	0.0178	125.5572
Worker	0.0610	0.0423	0.5076	1.4000e-003	0.1677	8.8000e-004	0.1685	0.0445	8.1000e-004	0.0453		142.5884	142.5884	4.0800e-003	4.0400e-003	143.8959
Total	**0.1398**	**3.0299**	**1.2965**	**0.0137**	**0.5380**	**0.0312**	**0.5692**	**0.1465**	**0.0298**	**0.1764**		**1,477.3496**	**1,477.3496**	**0.0591**	**0.2143**	**1,542.6932**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.8431	0.0000	1.8431	0.2791	0.0000	0.2791			0.0000			0.0000
Off-Road	2.6392	25.7194	20.5941	0.0388		1.2427	1.2427		1.1553	1.1553	0.0000	3,746.7812	3,746.7812	1.0524		3,773.0920
Total	**2.6392**	**25.7194**	**20.5941**	**0.0388**	**1.8431**	**1.2427**	**3.0858**	**0.2791**	**1.1553**	**1.4343**	**0.0000**	**3,746.7812**	**3,746.7812**	**1.0524**		**3,773.0920**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0687	2.7117	0.6891	0.0112	0.3319	0.0272	0.3590	0.0910	0.0260	0.1170		1,214.5875	1,214.5875	0.0518	0.1925	1,273.2401
Vendor	0.0101	0.2758	0.0998	1.1200e-003	0.0384	3.1400e-003	0.0416	0.0111	3.0000e-003	0.0141		120.1737	120.1737	3.2200e-003	0.0178	125.5572
Worker	0.0610	0.0423	0.5076	1.4000e-003	0.1677	8.8000e-004	0.1685	0.0445	8.1000e-004	0.0453		142.5884	142.5884	4.0800e-003	4.0400e-003	143.8959
Total	**0.1398**	**3.0299**	**1.2965**	**0.0137**	**0.5380**	**0.0312**	**0.5692**	**0.1465**	**0.0298**	**0.1764**		**1,477.3496**	**1,477.3496**	**0.0591**	**0.2143**	**1,542.6932**

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**19.6570**	**1.6126**	**21.2696**	**10.1025**	**1.4836**	**11.5860**		**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

Amazing 34 Warehouse - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0101	0.2758	0.0998	1.1200e-003	0.0384	3.1400e-003	0.0416	0.0111	3.0000e-003	0.0141		120.1737	120.1737	3.2200e-003	0.0178	125.5572
Worker	0.0732	0.0508	0.6091	1.6800e-003	0.2012	1.0600e-003	0.2023	0.0534	9.7000e-004	0.0543		171.1060	171.1060	4.9000e-003	4.8500e-003	172.6750
Total	**0.0833**	**0.3266**	**0.7089**	**2.8000e-003**	**0.2396**	**4.2000e-003**	**0.2438**	**0.0644**	**3.9700e-003**	**0.0684**		**291.2797**	**291.2797**	**8.1200e-003**	**0.0226**	**298.2322**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.8457	0.0000	8.8457	4.5461	0.0000	4.5461			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	**3.1701**	**33.0835**	**19.6978**	**0.0380**	**8.8457**	**1.6126**	**10.4582**	**4.5461**	**1.4836**	**6.0297**	**0.0000**	**3,686.0619**	**3,686.0619**	**1.1922**		**3,715.8655**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0101	0.2758	0.0998	1.1200e-003	0.0384	3.1400e-003	0.0416	0.0111	3.0000e-003	0.0141		120.1737	120.1737	3.2200e-003	0.0178	125.5572
Worker	0.0732	0.0508	0.6091	1.6800e-003	0.2012	1.0600e-003	0.2023	0.0534	9.7000e-004	0.0543		171.1060	171.1060	4.9000e-003	4.8500e-003	172.6750
Total	**0.0833**	**0.3266**	**0.7089**	**2.8000e-003**	**0.2396**	**4.2000e-003**	**0.2438**	**0.0644**	**3.9700e-003**	**0.0684**		**291.2797**	**291.2797**	**8.1200e-003**	**0.0226**	**298.2322**

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656		2,872.0464	2,872.0464	0.9289		2,895.2684
Total	**1.9486**	**20.8551**	**15.2727**	**0.0297**	**7.0826**	**0.9409**	**8.0234**	**3.4247**	**0.8656**	**4.2903**		**2,872.0464**	**2,872.0464**	**0.9289**		**2,895.2684**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0101	0.2758	0.0998	1.1200e-003	0.0384	3.1400e-003	0.0416	0.0111	3.0000e-003	0.0141		120.1737	120.1737	3.2200e-003	0.0178	125.5572
Worker	0.0610	0.0423	0.5076	1.4000e-003	0.1677	8.8000e-004	0.1685	0.0445	8.1000e-004	0.0453		142.5884	142.5884	4.0800e-003	4.0400e-003	143.8959
Total	**0.0711**	**0.3181**	**0.6074**	**2.5200e-003**	**0.2061**	**4.0200e-003**	**0.2101**	**0.0555**	**3.8100e-003**	**0.0594**		**262.7621**	**262.7621**	**7.3000e-003**	**0.0218**	**269.4531**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.1872	0.0000	3.1872	1.5411	0.0000	1.5411			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656	0.0000	2,872.0464	2,872.0464	0.9289		2,895.2684
Total	**1.9486**	**20.8551**	**15.2727**	**0.0297**	**3.1872**	**0.9409**	**4.1280**	**1.5411**	**0.8656**	**2.4067**	**0.0000**	**2,872.0464**	**2,872.0464**	**0.9289**		**2,895.2684**

Amazing 34 Warehouse - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0101	0.2758	0.0998	1.1200e-003	0.0384	3.1400e-003	0.0416	0.0111	3.0000e-003	0.0141		120.1737	120.1737	3.2200e-003	0.0178	125.5572
Worker	0.0610	0.0423	0.5076	1.4000e-003	0.1677	8.8000e-004	0.1685	0.0445	8.1000e-004	0.0453		142.5884	142.5884	4.0800e-003	4.0400e-003	143.8959
Total	**0.0711**	**0.3181**	**0.6074**	**2.5200e-003**	**0.2061**	**4.0200e-003**	**0.2101**	**0.0555**	**3.8100e-003**	**0.0594**		**262.7621**	**262.7621**	**7.3000e-003**	**0.0218**	**269.4531**

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**		**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Amazing 34 Warehouse - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0435	1.1952	0.4326	4.8600e-003	0.1666	0.0136	0.1802	0.0480	0.0130	0.0610		520.7527	520.7527	0.0140	0.0771	544.0812
Worker	0.2685	0.1862	2.2334	6.1700e-003	0.7377	3.8700e-003	0.7416	0.1957	3.5700e-003	0.1992		627.3888	627.3888	0.0180	0.0178	633.1417
Total	**0.3121**	**1.3814**	**2.6660**	**0.0110**	**0.9043**	**0.0175**	**0.9218**	**0.2436**	**0.0166**	**0.2602**		**1,148.1415**	**1,148.1415**	**0.0319**	**0.0949**	**1,177.2229**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	**1.7062**	**15.6156**	**16.3634**	**0.0269**		**0.8090**	**0.8090**		**0.7612**	**0.7612**	**0.0000**	**2,554.3336**	**2,554.3336**	**0.6120**		**2,569.6322**

Amazing 34 Warehouse - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0435	1.1952	0.4326	4.8600e-003	0.1666	0.0136	0.1802	0.0480	0.0130	0.0610		520.7527	520.7527	0.0140	0.0771	544.0812
Worker	0.2685	0.1862	2.2334	6.1700e-003	0.7377	3.8700e-003	0.7416	0.1957	3.5700e-003	0.1992		627.3888	627.3888	0.0180	0.0178	633.1417
Total	**0.3121**	**1.3814**	**2.6660**	**0.0110**	**0.9043**	**0.0175**	**0.9218**	**0.2436**	**0.0166**	**0.2602**		**1,148.1415**	**1,148.1415**	**0.0319**	**0.0949**	**1,177.2229**

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Amazing 34 Warehouse - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0283	0.9633	0.3945	4.6600e-003	0.1666	6.8800e-003	0.1735	0.0480	6.5800e-003	0.0546		500.1974	500.1974	0.0129	0.0739	522.5477
Worker	0.2486	0.1637	2.0485	5.9700e-003	0.7377	3.6400e-003	0.7414	0.1957	3.3500e-003	0.1990		610.8998	610.8998	0.0161	0.0164	616.1800
Total	**0.2769**	**1.1270**	**2.4430**	**0.0106**	**0.9043**	**0.0105**	**0.9148**	**0.2436**	**9.9300e-003**	**0.2536**		**1,111.0972**	**1,111.0972**	**0.0291**	**0.0903**	**1,138.7276**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0283	0.9633	0.3945	4.6600e-003	0.1666	6.8800e-003	0.1735	0.0480	6.5800e-003	0.0546		500.1974	500.1974	0.0129	0.0739	522.5477
Worker	0.2486	0.1637	2.0485	5.9700e-003	0.7377	3.6400e-003	0.7414	0.1957	3.3500e-003	0.1990		610.8998	610.8998	0.0161	0.0164	616.1800
Total	**0.2769**	**1.1270**	**2.4430**	**0.0106**	**0.9043**	**0.0105**	**0.9148**	**0.2436**	**9.9300e-003**	**0.2536**		**1,111.0972**	**1,111.0972**	**0.0291**	**0.0903**	**1,138.7276**

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9181	8.7903	12.1905	0.0189		0.4357	0.4357		0.4025	0.4025		1,805.4304	1,805.4304	0.5673		1,819.6122
Paving	0.2256					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1437**	**8.7903**	**12.1905**	**0.0189**		**0.4357**	**0.4357**		**0.4025**	**0.4025**		**1,805.4304**	**1,805.4304**	**0.5673**		**1,819.6122**

Amazing 34 Warehouse - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0753	0.0496	0.6208	1.8100e-003	0.2236	1.1000e-003	0.2247	0.0593	1.0200e-003	0.0603		185.1212	185.1212	4.8900e-003	4.9600e-003	186.7212
Total	**0.0753**	**0.0496**	**0.6208**	**1.8100e-003**	**0.2236**	**1.1000e-003**	**0.2247**	**0.0593**	**1.0200e-003**	**0.0603**		**185.1212**	**185.1212**	**4.8900e-003**	**4.9600e-003**	**186.7212**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9181	8.7903	12.1905	0.0189		0.4357	0.4357		0.4025	0.4025	0.0000	1,805.4304	1,805.4304	0.5673		1,819.6122
Paving	0.2256					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.1437**	**8.7903**	**12.1905**	**0.0189**		**0.4357**	**0.4357**		**0.4025**	**0.4025**	**0.0000**	**1,805.4304**	**1,805.4304**	**0.5673**		**1,819.6122**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0753	0.0496	0.6208	1.8100e-003	0.2236	1.1000e-003	0.2247	0.0593	1.0200e-003	0.0603		185.1212	185.1212	4.8900e-003	4.9600e-003	186.7212
Total	**0.0753**	**0.0496**	**0.6208**	**1.8100e-003**	**0.2236**	**1.1000e-003**	**0.2247**	**0.0593**	**1.0200e-003**	**0.0603**		**185.1212**	**185.1212**	**4.8900e-003**	**4.9600e-003**	**186.7212**

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.1230					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	**47.3147**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**		**281.4481**	**281.4481**	**0.0168**		**281.8690**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0490	0.0323	0.4035	1.1800e-003	0.1453	7.2000e-004	0.1460	0.0385	6.6000e-004	0.0392		120.3288	120.3288	3.1800e-003	3.2200e-003	121.3688
Total	**0.0490**	**0.0323**	**0.4035**	**1.1800e-003**	**0.1453**	**7.2000e-004**	**0.1460**	**0.0385**	**6.6000e-004**	**0.0392**		**120.3288**	**120.3288**	**3.1800e-003**	**3.2200e-003**	**121.3688**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	47.1230					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	**47.3147**	**1.3030**	**1.8111**	**2.9700e-003**		**0.0708**	**0.0708**		**0.0708**	**0.0708**	**0.0000**	**281.4481**	**281.4481**	**0.0168**		**281.8690**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0490	0.0323	0.4035	1.1800e-003	0.1453	7.2000e-004	0.1460	0.0385	6.6000e-004	0.0392		120.3288	120.3288	3.1800e-003	3.2200e-003	121.3688
Total	**0.0490**	**0.0323**	**0.4035**	**1.1800e-003**	**0.1453**	**7.2000e-004**	**0.1460**	**0.0385**	**6.6000e-004**	**0.0392**		**120.3288**	**120.3288**	**3.1800e-003**	**3.2200e-003**	**121.3688**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

Amazing 34 Warehouse - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.2153	2.7315	2.2792	0.0170	0.8979	0.0282	0.9261	0.2471	0.0269	0.2740		1,814.4311	1,814.4311	0.0676	0.2319	1,885.2188
Unmitigated	0.2524	3.5388	2.8561	0.0225	1.1974	0.0375	1.2348	0.3295	0.0358	0.3652		2,404.0911	2,404.0911	0.0874	0.3060	2,497.4635

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	20.04	20.04	20.04	291,804	218,820
Unrefrigerated Warehouse-No Rail	53.68	53.68	53.68	230,066	172,523
Total	73.72	73.72	73.72	521,870	391,343

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	16.60	40.00	6.90	0.00	100.00	0.00	100	0	0
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.000000	0.000000	0.000000	0.000000	0.000000	0.200000	0.200000	0.600000	0.000000	0.000000	0.000000	0.000000	0.000000
Unrefrigerated Warehouse-No Rail	0.579000	0.059000	0.185000	0.150000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.027000	0.000000	0.000000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	4.9500e-003	0.0450	0.0378	2.7000e-004		3.4200e-003	3.4200e-003		3.4200e-003	3.4200e-003		53.9705	53.9705	1.0300e-003	9.9000e-004	54.2912
NaturalGas Unmitigated	5.3100e-003	0.0483	0.0406	2.9000e-004		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003		57.9677	57.9677	1.1100e-003	1.0600e-003	58.3122

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	492.725	5.3100e-003	0.0483	0.0406	2.9000e-004		3.6700e-003	3.6700e-003		3.6700e-003	3.6700e-003		57.9677	57.9677	1.1100e-003	1.0600e-003	58.3122
Total		**5.3100e-003**	**0.0483**	**0.0406**	**2.9000e-004**		**3.6700e-003**	**3.6700e-003**		**3.6700e-003**	**3.6700e-003**		**57.9677**	**57.9677**	**1.1100e-003**	**1.0600e-003**	**58.3122**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	0.458749	4.9500e-003	0.0450	0.0378	2.7000e-004		3.4200e-003	3.4200e-003		3.4200e-003	3.4200e-003		53.9705	53.9705	1.0300e-003	9.9000e-004	54.2912
Total		**4.9500e-003**	**0.0450**	**0.0378**	**2.7000e-004**		**3.4200e-003**	**3.4200e-003**		**3.4200e-003**	**3.4200e-003**		**53.9705**	**53.9705**	**1.0300e-003**	**9.9000e-004**	**54.2912**

6.0 Area Detail

Amazing 34 Warehouse - San Bernardino-South Coast County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	2.0288	8.0000e-005	9.2900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0199	0.0199	5.0000e-005		0.0212
Unmitigated	2.0288	8.0000e-005	9.2900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0199	0.0199	5.0000e-005		0.0212

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2324					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.7955					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.6000e-004	8.0000e-005	9.2900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0199	0.0199	5.0000e-005		0.0212
Total	**2.0288**	**8.0000e-005**	**9.2900e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0199**	**0.0199**	**5.0000e-005**		**0.0212**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.2324					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	1.7955					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	8.6000e-004	8.0000e-005	9.2900e-003	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005		0.0199	0.0199	5.0000e-005		0.0212
Total	**2.0288**	**8.0000e-005**	**9.2900e-003**	**0.0000**		**3.0000e-005**	**3.0000e-005**		**3.0000e-005**	**3.0000e-005**		**0.0199**	**0.0199**	**5.0000e-005**		**0.0212**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Use Water Efficient Irrigation System

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Forklifts	1	5.00	260	89	0.20	CNG

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Forklifts	9.1000e-003	0.4433	5.7930	9.6000e-004		7.1500e-003	7.1500e-003		7.1500e-003	7.1500e-003	0.0000	120.8537	120.8537	0.0391		121.8308
Total	**9.1000e-003**	**0.4433**	**5.7930**	**9.6000e-004**		**7.1500e-003**	**7.1500e-003**		**7.1500e-003**	**7.1500e-003**	**0.0000**	**120.8537**	**120.8537**	**0.0391**		**121.8308**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

APPENDIX B

CalEEMod Model Annual Printouts

Amazing 34 Warehouse - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Amazing 34 Warehouse

San Bernardino-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Unrefrigerated Warehouse-No Rail	89.47	1000sqft	2.29	89,475.00	0
Parking Lot	1.55	Acre	1.55	67,518.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	32
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Total Project Site 3.84 acres

Trips and VMT - 6 vendor trips added to Demo, Site Prep, and Grading to account for water truck emissions

Demolition - 2,185 tons of building materiial and 1,643 tons of pavement = 3,828 tons of demolition

Vehicle Trips - Truck Trips analyzed under Parking Lot Land use and the Auto Trips analyzed under the Unrefrigerated Warehouse Land Use

Construction Off-road Equipment Mitigation - Water Exposed Area 2x per day selected to account for SCAQMD Rule 403 minimum requirements

Mobile Land Use Mitigation - Improve Pedestrian Network on Project Site and 0.01 mile to nearest Transit Station

Energy Mitigation - 7% improvement to Title 24 and 30% Lighting Energy Reduction selected to account for 2019 Title 24 Improvements

Water Mitigation - Install Low-Flow fixtures and use water-efficient Irrigation Systems selected to account for Title 24 Part 11 requirements

Waste Mitigation - 50% reduction in solid waste selected to account for AB 341

Operational Off-Road Equipment - 1 forklift 5 hours per day. Per PDF 1, analyzed as CNG fuel

Amazing 34 Warehouse - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Fleet Mix - Vehicle Mix set to match TIA

Table Name	Column Name	Default Value	New Value
tblFleetMix	HHD	0.02	0.60
tblFleetMix	HHD	0.02	0.00
tblFleetMix	LDA	0.54	0.00
tblFleetMix	LDA	0.54	0.58
tblFleetMix	LDT1	0.06	0.00
tblFleetMix	LDT1	0.06	0.06
tblFleetMix	LDT2	0.17	0.00
tblFleetMix	LDT2	0.17	0.19
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD1	0.03	0.00
tblFleetMix	LHD2	7.1960e-003	0.20
tblFleetMix	LHD2	7.1960e-003	0.00
tblFleetMix	MCY	0.03	0.00
tblFleetMix	MCY	0.03	0.03
tblFleetMix	MDV	0.14	0.00
tblFleetMix	MDV	0.14	0.15
tblFleetMix	MH	5.0710e-003	0.00
tblFleetMix	MH	5.0710e-003	0.00
tblFleetMix	MHD	0.01	0.20
tblFleetMix	MHD	0.01	0.00
tblFleetMix	OBUS	5.5900e-004	0.00
tblFleetMix	OBUS	5.5900e-004	0.00
tblFleetMix	SBUS	9.5400e-004	0.00
tblFleetMix	SBUS	9.5400e-004	0.00
tblFleetMix	UBUS	2.5400e-004	0.00
tblFleetMix	UBUS	2.5400e-004	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblLandUse	LandUseSquareFeet	89,470.00	89,475.00
tblLandUse	LotAcreage	2.05	2.29
tblOperationalOffRoadEquipment	OperFuelType	Diesel	CNG
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	5.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblTripsAndVMT	VendorTripNumber	0.00	6.00
tblVehicleTrips	CC_TL	8.40	40.00
tblVehicleTrips	CC_TTP	0.00	100.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	0.00	12.93
tblVehicleTrips	ST_TR	1.74	0.60
tblVehicleTrips	SU_TR	0.00	12.93
tblVehicleTrips	SU_TR	1.74	0.60
tblVehicleTrips	WD_TR	0.00	12.93
tblVehicleTrips	WD_TR	1.74	0.60

2.0 Emissions Summary

Amazing 34 Warehouse - San Bernardino-South Coast County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.2299	2.0377	2.1128	4.3000e-003	0.2077	0.0974	0.3051	0.0693	0.0914	0.1606	0.0000	381.2232	381.2232	0.0706	0.0101	386.0058
2023	0.4775	0.4330	0.5488	1.0500e-003	0.0228	0.0202	0.0430	6.1300e-003	0.0190	0.0251	0.0000	92.9824	92.9824	0.0176	1.8800e-003	93.9814
Maximum	**0.4775**	**2.0377**	**2.1128**	**4.3000e-003**	**0.2077**	**0.0974**	**0.3051**	**0.0693**	**0.0914**	**0.1606**	**0.0000**	**381.2232**	**381.2232**	**0.0706**	**0.0101**	**386.0058**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.2299	2.0377	2.1128	4.3000e-003	0.1425	0.0974	0.2400	0.0444	0.0914	0.1358	0.0000	381.2229	381.2229	0.0706	0.0101	386.0055
2023	0.4775	0.4330	0.5488	1.0500e-003	0.0228	0.0202	0.0430	6.1300e-003	0.0190	0.0251	0.0000	92.9823	92.9823	0.0176	1.8800e-003	93.9813
Maximum	**0.4775**	**2.0377**	**2.1128**	**4.3000e-003**	**0.1425**	**0.0974**	**0.2400**	**0.0444**	**0.0914**	**0.1358**	**0.0000**	**381.2229**	**381.2229**	**0.0706**	**0.0101**	**386.0055**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	28.27	0.00	18.71	32.94	0.00	13.37	0.00	0.00	0.00	0.01	0.00	0.00

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	3-1-2022	5-31-2022	0.8080	0.8080
2	6-1-2022	8-31-2022	0.6230	0.6230
3	9-1-2022	11-30-2022	0.6174	0.6174
4	12-1-2022	2-28-2023	0.5764	0.5764
5	3-1-2023	5-31-2023	0.5232	0.5232
		Highest	0.8080	0.8080

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3702	1.0000e-005	1.1600e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2600e-003	2.2600e-003	1.0000e-005	0.0000	2.4100e-003
Energy	9.7000e-004	8.8200e-003	7.4100e-003	5.0000e-005		6.7000e-004	6.7000e-004		6.7000e-004	6.7000e-004	0.0000	50.6019	50.6019	3.6400e-003	6.0000e-004	50.8704
Mobile	0.0460	0.6508	0.5354	4.1100e-003	0.2141	6.8100e-003	0.2210	0.0590	6.5000e-003	0.0655	0.0000	397.6251	397.6251	0.0145	0.0505	413.0419
Offroad	1.1800e-003	0.0576	0.7531	1.2000e-004		9.3000e-004	9.3000e-004		9.3000e-004	9.3000e-004	0.0000	14.2527	14.2527	4.6100e-003	0.0000	14.3680
Waste						0.0000	0.0000		0.0000	0.0000	17.0715	0.0000	17.0715	1.0089	0.0000	42.2940
Water						0.0000	0.0000		0.0000	0.0000	6.5640	47.7775	54.3415	0.6782	0.0164	76.1864
Total	**0.4184**	**0.7173**	**1.2971**	**4.2800e-003**	**0.2141**	**8.4100e-003**	**0.2226**	**0.0590**	**8.1000e-003**	**0.0671**	**23.6355**	**510.2595**	**533.8950**	**1.7098**	**0.0675**	**596.7631**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.3702	1.0000e-005	1.1600e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2600e-003	2.2600e-003	1.0000e-005	0.0000	2.4100e-003
Energy	9.0000e-004	8.2100e-003	6.8900e-003	5.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	42.7466	42.7466	3.0300e-003	5.1000e-004	42.9741
Mobile	0.0392	0.5016	0.4265	3.1000e-003	0.1606	5.1200e-003	0.1657	0.0443	4.8900e-003	0.0492	0.0000	300.0664	300.0664	0.0112	0.0383	311.7530
Offroad	1.1800e-003	0.0576	0.7531	1.2000e-004		9.3000e-004	9.3000e-004		9.3000e-004	9.3000e-004	0.0000	14.2527	14.2527	4.6100e-003	0.0000	14.3680
Waste						0.0000	0.0000		0.0000	0.0000	8.5358	0.0000	8.5358	0.5045	0.0000	21.1470
Water						0.0000	0.0000		0.0000	0.0000	5.5400	40.3243	45.8642	0.5724	0.0139	64.3013
Total	**0.4115**	**0.5675**	**1.1877**	**3.2700e-003**	**0.1606**	**6.6700e-003**	**0.1673**	**0.0443**	**6.4400e-003**	**0.0507**	**14.0758**	**397.3922**	**411.4679**	**1.0957**	**0.0526**	**454.5458**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**1.65**	**20.88**	**8.44**	**23.60**	**25.01**	**20.69**	**24.85**	**25.00**	**20.49**	**24.46**	**40.45**	**22.12**	**22.93**	**35.92**	**22.05**	**23.83**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	3/1/2022	3/28/2022	5	20	
2	Site Preparation	Site Preparation	3/29/2022	4/4/2022	5	5	

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3	Grading	Grading	4/5/2022	4/14/2022	5	8	
4	Building Construction	Building Construction	4/15/2022	3/2/2023	5	230	
5	Paving	Paving	3/3/2023	3/28/2023	5	18	
6	Architectural Coating	Architectural Coating	3/29/2023	4/21/2023	5	18	

Acres of Grading (Site Preparation Phase): 7.5

Acres of Grading (Grading Phase): 8

Acres of Paving: 1.55

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 134,213; Non-Residential Outdoor: 44,738; Striped Parking Area: 4,051 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	130	0.42

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Paving	Paving Equipment	2	6.00	132	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	6.00	379.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	6.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	66.00	26.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	13.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0410	0.0000	0.0410	6.2000e-003	0.0000	6.2000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0264	0.2572	0.2059	3.9000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	33.9902	33.9902	9.5500e-003	0.0000	34.2289
Total	**0.0264**	**0.2572**	**0.2059**	**3.9000e-004**	**0.0410**	**0.0124**	**0.0534**	**6.2000e-003**	**0.0116**	**0.0178**	**0.0000**	**33.9902**	**33.9902**	**9.5500e-003**	**0.0000**	**34.2289**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-004	0.0273	6.8000e-003	1.1000e-004	3.2600e-003	2.7000e-004	3.5400e-003	9.0000e-004	2.6000e-004	1.1600e-003	0.0000	11.0138	11.0138	4.7000e-004	1.7500e-003	11.5457
Vendor	1.0000e-004	2.7600e-003	9.8000e-004	1.0000e-005	3.8000e-004	3.0000e-005	4.1000e-004	1.1000e-004	3.0000e-005	1.4000e-004	0.0000	1.0895	1.0895	3.0000e-005	1.6000e-004	1.1383
Worker	5.7000e-004	4.4000e-004	5.3200e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.4000e-004	0.0000	1.3193	1.3193	4.0000e-005	4.0000e-005	1.3315
Total	**1.3700e-003**	**0.0305**	**0.0131**	**1.3000e-004**	**5.2800e-003**	**3.1000e-004**	**5.6000e-003**	**1.4500e-003**	**3.0000e-004**	**1.7400e-003**	**0.0000**	**13.4226**	**13.4226**	**5.4000e-004**	**1.9500e-003**	**14.0155**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0184	0.0000	0.0184	2.7900e-003	0.0000	2.7900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0264	0.2572	0.2059	3.9000e-004		0.0124	0.0124		0.0116	0.0116	0.0000	33.9902	33.9902	9.5500e-003	0.0000	34.2289
Total	**0.0264**	**0.2572**	**0.2059**	**3.9000e-004**	**0.0184**	**0.0124**	**0.0309**	**2.7900e-003**	**0.0116**	**0.0143**	**0.0000**	**33.9902**	**33.9902**	**9.5500e-003**	**0.0000**	**34.2289**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-004	0.0273	6.8000e-003	1.1000e-004	3.2600e-003	2.7000e-004	3.5400e-003	9.0000e-004	2.6000e-004	1.1600e-003	0.0000	11.0138	11.0138	4.7000e-004	1.7500e-003	11.5457
Vendor	1.0000e-004	2.7600e-003	9.8000e-004	1.0000e-005	3.8000e-004	3.0000e-005	4.1000e-004	1.1000e-004	3.0000e-005	1.4000e-004	0.0000	1.0895	1.0895	3.0000e-005	1.6000e-004	1.1383
Worker	5.7000e-004	4.4000e-004	5.3200e-003	1.0000e-005	1.6400e-003	1.0000e-005	1.6500e-003	4.4000e-004	1.0000e-005	4.4000e-004	0.0000	1.3193	1.3193	4.0000e-005	4.0000e-005	1.3315
Total	**1.3700e-003**	**0.0305**	**0.0131**	**1.3000e-004**	**5.2800e-003**	**3.1000e-004**	**5.6000e-003**	**1.4500e-003**	**3.0000e-004**	**1.7400e-003**	**0.0000**	**13.4226**	**13.4226**	**5.4000e-004**	**1.9500e-003**	**14.0155**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0491	0.0000	0.0491	0.0253	0.0000	0.0253	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9300e-003	0.0827	0.0492	1.0000e-004		4.0300e-003	4.0300e-003		3.7100e-003	3.7100e-003	0.0000	8.3599	8.3599	2.7000e-003	0.0000	8.4274
Total	**7.9300e-003**	**0.0827**	**0.0492**	**1.0000e-004**	**0.0491**	**4.0300e-003**	**0.0532**	**0.0253**	**3.7100e-003**	**0.0290**	**0.0000**	**8.3599**	**8.3599**	**2.7000e-003**	**0.0000**	**8.4274**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-005	6.9000e-004	2.4000e-004	0.0000	9.0000e-005	1.0000e-005	1.0000e-004	3.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2724	0.2724	1.0000e-005	4.0000e-005	0.2846
Worker	1.7000e-004	1.3000e-004	1.6000e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3958	0.3958	1.0000e-005	1.0000e-005	0.3995
Total	**2.0000e-004**	**8.2000e-004**	**1.8400e-003**	**0.0000**	**5.8000e-004**	**1.0000e-005**	**6.0000e-004**	**1.6000e-004**	**1.0000e-005**	**1.6000e-004**	**0.0000**	**0.6682**	**0.6682**	**2.0000e-005**	**5.0000e-005**	**0.6840**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0221	0.0000	0.0221	0.0114	0.0000	0.0114	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.9300e-003	0.0827	0.0492	1.0000e-004		4.0300e-003	4.0300e-003		3.7100e-003	3.7100e-003	0.0000	8.3598	8.3598	2.7000e-003	0.0000	8.4274
Total	**7.9300e-003**	**0.0827**	**0.0492**	**1.0000e-004**	**0.0221**	**4.0300e-003**	**0.0261**	**0.0114**	**3.7100e-003**	**0.0151**	**0.0000**	**8.3598**	**8.3598**	**2.7000e-003**	**0.0000**	**8.4274**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.0000e-005	6.9000e-004	2.4000e-004	0.0000	9.0000e-005	1.0000e-005	1.0000e-004	3.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.2724	0.2724	1.0000e-005	4.0000e-005	0.2846
Worker	1.7000e-004	1.3000e-004	1.6000e-003	0.0000	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.3958	0.3958	1.0000e-005	1.0000e-005	0.3995
Total	**2.0000e-004**	**8.2000e-004**	**1.8400e-003**	**0.0000**	**5.8000e-004**	**1.0000e-005**	**6.0000e-004**	**1.6000e-004**	**1.0000e-005**	**1.6000e-004**	**0.0000**	**0.6682**	**0.6682**	**2.0000e-005**	**5.0000e-005**	**0.6840**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0283	0.0000	0.0283	0.0137	0.0000	0.0137	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7900e-003	0.0834	0.0611	1.2000e-004		3.7600e-003	3.7600e-003		3.4600e-003	3.4600e-003	0.0000	10.4219	10.4219	3.3700e-003	0.0000	10.5062
Total	**7.7900e-003**	**0.0834**	**0.0611**	**1.2000e-004**	**0.0283**	**3.7600e-003**	**0.0321**	**0.0137**	**3.4600e-003**	**0.0172**	**0.0000**	**10.4219**	**10.4219**	**3.3700e-003**	**0.0000**	**10.5062**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	1.1100e-003	3.9000e-004	0.0000	1.5000e-004	1.0000e-005	1.6000e-004	4.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.4358	0.4358	1.0000e-005	6.0000e-005	0.4553
Worker	2.3000e-004	1.8000e-004	2.1300e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5277	0.5277	2.0000e-005	2.0000e-005	0.5326
Total	**2.7000e-004**	**1.2900e-003**	**2.5200e-003**	**1.0000e-005**	**8.1000e-004**	**1.0000e-005**	**8.2000e-004**	**2.1000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.9635**	**0.9635**	**3.0000e-005**	**8.0000e-005**	**0.9879**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0128	0.0000	0.0128	6.1600e-003	0.0000	6.1600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.7900e-003	0.0834	0.0611	1.2000e-004		3.7600e-003	3.7600e-003		3.4600e-003	3.4600e-003	0.0000	10.4219	10.4219	3.3700e-003	0.0000	10.5062
Total	**7.7900e-003**	**0.0834**	**0.0611**	**1.2000e-004**	**0.0128**	**3.7600e-003**	**0.0165**	**6.1600e-003**	**3.4600e-003**	**9.6200e-003**	**0.0000**	**10.4219**	**10.4219**	**3.3700e-003**	**0.0000**	**10.5062**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.0000e-005	1.1100e-003	3.9000e-004	0.0000	1.5000e-004	1.0000e-005	1.6000e-004	4.0000e-005	1.0000e-005	6.0000e-005	0.0000	0.4358	0.4358	1.0000e-005	6.0000e-005	0.4553
Worker	2.3000e-004	1.8000e-004	2.1300e-003	1.0000e-005	6.6000e-004	0.0000	6.6000e-004	1.7000e-004	0.0000	1.8000e-004	0.0000	0.5277	0.5277	2.0000e-005	2.0000e-005	0.5326
Total	**2.7000e-004**	**1.2900e-003**	**2.5200e-003**	**1.0000e-005**	**8.1000e-004**	**1.0000e-005**	**8.2000e-004**	**2.1000e-004**	**1.0000e-005**	**2.4000e-004**	**0.0000**	**0.9635**	**0.9635**	**3.0000e-005**	**8.0000e-005**	**0.9879**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1587	1.4523	1.5218	2.5000e-003		0.0752	0.0752		0.0708	0.0708	0.0000	215.5045	215.5045	0.0516	0.0000	216.7952
Total	**0.1587**	**1.4523**	**1.5218**	**2.5000e-003**		**0.0752**	**0.0752**		**0.0708**	**0.0708**	**0.0000**	**215.5045**	**215.5045**	**0.0516**	**0.0000**	**216.7952**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.1200e-003	0.1114	0.0395	4.5000e-004	0.0153	1.2600e-003	0.0165	4.4000e-003	1.2100e-003	5.6100e-003	0.0000	43.9070	43.9070	1.1800e-003	6.5000e-003	45.8743
Worker	0.0231	0.0182	0.2178	5.8000e-004	0.0673	3.6000e-004	0.0677	0.0179	3.3000e-004	0.0182	0.0000	53.9855	53.9855	1.5400e-003	1.5500e-003	54.4863
Total	**0.0273**	**0.1295**	**0.2573**	**1.0300e-003**	**0.0826**	**1.6200e-003**	**0.0842**	**0.0223**	**1.5400e-003**	**0.0238**	**0.0000**	**97.8925**	**97.8925**	**2.7200e-003**	**8.0500e-003**	**100.3606**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2022

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1587	1.4523	1.5218	2.5000e-003		0.0752	0.0752		0.0708	0.0708	0.0000	215.5042	215.5042	0.0516	0.0000	216.7949
Total	**0.1587**	**1.4523**	**1.5218**	**2.5000e-003**		**0.0752**	**0.0752**		**0.0708**	**0.0708**	**0.0000**	**215.5042**	**215.5042**	**0.0516**	**0.0000**	**216.7949**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.1200e-003	0.1114	0.0395	4.5000e-004	0.0153	1.2600e-003	0.0165	4.4000e-003	1.2100e-003	5.6100e-003	0.0000	43.9070	43.9070	1.1800e-003	6.5000e-003	45.8743
Worker	0.0231	0.0182	0.2178	5.8000e-004	0.0673	3.6000e-004	0.0677	0.0179	3.3000e-004	0.0182	0.0000	53.9855	53.9855	1.5400e-003	1.5500e-003	54.4863
Total	**0.0273**	**0.1295**	**0.2573**	**1.0300e-003**	**0.0826**	**1.6200e-003**	**0.0842**	**0.0223**	**1.5400e-003**	**0.0238**	**0.0000**	**97.8925**	**97.8925**	**2.7200e-003**	**8.0500e-003**	**100.3606**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0346	0.3165	0.3574	5.9000e-004		0.0154	0.0154		0.0145	0.0145	0.0000	50.9970	50.9970	0.0121	0.0000	51.3003
Total	**0.0346**	**0.3165**	**0.3574**	**5.9000e-004**		**0.0154**	**0.0154**		**0.0145**	**0.0145**	**0.0000**	**50.9970**	**50.9970**	**0.0121**	**0.0000**	**51.3003**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.4000e-004	0.0211	8.5400e-003	1.0000e-004	3.6100e-003	1.5000e-004	3.7600e-003	1.0400e-003	1.4000e-004	1.1900e-003	0.0000	9.9690	9.9690	2.6000e-004	1.4700e-003	10.4145
Worker	5.0600e-003	3.7800e-003	0.0473	1.3000e-004	0.0159	8.0000e-005	0.0160	4.2300e-003	7.0000e-005	4.3000e-003	0.0000	12.4343	12.4343	3.3000e-004	3.4000e-004	12.5430
Total	**5.7000e-003**	**0.0249**	**0.0558**	**2.3000e-004**	**0.0195**	**2.3000e-004**	**0.0198**	**5.2700e-003**	**2.1000e-004**	**5.4900e-003**	**0.0000**	**22.4033**	**22.4033**	**5.9000e-004**	**1.8100e-003**	**22.9575**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0346	0.3165	0.3574	5.9000e-004		0.0154	0.0154		0.0145	0.0145	0.0000	50.9970	50.9970	0.0121	0.0000	51.3003
Total	**0.0346**	**0.3165**	**0.3574**	**5.9000e-004**		**0.0154**	**0.0154**		**0.0145**	**0.0145**	**0.0000**	**50.9970**	**50.9970**	**0.0121**	**0.0000**	**51.3003**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	6.4000e-004	0.0211	8.5400e-003	1.0000e-004	3.6100e-003	1.5000e-004	3.7600e-003	1.0400e-003	1.4000e-004	1.1900e-003	0.0000	9.9690	9.9690	2.6000e-004	1.4700e-003	10.4145
Worker	5.0600e-003	3.7800e-003	0.0473	1.3000e-004	0.0159	8.0000e-005	0.0160	4.2300e-003	7.0000e-005	4.3000e-003	0.0000	12.4343	12.4343	3.3000e-004	3.4000e-004	12.5430
Total	**5.7000e-003**	**0.0249**	**0.0558**	**2.3000e-004**	**0.0195**	**2.3000e-004**	**0.0198**	**5.2700e-003**	**2.1000e-004**	**5.4900e-003**	**0.0000**	**22.4033**	**22.4033**	**5.9000e-004**	**1.8100e-003**	**22.9575**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.2600e-003	0.0791	0.1097	1.7000e-004		3.9200e-003	3.9200e-003		3.6200e-003	3.6200e-003	0.0000	14.7407	14.7407	4.6300e-003	0.0000	14.8565
Paving	2.0300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0103**	**0.0791**	**0.1097**	**1.7000e-004**		**3.9200e-003**	**3.9200e-003**		**3.6200e-003**	**3.6200e-003**	**0.0000**	**14.7407**	**14.7407**	**4.6300e-003**	**0.0000**	**14.8565**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.3000e-004	4.7000e-004	5.8600e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9800e-003	5.2000e-004	1.0000e-005	5.3000e-004	0.0000	1.5415	1.5415	4.0000e-005	4.0000e-005	1.5549
Total	**6.3000e-004**	**4.7000e-004**	**5.8600e-003**	**2.0000e-005**	**1.9700e-003**	**1.0000e-005**	**1.9800e-003**	**5.2000e-004**	**1.0000e-005**	**5.3000e-004**	**0.0000**	**1.5415**	**1.5415**	**4.0000e-005**	**4.0000e-005**	**1.5549**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	8.2600e-003	0.0791	0.1097	1.7000e-004		3.9200e-003	3.9200e-003		3.6200e-003	3.6200e-003	0.0000	14.7407	14.7407	4.6300e-003	0.0000	14.8565
Paving	2.0300e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0103**	**0.0791**	**0.1097**	**1.7000e-004**		**3.9200e-003**	**3.9200e-003**		**3.6200e-003**	**3.6200e-003**	**0.0000**	**14.7407**	**14.7407**	**4.6300e-003**	**0.0000**	**14.8565**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.3000e-004	4.7000e-004	5.8600e-003	2.0000e-005	1.9700e-003	1.0000e-005	1.9800e-003	5.2000e-004	1.0000e-005	5.3000e-004	0.0000	1.5415	1.5415	4.0000e-005	4.0000e-005	1.5549
Total	**6.3000e-004**	**4.7000e-004**	**5.8600e-003**	**2.0000e-005**	**1.9700e-003**	**1.0000e-005**	**1.9800e-003**	**5.2000e-004**	**1.0000e-005**	**5.3000e-004**	**0.0000**	**1.5415**	**1.5415**	**4.0000e-005**	**4.0000e-005**	**1.5549**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4241					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7200e-003	0.0117	0.0163	3.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	2.2979	2.2979	1.4000e-004	0.0000	2.3014
Total	**0.4258**	**0.0117**	**0.0163**	**3.0000e-005**		**6.4000e-004**	**6.4000e-004**		**6.4000e-004**	**6.4000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.4000e-004**	**0.0000**	**2.3014**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	3.0000e-004	3.8100e-003	1.0000e-005	1.2800e-003	1.0000e-005	1.2900e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.0019	1.0019	3.0000e-005	3.0000e-005	1.0107
Total	**4.1000e-004**	**3.0000e-004**	**3.8100e-003**	**1.0000e-005**	**1.2800e-003**	**1.0000e-005**	**1.2900e-003**	**3.4000e-004**	**1.0000e-005**	**3.5000e-004**	**0.0000**	**1.0019**	**1.0019**	**3.0000e-005**	**3.0000e-005**	**1.0107**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4241					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.7200e-003	0.0117	0.0163	3.0000e-005		6.4000e-004	6.4000e-004		6.4000e-004	6.4000e-004	0.0000	2.2979	2.2979	1.4000e-004	0.0000	2.3014
Total	**0.4258**	**0.0117**	**0.0163**	**3.0000e-005**		**6.4000e-004**	**6.4000e-004**		**6.4000e-004**	**6.4000e-004**	**0.0000**	**2.2979**	**2.2979**	**1.4000e-004**	**0.0000**	**2.3014**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	3.0000e-004	3.8100e-003	1.0000e-005	1.2800e-003	1.0000e-005	1.2900e-003	3.4000e-004	1.0000e-005	3.5000e-004	0.0000	1.0019	1.0019	3.0000e-005	3.0000e-005	1.0107
Total	**4.1000e-004**	**3.0000e-004**	**3.8100e-003**	**1.0000e-005**	**1.2800e-003**	**1.0000e-005**	**1.2900e-003**	**3.4000e-004**	**1.0000e-005**	**3.5000e-004**	**0.0000**	**1.0019**	**1.0019**	**3.0000e-005**	**3.0000e-005**	**1.0107**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0392	0.5016	0.4265	3.1000e-003	0.1606	5.1200e-003	0.1657	0.0443	4.8900e-003	0.0492	0.0000	300.0664	300.0664	0.0112	0.0383	311.7530
Unmitigated	0.0460	0.6508	0.5354	4.1100e-003	0.2141	6.8100e-003	0.2210	0.0590	6.5000e-003	0.0655	0.0000	397.6251	397.6251	0.0145	0.0505	413.0419

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Parking Lot	20.04	20.04	20.04	291,804	218,820
Unrefrigerated Warehouse-No Rail	53.68	53.68	53.68	230,066	172,523
Total	73.72	73.72	73.72	521,870	391,343

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Parking Lot	16.60	40.00	6.90	0.00	100.00	0.00	100	0	0
Unrefrigerated Warehouse-No	16.60	8.40	6.90	59.00	0.00	41.00	92	5	3

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Parking Lot	0.000000	0.000000	0.000000	0.000000	0.000000	0.200000	0.200000	0.600000	0.000000	0.000000	0.000000	0.000000	0.000000
Unrefrigerated Warehouse-No Rail	0.579000	0.059000	0.185000	0.150000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.027000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

Install High Efficiency Lighting

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	33.8112	33.8112	2.8500e-003	3.5000e-004	33.9856
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	41.0047	41.0047	3.4600e-003	4.2000e-004	41.2162
NaturalGas Mitigated	9.0000e-004	8.2100e-003	6.8900e-003	5.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	8.9354	8.9354	1.7000e-004	1.6000e-004	8.9885
NaturalGas Unmitigated	9.7000e-004	8.8200e-003	7.4100e-003	5.0000e-005		6.7000e-004	6.7000e-004		6.7000e-004	6.7000e-004	0.0000	9.5972	9.5972	1.8000e-004	1.8000e-004	9.6542

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	179845	9.7000e-004	8.8200e-003	7.4100e-003	5.0000e-005		6.7000e-004	6.7000e-004		6.7000e-004	6.7000e-004	0.0000	9.5972	9.5972	1.8000e-004	1.8000e-004	9.6542
Total		**9.7000e-004**	**8.8200e-003**	**7.4100e-003**	**5.0000e-005**		**6.7000e-004**	**6.7000e-004**		**6.7000e-004**	**6.7000e-004**	**0.0000**	**9.5972**	**9.5972**	**1.8000e-004**	**1.8000e-004**	**9.6542**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	167444	9.0000e-004	8.2100e-003	6.8900e-003	5.0000e-005		6.2000e-004	6.2000e-004		6.2000e-004	6.2000e-004	0.0000	8.9354	8.9354	1.7000e-004	1.6000e-004	8.9885
Total		**9.0000e-004**	**8.2100e-003**	**6.8900e-003**	**5.0000e-005**		**6.2000e-004**	**6.2000e-004**		**6.2000e-004**	**6.2000e-004**	**0.0000**	**8.9354**	**8.9354**	**1.7000e-004**	**1.6000e-004**	**8.9885**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	23631.3	4.1909	3.5000e-004	4.0000e-005	4.2125
Unrefrigerated Warehouse-No Rail	207582	36.8137	3.1100e-003	3.8000e-004	37.0037
Total		**41.0047**	**3.4600e-003**	**4.2000e-004**	**41.2162**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Parking Lot	16541.9	2.9336	2.5000e-004	3.0000e-005	2.9488
Unrefrigerated Warehouse-No Rail	174109	30.8775	2.6100e-003	3.2000e-004	31.0368
Total		**33.8112**	**2.8600e-003**	**3.5000e-004**	**33.9856**

6.0 Area Detail

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.3702	1.0000e-005	1.1600e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2600e-003	2.2600e-003	1.0000e-005	0.0000	2.4100e-003
Unmitigated	0.3702	1.0000e-005	1.1600e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2600e-003	2.2600e-003	1.0000e-005	0.0000	2.4100e-003

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0424					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3277					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-004	1.0000e-005	1.1600e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2600e-003	2.2600e-003	1.0000e-005	0.0000	2.4100e-003
Total	**0.3702**	**1.0000e-005**	**1.1600e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2600e-003**	**2.2600e-003**	**1.0000e-005**	**0.0000**	**2.4100e-003**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0424					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.3277					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	1.1000e-004	1.0000e-005	1.1600e-003	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.2600e-003	2.2600e-003	1.0000e-005	0.0000	2.4100e-003
Total	**0.3702**	**1.0000e-005**	**1.1600e-003**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.2600e-003**	**2.2600e-003**	**1.0000e-005**	**0.0000**	**2.4100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Use Water Efficient Irrigation System

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	45.8642	0.5724	0.0139	64.3013
Unmitigated	54.3415	0.6782	0.0164	76.1864

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	20.6899 / 0	54.3415	0.6782	0.0164	76.1864
Total		**54.3415**	**0.6782**	**0.0164**	**76.1864**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	17.4623 / 0	45.8642	0.5724	0.0139	64.3013
Total		**45.8642**	**0.5724**	**0.0139**	**64.3013**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	8.5358	0.5045	0.0000	21.1470
Unmitigated	17.0715	1.0089	0.0000	42.2940

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	84.1	17.0715	1.0089	0.0000	42.2940
Total		**17.0715**	**1.0089**	**0.0000**	**42.2940**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Unrefrigerated Warehouse-No Rail	42.05	8.5358	0.5045	0.0000	21.1470
Total		**8.5358**	**0.5045**	**0.0000**	**21.1470**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Forklifts	1	5.00	260	89	0.20	CNG

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Forklifts	1.1800e-003	0.0576	0.7531	1.2000e-004		9.3000e-004	9.3000e-004		9.3000e-004	9.3000e-004	0.0000	14.2527	14.2527	4.6100e-003	0.0000	14.3680
Total	**1.1800e-003**	**0.0576**	**0.7531**	**1.2000e-004**		**9.3000e-004**	**9.3000e-004**		**9.3000e-004**	**9.3000e-004**	**0.0000**	**14.2527**	**14.2527**	**4.6100e-003**	**0.0000**	**14.3680**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix – B

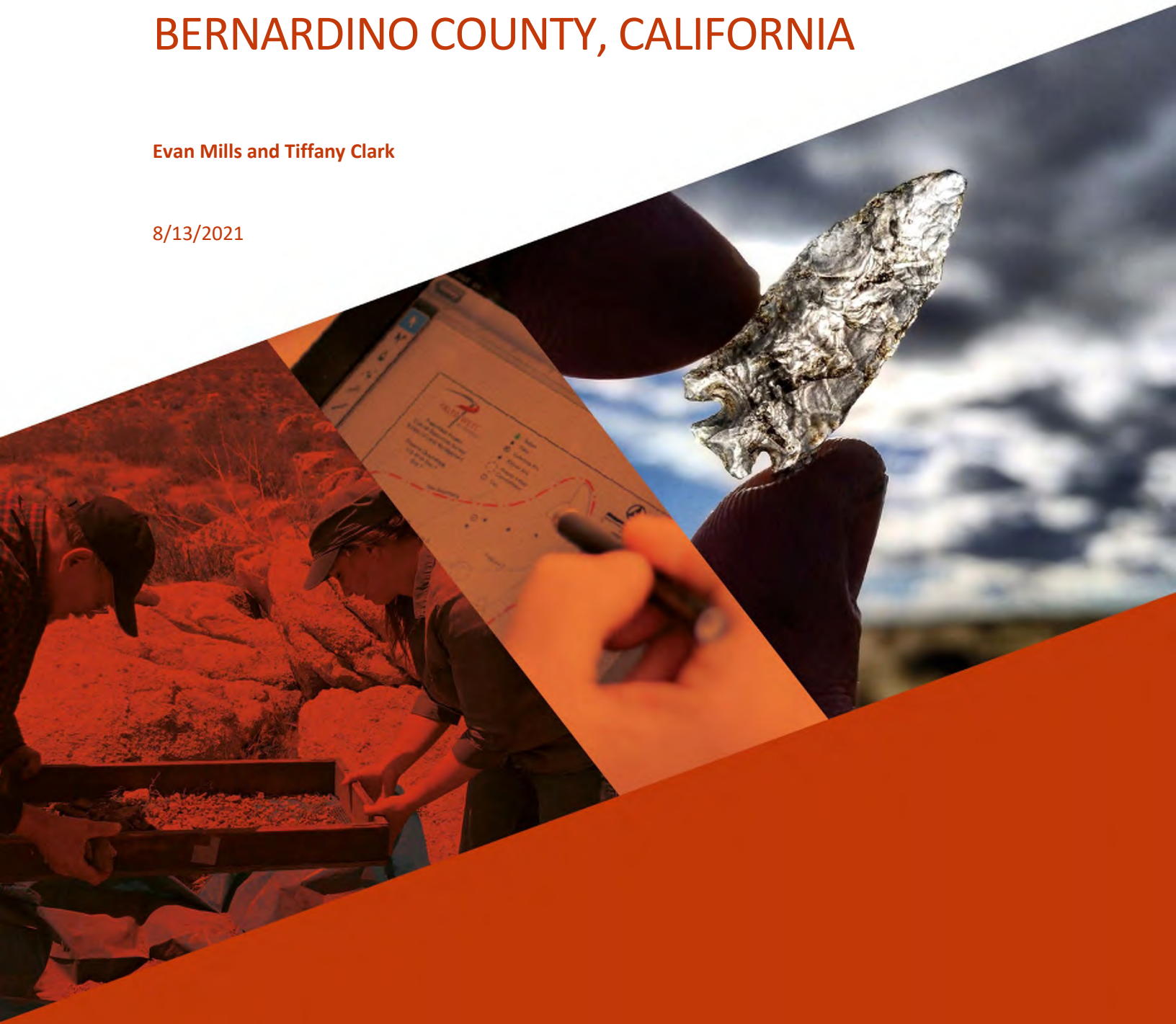
Cultural Resources Assessment

PALEOWEST

CULTURAL RESOURCE ASSESSMENT FOR THE AMAZING 34 WAREHOUSE PROJECT, CITY OF SAN BERNARDINO, SAN BERNARDINO COUNTY, CALIFORNIA

Evan Mills and Tiffany Clark

8/13/2021



CULTURAL RESOURCE ASSESSMENT FOR THE AMAZING 34 WAREHOUE PROJECT, CITY OF SAN BERNARDINO, SAN BERNARDINO COUNTY, CALIFORNIA

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Technical Report No. 21-375

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August 13, 2021

Keywords: Cultural Resources Assessment; California Environmental Quality Act; City of San Bernardino; San Bernardino County; 4.9 acres; negative survey

CONTENTS

APPENDICES

FIGURES

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MANAGEMENT SUMMARY

The proposed Amazing 34 Warehouse Project (Project) involves the development of a warehouse facility on approximately 4.9 acres of land (Assessor Parcel Numbers 0280-121-34,-44, and -47) east of South Waterman Avenue and north of East Central Avenue in the city of San Bernardino, San Bernardino County, California. The proposed Project would include the construction of an 81,747 square feet tilt-up warehouse. PaleoWest LLC (PaleoWest) was contracted to conduct a Phase I cultural resource assessment of the Project area in compliance with the California Environmental Quality Act (CEQA). The City of San Bernardino is the Lead Agency for CEQA compliance.

This report summarizes the methods and results of the cultural resource assessment for the Project. The investigation included background research, outreach with the Native American Heritage Commission (NAHC) and local Native American groups, and a pedestrian survey. The purpose of the investigation was to determine the potential for the Project to impact historical and archaeological resources under CEQA.

As part of the background research, PaleoWest conducted a records search at the South Central Coastal Information System to identify previously recorded cultural resources and studies located within 0.5-mile radius of the Project area. The records search indicated that no fewer than 12 previous studies have been conducted within the record search area. Six cultural resources have been previously documented within 0.5 mile of the Project area, all of which date to the historic period. No previously recorded cultural resources are mapped within the Project area. As part of the cultural resource assessment of the Project area, PaleoWest requested a search of the Sacred Lands File (SLF) from the NAHC on June 18, 2021. Results of the SLF search were obtained on July 9, 2021. The SLF search had positive results and the NAHC recommended that PaleoWest contact the San Manuel Band of Mission Indians for additional information. The NAHC provided a contact list of 10 individuals representing seven Native American tribal groups. Outreach letters were sent to each of the Native American tribes on July 9, 2021 with follow up conducted on July 26, 2021. Three responses have been received to date.

PaleoWest conducted a pedestrian cultural resource survey of the proposed Project area on June 23, 2021. The survey identified no prehistoric or historic period cultural resources on the Project property. A geoarchaeological assessment of the Project area indicates the area is characterized by very young alluvial-valley deposits adjacent to the Santa Ana River. Due to the age of the sediments and high energy of these deposits, there is a low potential for encountering intact buried archaeological deposits in the Project area. Based on these findings, PaleoWest recommends a finding of no impact to historical or archaeological resources under CEQA. No additional cultural resource management is recommended for the proposed Project.

1.0 INTRODUCTION

The proposed Amazing 34 Warehouse Project (Project) involves the development of warehouse facility in the city of San Bernardino, San Bernardino County, California. PaleoWest LLC (PaleoWest) was contracted by Adkan Engineers to conduct a Phase I cultural resource assessment of the Project area in compliance with the California Environmental Quality Act (CEQA). The City of San Bernardino (City) is the Lead Agency for the purposes of the CEQA.

1.1 PROJECT LOCATION AND DESCRIPTION

The proposed Project lies east of South Waterman Avenue and north of East Central Avenue in the southern extent of the city of San Bernardino (Figures 1-1 and 1-2). The Project area consists of three contiguous parcels (Assessor Parcel Numbers [APNs] 0280-121-34, -44, and -47) that total approximately 4.9 acres (Figure 1-3). More specifically, the Project area is in an unsectioned portion of Township 1 South, Range 4 West, San Bernardino Baseline and Meridian (SBBM), as depicted on the *San Bernardino South, CA* 7.5' U.S. Geological Survey (USGS) topographic quadrangle (Figure 1-2). The elevation of the Project area is approximately 1,010 feet above mean sea level (amsl).

The proposed Project involves the construction of a new 81,747 square feet tilt-up warehouse. The maximum height of the building is 45 feet. Other proposed developments associated with the Project include the construction of up to two new driveways, sidewalks, parking for 94 vehicles, and landscaping around the building's perimeter.

1.2 PERSONNEL QUALIFICATIONS

Tiffany Clark, Ph.D., Register of Professional Archaeologists (RPA), served as Principal Investigator and Senior Archaeologist and directed all fieldwork and reporting efforts for the Project. Kyle Knabb, Ph.D., RPA, served as the Project Manager for the study and was the primary author of the report. Associate Archaeologist Evan Mills, M.A., RPA conducted the pedestrian survey and co-authored the report. Brian Spelts served as the GIS analyst. Finally, James Potter, Ph.D. conducted senior technical review of this report.

1.3 REPORT ORGANIZATION

This report documents the results of a cultural resource investigation conducted for the proposed Project. Chapter 1 has introduced the Project location and description. Chapter 2 states the regulatory context for the Project. Chapter 3 synthesizes the natural and cultural setting of the Project area and surrounding region. The results of the previous cultural investigations and the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) search is presented in Chapter 4. The field methods employed during this investigation and the findings are presented in Chapter 5. Management recommendations are provided in Chapter 6. These are followed by bibliographic references and appendices.

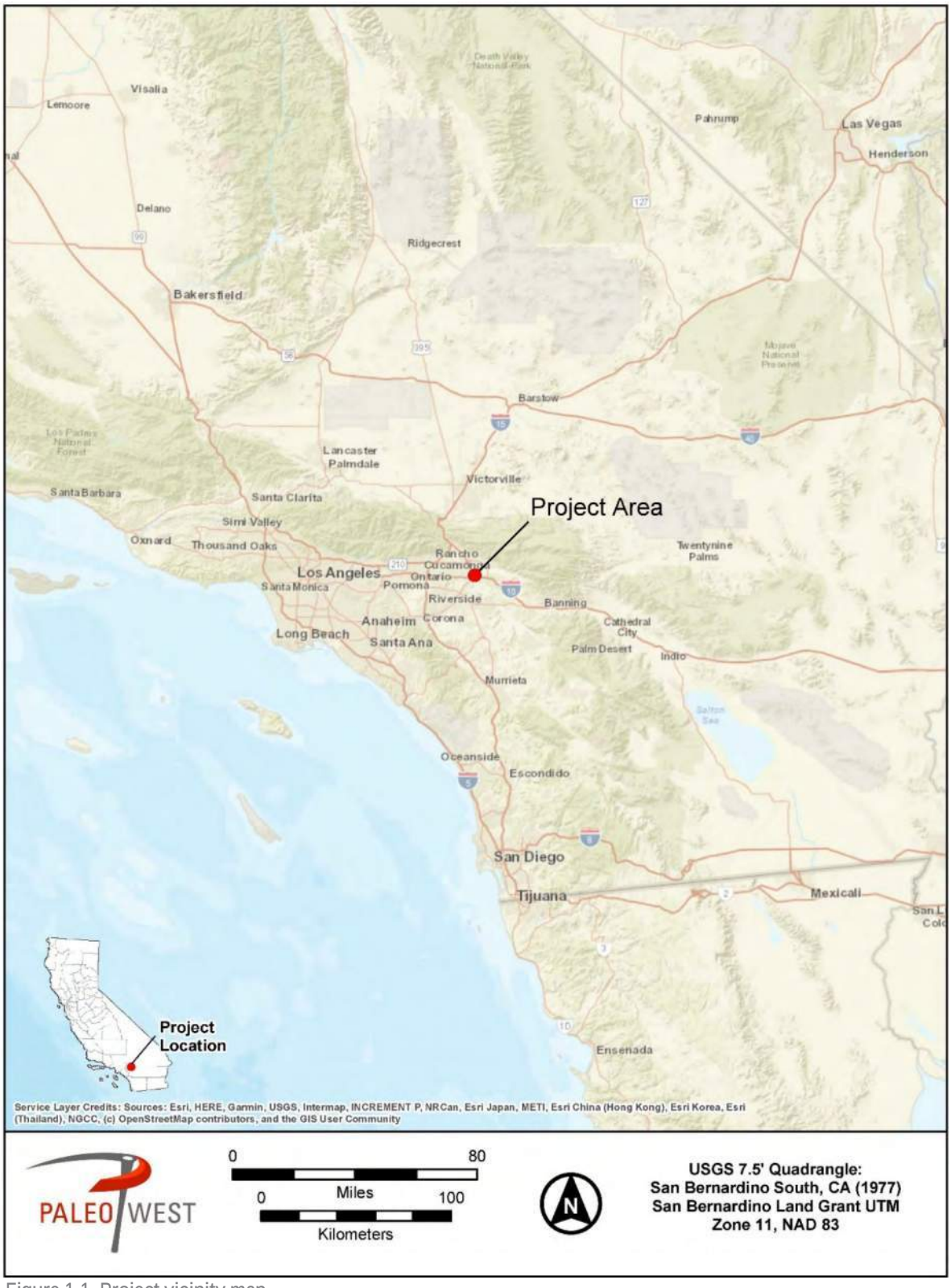

Figure 1-1. Project vicinity map.

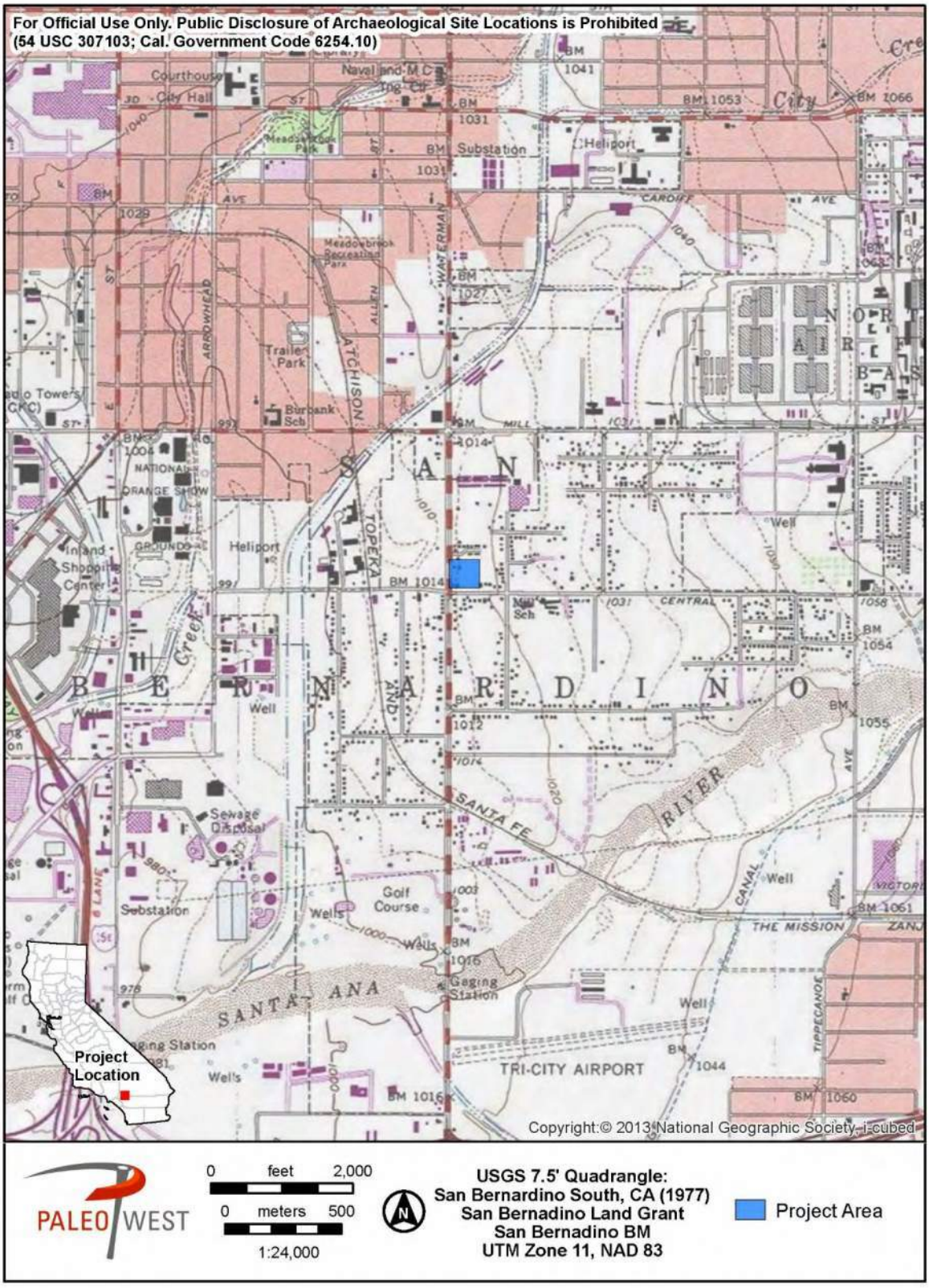

Figure 1-2. Project location map.

Figure 1-3. Project area showing APNs and two warehouse buildings (no longer extant).

2.0 REGULATORY CONTEXT

2.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

The proposed Project is subject to compliance with CEQA, as amended. Compliance with CEQA statutes and guidelines requires both public and private projects with financing or approval from a public agency to assess the project's impact on cultural resources (Public Resources Code Section 21082, 21083.2 and 21084 and California Code of Regulations 10564.5). The first step in the process is to identify cultural resources that may be impacted by the project and then determine whether the resources are "historically significant" resources.

CEQA defines historically significant resources as "resources listed or eligible for listing in the California Register of Historical Resources (CRHR)" (Public Resources Code Section 5024.1). A cultural resource may be considered historically significant if the resource is 45 years old or older and possesses integrity of location, design, setting, materials, workmanship, feeling, and association.[1] In addition, it must meet any of the following criteria for listing on the CRHR:

1. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
2. Is associated with the lives of persons important in our past;
3. Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or,
4. Has yielded, or may be likely to yield, information important in prehistory or history (Public Resources Code Section 5024.1).

Cultural resources are buildings, sites, humanly modified landscapes, traditional cultural properties, structures, or objects that may have historical, architectural, cultural, or scientific importance. A resource can also be determined historically significant under CEQA by virtue of being included in a local register of historical resources regardless of CRHR eligibility (see Title 14 CCR §15064.5(a)(2)). CEQA states that if a project will have a significant impact on important cultural resources, deemed "historically significant," then project alternatives and mitigation measures must be considered. Additionally, the Office of Historic Preservation (OHP) may choose to comment on the CEQA compliance process for specific local government projects in an informal capacity but does not seek to review all projects that may affect historically significant cultural resources under CEQA provisions.

2.2 CALIFORNIA ASSEMBLY BILL 52

Signed into law in September 2014, California Assembly Bill 52 (AB 52) created a new class of resources – tribal cultural resources – for consideration under CEQA. Tribal cultural resources may include sites, features, places, cultural landscapes, sacred places, or objects with cultural value to a California Native American tribe that are listed or determined to be eligible for listing

[1] The Office of Historic Preservation (OHP) guidelines recognize a 45-year-old criteria threshold for documenting and evaluating cultural resources (assumes a 5-year lag between resource identification and the date that planning decisions are made) (OHP 1995:2). The age threshold is an operational guideline and not specific to CEQA statutory or regulatory codes.

in the CRHR, included in a local register of historical resources, or a resource determined by the lead CEQA agency, in its discretion and supported by substantial evidence, to be significant and eligible for listing on the CRHR. AB 52 requires that the lead CEQA agency consult with California Native American tribes that have requested consultation for projects that may affect tribal cultural resources. The lead CEQA agency shall begin consultation with participating Native American tribes prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report. Under AB 52, a project that has potential to cause a substantial adverse change to a tribal cultural resource constitutes a significant effect on the environment unless mitigation reduces such effects to a less than significant level.

2.3 CITY OF SAN BERNARDINO GENERAL PLAN

The City has goals and policies related to historic preservation issues in their General Plan (City of San Bernardino 2005). The following presents the goals and policies for historical and archaeological resources.

Goal 11.1 **Develop a program to protect, preserve, and restore the sites, buildings and district that have architectural, historical, archaeological, and/or cultural significance.**

Policies:

11.1.1 Develop a comprehensive historic preservation plan that includes:

- Adoption of a Preservation Ordinance that authorizes the City to designate resources deemed to be of significance as a City Historical landmark or district.
- Establishment of a Historic Resources Commission that will review and recommend preservation ordinances, design standards, and historical designations of resources.
- Adoption of the Secretary of Interior Standards for Historic Rehabilitation and the standards and guidelines as prescribed by the State Office of Historic Preservation as design standards for alterations to historic resources.
- Establishment of a design review process for potential development projects in or adjacent to Historic Preservation Overlay Zones. (A-1 and HAR-1, 2, 3, and 4).

11.1.2 Maintain and update the Historic Resources Reconnaissance Survey database files of historic, architectural, and cultural resources conducted in 1991, and integrate it into the City's ordinance and environmental review process. Prior to public distribution, Native American tribes should be consulted to address any issues of confidentiality.

11.1.3 Consider, within the environmental review process, properties that may have become historically significant since completion of the survey in 1991. (LU-1)

11.1.4 Compile and maintain an inventory, based on the survey, of the Planning Area's significant historic, architectural and cultural resources. Prior to public

distribution, Native American tribes should be consulted to address any issues of confidentiality.

11.1.5 Continue to adopt historic district and overlay zone ordinances as described in the Historic Resources Reconnaissance Survey Report. Consider the designation of Historic Districts and Historic Overlay Zones as described in the Historic Resources Reconnaissance Survey Report.

11.1.6 Consider the need for a comprehensive survey for Downtown as well as establishing priorities for future intensive-level surveys.

11.1.7 Require that all City-owned properties containing or adjacent to historic resources be maintained in a manner that is aesthetically and/or functionally compatible with such resources.

11.1.8 Continue to develop design standards for commercial areas, similar to those in the Main Street Overlay District, which promotes the removal of tacked-on facades and inappropriate signage, the restoration of original facades, and designs that complement the historic pattern.

11.1.9 Require that an environmental review be conducted on all applications (e.g. grading, building, and demolition) for resources designated or potentially designated as significant in order to ensure that these sites are preserved and protected. (LU-1).

Goal 11.2 Provide incentives that can be used to preserve our historic and cultural resources.

Policies:

11.2.1 Encourage owners of historic income-producing properties to use the tax benefits provided by the 1981 Tax Revenue Act or as may be amended.

11.2.2 Encourage the use of the Historic Building Code in order to provide flexibility in building code requirements for the rehabilitation of historic buildings.

11.2.3 Provide for the purchase of facade easements from private property owners; allow private nonprofit preservation groups to purchase facade easements. A historic easement would include any easement, restriction, covenant or condition running with the land designed to preserve or maintain the significant features of such landmarks or buildings.

11.2.4 Adopt the Mills Act program to allow for a reduction in property taxes for historic properties.

Goal 11.3 Promote community appreciation for our history and cultural resources.

Policies:

11.3.1 Promote the formation and maintenance of neighborhood organizations and foster neighborhood conservation programs, giving special attention to transitional areas.

11.3.2 Develop brochures to accommodate pedestrian and vehicular tours of historic buildings, landmarks, neighborhoods and other points of historical interest in the San Bernardino area.

11.3.3 Cooperate with local historic preservation organizations doing preservation work and serve as liaison for such groups.

11.3.4 Encourage the involvement of San Bernardino City Unified School District, private schools, adult education classes, California State University at San Bernardino, the San Bernardino County Museum, San Bernardino Valley College in preservation programs and activities.

Goal 11.4 Protect and enhance our historic and cultural resources.

Policies:

11.4.1 Encourage the preservation, maintenance, enhancement, and reuse of existing buildings in redevelopment and commercial areas; the retention and renovation of existing residential buildings; and the relocation of existing residential buildings when retention on-site is deemed not to be feasible.

11.4.2 Consider creating a program to relocate reusable older buildings from or into redevelopment projects as a means of historic preservation.

11.4.3 Utilize the Redevelopment Agency as a vehicle for preservation activity. The Agency is currently empowered to acquire, hold, restore, and resell buildings.

Goal 11.5 Protect and enhance our archaeological resources.

Policies:

11.5.1 Complete an inventory of areas of archaeological sensitivity in the planning area. Prior to public distribution, Native American tribes should be consulted to address any issues of confidentiality.

11.5.2 Develop mitigation measures for projects located in archaeologically sensitive areas to protect such locations, remove artifacts, and retain them for educational display. Native American tribes should be consulted to determine the disposition of any Native American artifacts discovered.

11.5.3 Seek to educate the general public about San Bernardino's archaeological heritage through written brochures, maps, and reference materials.

3.0 NATURAL AND CULTURAL SETTING

This section of the report summarizes information regarding the physical and cultural setting of the Project area, including the prehistoric, ethnographic, and historical contexts of the general area. Several factors, including topography, available water sources, and biological resources, affect the nature and distribution of prehistoric, ethnographic, and historic-period human activities in an area. This background provides a context for understanding the nature of the cultural resources that may be identified within the region.

3.1 ENVIRONMENTAL SETTING

The Project area is south of the San Bernardino Mountains in the eastern portion of the San Bernardino Valley. The valley is bordered on the north by the eastern San Gabriel and San Bernardino mountains, on the west by the Pomona Valley, on the south by the Santa Ana and the Temescal mountains, and on the east by the San Jacinto Mountains. The San Bernardino Valley consists of a series of coalescing alluvial fans formed by the Santa Ana River and its tributaries (Dutcher and Garrett 1963:17).

The Santa Ana River originates on the northern and eastern slopes of Mount San Gorgonio and is the largest hydrological feature in the valley. The river is located less than a mile south and east of the Project area. A number of tributaries are located within the San Bernardino Valley including Mill Creek, Lytle Creek, Cajon Creek, Devil Canyon, East Twin Creek, and City Creek. Although early Spanish explorers described the Santa Ana River as a perennial stream, the pumping of groundwater has lowered the water table in the valley so that today, the streambed is frequently dry during the summer and fall months.

As the climate of the region is largely determined by topographic features, climate, in turn, largely dictates the character of the biotic environment exploited by native populations. The climate of the Project area is characterized as Mediterranean, with hot, dry summers and cool, moist winters. It has a semi-arid precipitation regime; significant changes in temperature and moisture occur based on elevation and exposure, particularly in the nearby mountains.

Prior to historical development of the Project vicinity, vegetation in the area included representative species of the valley grassland plant community. Indigenous species present may have included rye grass (*Leymus condensatus*), blue grass (*Poa secunda*), bent grass (*Agrostis* spp.), needlegrass (*Stipa* spp.), three-awn (*Aristida divaricata*), and members of the sunflower family (*Asteraceae*). Riparian communities would also have been present adjacent to the Santa Ana River and its tributaries. Various floral species were available from early spring until winter, and the leaves, stems, seeds, fruits, roots, and tubers from many of these plant species formed an important subsistence base for the Native American inhabitants of the region (Bean and Saubel 1972; Hyde and Elliot 1994).

3.2 PREHISTORIC SETTING

Prehistoric occupation of the inland valleys of Southern California can be divided into seven cultural periods: Paleoindian (circa [ca.] 12,000–9,500 years before present [B.P.]); Early Archaic (ca. 9,500–7,000 B.P.); Middle Archaic (ca. 7,000–4,000 B.P.); Late Archaic (ca. 4,000–1,500 B.P.); Saratoga Springs (ca. 1,500–750 B.P.); Late Prehistoric (ca. 750–410 B.P.); and

Protohistoric (ca. 410–180 B.P.), which ended in the ethnographic period. Due to the nature of prehistoric archaeological sites identified within 0.5 mile of the Project area (see Chapter 4), the prehistoric cultural setting discussed below begins at the Late Archaic period.

These periods are structured based on the archaeological research conducted at Diamond Valley Lake as part of the Eastside Reservoir Project (ESRP), located approximately 40 miles southeast of the Project area (Goldberg et al. 2001; McDougall et al. 2003). For the most part, the prehistory of the inland valleys of Southern California that characterizes the Project area has been less thoroughly understood than that of the nearby desert and coastal regions. Prior to the ESRP cultural resources studies, no comprehensive synthesis had been developed specifically for the interior valley and mountain localities of cismontane Southern California that characterize the region. The following has been adapted from Horne and McDougall (2003).

3.2.1 Late Archaic Period (ca. 4000 to 1500 B.P.)

The Late Archaic period was a time of cultural intensification in Southern California. The beginning of the Late Archaic coincides with the Little Pluvial, a period of increased moisture in the region. Effective moisture continued to increase in the desert interior by approximately 3,600 B.P. and lasted throughout most of the Late Archaic. This ameliorated climate allowed for more extensive occupation of the region. By approximately 2,100 B.P., however, drying and warming increased, perhaps providing motivation for resource intensification. Archaeological site types that typify this time period include residential bases with large, diverse artifact assemblages, abundant faunal remains, and cultural features as well as temporary bases, temporary camps, and task-specific activity areas. In general, sites showing evidence of the most intensive use tend to be on range-front benches adjacent to permanent water sources, such as perennial springs or larger streams, while less intensively used locales occur either on upland benches or on the margins of active alluvial fans (Goldberg et al. 2001).

Data from Late Archaic component archaeological sites also suggest increased sedentism during this period, with a change to a semi-sedentary land-use and collection strategy. The profusion of features, and especially refuse deposits in Late Archaic components, suggests that seasonal encampments saw longer use and more frequent reuse than during the latter part of the preceding Middle Archaic period, with increasing moisture improving the conditions of Southern California after ca. 3,100 B.P. (Goldberg et al. 2001; Spaulding 2001). Drying and warming after ca. 2,100 B.P. likely extracted a toll on expanding populations, influencing changes in resource procurement strategies, promoting economic diversification and resource intensification, and perhaps resulting in a permanent shift towards greater sedentism (Goldberg et al. 2001).

A technological innovation introduced during this period was the mortar and pestle, used for processing acorns and hard seeds, such as those derived from the mesquite pod. This correlates with a warming and drying trend that began around 2,100 B.P., which appears to have resulted in resource intensification (Goldberg et al. 2001).

The subsistence base broadened during the Late Archaic period. The technological advancement of the mortar and pestle may indicate the use of acorns, an important storable subsistence resource. Hunting also presumably gained in importance. An abundance of broad, leaf-shaped blades and heavy, often stemmed or notched projectile points have been found in association with large numbers of terrestrial and aquatic mammal bones. Other characteristic features of this period include the appearance of bone and antler implements and the occasional use of asphaltum and steatite. Most chronological sequences for Southern California

recognize the introduction of the bow and arrow by 1,500 B.P., marked by the appearance of small arrow points and arrow shaft straighteners.

Technologically, the artifact assemblage of this period was similar to that of the preceding Middle Archaic; new tools were added either as innovations or as "borrowed" cultural items. Diagnostic projectile points of this period are still fairly large (dart point size), but also include more refined notched (Elko), concave base (Humboldt), and small stemmed (Gypsum) forms (Warren 1984). Late in the period, Rose Spring arrow points appeared in the archaeological record in the deserts, reflecting the spread of the bow and arrow technology from the Great Basin and the Colorado River region. This projectile point type was not found at the ESRP study area, and there is no evidence suggesting that the bow and arrow had come into use at this time in the inland regions of Southern California.

3.2.2 Saratoga Springs Period (ca. 1500 to 750 B.P.)

In the early years of this period, cultural trends were, in large part, a continuation of the developments begun during the end of the Late Archaic Period. These include an increasing adaptation to the arid environment in the deserts and an increase in trade relations (Warren 1984).

Warren (1984) indicates that there were four cultural spheres within the Mojave and Colorado deserts during the early part of this period, including a southern desert sphere influenced by Patayan (Hakatayan) cultures adjacent to the Colorado River. This southern cultural sphere includes the Colorado Desert and San Jacinto Mountains, but it is unclear whether this influence extended as far west as the Project area.

Lake Cahuilla is believed to have refilled the Coachella Valley around 1,450 B.P., and was the focus of cultural activities such as exploitation of fish, water fowl, and wetland resources during this period. Desert people, speaking Shoshonean languages, may have moved into Southern California at this time, the so-called "Shoshonean Intrusion." Brown and Buff Ware pottery first appeared on the lower Colorado River at about 1,200 B.P. and started to diffuse across the California deserts by about 1,100 B.P. (Moratto 1984).

However, about 1,060 B.P., environmental conditions became notably warmer and drier. This period of intense drought, the Medieval Warm, extended throughout the Southwest (Stine 1994; Warren 1984), and led to the withdrawal of Native American populations from marginal desert areas. Human occupation of the Lake Perris and the ESRP area declined during this time period, while what occupations there were seem to have been tethered to springs and other sources of water (Goldberg et al. 2001). In inland San Diego County, a similar period of reduced activity or abandonment during this time has been noted (Moratto 1984). Saratoga Springs-style projectile points, a large triangular form associated with use of the bow and arrow, began to appear in the ESRP area at this time. However, the sparse assemblages found from this period obscure the exact timing of the transformation from dart and atlatl to bow and arrow.

3.2.3 Late Prehistoric Period (ca. 750 to 400 B.P.)

The Medieval Warm extended into the Late Prehistoric Period, ending about 575 B.P. A period of lower temperatures and increased precipitation, known as the Little Ice Age, resulted in increased resource productivity in the inland region. Population increased in the region of the Project area during this wet interval. In the ESRP area, several small, but apparently

semisedentary occupations, date to this time period. Cottonwood Triangular points began to appear in inland assemblages at this time, and Obsidian Butte obsidian became much more common (Goldberg et al., 2001).

By about 500 B.P., strong ethnic patterns developed among native populations in Southern California. This may reflect accelerated cultural change brought about by increased efficiency in cultural adaptation and diffusion of technology from the central coastal region of California and the southern Great Basin (Douglas 1981).

During this period, Lake Cahuilla began to recede (Waters 1983) and the large Patayan populations occupying its shores began moving westward into areas such as Anza Borrego, Coyote Canyon, the Upper Coachella Valley, the Little San Bernardino Mountains, and the San Jacinto Plain (Wilke 1976). The final desiccation of Lake Cahuilla, which had occurred by approximately 400 B.P. (A.D. 1640), resulted in a population shift away from the lakebed into the Peninsular Ranges to the west, and the Colorado River regions to the east.

3.2.4 Protohistoric Period

The improved, dynamic conditions of the Little Ice Age continued throughout the Protohistoric period. Utilization of the bow and arrow promoted an increase in hunting efficiency while a renewed abundance of mortars and pestles indicates extensive exploitation of various hard nuts and berries. As a result of the increased resource utilization of the area, sedentism intensified with small, fully sedentary villages forming during the Protohistoric period. This is evidenced by sites containing deeper middens suggesting more permanent habitation. These would have been the villages, or rancherias, noted by the early nonnative explorers (True 1966, 1970).

The cultural assemblage associated with the Protohistoric period included the introduction of locally manufactured ceramic vessels and ceramic smoking pipes, an abundance of imported Obsidian Butte obsidian, Cottonwood Triangular points, and Desert Side-notched points as well as the addition of European trade goods, such as glass trade beads, late in the period (Meighan 1954).

3.3 ETHNOGRAPHIC SETTING

Archival research and published reports suggest the Project area is situated where three traditional use territories of Native American groups meet. The traditional use territories of the Serrano, Cahuilla, and Gabrielino come together just southwest of the present-day city of San Bernardino which is very near the Project area. These cultural groups all spoke languages belonging to the Takic branch of the Shoshonean family, a part of the larger Uto-Aztecan language stock (Bean 1978:576; Geiger and Meighan 1976:19). In the following section, a brief synopsis of Serrano, Cahuilla, and Gabrielino ethnography is presented. This information has been summarized from Bean and Vane (2001) and McCawley (1996).

The Cahuilla and Serrano belonged to nonpolitical, nonterritorial patrimoieties that governed marriage patterns as well as patrilineal clans and lineages. Each clan, "political-ritual-corporate units" composed of 3 to 10 lineages, owned a large territory in which each lineage owned a village site with specific resource areas. Clan lineages cooperated in defense, in large communal subsistence activities, and in performing rituals. Clans were apt to own land in the

valley, foothill, and mountain areas, providing them with the resources of many different ecological niches. Unlike their Cahuilla and Serrano neighbors, the Gabrielino had a hierarchically ordered social class that included groupings of elite, middle class, and commoners. Class membership played a major role in determining individual lifestyles, as it depended upon both ancestry and wealth (Bean and Smith 1978:543).

In prehistoric times Cahuilla, Gabrielino, and Serrano shelters are believed to have been dome shaped; after contact they tended to be rectangular in shape. Cahuilla and Serrano shelters were often made of brush, palm fronds, or arrowweed while the Gabrielino utilized reed. Most of the Serrano and Cahuilla domestic activities were performed outside the shelters within the shade of large, expansive *ramadas*; windbreaks, made of vertical poles covered with rush mats, provided open-air food preparation and cooking areas at Gabrielino settlements.

The Cahuilla, Gabrielino, and Serrano were, for the most part, hunting, collecting, harvesting, and protoagricultural peoples. As in most of California, acorns were a major staple, but the roots, leaves, seeds, and fruit of many other plants also were used. Fish, birds, insects, and large and small mammals were also available.

To gather and prepare these food resources, the Cahuilla, Gabrielino, and Serrano had an extensive inventory of equipment including bows and arrows, traps, nets, disguises, blinds, spears, hooks and lines, poles for shaking down pine nuts and acorns, cactus pickers, seed beaters, digging sticks and weights, and pry bars. In addition, the Cahuilla also had an extensive inventory of food processing equipment including hammers and anvils, mortars and pestles, manos and metates, winnowing shells and baskets, strainers, leaching baskets and bowls, knives (made of stone, bone, wood, and carrizo cane), bone saws, and drying racks made of wooden poles to dry fish.

Mountain tops, unusual rock formations, springs, and streams are held sacred to the Cahuilla, Gabrielino, and Serrano, as are rock art sites and burial and cremation sites. In addition, various birds are revered as sacred beings of great power and sometimes were killed ritually and mourned in mortuary ceremonies similar to those for important individuals. As such, bird cremation sites are sacred.

3.4 HISTORICAL SETTING

3.4.1 County of San Bernardino

The earliest recorded historic-period use of the lands within the San Bernardino Valley began in the 1770s, following establishment of the Mission San Gabriel approximately 50 miles west of the Project area. Euro-American settlement in San Bernardino began in the early 1800s through the establishment of Politana and the Asistencia, but was largely fostered by the establishment of a Mormon colony under the leadership of Amasa Lyman and Charles Rich. Brothers Lyman and Rich bought the San Bernardino Rancho from Jose and Maria Armenta Lugo in 1851. San Bernardino County was established on April 26, 1853, and ceded a portion of its territory to the formation of Riverside County in 1893. Two Mormon colonies were established on either side of the Santa Ana River. The Mormons who settled in the San Bernardino area raised livestock, planted crops, and established civic services such as a school and a post office. The majority of the Mormon settlers in San Bernardino returned to Salt Lake City; however, some remained.

Agriculture and livestock continued to be the chief industries in San Bernardino County (Chasteen 2015).

General agriculture and livestock raising pursuits were quickly overshadowed by the citrus industry in Southern California beginning in the 1870s. The first orange trees in San Bernardino were planted by Anson Van Leuven in 1857. Citrus quickly became the largest industry in Southern California; including growing, packing, and shipping. Other industries included cattle ranching, growing sugar beets, and viticulture and enology. The burgeoning citrus industry led to a population boom and spurred the development of transcontinental railroads (Chasteen 2015).

Several companies were formed beginning in the mid- to late-1800s in an effort to develop San Bernardino County and Southern California in general. Beginning in 1887 in San Bernardino County, the Semi-Tropic Land and Water Company was formed. The company purchased 28,000 acres and the water rights to Lytle Creek, and laid out the townsites of Rosena (now known as Fontana), Rialto, Bloomington, and San Sevaine. The Semi-Tropic Land and Water Company, though ultimately unsuccessful in its attempts, initiated much of the early residential and commercial development in San Bernardino County. After the Semi-Tropic Land and Water Company failed, largely due to a nationwide economic depression, several other development companies, such as the Fontana Farms Company, were formed to purchase the Semi-Tropic Land and Water Company holdings and also to further development of towns and industries in the San Bernardino Valley. The establishment of transcontinental rail lines brought an influx of people and money to Southern California, which lead to a real estate boom (Chasteen 2015).

3.4.2 City of San Bernardino

The city of San Bernardino was recognized as the county seat shortly after the establishment of San Bernardino County in 1853. That same year, Henry G. Sherwood laid out a one-square-mile townsite, which was comprised of a series of eight-acre blocks separated by north-south and east-west running streets. The original survey had at its center a public square, where a Mormon temple was to be built. The public square was named Temple Block by the Mormon settlers and is today known as Pioneer Park. The city was incorporated on April 13, 1854.

In 1875, the Southern Pacific Railroad was constructed through the San Bernardino Valley with a station established at Colton. Eight years later, the California Southern Railroad, a subsidiary of the Atchison, Topeka, and Santa Fe Railway (AT&SF) arrived in the city of San Bernardino. A depot was built in 1886, which replaced a boxcar that was temporarily being used as a station. The original depot was destroyed by fire in 1916; construction of a new depot featuring mission-style architecture was started soon thereafter and opened in 1918 (Serpico 1988).

A narrow-gauge railroad was constructed between the cities of San Bernardino and Redlands in 1888. Known as the San Bernardino & Redlands Railway, the local rail line was organized by Oscar Newburg, W.J. Curtis and W.D. Crandall. The railway was approximately 10 miles in length and extended from Third and E Streets in the city of San Bernardino to the business district in the city of Redlands (San Bernardino History & Railroad Museum 2021).

By 1891, San Bernardino had established itself as a cosmopolitan settlement with a population of 5,000. At that time, the city had 26 miles of paved streets, an opera house, and the citizenry enjoyed other entertainments such as literary circles. The primary industries at that time were lumber, mining, and tourism. In the following decades, the citrus industry grew in prominent

and become one of the key economies in the area. In 1911, the City of San Bernardino held its first National Orange Show. Originally held in a tent at Fourth and E Streets, the show was later moved to permanent facilities on Mill and E streets. In that same year, the Pacific Electric Railway reached San Bernardino, which allowed residents to easily travel to Los Angeles and beyond. In 1920, the city had reached over 18,000 inhabitants. The 1920s brought more rapid growth, with the city limits extended north and west of the downtown area (San Bernardino Sun-Telegram 1960). Although the expansion of the City was curtailed by the Great Depression and World War II, the 1950s and 1960s saw post-war prosperity with a rapidly growing population. Vast housing tracts were built in the City's northern and eastern areas. Today, the city of San Bernardino is the regional hub for commercial activities, which draws a workforce from within the city and also from neighboring communities (Chasteen 2015).

4.0 CULTURAL RESOURCES INVENTORY

Multiple sources, including a records search at the South Central Coastal Information System (SCCIC) at California State University, Fullerton, were consulted to identify prior studies and previously recorded cultural resources within 0.5 mile of the Project area., The SCCIC records search was undertaken on August 11, 2021 by Isabela Kott, SCCIC Assistant Coordinator, GIS Program Specialist. Copies of the records search results are included in Appendix A.

As part of the cultural resources inventory, PaleoWest staff also examined historical maps and aerial images to characterize the developmental history of the Project site and surrounding area. Finally, PaleoWest contacted the NAHC to request a review of the SLF to identify any known Native American cultural resources that may be present in the Project area. A summary of the results of the record search and background research are provided below.

4.1 PREVIOUS CULTURAL RESOURCE INVESTIGATIONS

The data review indicates that no fewer than 12 previous investigations have been conducted and documented within 0.5-mile of the Project area since 1994. One of these previous studies (SB-07959) encompassed the entire Project area; the study consisted of an architectural assessment of 50 historic buildings in the city of San Bernardino (Hatheway & Associates 1998). A list of the previous cultural studies is provided in Table 4-1.

Table 4-1 Previous Cultural Studies within 0.5-Mile of the Project Area

Report No.	Date	Author(s)	Title
SB-03009	1994	Lukkarila, Dave Walter	The Summer of 1861: Establishing a Military Camp in San Bernardino at the Civil War's Beginning; A Review of the Official War Records
SB-03286	1998	Love, Bruce and Bai Tom Tang	Historic Significance Evaluation of Buildings Scheduled for Demolition During Phase I of Mayor's Demolition Initiative, City of San Bernardino, CA.
SB-04639	2004	Bonner, Wayne	Record Search Results and Site Visit for Cingular Wireless Facility Candidate SB-369-01 (Gifford Business Park), 766-791 South Gifford Avenue, San Bernardino, San Bernardino County, California
SB-06562	2003	Hale, John P.	Archaeological Resources Survey Report: Range 500 Upgrades, Cleghorn Pass Training Area, Marine Corps Air Ground Combat Center, Twentynine Palms, San Bernardino County, California.
SB-07371	2013	Billat, Lorna	BTS Waterman Visayan/MLAX 04211A.
SB-07528		Hogan, Michael, Bai Tom Tang, Terri Jacquemain, Daniel Ballester, and Nina Gallardo	Identification and Evaluation of Historic Properties: Cleanwater Factory Project, City of San Bernardino, San Bernardino County, California.
SB-07913	2015	Quinn, Harry M. and Terri Jacquemain	Paleontological Resources Assessment Report Clean Water Factory Project
SB-07914	2015	Hogan, Michael and Bai Tang	Identification and Evaluation of Historic Properties: Clean Water Factory Project, City of San Bernardino, San Bernardino County, California

Table 4-1 Previous Cultural Studies within 0.5-Mile of the Project Area

Report No.	Date	Author(s)	Title
SB-07916	2016	Quinn, Harry M. and Terri Jacquemain	Paleontological Resources Assessment Report Clean Water Factory Project
SB-07917	2015	Hogan, Michael, Bai Tang, and Terri Jacquemain	Identification and Evaluation of Historic Properties: Clean Water Factory Project, City of San Bernardino, San Bernardino County, California
SB-07959	**1998**	**Hatheway, Roger G.**	**Determination of Eligibility for 50 Buildings in the City of San Bernardino**
SB-08141	2014	Brunzell, David	Cultural Resources Assessment Home Lumber Property Project, City of San Bernardino, San Bernardino County, California

Bold indicates prior cultural resource studies that include the current Project area.

4.2 CULTURAL RESOURCES REPORTED WITHIN THE STUDY AREA

The data review indicated that no fewer than six cultural resources have been previously documented within 0.5-mile of the Project area (Table 4-2). All of these resources date to the historic period and consist of a railroad, flood control channel, two single-family residences, flour mill, and building foundations. The Mormon Flour Mill Site, which no longer appears to be extant, was designated as a Point of Historical Interest in 1975. One of these resources, the AT&SF Railroad (P-36-006103), has been determined ineligible for listing in the National Register of Historic Resources. None of the previously recorded cultural resources are located in the Project area.

Table 4-2 Cultural Resources Recorded within 0.5-Mile of the Project Area

Primary No.	Trinomial	Type	Age	Description
P-36-003260		Structure	Historic	Flood control channel
P-36-006847	CA-SBR-6847H	Site; Structure	Historic	Old Kite Route/Atchison, Topeka, and Santa Fe Railroad
P-36-017668		Building	Historic	1176 Amos Avenue (Single-family residence)
P-36-017723		Site	Historic	Mormon Flour Mill Site
P-36-017813		Building	Historic	Marshall Residence (Single-family residence)
P-36-023628	CA-SBR-14924H	Site	Historic	Two building foundations/structure pads

4.3 ADDITIONAL SOURCES

4.3.1 Historical Maps and Aerial Imagery Review

Historical maps consulted as part of the background research consist of Bureau of Land Management General Lands Office (GLO) survey maps (1876 and 1885), and the *San Bernardino, CA* 15-minute map (1896 and 1942), *Colton, CA* 7.5-minute map (1938), and *San Bernardino South, CA* 7.5-minute (1954, 1968, and 1975) USGS quadrangles. Aerial photographs available at NETROnline (2021) dated 1938, 1959, 1966, 1968, 1980, 1994, 2002, 2005, 2009, 2010, and 2012 were also reviewed. The GLO maps indicate that in the mid-

nineteenth century, the Project area was part of Rancho San Bernardino. By the end of the 1800s, a building had been constructed on the southwest corner of the property. Other development in the area at this time includes the San Bernardino & Redlands Railway (also known as the Redlands Motor Railroad) running along East Central Avenue and South Waterman Avenue and the AT&SF Railroad, the latter of which is located 0.25 mile west of the Project area. A 1938 aerial photograph depicts a farmstead in the southwest corner of the Project property with a single-family residence built immediately to the north along South Waterman Avenue; the eastern portion of the Project area was undeveloped. By the mid-1950s, two additional buildings had been constructed on the Project area. One of these buildings was located just east of the single-family residence facing South Waterman Avenue with the second building situated in the southeast corner of the property. Between 1959 and 1966, the farmstead was replaced by two rectangular-shaped commercial buildings and the single-family residence is demolished. The two remaining buildings on the Project area were removed sometime between 1968 and 1994.

Aerial photographs indicate that sometime between 1980 and 1994, two large warehouse facilities were built on the property (see Figure 1-3). A review of the building permit records found that the warehouse located at 791 South Waterman Avenue (western building) was constructed in 1985 (City of San Bernardino 2021a) with the building at 336 East Central Avenue (eastern building) constructed in 1988 (City of San Bernardino 2021b). Both of the buildings have been recently demolished.

4.3.2 Native American Outreach

PaleoWest contacted the NAHC for a review of the SLF on June 18, 2021. The objective of the SLF search was to determine if the NAHC had any knowledge of Native American cultural resources (e.g., traditional use or gathering area, place of religious or sacred activity, etc.) within the immediate vicinity of the Project area. The NAHC responded on July 9, 2021, stating that the SLF was completed with positive results (see Appendix B). The NAHC recommended that PaleoWest contact the San Manuel Band of Mission Indians for additional information. The NAHC response also included a list of nine individuals representing seven Native American tribal groups. PaleoWest sent outreach letters to the representatives of the seven tribal groups on July 9, 2021. Follow-up outreach was conducted via email on July 26, 2021.

To date, three responses have been received. In an email dated July 9, 2021, Ms. Lacy Padilla, Archaeologist in the Tribal Historic Preservation Office of the Agua Caliente Band of Cahuilla Indians (ACBCI), stated that the Project is not located within the Tribe's Traditional Use Area. As such, the ACBCI defers to other tribes in the area. On July 12, 2021, the Quechan Historic Preservation Officer emailed and stated that they have no comments on the Project and that they defer to more local tribes. Finally, on July 13, 2021, Ryan Nordness, Cultural Resource Analyst for the San Manuel Band of Mission Indians, emailed and noted that the proposed Project is not located near any known cultural resources.

4.3.3 Geoarchaeological Assessment

Geological maps indicate that the Project area lies in young alluvial-valley deposits (Qya_5) along the northern edge of the Santa Ana River floodplain (Morton and Miler 2006). These deposits consist of young axial-channel deposits composed of thin- to thick-bedded, very fine to medium sand interlayered with pebbly fine sand and dark-colored organic-rich layers. The proximity of

the Project area to the Santa Ana River suggests the area may have been attractive to prehistoric groups both as a source of water and resource procurement locale. However, the young age of the sediments and high energy associated with the deposits indicate a relatively low potential for encountering intact buried archaeological deposits within the Project area.

5.0 FIELD INVESTIGATION

A cultural resources survey of the Project area was completed by Mr. Mills on June 23, 2021. The survey was conducted by walking a series of north-south oriented transects spaced at 10- to 15-meter (33- to 50-feet) intervals across areas of exposed ground surface. The Project area was recorded with digital photographs that included general views of the topography and vegetation density. In addition, photographs were taken of each identified cultural resource. A photo log was maintained to include, at a minimum, photo number, date, orientation, photo description, and comments. The archaeologist carefully inspected all areas likely to contain or exhibit sensitive cultural resources to ensure discovery and documentation of any visible, potentially significant cultural resources located within the Project area.

Historical site indicators may include fence lines, ditches, standing buildings, objects or structures such as sheds, or concentrations of materials at least 45 years in age, such as domestic refuse (e.g., glass bottles, ceramics, toys, buttons or leather shoes), refuse from other pursuits such as agriculture (e.g., metal tanks, farm machinery parts, horse shoes) or structural materials (e.g., nails, glass window panes, corrugated metal, wood posts or planks, metal pipes and fittings, railroad spurs, etc.). Prehistoric site indicators may include areas of darker soil with concentrations of ash, charcoal, fragments of animal bone, shell, flaked stone, ground stone, or even human bone.

5.1 FIELD RESULTS

The Project area encompasses three contiguous parcels, the largest of which (APN 0280-121-47) once contained two warehouse buildings that had been recently demolished. This parcel was covered with the pulverized pieces of concrete and other remnants of parking lots (Figures 5-1 and 5-2). Although the demolition debris reduced ground visibility, native sediments were observed throughout the area. All exposed soils appeared highly disturbed and consisted of a light reddish-brown, loamy sand with small gravel inclusions.

The remaining two parcels (APNs 0280-121-34 and -44) were undeveloped open areas covered by weeds and grasses with scattered trees and shrubs (Figure 5-3). Visibility in these areas was generally less than five percent. The two parcels were littered with modern trash.

The survey identified no prehistoric or historic period cultural resources in the Project area.

Figure 5-1. Overview of demolition debris in APN 0280-121-47, looking northeast.

Figure 5-2. Overview of remnant parking lot on APN 0280-121-47, facing northeast.

Figure 5-3. Overview of undeveloped parcel (APN 0280-121-34), looking north.

6.0 MANAGEMENT RECOMMENDATIONS

The cultural resources assessment completed by PaleoWest identified no archaeological or historical resources in the Project area. Results of the study indicate that the area has been extensively disturbed by development. The proximity of the Project area to the Santa Ana River suggests the area may have been attractive to prehistoric groups both for its proximity to water and to resource procurement locales. However, the young age of the sediments and high energy of the deposits in the Project area indicate there is a low potential for encountering intact buried archaeological deposits. Based on these findings, PaleoWest recommends a finding of no impacts to cultural resources under CEQA. No further cultural resources management is recommended for the Project.

In the event that potentially significant archaeological materials are encountered during Project-related ground-disturbing activities, all work should be halted in the vicinity of the archaeological discovery until a qualified archaeologist can visit the site of discovery and assess the significance of the archaeological resource. In addition, Health and Safety Code 7050.5, CEQA 15064.5(e), and Public Resources Code 5097.98 mandate the process to be followed in the unlikely event of an accidental discovery of any human remains in a location other than a dedicated cemetery. Finally, should additional actions be proposed outside the currently defined Project area that have the potential for additional subsurface disturbance, further cultural resource management may be required.

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City of San Bernardino (continued)
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Appendix A.
Record Search Results

South Central Coastal Information Center
California State University, Fullerton
Department of Anthropology MH-426
800 North State College Boulevard
Fullerton, CA 92834-6846
657.278.5395 / FAX 657.278.5542
sccic@fullerton.edu
California Historical Resources Information System
Orange, Los Angeles, and Ventura Counties

8/11/2021 Records Search File No.: 22608.8783

Roberta Thomas
PaleoWest
517 S. Ivy Avenue
Monrovia, CA 91016

Re: Record Search Results for the Amazing 34 Warehouse Project (21-0458)

The South Central Coastal Information Center received your records search request for the project area referenced above, located on the San Bernardino South, CA USGS 7.5' quadrangle(s). Due to the COVID-19 emergency, we have implemented new records search protocols, which limits the deliverables available to you at this time. **WE ARE ONLY PROVIDING DATA THAT IS ALREADY DIGITAL AT THIS TIME.** Please see the attached document on COVID-19 Emergency Protocols for what data is available and for future instructions on how to submit a records search request during the course of this crisis. If your selections on your data request form are in conflict with this document, we reserve the right to default to emergency protocols and provide you with what we stated on this document. You may receive more than you asked for or less than you wanted. The following reflects the results of the records search for the project area and a ½-mile radius:

As indicated on the data request form, the locations of resources and reports are provided in the following format: ☒ custom GIS maps ☐ shape files ☐ hand-drawn maps

Resources within project area: 0	None
Resources within ½-mile radius: 6	SEE ATTACHED MAP or LIST
Reports within project area: 1	SB-07959
Reports within ½-mile radius: 12	SEE ATTACHED MAP or LIST

Resource Database Printout (list):	☐ enclosed	☒ not requested	☐ nothing listed
Resource Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Resource Digital Database (spreadsheet):	☒ enclosed	☐ not requested	☐ nothing listed
Report Database Printout (list):	☐ enclosed	☒ not requested	☐ nothing listed
Report Database Printout (details):	☐ enclosed	☒ not requested	☐ nothing listed
Report Digital Database (spreadsheet):	☒ enclosed	☐ not requested	☐ nothing listed
Resource Record Copies:	☒ enclosed	☐ not requested	☐ nothing listed
Report Copies:	☒ enclosed	☐ not requested	☐ nothing listed

OHP Built Environment Resources Directory (BERD) 2019: ☒ available online; please go to https://ohp.parks.ca.gov/?page_id=30338

Archaeo Determinations of Eligibility 2012: ☐ enclosed ☐ not requested ☒ nothing listed

Historical Maps: ☒ not available at SCCIC; please go to https://ngmdb.usgs.gov/topoview/viewer/#4/39.98/-100.02

Ethnographic Information: ☒ not available at SCCIC

Historical Literature: ☒ not available at SCCIC

GLO and/or Rancho Plat Maps: ☒ not available at SCCIC

Caltrans Bridge Survey: ☒ not available at SCCIC; please go to http://www.dot.ca.gov/hq/structur/strmaint/historic.htm

Shipwreck Inventory: ☒ not available at SCCIC; please go to http://shipwrecks.slc.ca.gov/ShipwrecksDatabase/Shipwrecks_Database.asp

Soil Survey Maps: (see below) ☒ not available at SCCIC; please go to http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

Thank you for using the California Historical Resources Information System,

Isabela Kott

Digitally signed by Isabela Kott
Date: 2021.08.11 17:50:33 -07'00'

Isabela Kott
Assistant Coordinator, GIS Program Specialist

Enclosures:

(X) Covid-19 Emergency Protocols for San Bernardino County Records Searches – 2 pages

(X) Custom Maps – 2 pages

(X) Resource Digital Database (spreadsheet) – 6 lines

(X) Report Digital Database (spreadsheet) – 13 lines

(X) Resource Record Copies – (all) 100 pages

(X) Report Copies – (project area only) 149 pages

Emergency Protocols for San Bernardino County Records Searches

These instructions are for qualified consultants with a valid Access and Use Agreement.

WE ARE ONLY PROVIDING DATA THAT IS ALREADY DIGITAL AT THIS TIME. WE ARE NOT PROVIDING SHAPEFILE DATA FOR SAN BERNARDINO COUNTY; YOU WILL ONLY RECEIVE A CUSTOM DIGITAL MAP.

We can only provide you information that is already in digital format; therefore, your record search may or may not be complete. Some records are only available in paper formats and so may not be available at this time. This also means that there may be data missing from the database bibliographies; locations of resource and report boundaries may be missing or mis-mapped on our digital maps; and that no pdf of a resource or report is available or may be incomplete.

As for the GIS mapped data, bibliographic databases, and pdfs of records and reports; not all the data in our digital archive for San Bernardino County was processed by SCCIC, therefore, we cannot vouch for its accuracy. Accuracy checking and back-filling of missing information is an on-going process under normal working conditions and cannot be conducted under the emergency protocols.

This is an extraordinary and unprecedented situation. Your options will be limited so that we can help as many of you as possible in the shortest amount of time. You may not get everything you want and/or you may get more than you want. We appreciate your patience and resilience.

Please send in your request via email using the data request form along with the associated shape files and pdf map of the project area. If you have multiple SBCO jobs for processing, you may not get them all back at the same time. Use this data request form:

http://web.sonoma.edu/nwic/docs/CHRISDataRequestForm.pdf

Please make your selections on the data request form based on the following instructions.

1. Keep your search radius as tight as possible, but we understand if you have a requirement. The wider the search radius, the higher the cost. You are welcome to request a Project area only search, but please make it clear on the request form that that is what you are seeking.

2. You will get custom maps of resource locations for the project area and the radius that you choose. We will only be providing maps of report locations for the project area and up to a ¼-mile radius. If you need bibliographic information for more than ¼-mile radius – you will be charged for all report map features within your selected search radius. You can opt out of having us create custom maps but you still pay for the map features in the project area or the selected search radius if you want the associated bibliographic information or pdfs of resources or reports.

3. You can request copies of site records and reports if they are digitally available.

4. You will also get the bibliographies (List, Details, Spreadsheet) that you choose for resources and reports. Because the bibliographic database is not yet complete, you will only get what is available at the time of your records search.
5. If you request more than what we are offering here, we may provide it if it is available or we reserve the right to default to these instructions. If you want copies of resources and reports that are not available digitally at the time of the search, you can send us a separate request for processing when we are allowed to return to the office. Fees will apply.

6. **You will need to search the OHP BERD yourself for your project area and your search radius.** This replaces the old OHP HPD. It is available online at the OHP website.

7. You can go online to find historic maps, so we are not providing them at this time.

8. Your packet will be sent to you electronically via Dropbox. We use 7-zip to password protect the files so you will need both on your computers. We email you the password. If you can't use Dropbox for some reason, then you will need to provide us with your Fed ex account number and we will ship you a disc with the results. As a last resort, we will ship on a disc via the USPS. You may be billed for our shipping and handling costs.

9. We will be billing you at the staff rate of $150 per hour and you will be charged for all resources and reports according to the "custom map charges", even if you don't get a custom or hand-drawn map. You will also be billed 0.15 per pdf page, as usual. Quad fees will apply if your research includes more than 2 quads. The fee structure for custom maps was designed to mimic the cost of doing the search by hand so the fees are comparable.

10. **A copy of the digital fee structure is available on the Office of Historic Preservation website under the CHRIS tab. If the digital fee structure is new to you or you don't understand it; please ask questions before we process your request, not after. Thank you.**

All listed resources have been previously verified by SCCIC staff.

PrimaryString	TrinomialString	ResourceName	ResType	Age	Attribs	ResourceDisclosure
P-36-006847	CA-SBR-006847H	Old Kite Route; ATS&F/BNSF	Structure, Site	Historic	AH07; HP11; HP18; HP19	Not for publication
P-36-017668		1176 Amos Avenue, San Bernardino	Building	Historic	HP02	Unrestricted
P-36-017723		Mormon Flour Mill Site	Site	Historic	AH01	Unrestricted
P-36-017813		Marshall Residence	Building	Historic	HP02	Unrestricted
P-36-023628	CA-SBR-014924H	LSA-HIP1101-S-1	Site	Historic	AH02	Not for publication
P-36-033260		Twin-Warm Creek Channel	Object, Other	Historic	AH06	Not for publication

ReportNum	OtherIDs	Authors	CitYear	CitTitle	CitPublisher	ReportType
SB-03009	NADB-R - 1063009	LUKKARILA, DAVE WALTER	1994	THE SUMMER OF 1861: ESTABLISHING A MILITARY CAMP IN SAN BERNARDINO AT THE CIVIL WAR'S BEGINNING; A REVIEW OF THE OFFICIAL WAR RECORDS	M.A., CA STATE UNIVERSITY, FULLERTON	
SB-03286	NADB-R - 1063286	LOVE, BRUCE and BAI TOM TANG	1998	HISTORIC SIGNIFICANCE EVALUATION OF BUILDINGS SCHEDULED FOR DEMOLITION DURING PHASE I OF MAYOR'S DEMOLITION INITIATIVE, CITY OF SAN BERNARDINO, CA. 16PP	CRM TECH	
SB-04639	NADB-R - 1064639	BONNER, WAYNE H.	2004	RECORDS SEARCH RESULTS AND SITE VISIT FOR CINGULAR WIRELESS FACILITY CANDIDATE SB-369-01 (GIFFORD BUSINESS PARK) 766-791 SOUTH GIFFORD AVENUE, SAN BERNARDINO, SAN BERNARDINO COUNTY, CALIFORNIA		
SB-06562	NADB-R - 1066562	Hale, John P.	2003	Archaeological Resources Survey Report: Range 500 Upgrades, Cleghorn Pass Training Area, Marine Corps Air Ground Combat Center, Twentynine Palms, San Bernardino County, California.		
SB-07371	NADB-R - 1067371	Billat, Lorna	2013	BTS Waterman Visayan/MLAX 04211A.		
SB-07528	NADB-R - 1067528	Hogan, Michael, Bai "Tom" Tang, Terri Jacquemain, Daniel Ballester, and Nina Gallardo	2012	Identification and Evaluation of Historic Properties: Cleanwater Factory Project, City of San Bernardino, San Bernardino County, California.	CRM Tech	Architectural/Historical, Evaluation, Field study
SB-07913		Quinn, Harry M. and Terri Jacquemain	2015	Paleontological Resources Assessment Report Clean Water Factory Project	CRM Tech.	Field study
SB-07914		Hogan, Michael and Bai Tang	2015	Identification and Evaluation of Historic Properties: Clean Water Factory Project, City of San Bernardino, San Bernardino County, California	CRM Tech	Evaluation
SB-07916	Paleo -	Quinn, Harry M. and Terri Jacquemain	2015	Paleontological Resources Assessment Report Clean Water Factory Project	CRM Tech.	Field study
SB-07917		Hogan, Michael, Bai Tang, and Terri Jacquemain	2015	Identification and Evaluation of Historic Properties: Clean Water Factory Project, City of San Bernardino, San Bernardino County, California	CRM Tech.	Architectural/Historical, Evaluation
SB-07959		Hatheway, Roger G.	1998	Determination of Eligibility for 50 Buildings in the City of San Bernadino	Hatheway and Associates	Architectural/Historical, Monitoring
SB-08046		Brunzell, David	2014	Cultural Resources Assessment of the Centman Project, San Bernardino, San Bernardino County, California (BCR Consulting Project no. TRF1407)	BCR Consulting LLC	Archaeological, Field study
SB-08141	Paleo -	Brunzell, David	2013	Cultural Resources Assessment Home Lumber Property Project, City of San Bernardino, San Bernardino County, California	BCR Consulting	Archaeological, Field study

Appendix B.
Native American Coordination

Sacred Lands File & Native American Contacts List Request

NATIVE AMERICAN HERITAGE COMMISSION
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95501
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

Information Below is Required for a Sacred Lands File Search

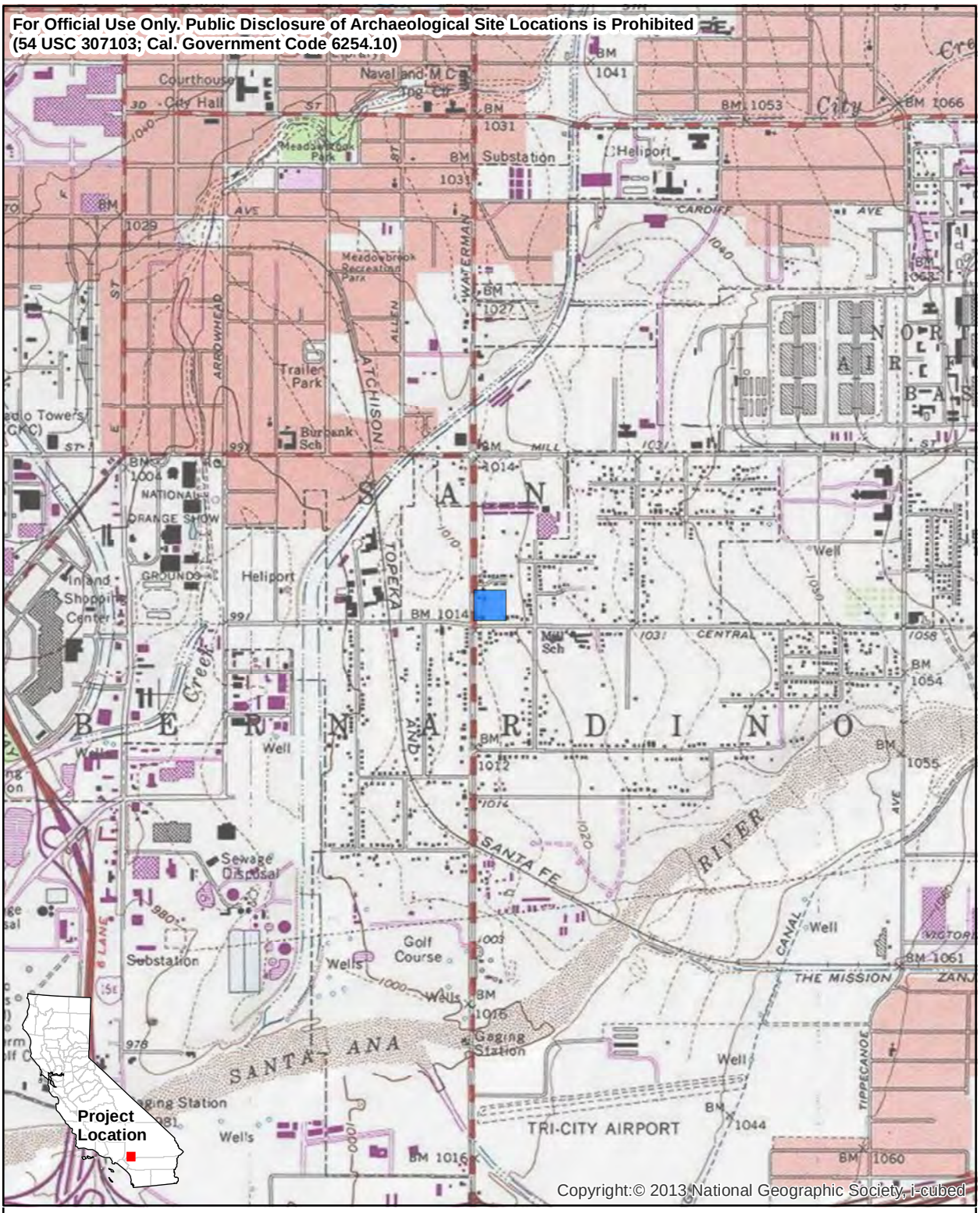
Project: Amazing 34 Warehouse Project (21-0458)
County: San Bernardino

USGS Quadrangle
Name: San Bernardino South, CA
Township: 1 South Range: 4 West Section(s): unsectioned (part of Rancho San Bernardino)

Company/Firm/Agency:
PaleoWest Archaeology
Contact Person: Tiffany Clark
Street Address: 517 S Ivy Avenue
City: Monrovia Zip: 91016
Phone: (310) 210-9884 Extension:
Fax:
Email: tclark@paleowest.com

Project Description:
The Project is a Phase I cultural resource study of a 4.9 acre area for a proposed warehouse facility in the City of San Bernardino, San Bernardino County. The Project requires compliance with CEQA.

☑ Project Location Map is attached



PALEO WEST

0 feet 2,000

0 meters 500

1:24,000

USGS 7.5' Quadrangle:
San Bernardino South, CA (1977)
San Bernadino Land Grant
San Bernadino BM
UTM Zone 11, NAD 83

Project Area

NATIVE AMERICAN HERITAGE COMMISSION

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

July 9, 2021

Tiffany Clark
PaleoWest Archaeology

Via Email to: tclark@paleowest.com

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, Amazing 34 Warehouse Project, San Bernardino County

Dear Ms. Clark:

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

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

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

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

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

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

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

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

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

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

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was positive. Please contact the San Manuel Band of Mission Indians on the attached list for more information.

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

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

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

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

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

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

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Tribal Consultation List
San Bernardino County
7/9/2021

Agua Caliente Band of Cahuilla Indians
Patricia Garcia-Plotkin, Director
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6907
Fax: (760) 699-6924
ACBCI-THPO@aguacaliente.net

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Road — Cahuilla, Serrano
Banning, CA, 92220
Phone: (951) 755 - 5110
Fax: (951) 755-5177
abrierty@morongo-nsn.gov

Morongo Band of Mission Indians
Ann Brierty, THPO
12700 Pumarra Road — Cahuilla, Serrano
Banning, CA, 92220
Phone: (951) 755 - 5259
Fax: (951) 572-6004
abrierty@morongo-nsn.gov

Quechan Tribe of the Fort Yuma Reservation
Jill McCormick, Historic Preservation Officer
P.O. Box 1899 — Quechan
Yuma, AZ, 85366
Phone: (760) 572 - 2423
historicpreservation@quechantribe.com

San Manuel Band of Mission Indians
Jessica Mauck, Director of Cultural Resources
26569 Community Center Drive — Serrano
Highland, CA, 92346
Phone: (909) 864 - 8933
jmauck@sanmanuel-nsn.gov

Santa Rosa Band of Cahuilla Indians
Lovina Redner, Tribal Chair
P.O. Box 391820 — Cahuilla
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
lsaul@santarosa-nsn.gov

Serrano Nation of Mission Indians
Mark Cochrane, Co-Chairperson
P. O. Box 343 — Serrano
Patton, CA, 92369
Phone: (909) 528 - 9032
serranonation1@gmail.com

Serrano Nation of Mission Indians
Wayne Walker, Co-Chairperson
P. O. Box 343 — Serrano
Patton, CA, 92369
Phone: (253) 370 - 0167
serranonation1@gmail.com

Soboba Band of Luiseno Indians
Isaiah Vivanco, Chairperson
P. O. Box 487 — Cahuilla, Luiseno
San Jacinto, CA, 92581
Phone: (951) 654 - 5544
Fax: (951) 654-4198
ivivanco@soboba-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed Amazing 34 Warehouse Project, San Bernardino County.

Appendix – C

Geotechnical Investigation

PRELIMINARY SOIL INVESTIGATION REPORT

PROPOSED TILT-UP STORAGE BUILDING
791 SOUTH WATERMAN AVENUE
SAN BERNARDINO, CALIFORNIA

Prepared for:

Amazing 34
15 West 34th Street, 7th Floor
New York, NY 10001

Prepared by:

GeoMat Testing Laboratories, Inc.
9980 Indiana Avenue
Suite 14
Riverside, California 92503

Project No. 20054-01

March 26, 2020

GeoMat Testing Laboratories, Inc.

Soil Engineering, Environmental Engineering, Materials Testing, Geology

March 26, 2020

Project No.: 20054-01

TO: Amazing 34
15 West 34th Street, 7th Floor
New York, NY 10001

SUBJECT: Preliminary Soil Investigation Report, Proposed Tilt-Up Storage Building, 791 South Waterman Avenue, San Bernardino, California

In accordance with your authorization, GeoMat Testing Laboratories, Inc. (GeoMat) is pleased to present our Preliminary Soil Investigation Report for the proposed commercial building at 791 South Waterman Avenue, San Bernardino, California. This report is in fulfillment of our proposal dated March 3, 2020 and your subsequent authorization. The accompanying report presents a summary of our findings, recommendations, and limitation of work for the proposed site development.

The primary purpose of this investigation and report is to provide an evaluation of the existing geotechnical conditions at the site as they relate to the design and construction of the proposed commercial building. More specifically, this investigation was to address geotechnical conditions for the preliminary design of the foundation for the proposed structure.

If you should have any questions regarding this report, please do not hesitate to call our office. We appreciate this opportunity to be of service.

Submitted for GeoMat Testing Laboratories, Inc.

Haytham Nabilsi, GE 2375
Project Engineer, Exp. 12/31/2020

Art Martinez
Staff Engineer

LICENSED PROFESSIONAL ENGINEER
HAYTHAM NABILSI
GE 2375
GEOTECHNICAL
STATE OF CALIFORNIA

Distribution: (3) Addressee

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ATTACHMENTS:

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1.0 INTRODUCTION

1.1 SCOPE OF WORK

- Review soils, seismic, groundwater data, and maps in our files.
- Exploration at accessible location.
- Field engineer for logging, observe excavation resistance/caving.
- Sampling of select soils.
- Laboratory testing on select soil samples.
- Prepare CBC seismic design parameters.
- Preparation of this soil investigation report

1.2 EXISTING SITE CONDITIONS

The subject site is located on the northeast corner of S. Waterman Avenue and E. Central Avenue, in the City of San Bernardino, California. Access on site can be made from either Waterman Avenue or Central Avenue which are both fully developed roads with existing concrete curb and gutter. The geographical relationship of the site and surrounding vicinity is shown on the Site Location Map, Figure 1.

The subject site is composed of a total of 3 parcels and has a total lot area of approximately 3.37 acres. There are two commercial buildings onsite with associated concrete hardscape and asphalt concrete parking and drive lanes.

1.3 PROPOSED DEVELOPMENT

According to the provided Site Plan 3 prepared by TR Design Group, Inc. (Sheet CS-3, plan not dated) the site is proposed for a 67,945 sq. ft. commercial storage building with an attached 6,400 sq. ft. two-story office building. It is anticipated that the buildings will be constructed at or near existing grades utilizing concrete tilt-up techniques.

No structural details or foundation plans were provided for our review at the time of this report. We assume that the building will be supported on shallow concrete foundation with slab-on-grade. Continuous wall loads will not exceed 3-5 kips per linear foot and isolated column loads of up to 100 kips.

1.4 REVIEW OF PROJECT DOCUMENTS

The following documents have been reviewed by this office and the relevant information has been addressed and incorporated into our project recommendations.

- Cal Vada Surveying, Inc. “A.L.T.A./N.S.P.S. Land Title Survey, 791 S. Waterman Avenue, San Bernardino, CA 92408,” Sheet 1 of 1, Dated November 26, 2018.

- TR Design Group “Site Plan 3, Amazing 34 Warehouse Expansion, 791 S. Waterman Avenue, San Bernardino, CA 92408,” Sheet CS-3, Plan Not Dated.

Once the design phase and foundation loading configuration proceeds to a more finalized plan, the recommendations within this report should be reviewed and revised, if necessary. Any changes in the design, location or elevation of any structure, as outlined in this report, should be reviewed by this office. GeoMat should be contacted to determine the necessity for review and possible revision of this report.

2.0 SUMMARY OF GEOTECHNICAL CONDITIONS

2.1 FIELD WORK

Six exploratory boreholes were drilled up to 50 feet below ground surface on March 19, 2020 utilizing a Diedrich D-50 mobile drill rig equipped with 8-inch diameter hollow stem augers. Refer to Plate 1 for borehole locations.

Relatively undisturbed samples were obtained with the California Ring Sampler (ASTM D 1587). This sampler has three inches external diameter, 2.5-inches inside diameter, and is lined with 1-inch high brass rings, with an inside diameter of 2.41-inches. The sample barrel is driven into the ground at the bottom of the boring with 140-pound hammer with a free fall of approximately 30-inches. Sampler driving resistance, expressed as blows per six inches of penetration, is presented on the boring logs at the respective sampling depths. Ring samples were retained in close-fitting, moisture tight canisters for transport to our laboratory for testing.

Additional representative samples have been recovered with the SPT (Standard Penetration Test, ASTM D 1586) sampler. This sampler consists of steel driving shoe and tube that split longitudinally in half, and a coupling at the top. The coupling connects the sampler to the drill rod. The standard split tube has an inside diameter of 1 3/8-inch (1 1/2-inch inside diameter without liners) and an outside diameter of 2-inches. Unless noted otherwise, liners are usually not used. The standard driving weight and free fall for this test is similar to California Ring Sampler. Blow counts required to drive the samplers 18-inches are recorded on the boring logs. The sum of the number of blows for the last 12-inches on an 18-inch penetration represents the SPT count. This data is shown on the boring logs when obtained in the field.

Bulk samples were also collected from the auger cuttings during drilling. The samples were collected in plastic bags, tied, and tagged for the location and depth. The geotechnical boring logs are presented in Appendix B and may include a description and classification of each stratum, sample locations, blow counts, groundwater conditions encountered during drilling, results from selected types of laboratory tests, and drilling information.

2.2 SUBSURFACE FINDINGS

The site is relatively flat with no immediate major grade changes. According to the Geologic Map of the San Bernardino North/North 1/2 of San Bernardino South Quadrangles (Dibblee Foundation Map DF-127), the subject site is underlain by younger alluvium (Qa), see Figure 2. The subsurface materials encountered at the exploratory boring locations are briefly described below. Detailed descriptions are provided in the boring logs, which are presented in Appendix B.

2.2.1 Artificial Fill (af)

Artificial fill was encountered throughout the site and up to 11 feet below ground surface in exploratory borehole B-3. This fill primarily consisted of dark brown sandy lean clay with interlayering of gray and light brown silty sand and contains some broken glass and metal debris. This undocumented artificial fill will need to be completely removed from structural areas prior to placement of compacted fill.

2.2.2 Younger Alluvium (Qa)

Alluvium is weathered bedrock material and sediments that have been eroded from natural slopes and deposited in generally flat lying areas. Based on our exploratory borings, this alluvial soil generally consists of silty sand (USCS “SM”), poorly graded sand with silt (USCS “SP-SM”), sandy silt (USCS “ML”), and elastic silt (USCS “MH”).

2.2.3 Cal/OSHA Soil Type

Per the California Occupational Safety and Health Administration (Cal/OSHA) the site soil may be classified as the following:

Fine Grained Soil "Soil Type C"
Coarse Grained Soil "Soil Type B"

2.2.4 Caving Potential

The onsite sandy soil is subject to sloughing and caving of excavation slopes. This caving condition could endanger personnel working within or adjacent to the excavation as well as nearby equipment, structures, or other existing improvements. The contractor should be aware of the potential for caving of sandy material on this project and take appropriate precautions to protect the safety of site personnel as well as the integrity of the excavation slopes and any existing nearby structures or other improvements.

2.2.5 NRCS Classification

The web soil survey by the United States Department of Agriculture, Natural Resource Conservation Service (NRCS) maps soils on a regional scale and lists the site as being entirely underlain by Hanford coarse sandy loam (2-9 percent slopes). This classification relates to the native soils at the site, not the undocumented fill soil.

The NRCS reports that the Hanford coarse sandy loam (HaC) consists of alluvial fans derived from granite. Depth to a root restrictive layer is greater than 80 inches. The natural drainage class is considered well drained. Water movement in the most restrictive layer is high. Available water storage in the soil profile is moderate (about 7.8 inches). The soil is rarely flooded and not ponded and depth to the water table is greater than 80 inches. The site is considered to have a Hydrologic Soil Group "A" and does not meet hydric criteria.

It should be noted that the NRCS classifies soils based on agricultural factors, not engineering or geologic properties, and the NRCS descriptions should be interpreted accordingly. For instance, a soil could have a relatively high capacity for water movement according to the NRCS, but from an engineering perspective, the infiltration potential for storm water disposal could be considered moderately high or even low.

2.3 GROUNDWATER

Groundwater study is not within the scope of this work. Groundwater was not encountered in our exploratory boring excavated up to 50 feet below existing ground surface.

Local depths to groundwater were researched utilizing the USGS Groundwater Watch interactive webpage (https://groundwaterwatch.usgs.gov/StateMap.asp?sa=CA&sc=06) and the closest well to the site is a well located at Mill Park, approximately 650 southeast of the subject site (Site No. 340508117163304 - 001S004W14E011S). The highest historical groundwater elevation measured at this well had a water surface elevation of 953 feet above mean sea level (amsl) on March 4, 2004. The lowest elevation at the subject site is approximately 1016 feet amsl (Google Earth, 2020).

A contour map showing minimum depths to ground water in the Santa Ana River Valley Region was constructed by the United States Geological Survey (USGS) and subsequently, a report (USGS Map MF-1802) was published in 1985. The map was constructed by contouring the shallowest water level measurements reported to the California Department of Water Resources (CDWR) for the period from 1973-1979. Based on our review of the map, the minimum depth to ground water in the project site area, during this period, was indicated to be between 30 and 50 feet below ground surface.

Please note that the potential for rain or irrigation water locally seeping through from elevated areas and showing up near grades cannot be precluded. Our experience indicates that surface or near-surface groundwater conditions can develop in areas where groundwater conditions did not exist prior to site development, especially in areas where a substantial increase in surface water infiltration results from landscape irrigation.

Fluctuations in perched water elevations are likely to occur in the future due to variations in precipitation, temperature, consumptive uses, and other factors including mounding of perched water over bedrock or natural soil. Mitigation for nuisance shallow seeps moving from elevated lower areas will be needed if encountered. These mitigations may include subdrains, horizontal drains, toe drains, french drains, heel drains or other devices.

2.4 LABORATORY TESTING

Laboratory tests were performed on selected soil samples. The tests consisted primarily of moisture content, dry density, sieve analysis, Atterberg limits, direct shear, maximum density, hydrocollapse, resistivity, chloride, sulfate, and pH content. The soil classifications are in conformance with the Unified Soil Classifications System (USCS), as outlined in the Classification and Symbols Chart (Appendix B). A summary of our laboratory testing, ASTM designation, and graphical presentation of test results is presented in Appendix C.

2.4.1 Moisture Content and Dry Density

The field moisture contents, as a percentage of the dry weight of the soils, were determined by weighing samples before and after oven drying. The dry density, in pounds per cubic foot (pcf), was also determined for all relatively undisturbed ring samples collected. These analyses were performed in accordance with ASTM Methods D2216 and D2937. The results of these determinations are shown on the boring logs in Appendix B.

2.4.2 Grain Size Distribution

Sieve analysis tests were performed on representative soil samples to quantitatively determine the grain size distribution of the site soils and to assist in their classification. Test procedures were in general accordance with ASTM Test Method D422.

2.4.3 Atterberg Limits

Atterberg Limits was performed on a representative soil sample to determine the plasticity of fine-grained soils and to assist in their classification. The test procedures were performed in accordance with ASTM D4318.

2.4.4 Direct Shear

Direct shear tests were performed on a relatively undisturbed soil sample in accordance with ASTM Method D3080. The sample was soaked prior to testing. A different normal stress was applied vertically to each soil sample ring, which was then sheared in a horizontal direction. A new ring was used for each load. Each shear test was performed on a single ring with no multiple re-shearing.

2.4.5 Maximum Density

Modified Proctor compaction tests were performed on a representative bulk sample. The test establishes the relationship between varying moisture content and dry density when the soil is compacted under standardized conditions. The maximum dry density achievable under these conditions and the corresponding optimum moisture content are then obtained. Test procedures were performed in accordance with ASTM Method D1557.

2.4.6 Hydrocollapse

Hydrocollapse testing was performed on undisturbed sample(s) to determine the compressibility of the soils. Water was added to the sample during the tests to illustrate the effect of moisture on the compressibility. The testing procedure was in general accordance with ASTM D2435.

2.4.7 Soil Corrosion Tests

Soil chemistry tests were performed on select soil samples to evaluate one or all the following properties: minimum resistivity (ASTM G57), pH (ASTM D1293), soluble sulfate and chloride content (Extinction/Turbidimetric Methods). The results of the testing and recommendations are presented in the "Corrosive Soil" section of this report.

3.0 SUMMARY OF GEOLOGIC FINDINGS

3.1 REGIONAL GEOLOGIC FINDINGS

The subject site is within the Peninsular Ranges geomorphic province south of the Transverse Ranges geomorphic province. The Peninsular Ranges are dominated by northwest-trending, strike-slip faults. The Transverse Ranges are dominated by east-west trending, reverse and thrust faults.

According to the Geologic Map of the San Bernardino North/North 1/2 of San Bernardino South Quadrangles (Dibblee Foundation Map DF-127), the regional area is underlain by younger alluvium (Qa and Qg).

There are no mapped active or potentially active faults with surface expression that trend through or are adjacent to the subject property, according to those references cited herein. The site does not lie within a designated Alquist-Priolo Earthquake Fault Zone (CDMG, 2000). According to the California Department of Conservation, Fault Activity Map of California 2010, the site is located approximately 0.33 miles north of the San Jacinto Fault Zone, see Figure 3.

Based on the CGS Probabilistic Seismic Hazards Ground Motion Interpolator (2008), the peak ground acceleration for stiff soil conditions (assumed Vs = 360 m/s) at the site is reported to be 0.70g with a 10% probability of being exceeded in 50 years. The estimated ground shaking is derived from statewide seismic hazard evaluation released cooperatively by the California Division of Mines and Geology and United States Geological Survey based on long-term slip rate, maximum earthquake magnitude and rupture geometry, and historical seismicity associated with known fault sources in the site vicinity.

The subject site, as is the case with most of the tectonically active California area, will be periodically subject to moderate to intense earthquake-induced ground shaking from nearby faults. Significant damage can occur to the site and structural improvements during a strong seismic event. Neither the location nor magnitude of earthquakes can accurately be predicted at this time.

3.2 SECONDARY GEOLOGIC HAZARDS

3.2.1 Liquefaction

Liquefaction is a seismic phenomenon in which loose, saturated, granular soils behave similarly to a fluid when subject to high-intensity ground shaking. Liquefaction occurs when three general conditions coexist: 1) shallow groundwater; 2) low density non-cohesive (granular) soils; and 3) high-intensity ground motion. Studies indicate that saturated, loose to medium dense, near surface cohesionless soils exhibit the highest liquefaction potential, while dry, dense, cohesionless soils and cohesive soils exhibit low to negligible liquefaction potential. In general, cohesive soils are not considered susceptible to liquefaction. Effects of liquefaction on level ground include settlement, sand boils, and bearing capacity failures below structures. Dynamic settlement of dry loose sands can occur as the sand particles tend to settle and densify as a result of a seismic event.

According to the City of San Bernardino General Plan, the site is located in an area considered to be susceptible to liquefaction. Therefore, the potential for liquefaction and dynamic settlement has been evaluated as outlined in Chapter 6 of the California Division of Mines and Geology (DMC) Special Publication 117 (“Guidelines for Evaluation and Mitigation of Seismic Hazards in California”) and “Recommended Procedures for Implementation of DMG Special Publication 117 - Guidelines for Analyzing and Mitigating Liquefaction in California”, published by the Southern California Earthquake Center, 2008 edition.

The design and construction recommendations presented in this report include results of liquefaction and dynamic settlement evaluation. The analysis results are included in Appendix E.

3.2.1.1 Seismic Settlement

The analysis indicates that 0.87 inches of total dynamic settlement is estimated during a large earthquake episode. An estimated dynamic differential settlement of 0.57-inch may be anticipated. The historical high ground water during a seismic event has been assumed at 15 feet below existing ground surface.

Based on SCEC (1999) guidelines, a potential for loss of bearing capacity due to liquefaction is not expected at the site since there is not an upper potentially liquefiable layer at a depth shallower than the estimated depth where the induced vertical stress in the soil is 10% of the bearing pressure imposed by the proposed foundation systems.

In significant conformance with Youd, Hanson, and Bartlett (ASCE Geotechnical Jr. April 1995, and Lecture by Youd on July 7, 1999), no lateral spreading due to liquefaction is expected at this site due to the following reasons:

- Alluvial subsurface soils are essentially horizontally layered.
- There is not a free-face, onsite, toward which liquefied soils could move laterally.
- No saturated liquefiable sand with values of N1(60) <15 exist at the site.

If loose clean sand exists between sampling intervals, their occurrence is expected to be thin and considered to be scattered or have minimal occurrence throughout the site, and cannot reasonably be connected to form a hypothetical “continuous” line of significant length that could reasonably be expected to “exit” on a slope or a free-face, or move significantly below the gentle slope of the site.

Although it is extremely difficult to predict the overall behavior of any site during seismic shaking, it is our opinion that proper design of foundation can substantially improve the structure’s resistance to deformation. This is most commonly accomplished by providing adequate lateral connections between all footings with reinforced grade beams and strengthened stem walls. If the owner wishes a higher degree of confidence, then the structures should be designed for higher probable events.

Please note that foundation design is under the purview of the structural engineer. All foundations should be designed by a qualified structural engineer in accordance with the CBC and the latest applicable building codes and structural considerations may govern.

3.2.2 Slope Stability

There are no slopes on the subject site or adjacent properties and no slopes are proposed.

3.2.3 Tsunamis and Seiches

The setting is inland and no large bodies of water are located within the sites vicinity, therefore, the potential of tsunamis or seiches affecting the site is considered low.

3.2.4 Expansive Soil

Expansive soils are characterized by their ability to undergo significant volume changes (shrink or swell) due to variations in moisture content. Changes in soil moisture content can result from precipitation, landscape irrigation, utility leakage, roof drainage, perched groundwater, drought, or other factors and may result in unacceptable settlement or heave of structures or concrete slabs supported on grade.

Based on laboratory classification, the upper foundation soil onsite is expected to have a very low expansion potential (EI<20), as defined in ASTM D4829. However, some sandy lean clay was encountered throughout the site, especially in the artificial fill soils. We anticipate that the proposed building pad will be composed of a clayey sand matrix that will be low in expansion potential (EI<50). This would require verification subsequent to completion of new footing excavations.

3.2.5 Collapsible Soil

Soil hydroconsolidation (hydro-collapse) is a phenomenon that results in relatively rapid settlement of soil deposits due to addition of water. This generally occurs in soils having a loose particle structure cemented together with soluble minerals or with small quantities of clay. Water infiltration into such soils can break down the interparticle cementation, resulting in collapse of the soil structure. Collapsible soils are found primarily in Holocene alluvial fan deposits.

A couple soil samples, representing the upper ten feet of native soil, was tested in the laboratory for collapse potential. Test results indicate that less than 1% of hydro-collapse occurred in the tested samples. Therefore, the severity of hydrocollapse potential onsite is considered “No Problem” based on NAVFAC DM7.01, see Appendix C for Results.

3.2.6 Corrosive Soil

To preliminarily assess the sulfate exposure of concrete in contact with the site soils, a representative soil sample was tested for water-soluble sulfate content. The test results suggest the site soils have a negligible potential for sulfate attack (less than 0.015 percent) based on commonly accepted criteria. We recommend following the procedures provided in ACI 318-14, Section 19.3, Table 19.3.2.1 for exposure S0. We recommend Type II cement for all concrete work in contact with soil.

The pH, resistivity and chloride contents were also estimated to assess the reactivity of the site soils with buried metals. Laboratory test results indicate the on-site soils have pH of 6.92, minimum resistivity of 4,990 ohm-centimeters, and chloride content of 15 ppm. The test results suggest the on-site soils are moderately corrosive to buried metals. These values should be used to evaluate corrosive potential of the on-site soils to underground ferrous metals. A Corrosion Consultant should be contacted for specific recommendations.

3.2.7 Subsidence

Subsidence occurs when a large portion of land is displaced vertically, usually due to the withdrawal of groundwater, oil, or natural gas. Historic ground subsidence related to fluid withdrawal has been documented within the vicinity of the project site (City of San Bernardino General Plan, 2005). This subsidence is primarily attributed to groundwater extraction from the Bunker Hill-San Mateo Basin. However, since 1972, the San Bernardino Municipal Water District has maintained groundwater levels and problems with ground subsidence have not been identified since the groundwater recharge program began. Therefore, ground subsidence related to groundwater extraction is not considered to be a hazard onsite.

3.3 SEISMIC DESIGN PARAMETERS:

We have determined the seismic design parameters in accordance with the provisions of the current California Building Code (CBC, 2019) and ASCE/SEI 7-16 Standard using the Structural Engineers Association of California, OSHPD Seismic Design Maps Web Application (https://seismicmaps.org). The CBC Site Class was determined to be Site Class “D” based on the results of our explorations and a review of the local soil and geologic conditions. The mapped seismic parameters are presented in Appendix D of this report.

The 2019 CBC requires that Site Class F be assigned to any profile containing soils vulnerable to potential failure or collapse under seismic loading, such as liquefiable soils. For Site Class F, the site coefficients are to be determined in accordance with Section 11.4.8 of ASCE/SEI 7-16. However, Section 20.3.1 of ASCE/SEI 7-16 indicates that for sites with structures having a fundamental period of vibration equal to or less than 0.5 seconds, the site coefficient factors (F_a and F_v) may be determined using the standard procedures.

The seismic design parameters provided in this report were calculated using the site coefficient factors for Site Class D, assuming that the fundamental periods of the structures are less than 0.5 seconds. However, the results of the liquefaction evaluation indicate that the subject site is underlain by potentially liquefiable soils. If the proposed structure has a fundamental period greater than 0.5 seconds, a site specific seismic hazards analysis will be required and additional subsurface exploration will be necessary.

4.0 CONCLUSION

- Active or potentially active faults are not known to exist on or in the immediate vicinity of the site.

- The site is located in a region of generally high seismicity, as is all of Southern California. During its design life, the site is expected to experience strong ground motions from earthquakes on regional and/or local causative faults. Therefore, typical structural design mitigations should be considered by the structural engineer.

- The existing undocumented artificial fill soil onsite should be completely removed from proposed Primary Structural Fill areas prior to placement of fill. Primary Structural Fill areas may be defined as the area below a 45-degree line projected down from the bottom edge of a footing. Once removed, this fill soil may be reused as compacted fill, provided that it is free of debris and deleterious material.

- If the risk of some settlement and greater than normal future maintenance is acceptable to the owner/developer, then the complete removal of the existing undocumented artificial fill soils may be limited to the upper 2 feet beneath non-Primary Structural Fill areas such as the proposed pavement and hardscape sections. If this risk is unacceptable to the owner/developer, the fill should be completely removed from the site.

- The anticipated foundation soils are expected to have a low expansion potential (EI<50) as defined in ASTM D4829. This would require verification subsequent to completion of new footing excavations.

- Laboratory testing indicates that water soluble sulfate content is less than 0.015 percent (negligible sulfate exposure risk). We recommend Type II cement for all concrete work in contact with soil.

- No groundwater and/or seepage was encountered during our subsurface investigation. The potential for rain or irrigation water locally seeping through from adjacent elevated areas cannot be precluded. Our experience indicates that surface or near-surface groundwater conditions can develop in areas where groundwater conditions did not exist prior to site development, especially in areas where a substantial increase in surface water infiltration results from landscape irrigation. In addition, changes in local or regional water and management patterns, or both, can significantly raise the water table or create zones of perched water. We therefore recommend that landscape irrigation be kept to the minimum necessary to maintain plant vigor and any leaking pipes/sprinklers, etc. should be promptly repaired. The depth to the groundwater may fluctuate with seasonal changes and from one year to the next. We have no way of predicting future groundwater levels or perched water due to increase in surface water infiltration from rainfall or from landscape irrigation. Subdrains, horizontal drains, toe drains, French drains, heel drains or other devices may be recommended in future for graded areas that exhibit nuisance water seepage, past evidence for shallow water, or areas with a potential for future shallow/surface water.

- Based on the findings summarized in this report, it is our professional opinion that the proposed development will not be subject to a hazard from settlement, slippage, or landslide, provided the recommendations of this report are incorporated into the proposed development. It is also our opinion that the proposed development will not adversely affect the geologic stability of the site or adjacent properties provided the recommendations contained in this report are incorporated into the proposed construction.

5.0 TENTATIVE RECOMMENDATIONS

5.1 SITE PREPARATION

All grading should be performed in accordance with our General Earthwork and Grading Specifications presented in Appendix F except as modified within the text of this report.

5.1.1 Clearing, Grubbing, & Fill Removal

All debris, undocumented fill, abandoned utility lines, roots, irrigation appurtenances, underground structures, deleterious materials, etc., should be removed and hauled offsite. Cavities created during site clearance should be backfilled in a controlled manner.

However, as stated in the Conclusions section of this report, if the risk of some settlement and greater than normal future maintenance is acceptable to the owner/developer, then the complete removal of the existing undocumented artificial fill soils may be limited to the upper 2 feet beneath non-Primary Structural Fill areas such as the proposed pavement and hardscape sections. If this risk is unacceptable to the owner/developer, the fill should be completely removed from the site.

5.1.2 Overexcavation & Subgrade Preparation

Overexcavation and recompaction is recommended to replace the existing loose soils and to reduce the potential for excessive settlement of the onsite soils. Care should be taken during overexcavation operations to maintain sidewall stability and personal safety.

The recommended overexcavations described below may be extended deeper if loose soil is encountered in the bottom of the overexcavation. Once the bottom of the excavation is observed by a representative of this firm to be in competent native soil, the bottom of the overexcavation should be scarified, moisture conditioned, and recompacted to at least 90 percent of the maximum dry density, as determined by ASTM D1557 Test Method; prior to placement of fill. Deeper overexcavation, especially to remove loose soils or deleterious material, may be required depending upon field observations of excavation bottom by the soil engineer or his representative.

5.1.2.1 Building Pad

Subsequent to site clearance, the proposed building pad should be overexcavated to a depth of at least 10 feet below existing grade or 5 feet below the proposed foundation grade, whichever is greater. The lateral extent of the overexcavations should be the greater of 5 feet beyond building lines or equal to the depth of fill, where possible.

5.1.2.2 Pavement and Hardscape Subgrade

Subsequent to site clearance, pavement and hardscape areas should be overexcavated to a depth of at least 2 feet below proposed finish grade or existing grade, whichever is greater. The subgrade preparation should extend beyond the proposed improvements a horizontal distance of at least 2 feet, where achievable. The excavation bottom should be scarified 8 inches, moisture conditioned to near optimum moisture content and be recompacted to at least 90% relative compaction. Engineered fill should then be moisture conditioned, placed in suitable lifts, and compacted to a minimum of 90% relative compaction. Aggregate base should be compacted to at least 95 percent of the maximum dry density as determined by ASTM D1557

5.1.2.3 Retaining and Block Walls

The existing soils within the areas of proposed block and retaining walls should be overexcavated to a depth of 2 feet below foundation bearing grade and replaced as compacted structural. Any undocumented fill soils or disturbed native alluvium within any of these foundation areas should be removed in their entirety. The overexcavated subgrade soils should be evaluated by the geotechnical engineer prior to scarifying, moisture conditioning, and recompacting. The previously excavated soils may then be replaced as compacted structural fill. The subgrade preparation should extend beyond the proposed improvements a horizontal distance of at least 2 feet, where achievable.

5.1.3 Compacted Fills/Imported Soils

Any soil to be placed as fill, whether presently onsite or import, should be approved by the soil engineer or his representative prior to their placement. All onsite soils to be used as fill should be cleansed of any roots, or other deleterious materials. Rocks larger than 8-inches in diameter should be removed from soil to be used as compacted fill.

All fills should be placed in 6- to 8-inch loose lifts, thoroughly watered, or aerated to near optimum moisture content, mixed and compacted to at least 90 or 95 percent relative compaction depending on the material (subgrade soil or aggregate base) and application (pavement subgrade, building pad, etc.). This is relative to the maximum dry density determined by ASTM D1557 Test Method.

Any imported soils should be sandy (preferably USCS "SM" or "SW", and very low in expansion potential) and approved by the soil engineer. The soil engineer or his representative should observe the placement of all fill and take sufficient tests to verify the moisture content and the uniformity and degree of compaction obtained.

5.1.4 Shrinkage and Subsidence

Based on laboratory test results, we estimate that shrinkage of soils onsite should be approximately 14 (±5) percent. Shrinkage is defined as the decrease in volume of soil upon removal and re-compaction expressed as a percentage of the in-place volume. The following table summarizes the calculated shrinkage values used in determining the total estimated amount.

This shrinkage is exclusive of any losses due to removal of roots, oversized rocks, or any underground structures and is based on an average 92 percent relative compaction. An increase in relative compaction obtained would increase the shrinkage factor.

Furthermore, a subsidence of approximately 0.10 (± 0.05) feet may also be considered during site preparation. The above shrinkage and subsidence estimates should be used with caution since they are not absolute values. We recommend that an earthwork balance area should be designated to allow for variations in the indicated shrinkage and subsidence estimates.

5.1.5 Trench Backfill

All utility trenches and retaining wall backfills should be mechanically compacted to the minimum requirements of at least 90 percent relative compaction. Onsite soils derived from trench excavations can be used as trench backfill except for deleterious materials. Soils with sand equivalent greater than 30 may be utilized for pipe bedding and shading. Pipe bedding should be required to provide uniform support for piping. Excavated material from footing trenches should not be placed in slab-on-grade areas unless properly compacted and tested.

5.2 TEMPORARY EXCAVATIONS

All excavations must comply with applicable local, state, and federal safety regulations including the current OSHA Excavation and Trench Safety Standards. Construction site safety generally is the sole responsibility of the Contractor, who should also be solely responsible for the means, methods, and sequencing of construction operations.

5.2.1 Excavation Characteristics

The onsite soil is generally composed of loose to medium dense silty sands and medium firm sandy lean clay and is not expected to exhibit difficult excavating resistance for typical excavating equipment in good working condition. However, the site is underlain by very sandy material that is considered to have a moderate to high caving potential. Difficulty conducting and maintaining clean vertical cuts should be expected.

5.2.2 Safe Vertical Cut

Temporary un-surcharged excavations of 3 feet high in coarse grained soil or 4 feet high in fine grained soils may be made at a vertical gradient for short periods of time. Temporary un-surcharged excavations greater than 3 feet in granular soil may be trimmed back at 1.5H:1V gradients. Temporary un-surcharged excavations greater than 4 feet in granular soil may be trimmed back at 1H:1V gradients.

Exposed condition during construction should be verified by the project geotechnical engineer. No excavations should take place without the direct supervision of the project geotechnical engineer.

All applicable requirements of the California Construction and general Industry Safety Orders, the Occupational Safety and Health Act, and current amendments, and the Construction safety Act should be met. Cuts should be observed during excavation by the project's geotechnical consultant. If potentially unstable soil conditions are encountered, modifications of slope ratios for temporary cuts may be required.

5.2.3 Excavation Setbacks

No excavations should be conducted, without special considerations, along property lines, public right-of-ways, or existing foundations, where the excavation depth will encroach within the "zone of influence". The "zone of influence" of the existing footings, property lines, or public right-of-way may be assumed to be below a 45-degree line projected down from the bottom edge of the footing, property line, or right-of-way.

5.2.4 Precaution for Excavations

The Contractor should be aware that unsupported excavation depths should in no case exceed those specified in local, state, and/or federal safety regulations (e.g., OSHA Health and Safety Standards for Excavations, 29 CFR Part 1926, or successor regulations).

Such regulations are strictly enforced and, if they are not followed, the Owner, Contractor, and/or earthwork and utility subcontractors could be liable for substantial penalties. The contractor's "responsible person", as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures.

5.3 FOUNDATION RECOMMENDATIONS

The proposed building may be supported on conventional shallow foundation systems deriving support in compacted fill. All foundation excavations must be observed and approved by the Geotechnical Engineer's representative, prior to placing steel reinforcement or concrete.

5.3.1 Bearing Value

Spread, continuous, or pad-type foundations carried at least 24-inches below the lowest adjacent grade may be designed to impose a net dead-plus-live load pressure of 2,500 psf. The bearing capacity may be increased 15 percent for every additional foot of embedment, to a maximum allowable bearing pressure of 3,000 psf. A one-third increase may be used for wind or seismic loads.

5.3.2 Lateral Resistance

Resistance to lateral footing will be provided by passive earth pressure and base friction. For footings bearing against firm native material, passive earth pressure may be considered to be developed at a rate of 270 psf per foot of depth to a maximum of 2,000 psf. Base friction may be computed at 0.40 times the normal load. If passive earth pressure and friction are combined to provide required resistance to lateral forces, the value of the passive pressure should be reduced to two-thirds the value.

5.3.3 Total Settlement

The onsite soils below the foundation depth have relatively high strengths and will not be subject to significant stress increases from foundations of a new structure. Therefore, estimated total long-term static and seismic settlement between similarly loaded adjacent foundation systems should not exceed 1-inch. The structures should be designed to tolerate a differential settlement on the order of 1/2-inch over a 30-foot span, thereby resulting in an angular distortion of less than 0.002 inches per inch.

5.3.4 Reinforcement

Footing reinforcement should be determined by the structural engineer; however, minimum reinforcement should be at least two No. 5 reinforcing bars, top and bottom. Reinforcement and size recommendations presented in this report are considered the minimum necessary for the soil conditions present at the foundation level and are not intended to supersede the design of the project structural engineer or criteria of the governing agencies for the project.

5.4 SLABS-ON-GRADE

Office slabs should be at least 4-inches thick. Storage slabs and slabs subject to traffic should be at least 6-inches thick. The structural engineer should design the actual slab thickness and reinforcement based on structural load requirements.

5.4.1 Modulus of Subgrade Reaction

A coefficient of vertical subgrade reaction (K_V) of 150 psi/in may be assumed for the building pad compacted fill soils. The modulus of subgrade reaction was estimated based on the NAVFAC 7.1 design charts. This value is for a small loaded area (1 sq. ft or less) such as for wheel loads or point loads and should be adjusted for larger loaded areas, as necessary.

5.4.2 Capillary Break & Moisture Barrier

Considering the depth to ground water and rock free subgrade soils, a capillary break (i.e. clean sand or gravel layer) is not considered necessary.

If moisture sensitive floor coverings are proposed, the minimum slab underlayment should consist of a moisture vapor barrier consisting of at least a polyolefin material such as Stego® Wrap Vapor Barrier or equivalent membrane constructed below the entire area of the proposed slab. The moisture vapor barrier should be properly constructed in accordance with all applicable manufacturer specifications.

5.4.3 Slab Curling

A low-slump concrete should be used to minimize possible curling of the slab. A 2-inch thick layer of sand may be placed over the vapor retarding membrane to reduce slab curling. If this sand bedding is used, care should be taken during the placement of the concrete to prevent displacement of the sand. The concrete slab should be allowed to cure properly before placing vinyl or other moisture-sensitive floor covering.

However, the need for sand and/or the amount of sand above the moisture vapor barrier should be specified by the structural engineer or concrete contractor. The selection of sand above the barrier is not a geotechnical engineering issue and hence outside our purview.

5.4.4 Subgrade Exposure

Construction activities and exposure to the environment can cause deterioration of the prepared subgrade. Therefore, we recommend that our field representative observe the condition of the final subgrade soils immediately prior to slab-on-grade construction, and, if necessary, perform further density and moisture content tests to determine the suitability of the final prepared subgrade.

Additionally, the slab subgrade should be moisture conditioned to 2 to 4 percent above the optimum moisture content, to a depth of 12 inches. The moisture content of the floor slab subgrade soils should be verified by the geotechnical engineer within 24 hours prior to placing the vapor retarding membrane.

5.5 RETAINING WALLS

The following lateral earth pressures, in conjunction with the lateral resistance parameters provided in the Foundation Recommendations section of this report, may be used for the design of retaining walls with free draining compacted backfills. If passive earth pressure and friction are combined to provide required resistance to lateral forces, the value of the passive pressure should be reduced to two-thirds the following recommendations.

Lateral Earth Pressure Condition	Soil Backfill Condition	Equivalent Fluid Pressure (pcf)	Earth Pressure Coefficient
Active Case (Drained)*	Level	35	$K_a = 0.29$
At-Rest Case (Drained)	Level	55	$K_o = 0.46$
Total Unit Weight of Soil	120 pcf		

All retaining walls and block walls footings should be founded in compacted fill or firm native soils. We recommend drainage for retaining walls to be provided in accordance with Plate 2 of this report. Maximum precautions should be taken when placing drainage materials and during backfilling. All wall backfills should be properly compacted to at least 90 percent relative compaction.

5.6 PAVEMENT RECOMMENDATIONS

5.6.1 Subgrade Uniformity

The proposed pavement subgrade should be prepared in accordance with the Overexcavation & Subgrade Preparation section of this report. The subgrade for pavement support must be firm, unyielding, and uniform with no abrupt horizontal changes in degree of support. The subgrade soil should be uniform materials and density. Soft spots, if encountered, should be excavated and recompacted with the same type of soil as found in adjacent subgrade.

5.6.2 Aggregate Base

The aggregate base should conform to Caltrans Class 2 Aggregate Base or the Standard Specifications for Public Works for Crushed Miscellaneous Base, should be firm and unyielding, and without pumping conditions prior to placement of pavement. Aggregate base should be compacted to at least 95 percent of the maximum dry density as determined by ASTM D1557.

5.6.3 Flexible Pavement Design

The following recommended pavement section is based on the following assumed Traffic Index and R-value. The minimum recommended asphalt concrete (AC) pavement thickness is as follows:

Location	Traffic Index (Assumed)	R-Value (Assumed)	Minimum Recommended Pavement Section	
			AC	AB
Auto Parking	4	10	2.5”	7.0”
Auto Drive Lanes	5	10	3.0”	9.0”
Truck Traffic	6	10	3.5”	11.5”
Heavy Truck Traffic	7	10	4.0”	14.5”

AC: Asphalt Concrete, AB: Aggregate Base,

Final pavement design recommendations should be based on laboratory test results of representative pavement subgrade soils upon the completion of rough grading.

5.7 STORMWATER INFILTRATION

Infiltration testing was conducted utilizing the shallow percolation test method at depths of approximately 8 feet and 4 feet below existing ground surface. The infiltration testing was performed in general accordance with the guidelines published in The County of San Bernardino Areawide Stormwater Program, Technical Guidance Document for Water Quality Management Plans. The following table summarizes the result of the infiltration feasibility study. Refer to Appendix G for field infiltration test data.

Test No.	Test Depth Below Ground Surface	Adjusted Infiltration Rate (in/hr)
P-1	96”	1.60
P-2	48”	0.69
P-3	96”	0.53
P-4	48”	1.60

The raw percolation rate is the rate of water infiltration in the horizontal and vertical direction. This percolation rate is adjusted using the “Porchet Method” to obtain the adjusted water infiltration rate in the vertical direction only.

Long-term infiltration rates may be reduced significantly by factors such as soil variability and inaccuracy in the infiltration rate measurement. Safety factors for operating the system, maintenance, siltation, biofouling, etc. should also be considered by the design civil engineer at his discretion. Minimum safety factor required by the County of San Bernardino for tests conducted when deep exploratory borehole has been drilled at the site is 2. Maximum safety factor is 9. Actual safety factor should be based on Worksheet “H” in the Technical Guidance Document Appendices for County of San Bernardino.

The infiltration system must be located such that the closest distance between an adjacent foundation is at least 10 feet in all directions from the zone of saturation. The zone of saturation may be assumed to project downward from the discharge of the infiltration facility at a gradient of 1H:1V. Additional property line or foundation setbacks may be required by the governing jurisdiction and should be incorporated into the stormwater infiltration system design as necessary.

5.8 SITE DRAINAGE

Positive drainage should be provided and maintained for the life of the project around the perimeter of all structures (including slopes and retaining walls) and all foundations toward streets or approved drainage devices to minimize water infiltrating into the underlying natural and engineered fill soils. In addition, finish subgrade adjacent to exterior footings should be sloped down (at least 2%) and away to facilitate surface drainage. Perimeter water collection devices may be installed around the structure to collect roof/irrigation/natural drainage. Roof drainage should be collected and directed away from foundations via nonerosive devices. Over the slope drainage must not be permitted.

Water, either natural or by irrigation, should not be permitted to pond or saturate the foundation soils. Planter areas and large trees adjacent to the foundations are not recommended. All planters and terraces should be provided with drainage devices. Internal drainage should be directed to approved drainage collection devices.

Location of drainage device should be in accordance with the design civil engineer's drainage and erosion control recommendations. The owner should be made aware of the potential problems, which may develop when drainage is altered through construction of retaining walls, patios and other devices. Ponded water, leaking irrigation systems, over watering or other conditions which could lead to ground saturation should be avoided. Surface and subsurface runoff from adjacent properties should be controlled. Area drainage collection should be directed through approved drainage devices. All drainage devices should be properly maintained.

6.0 ADDITIONAL SERVICES

Plan Reviews

The recommendations provided in this report are based on preliminary information and subsurface conditions as interpreted from limited exploratory boreholes at the site. We should be retained to review final grading and foundation plans to revise our conclusions and recommendations, as necessary. Professional fees will apply for each review.

Our conclusions and recommendations should also be reviewed and verified during site grading and revised accordingly if exposed geotechnical conditions vary from our preliminary findings and interpretations.

Additional Observation and/or Testing

GeoMat Testing Laboratories, Inc. should observe and/or test at the following stages of construction.

- During overexcavation and compaction of subgrade soil
- Following footing excavation and prior to placement of footing materials.
- During wetting of slab subgrade and prior to placement of slab materials.
- During all trench and wall backfill.
- When any unusual conditions are encountered.

Final Report of Compaction During Grading

A final report of compaction control should be prepared subsequent to the completion of grading. The report should include a summary of work performed, laboratory test results, and the results and locations of field density tests performed during grading.

7.0 GEOTECHNICAL RISK

The concept of risk is an important aspect of the geotechnical evaluation. The primary reason for this is that the analytical methods used to develop geotechnical recommendations do not comprise an exact science. The analytical tools which geotechnical engineers use are generally empirical and must be used in conjunction with engineering judgment and experience. Therefore, the solutions and recommendations presented in the geotechnical evaluation should not be considered risk-free and, more importantly, are not a guarantee that the interaction between the soils and the proposed structure will perform as planned.

The engineering recommendations presented in the preceding sections constitute GeoMat Testing Laboratories professional estimate of those measures that are necessary for the proposed development to perform according to the proposed design based on the information generated and referenced during this evaluation, and GeoMat Testing Laboratories experience in working with these conditions.

8.0 LIMITATION OF INVESTIGATION

This report was prepared for the exclusive use on the new construction. The use by others, or for the purposes other than intended, is at the user's sole risk.

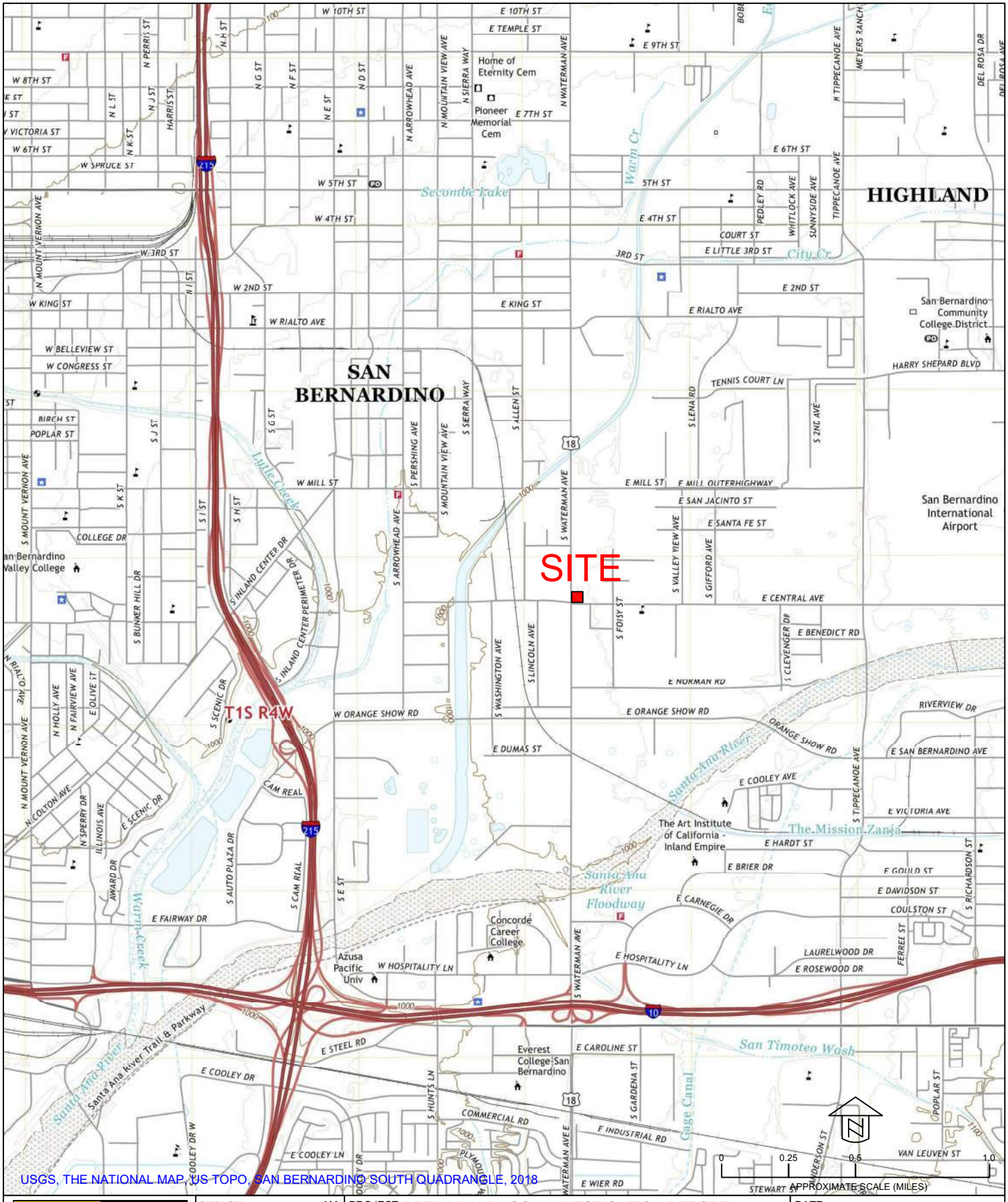
Our investigation was performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable Geotechnical Engineers practicing in this or similar locations within the limitations of scope, schedule, and budget. No other warranty, expressed or implied, is made as to the conclusions and professional advice included in this report.

The field and laboratory test data are believed representative of the site; however, soil conditions can vary significantly. As in most projects, conditions revealed during construction may be at variance with preliminary findings. If this condition occurs, the possible variations must be evaluated by the Project Geotechnical Engineer and adjusted as required or alternate design recommended.

This report is issued with the understanding that it is the responsibility of the owner, or his representative, to ensure that the information and recommendations contained herein are brought to the attention of the engineer for the addition and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractor carry out such recommendations in the field.

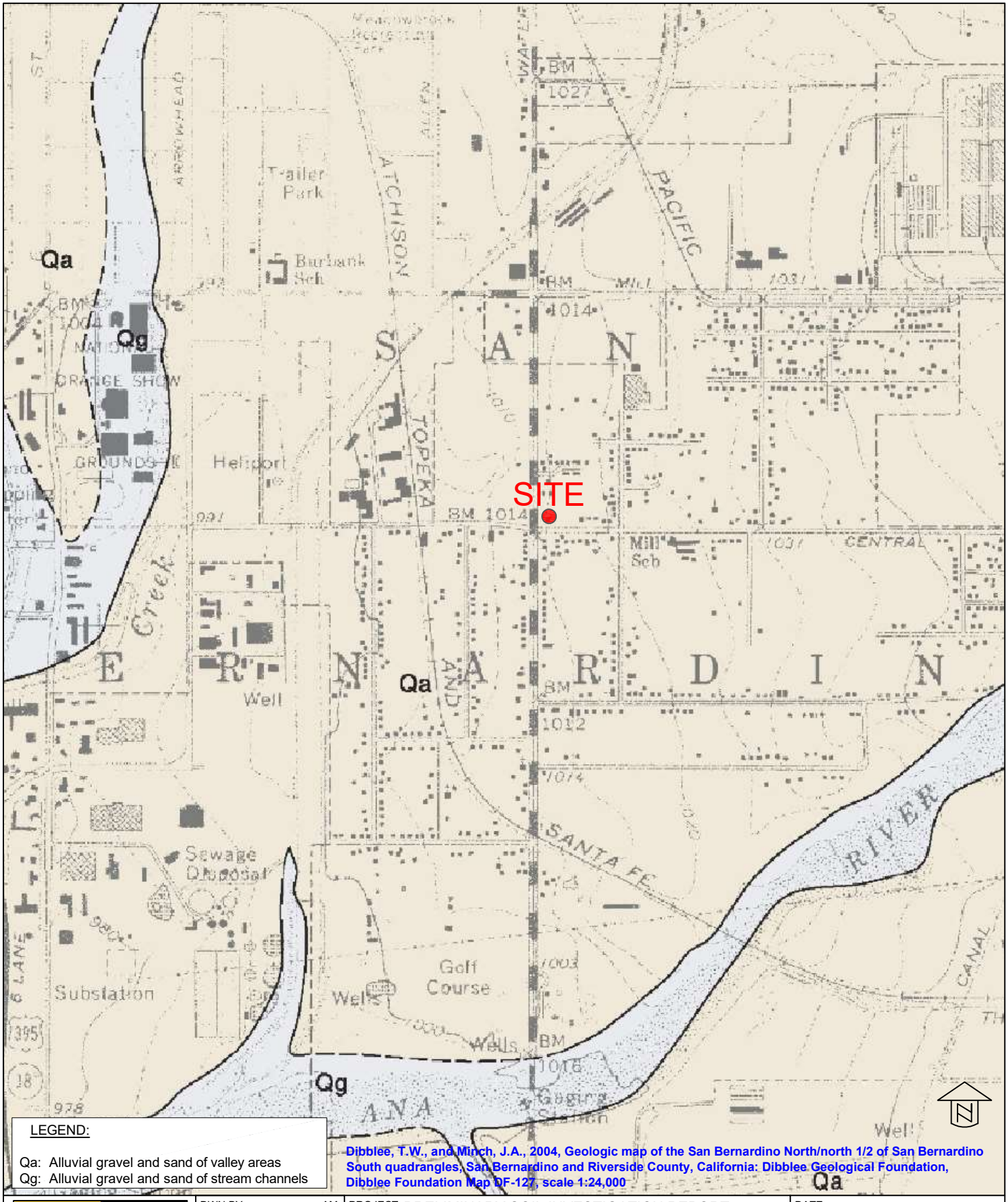
This firm does not practice or consult in the field of safety engineering. We do not direct the contractor's operations, and we cannot be responsible for other than our own personnel on the site; therefore, the safety of others is the responsibility of the contractor. The contractor should notify the owner if he considers any of the recommended actions presented herein to be unsafe.

The findings, conclusions, and recommendations presented herein are based on our understanding of the addition and on subsurface conditions observed during our site work, and are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge.



USGS, THE NATIONAL MAP, US TOPO, SAN BERNARDINO SOUTH QUADRANGLE, 2018

geomat GeoMat Testing Laboratories, Inc. 9980 Indiana Avenue, Suite 14 Riverside, California 92503	DWN BY: AM CHK'D BY: MN DATUM: -- PROJECTION: -- SCALE: 1" = 1/2 MILE REV. NO.: --	PROJECT: PRELIMINARY SOIL INVESTIGATION REPORT 791 SOUTH WATERMAN AVENUE SAN BERNARDINO, CALIFORNIA TITLE: SITE LOCATION MAP	DATE: MARCH 2020 PROJECT NO.: 20054-01 FIGURE NO.: Figure 1



geomat GeoMat Testing Laboratories, Inc. 9980 Indiana Avenue, Suite 14 Riverside, California 92503	DWN BY: AM CHK'D BY: MN DATUM: -- PROJECTION: -- SCALE: NTS REV. NO.: --	PROJECT: PRELIMINARY SOIL INVESTIGATION REPORT 791 SOUTH WATERMAN AVENUE SAN BERNARDINO, CALIFORNIA TITLE: REGIONAL GEOLOGIC MAP	DATE: MARCH 2020 PROJECT NO.: 20054-01 FIGURE NO.: Figure 2

FAULT EXPLANATION:

Historic Fault Displacement | Holocene Fault Displacement | Evidence of Late Quaternary Fault Displacement | Undivided Quaternary Faults

REFERENCES: Jennings, C.W. and Bryant, W.A., 2010,"Fault Activity Map of California," California Geological Survey, GDM-006, May 2010

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Riverside, California 92503

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PROJECT: PRELIMINARY SOIL INVESTIGATION REPORT
791 SOUTH WATERMAN AVENUE
SAN BERNARDINO, CALIFORNIA

TITLE: REGIONAL FAULT MAP

DATE: MARCH 2020

PROJECT NO.: 20054-01

FIGURE NO.: Figure 3

BASE MAP:
TR Design Group Architecture "Site Plan 3, Amazing 34 Warehouse Expansion, 791 S. Waterman Avenue, San Bernardino, CA 92408," Sheet CS-3, Plan Not Dated.

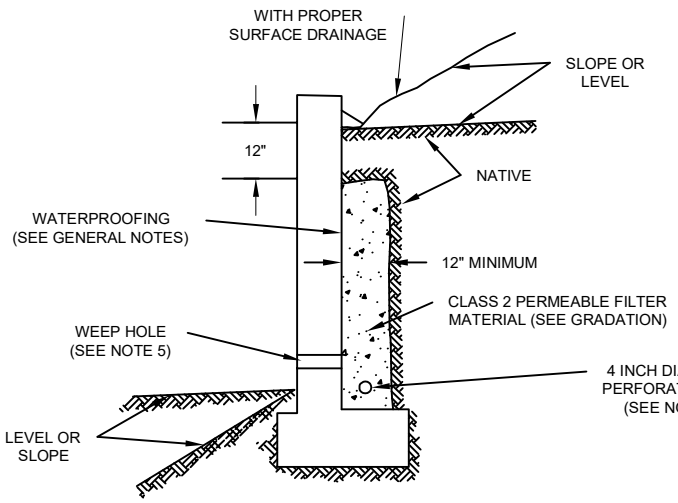
EXPLORATORY BOREHOLE LOCATION MAP

791 SOUTH WATERMAN AVENUE
SAN BERNARDINO, CALIFORNIA

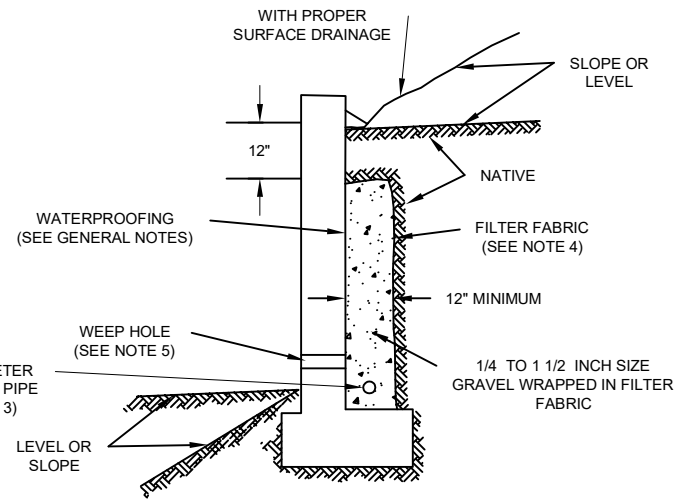
geomat	DRAWN BY: AM	DATE: MARCH 2020	PLATE 1
	SCALE: 1" = 50' (APPROXIMATE, 11"X17" SHEET)	PROJECT NO.: 20054-01	

SUBDRAIN OPTIONS AND BACKFILL WHEN NATIVE MATERIAL HAS EXPANSION INDEX ≤ 50

OPTION 1: PIPE SURROUNDED WITH CLASS 2 PERMEABLE MATERIAL



OPTION 2: GRAVEL WRAPPED IN FILTER FABRIC



Class 2 Filter Permeable Material Gradation
Per Caltrans Specifications

Sieve Size	Percent Passing
1"	100
3/4"	90-100
3/8"	40-100
No. 4	25-40
No. 8	18-33
No. 30	5-15
No. 50	0-7
No. 200	0-3

GENERAL NOTES:

*Waterproofing should be provided where moisture nuisance problem through the wall is undesireable.
*Water proofing of the walls is not under the purview of the geotechnical engineer.
*All drains should have a gradient of 1 percent minimum.
*Outlet portion of the subdrain should have a 4-inch diamater solid pipe discharged into a suitable disposal area designed by the project engineer. The subdrain pipe should be accessible for maintenance (rodding).
*Other subdrain backfill options are subject to the review by the geotechnical engineer and modification of design parameters.

Notes:

1) Sand should have a sand equivalent of 30 or greater and may be densified by water jetting.
2) 1 Cu. ft. per ft. of 1/4 - to 1 1/2 -inch size gravel wrapped in filter fabric
3) Pipe type should be ASTM D1527 Acrylonitrile Butadiene Styrene (ABS) SDR35 or ASTM D1785 Polyvinyl Chlorise plastic (PVC), Schedule 40, Armco A2000 PVC, or approved equivalent. Pipe should be installed with perforations down. Perforations should be 3/8 -inch in diameter placed at the ends of a 120-degree arc in two rows at 3-inch on center (staggered).
4) Filter Fabric should be Mirafi 140NC or approved equivalent.
5) Weephole should be 3-inch minimum diameter and provided at 10-foot maximum intervals. if exposure is permitted, weepholes should be located 12-inches above finished grade. If exposure is not permitted, such as for a wall adjacent to a sidewalk/curb, a pipe under the sidewalk to be discharged through the curb face or equivalent should be provided. For a basement-type wall, a proper subdrain outlet system should be provided.
6) Retaining wall plans should be reviewed and approved by the geotechnical engineer.
7) Walls over six feet in height are subject to a special review by the geotechnical engineer and modifications to the above requirements.

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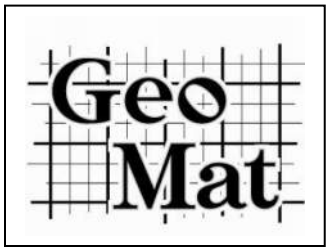
RETAINING WALL BACKFILL AND SUBDRAIN DETAIL

PLATE 2

APPENDIX A



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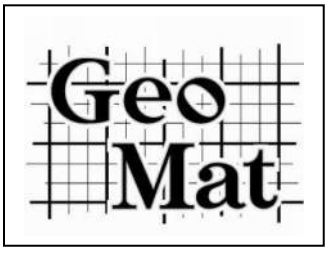
APPENDIX B



SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
				GP	POORLY GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GM	SILTY GRAVELS, GRAVEL - SAND - SILT MIXTURES
				GC	CLAYEY GRAVELS, GRAVEL - SAND - CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
				SP	POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SM	SILTY SANDS, SAND - SILT MIXTURES
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
				CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
				OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDY OR SILTY SOILS, ELASTIC SILTS
				CH	INORGANIC CLAYS OF HIGH PLASTICITY
				OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

NOTE: Dual symbols are used to indicate gravels or sand with 5-12% fines and soils with fines classifying as CL-ML. Symbols separated by a slash

RELATIVE DENSITY		**CONSISTENCY**		UNCONFINED COMPRESSIVE
SANDS AND GRAVELS	SPT, N	SILTS AND CLAYS	SPT, N	STRENGTH, tsf
VERY LOOSE	0 - 4	VERY SOFT	0 - 2	0 - 0.25
LOOSE	4 -10	SOFT	2 - 4	0.25 - 0.50
MEDIUM DENSE	10 - 30	MEDIUM FIRM	4 - 8	0.50 - 1.00
DENSE	30 - 50	FIRM	8 - 15	1.00 - 2.00
VERY DENSE	50+	VERY FIRM	15 - 30	2.00 - 4.00
		HARD	30+	>4.00

Sampler and Symbol Descriptions

B — Bulk "grab" sample taken from the auger cuttings or excavated soil

S — 1.4" I.D./2" O.D. Standard Penetration Test (ASTM D1586) sampler (SPT)

R — 2.5" I.D./3" O.D. Modified California Ring Sampler (Ring)

D — 2.5" I.D./3" O.D. Dames and Moore Manual Ring Sampler

MOISTURE CONDITION	
DESCRIPTION	CRITERIA
DRY	Absence of moisture, dusty, dry to the touch
MOIST	Damp but no visible water
WET	Visible free water, usually soil is below water table

CONSTITUENT DESCRIPTIONS			
DESCRIPTION	CRITERIA	DESCRIPTION	CRITERIA
TRACE	Less than 5%	SOME	30% to 45%
FEW	5% to 10%	MOSTLY	50% to 100%
LITTLE	15% to 25%		

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KEY TO BORING LOGS

APPENDIX B

PROJECT: **791 South Waterman Avenue, San Bernardino, California**

Log of Boring B-1

Project No.	**20054-01**	Boring Location:	**See Plate 1**
Drill Company/Rig	**Advanced/Diedrich D-50**	Date Started:	**3/20/2020**
Drilling Method:	**Hollow Stem Auger**	Date Finished:	**3/20/2020**
Hammer Weight/Drop:	**140 lbs./30-inches**	Hammer Type:	**Automatic**

Logged by: **AM**

Notes: No Groundwater

Sampler(s): California Ring (R), Standard Penetration Test (S), Bulk "Grab" Sample (B)

LABORATORY TEST DATA

DEPTH (FT)	SAMPLES Type	Sample	Blows / 6"	SPT "N" Value	Graphic Log	Classification (USCS)	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	Fines (%)	Liquid Limit	Plastic Limit	Plast. Index
						PAVE	**3" AC PAVEMENT OVER 2" SAND**						
	B					FILL	**FILL (SILTY SAND)** gray and orange brown silty sand rusted metal debris encountered moist						
5	R		3 4 5	6		SPSM	**POORLY-GRADED SAND WITH SILT** gray and medium brown sand with silt loose, slightly moist	9	92				
10	R		4 8 8	10			high caving potential medium brown sand with silt moist medium dense	11	97				
15	S		4 6 8	14		SM	**SILTY SAND** medium olive brown silty sand medium dense, moist						
20	S		5 7 9	16			gray silty sand medium dense slightly moist	8		17			
25	S		11 16 25	41		SPSM	**POORLY-GRADED SAND WITH SILT AND GRAVEL** dense, dry very gravelly, possible cobbles practical drilling refusal	3		9			
30							TD = 28'						
35													
40													
45													
50													

PROJECT NO. 20054-01

APPENDIX B

PROJECT: **791 South Waterman Avenue, San Bernardino, California**

Log of Boring B-2

Project No.	**20054-01**	Boring Location:	**See Plate 1**
Drill Company/Rig	**Advanced/Diedrich D-50**	Date Started:	**3/20/2020**
Drilling Method:	**Hollow Stem Auger**	Date Finished:	**3/20/2020**
Hammer Weight/Drop:	**140 lbs./30-inches**	Hammer Type:	**Automatic**

Logged by: **AM**

Notes: No Groundwater

Sampler(s): California Ring (R), Standard Penetration Test (S), Bulk "Grab" Sample (B)

DEPTH (FT)	SAMPLES Type	Sample	Blows / 6"	SPT "N" Value	Graphic Log	Classification (USCS)	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	Fines (%)	Liquid Limit	Plastic Limit	Plast. Index
						PAVE	**3" AC PAVEMENT OVER 4" AGGREGATE BASE**						
						FILL	**FILL (SILTY SAND)**	17		39			
	B					SPSM	**POORLY-GRADED SAND WITH SILT** gray and medium brown sand with silt high caving potential						
5	R		6 5 6	7			loose, slightly moist	12	84				
10	S		3 4 4	8			reddish-brown sand with silt loose slightly moist high caving potential	7		8			
15	S		6 9 9	18		SM	**SILTY SAND** medium olive brown silty sand medium dense moist	8		14			
20	S		7 8 10	18			gray silty sand medium dense slightly moist						
25	S		10 14 16	30		SPSM	**POORLY-GRADED SAND WITH SILT AND GRAVEL** light brown sand with silt and gravel some gravel and possible cobbles dense	2		5			
30	S		7 16 11	27		SM	**SILTY SAND** medium brown silty sand medium dense slightly moist						
35	S		12 10 11	21			light gray silty sand medium dense dry to slightly moist	7		35			
40	S		19 13 14	27			medium dense slightly moist						
45	S		9 9 11	20		ML	**SANDY SILT** olive brown sandy silt moist to very moist very firm	31		63			
50	S		7 11 13	24		MH	**ELASTIC SILT** blue-gray elastic silt very firm, cohesive TD = 50'			98	56	45	11

LABORATORY TEST DATA

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PROJECT NO. 20054-01

APPENDIX B

PROJECT:	791 South Waterman Avenue San Bernardino, California	**Log of Boring**	**B-3**

Project No.	**20054-01**	Boring Location:	**See Plate 1**
Drill Company/Rig	**Advanced/Diedrich D-50**	Date Started:	**3/20/2020**
Drilling Method:	**Hollow Stem Auger**	Date Finished:	**3/20/2020**
Hammer Weight/Drop:	**140 lbs./30-inches**	Hammer Type:	**Automatic**

Logged by: **AN**

Notes: No Groundwater

Sampler(s): California Ring (R), Standard Penetration Test (S), Bulk "Grab" Sample (B)

LABORATORY TEST DATA

DEPTH (FT)	SAMPLES Type	Sample	Blows / 6"	SPT "N" Value	Graphic Log	Classification (USCS)	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	Fines (%)	Liquid Limit	Plastic Limit	Plast. Index
						PAVE	**3" AC PAVEMENT OVER 3" AGGREGATE BASE**						
	B					FILL	**FILL (SANDY LEAN CLAY)** dark brown to black sandy lean clay very moist, cohesive						
5	R		3 4 5	6			medium firm very moist glass fragments encountered	18	114				
10	R		9 9 12	14			medium firm very moist	19	109				
						SM	**SILTY SAND** medium brown silty sand						
15	S		5 7 9	16			moderate caving potential medium dense moist						
20	S		7 8 11	19		SP	**POORLY-GRADED SAND** reddish brown sand medium dense slightly moist TD = 20'	6		3			
25													
30													
35													
40													
45													
50													

PROJECT:	791 South Waterman Avenue San Bernardino, California	**Log of Boring**	**B-4**

Project No.	**20054-01**	Boring Location:	**See Plate 1**
Drill Company/Rig	**Advanced/Diedrich D-50**	Date Started:	**3/20/2020**
Drilling Method:	**Hollow Stem Auger**	Date Finished:	**3/20/2020**
Hammer Weight/Drop:	**140 lbs./30-inches**	Hammer Type:	**Automatic**

Logged by: **AN**

Notes: No Groundwater

Sampler(s): California Ring (R), Standard Penetration Test (S), Bulk "Grab" Sample (B)

LABORATORY TEST DATA

DEPTH (FT)	SAMPLES Type	Sample	Blows / 6"	SPT "N" Value	Graphic Log	Classification (USCS)	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	Fines (%)	Liquid Limit	Plastic Limit	Plast. Index
						PAVE	**3" AC PAVEMENT OVER 4" AGGREGATE BASE**						
5	B R		3 4 6	7		FILL	**FILL (SANDY LEAN CLAY)** dark brown to black sandy lean clay very moist, cohesive glass fragments encountered medium firm	22	86				
10	R		4 5 6	7		SM	**SILTY SAND** medium brown silty sand some binding content loose moist	7	90				
15	S		2 3 5	8		ML	**SANDY SILT** medium brown sandy silt medium firm	19		56			
20	S		4 7 9	16		SM	**SILTY SAND** reddish brown silty sand medium dense moist TD = 20'	11		18			
25													
30													
35													
40													
45													
50													

PROJECT:	791 South Waterman Avenue San Bernardino, California	**Log of Boring**	**B-5**

Project No.	**20054-01**	Boring Location:	**See Plate 1**
Drill Company/Rig	**Advanced/Diedrich D-50**	Date Started:	**3/20/2020**
Drilling Method:	**Hollow Stem Auger**	Date Finished:	**3/20/2020**
Hammer Weight/Drop:	**140 lbs./30-inches**	Hammer Type:	**Automatic**

Logged by: **AN**

Notes: No Groundwater

Sampler(s): California Ring (R), Standard Penetration Test (S), Bulk "Grab" Sample (B)

DEPTH (FT)	SAMPLES Type	Sample	Blows / 6"	SPT "N" Value	Graphic Log	Classification (USCS)	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	Fines (%)	Liquid Limit	Plastic Limit	Plast. Index
						PAVE	**3" AC PAVEMENT OVER 3" AGGREGATE BASE**						
						FILL	**FILL (SANDY LEAN CLAY)** dark brown to black sandy lean clay very moist, cohesive						
5	R	X	3 4 4	5			medium firm very moist	19	92	61			
							TD = 6'						
10													
15													
20													
25													
30													
35													
40													
45													
50													

LABORATORY TEST DATA

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This log is part of the report prepared by GeoMat for this project and should be read together with the report. This summary applies only at the location of the exploration and at the time of drilling or excavation. Subsurface conditions may differ at other locations and may change at this location with tiume. Data presented are a simplification of actual conditions encountered.

PROJECT NO. 20054-01

APPENDIX B

PROJECT: **791 South Waterman Avenue**
San Bernardino, California

Log of Boring B-6

Project No.	**20054-01**	Boring Location:	**See Plate 1**	Logged by: **AN**
Drill Company/Rig	**Advanced/Diedrich D-50**	Date Started:	**3/20/2020**	Notes: No Groundwater
Drilling Method:	**Hollow Stem Auger**	Date Finished:	**3/20/2020**	
Hammer Weight/Drop:	**140 lbs./30-inches**	Hammer Type:	**Automatic**	LABORATORY TEST DATA

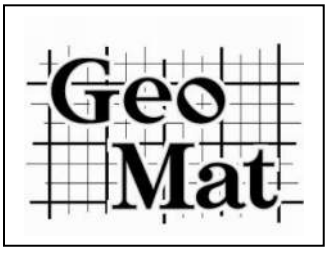
Sampler(s): California Ring (R), Standard Penetration Test (S), Bulk "Grab" Sample (B)

DEPTH (FT)	SAMPLES Type	Sample	Blows / 6"	SPT "N" Value	Graphic Log	Classification (USCS)	MATERIAL DESCRIPTION	Moisture Content (%)	Dry Density (pcf)	Fines (%)	Liquid Limit	Plastic Limit	Plast. Index
						FILL	**FILL (SANDY LEAN CLAY)** dark brown sandy lean clay						
5	R	X	2 3 4	5		CL	**SANDY LEAN CLAY** dark brown sandy lean clay cohesive medium firm TD = 6'	19	89				
10													
15													
20													
25													
30													
35													
40													
45													
50													

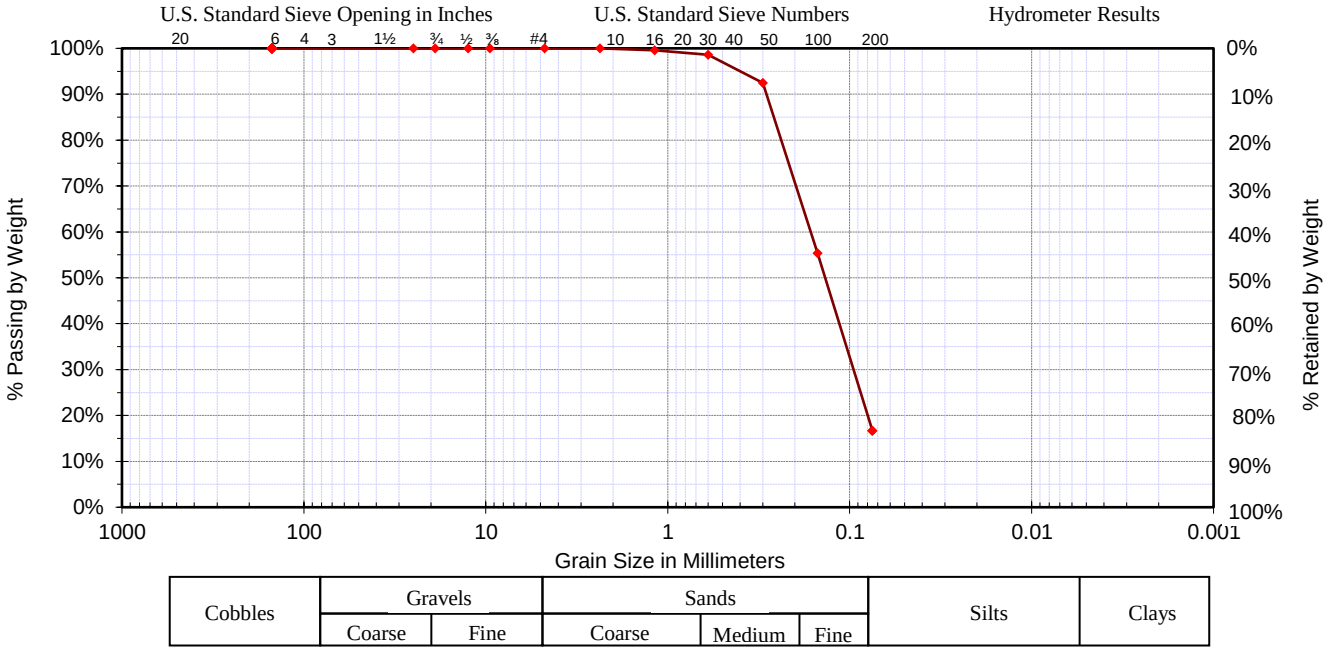
PROJECT NO. 20054-01

APPENDIX B

APPENDIX C



LABORATORY TEST RESULTS

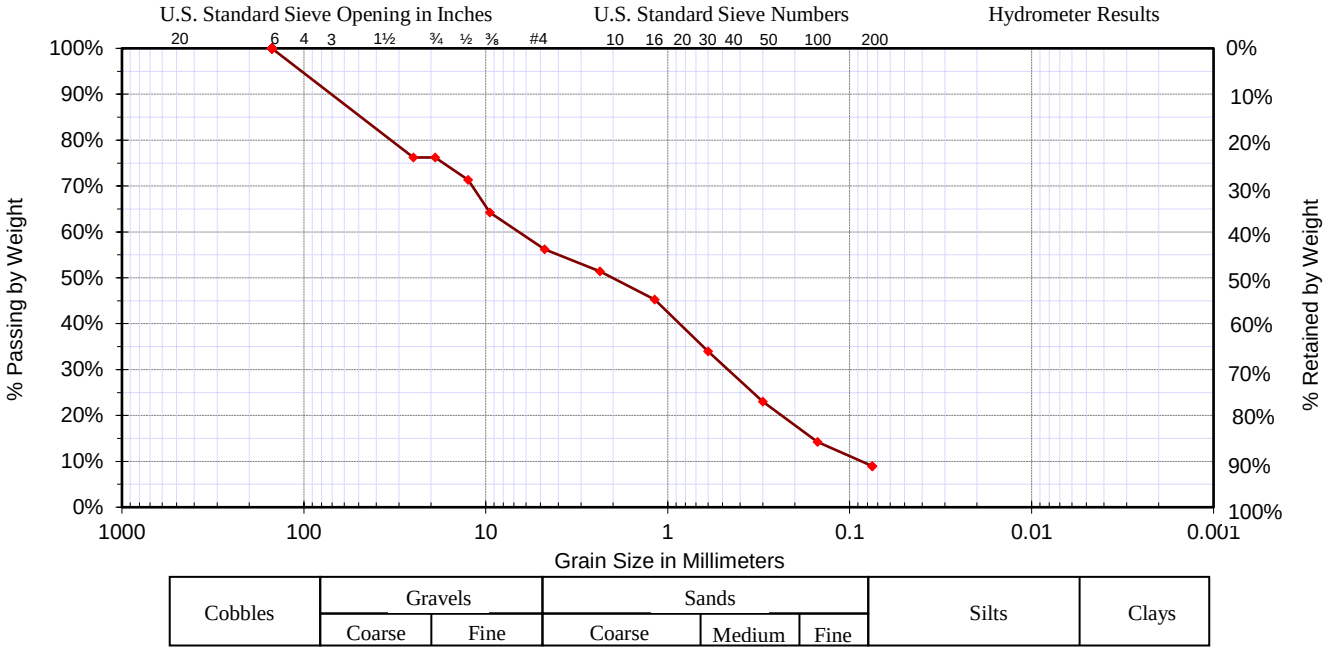


Date :	03/19/20	D_{10} =	0.04	**Classification**	% Gravel
Sample #:		D_{30} =	0.10	SM, Silty Sand	0.00%
Sample ID:	B-1 @ 20'	D_{60} =	0.17		% Sand
Source:	SPT	C_C =	1.34	**Specifications**	83.30%
Project:	791 South Waterman Avenue	$C_{U=}$	3.76	custom specs 1	% Silt & Clay
Location:	San Bernardino, California	Liquid Limit=	n/a		16.70%
Boring #:	B-1	Plastic Limit=	n/a	Fineness Modulus	Sample Moisture
Depth:	20'	Plasticity Index=	n/a	0.54	**7.8%**

Coarse Section Sieve Size US	Metric	Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
6.00"	150.00		100.0%		
4.00"	100.00		100.0%		
3.00"	75.00		100.0%		
2.50"	63.00		100.0%		
2.00"	50.00		100.0%		
1.75"	45.00		100.0%		
1.50"	37.50		100.0%		
1.25"	31.50		100.0%		
1.00"	25.00	100.0%	100.0%		
7/8"	22.40		100.0%		
3/4"	19.00	100.0%	100.0%		
5/8"	16.00		100.0%		
1/2"	12.50	100.0%	100.0%		
3/8"	9.50	100.0%	100.0%		
1/4"	6.30		100.0%		
#4	4.75	100.0%	100.0%		

Fines Section Sieve Size US	Metric	Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
#4	4.750	100.0%	100.0%		
#8	2.360	100.0%	100.0%		
#10	2.000		99.9%		
#16	1.180	99.6%	99.6%		
#20	0.850		99.0%		
#30	0.600	98.6%	98.6%		
#40	0.425		95.0%		
#50	0.300	92.5%	92.5%		
#60	0.250		80.1%		
#80	0.180		62.8%		
#100	0.150	55.3%	55.3%		
#140	0.106		32.7%		
#170	0.090		24.4%		
#200	0.075	16.7%	16.7%		
#270	0.053				

LABORATORY TEST RESULTS

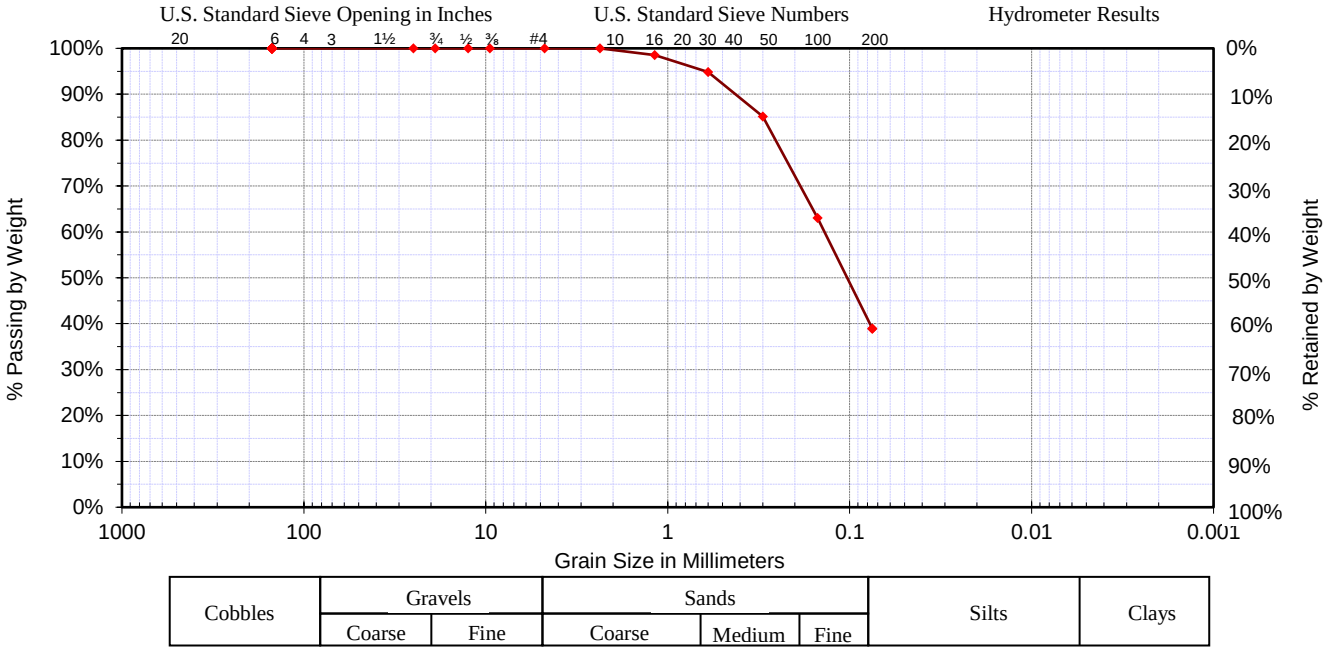


Date :	03/19/20	D_{10} =	0.09	**Classification**	% Gravel
Sample #:		D_{30} =	0.49	SP-SM, Poorly graded Sand with Silt and Gravel	43.82%
Sample ID:	B-1 @ 25'	D_{60} =	7.01		% Sand
Source:	SPT	C_C =	0.38	**Specifications**	47.22%
Project:	791 South Waterman Avenue	$C_{U=}$	77.97	custom specs 1	% Silt & Clay
Location:	San Bernardino, California	Liquid Limit=	n/a		8.96%
Boring #:	B-1	Plastic Limit=	n/a	Fineness Modulus	Sample Moisture
Depth:	25'	Plasticity Index=	n/a	4.35	**3.0%**

Coarse Section		Actual Cumulative	Interpolated Cumulative		
Sieve Size		Percent	Percent	Specs	Specs
US	Metric	Passing	Passing	Max	Min
6.00"	150.00		100.0%		
4.00"	100.00		100.0%		
3.00"	75.00		100.0%		
2.50"	63.00		100.0%		
2.00"	50.00		100.0%		
1.75"	45.00		100.0%		
1.50"	37.50		100.0%		
1.25"	31.50		100.0%		
1.00"	25.00	76.2%	76.2%		
7/8"	22.40		76.2%		
3/4"	19.00	76.2%	76.2%		
5/8"	16.00		74.0%		
1/2"	12.50	71.3%	71.3%		
3/8"	9.50	64.2%	64.2%		
1/4"	6.30		58.8%		
#4	4.75	56.2%	56.2%		

Fines Section		Actual Cumulative	Interpolated Cumulative		
Sieve Size		Percent	Percent	Specs	Specs
US	Metric	Passing	Passing	Max	Min
#4	4.750	56.2%	56.2%		
#8	2.360	51.4%	51.4%		
#10	2.000		49.5%		
#16	1.180	45.3%	45.3%		
#20	0.850		38.9%		
#30	0.600	34.0%	34.0%		
#40	0.425		27.6%		
#50	0.300	23.0%	23.0%		
#60	0.250		20.1%		
#80	0.180		16.0%		
#100	0.150	14.2%	14.2%		
#140	0.106		11.1%		
#170	0.090		10.0%		
#200	0.075	9.0%	9.0%		
#270	0.053				

LABORATORY TEST RESULTS

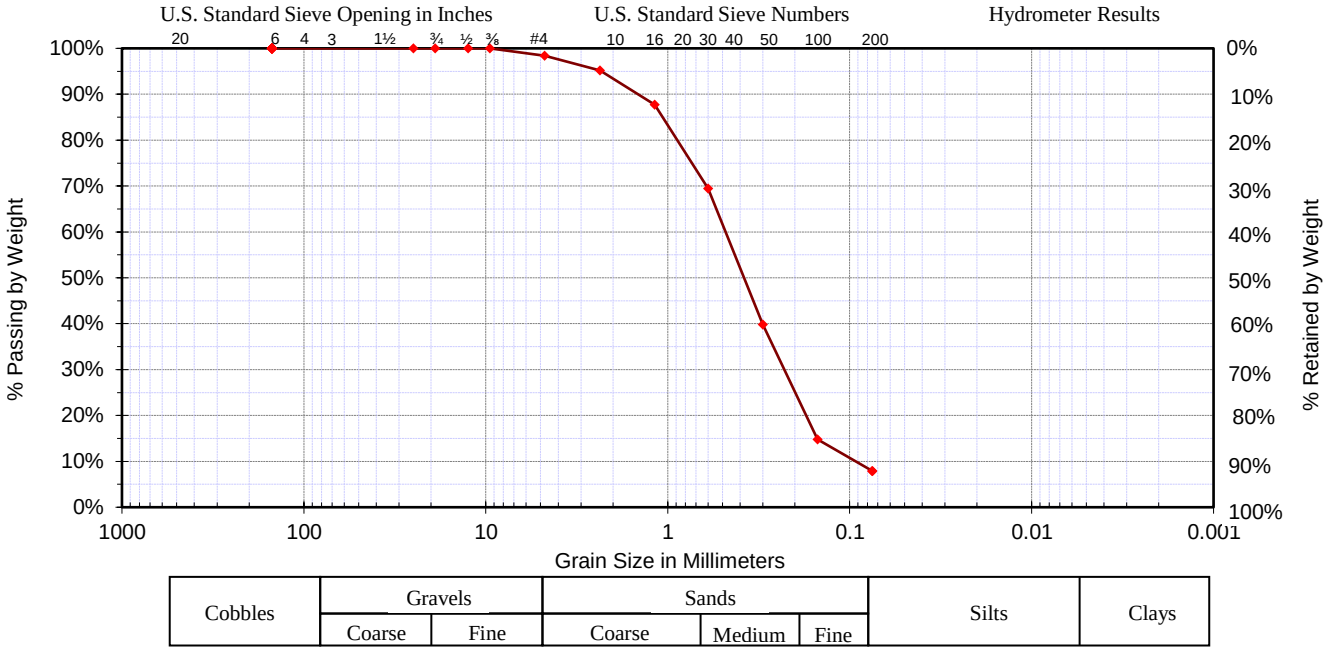


Date :	03/19/20	D_{10} =	0.02	**Classification**	% Gravel
Sample #:		D_{30} =	0.06	SM, Silty Sand	0.00%
Sample ID:	B-2 @ 0-3'	D_{60} =	0.14		% Sand
Source:	Bulk	C_C =	1.23	**Specifications**	61.11%
Project:	791 South Waterman Avenue	$C_{U=}$	7.29	custom specs 1	% Silt & Clay
Location:	San Bernardino, California	Liquid Limit=	n/a		38.89%
Boring #:	B-2	Plastic Limit=	n/a	Fineness Modulus	Sample Moisture
Depth:	0-3'	Plasticity Index=	n/a	0.58	**17.2%**

Coarse Section		Actual Cumulative	Interpolated Cumulative		
Sieve Size		Percent	Percent	Specs	Specs
US	Metric	Passing	Passing	Max	Min
6.00"	150.00		100.0%		
4.00"	100.00		100.0%		
3.00"	75.00		100.0%		
2.50"	63.00		100.0%		
2.00"	50.00		100.0%		
1.75"	45.00		100.0%		
1.50"	37.50		100.0%		
1.25"	31.50		100.0%		
1.00"	25.00	100.0%	100.0%		
7/8"	22.40		100.0%		
3/4"	19.00	100.0%	100.0%		
5/8"	16.00		100.0%		
1/2"	12.50	100.0%	100.0%		
3/8"	9.50	100.0%	100.0%		
1/4"	6.30		100.0%		
#4	4.75	100.0%	100.0%		

Fines Section		Actual Cumulative	Interpolated Cumulative		
Sieve Size		Percent	Percent	Specs	Specs
US	Metric	Passing	Passing	Max	Min
#4	4.750	100.0%	100.0%		
#8	2.360	100.0%	100.0%		
#10	2.000		99.6%		
#16	1.180	98.5%	98.5%		
#20	0.850		96.4%		
#30	0.600	94.9%	94.9%		
#40	0.425		89.2%		
#50	0.300	85.2%	85.2%		
#60	0.250		77.8%		
#80	0.180		67.5%		
#100	0.150	63.0%	63.0%		
#140	0.106		48.9%		
#170	0.090		43.7%		
#200	0.075	38.9%	38.9%		
#270	0.053				

LABORATORY TEST RESULTS

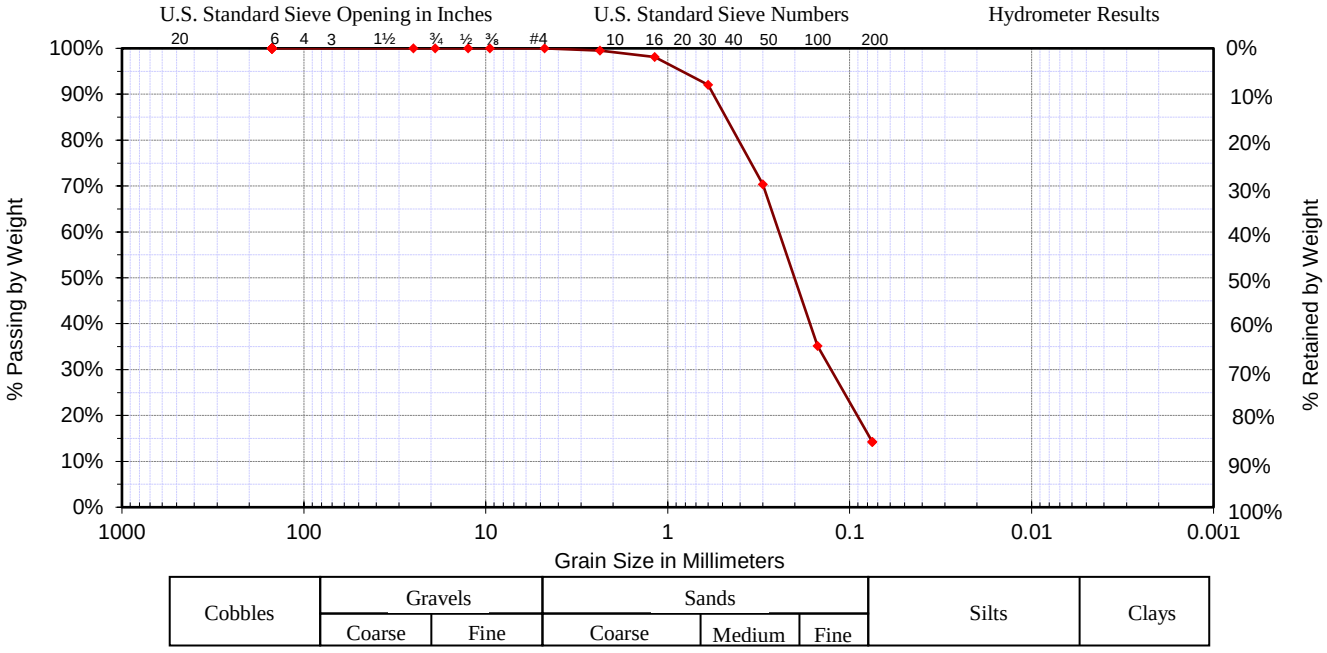


Date :	03/19/20	D_{10} =	0.10	**Classification**	% Gravel
Sample #:		D_{30} =	0.24	SP-SM, Poorly graded Sand with Silt	1.60%
Sample ID:	B-2 @ 10'	D_{60} =	0.50		% Sand
Source:	Ring	C_C =	1.18	**Specifications**	90.51%
Project:	791 South Waterman Avenue	$C_{U=}$	5.15	custom specs 1	% Silt & Clay
Location:	San Bernardino, California	Liquid Limit=	n/a		7.90%
Boring #:	B-2	Plastic Limit=	n/a	Fineness Modulus	Sample Moisture
Depth:	10'	Plasticity Index=	n/a	1.94	**6.7%**

Coarse Section		Actual Cumulative	Interpolated Cumulative		
Sieve Size		Percent	Percent	Specs	Specs
US	Metric	Passing	Passing	Max	Min
6.00"	150.00		100.0%		
4.00"	100.00		100.0%		
3.00"	75.00		100.0%		
2.50"	63.00		100.0%		
2.00"	50.00		100.0%		
1.75"	45.00		100.0%		
1.50"	37.50		100.0%		
1.25"	31.50		100.0%		
1.00"	25.00	100.0%	100.0%		
7/8"	22.40		100.0%		
3/4"	19.00	100.0%	100.0%		
5/8"	16.00		100.0%		
1/2"	12.50	100.0%	100.0%		
3/8"	9.50	100.0%	100.0%		
1/4"	6.30		98.9%		
#4	4.75	98.4%	98.4%		

Fines Section		Actual Cumulative	Interpolated Cumulative		
Sieve Size		Percent	Percent	Specs	Specs
US	Metric	Passing	Passing	Max	Min
#4	4.750	98.4%	98.4%		
#8	2.360	95.2%	95.2%		
#10	2.000		92.9%		
#16	1.180	87.8%	87.8%		
#20	0.850		77.4%		
#30	0.600	69.5%	69.5%		
#40	0.425		52.2%		
#50	0.300	39.8%	39.8%		
#60	0.250		31.5%		
#80	0.180		19.8%		
#100	0.150	14.8%	14.8%		
#140	0.106		10.8%		
#170	0.090		9.3%		
#200	0.075	7.9%	7.9%		
#270	0.053				

LABORATORY TEST RESULTS

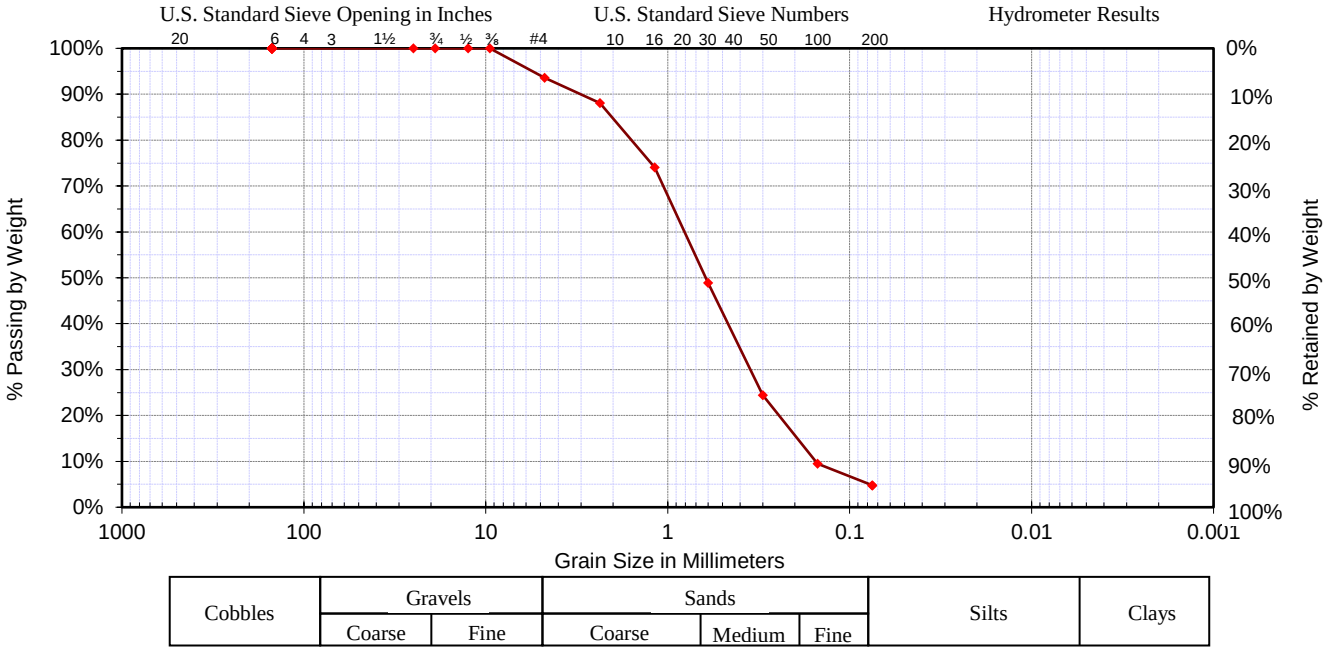


Date :	03/19/20	D_{10} =	0.05	**Classification**	% Gravel
Sample #:		D_{30} =	0.13	SM, Silty Sand	0.00%
Sample ID:	B-2 @ 15'	D_{60} =	0.26		% Sand
Source:	SPT	C_C =	1.28	**Specifications**	85.80%
Project:	791 South Waterman Avenue	$C_{U=}$	4.85	custom specs 1	% Silt & Clay
Location:	San Bernardino, California	Liquid Limit=	n/a		14.20%
Boring #:	B-2	Plastic Limit=	n/a	Fineness Modulus	Sample Moisture
Depth:	15'	Plasticity Index=	n/a	1.05	**7.5%**

Coarse Section		Actual Cumulative	Interpolated Cumulative		
Sieve Size		Percent	Percent	Specs	Specs
US	Metric	Passing	Passing	Max	Min
6.00"	150.00		100.0%		
4.00"	100.00		100.0%		
3.00"	75.00		100.0%		
2.50"	63.00		100.0%		
2.00"	50.00		100.0%		
1.75"	45.00		100.0%		
1.50"	37.50		100.0%		
1.25"	31.50		100.0%		
1.00"	25.00	100.0%	100.0%		
7/8"	22.40		100.0%		
3/4"	19.00	100.0%	100.0%		
5/8"	16.00		100.0%		
1/2"	12.50	100.0%	100.0%		
3/8"	9.50	100.0%	100.0%		
1/4"	6.30		100.0%		
#4	4.75	100.0%	100.0%		

Fines Section		Actual Cumulative	Interpolated Cumulative		
Sieve Size		Percent	Percent	Specs	Specs
US	Metric	Passing	Passing	Max	Min
#4	4.750	100.0%	100.0%		
#8	2.360	99.5%	99.5%		
#10	2.000		99.1%		
#16	1.180	98.2%	98.2%		
#20	0.850		94.7%		
#30	0.600	92.0%	92.0%		
#40	0.425		79.4%		
#50	0.300	70.3%	70.3%		
#60	0.250		58.6%		
#80	0.180		42.2%		
#100	0.150	35.1%	35.1%		
#140	0.106		22.8%		
#170	0.090		18.4%		
#200	0.075	14.2%	14.2%		
#270	0.053				

LABORATORY TEST RESULTS

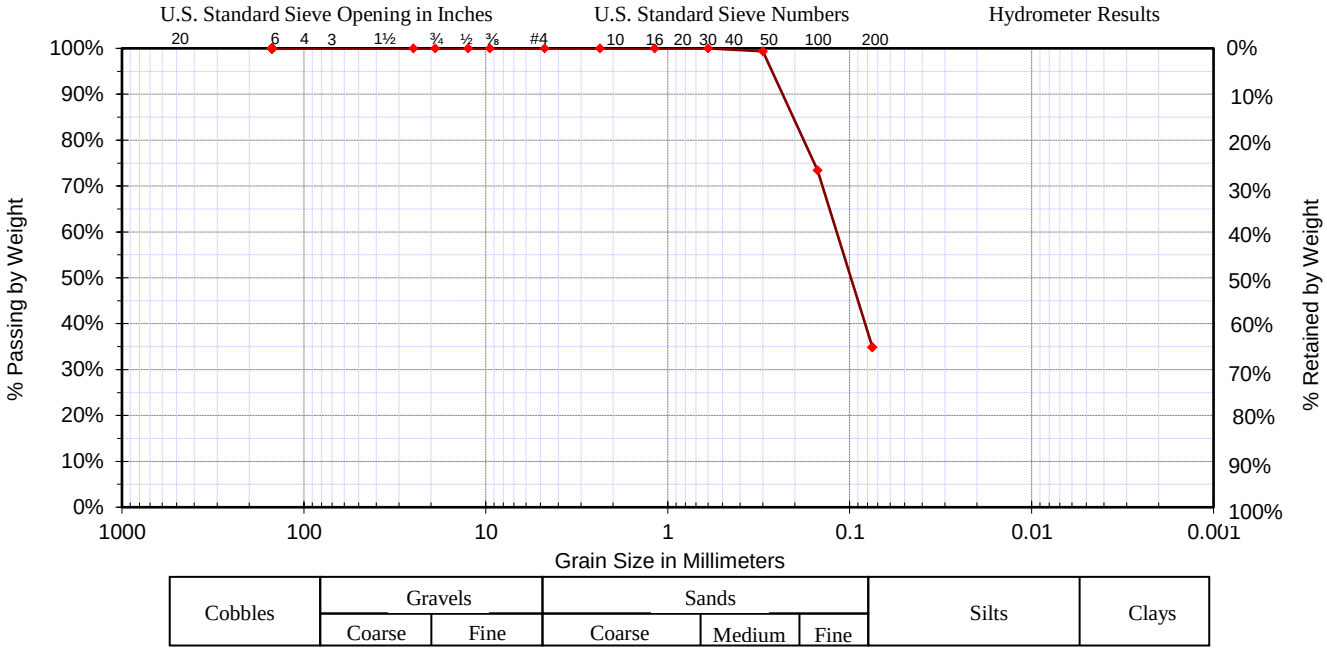


Date :	03/19/20	D_{10} =	0.16	**Classification**	% Gravel
Sample #:		D_{30} =	0.37	SP, Poorly graded Sand	6.44%
Sample ID:	B-2 @ 25'	D_{60} =	0.86		% Sand
Source:	SPT	C_C =	1.02	**Specifications**	88.79%
Project:	791 South Waterman Avenue	$C_{U=}$	5.52	custom specs 1	% Silt & Clay
Location:	San Bernardino, California	Liquid Limit=	n/a		4.78%
Boring #:	B-2	Plastic Limit=	n/a	Fineness Modulus	Sample Moisture
Depth:	25'	Plasticity Index=	n/a	2.62	**2.1%**

Coarse Section		Actual Cumulative	Interpolated Cumulative		
Sieve Size		Percent	Percent	Specs	Specs
US	Metric	Passing	Passing	Max	Min
6.00"	150.00		100.0%		
4.00"	100.00		100.0%		
3.00"	75.00		100.0%		
2.50"	63.00		100.0%		
2.00"	50.00		100.0%		
1.75"	45.00		100.0%		
1.50"	37.50		100.0%		
1.25"	31.50		100.0%		
1.00"	25.00	100.0%	100.0%		
7/8"	22.40		100.0%		
3/4"	19.00	100.0%	100.0%		
5/8"	16.00		100.0%		
1/2"	12.50	100.0%	100.0%		
3/8"	9.50	100.0%	100.0%		
1/4"	6.30		95.7%		
#4	4.75	93.6%	93.6%		

Fines Section		Actual Cumulative	Interpolated Cumulative		
Sieve Size		Percent	Percent	Specs	Specs
US	Metric	Passing	Passing	Max	Min
#4	4.750	93.6%	93.6%		
#8	2.360	88.1%	88.1%		
#10	2.000		83.8%		
#16	1.180	74.0%	74.0%		
#20	0.850		59.7%		
#30	0.600	48.9%	48.9%		
#40	0.425		34.6%		
#50	0.300	24.4%	24.4%		
#60	0.250		19.4%		
#80	0.180		12.5%		
#100	0.150	9.5%	9.5%		
#140	0.106		6.7%		
#170	0.090		5.7%		
#200	0.075	4.8%	4.8%		
#270	0.053				

LABORATORY TEST RESULTS

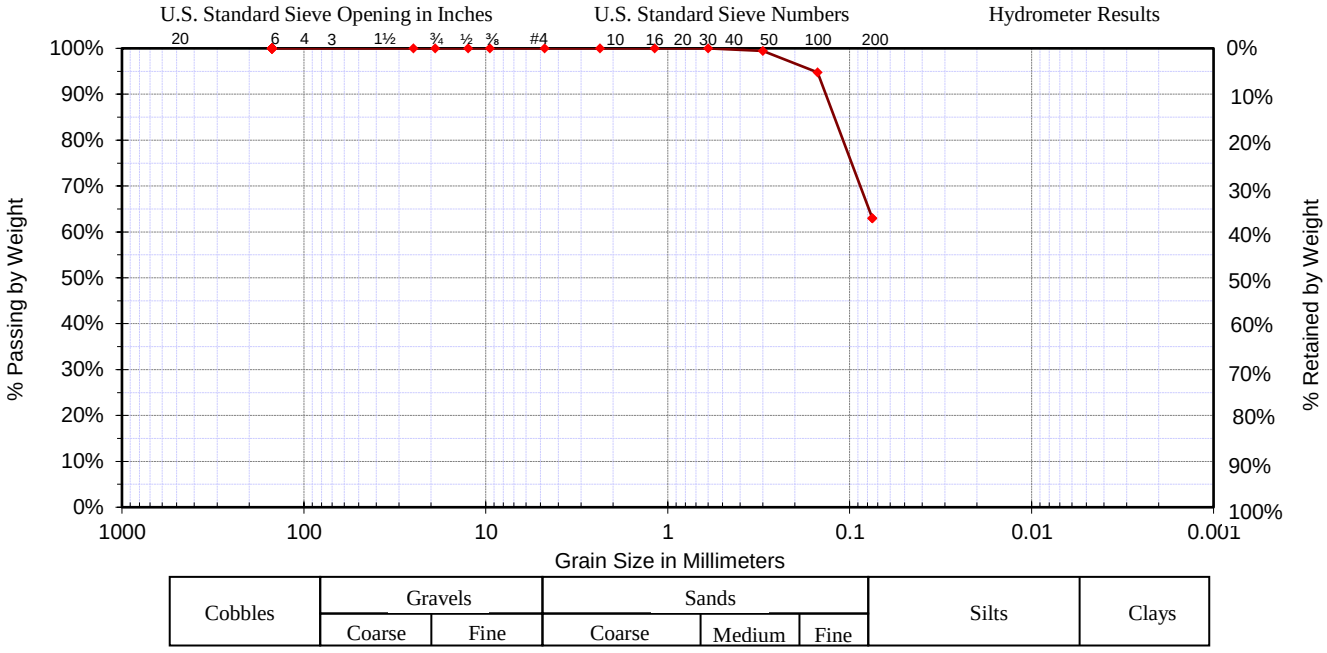


Date :	03/19/20	D_{10} =	0.02	**Classification**	% Gravel
Sample #:		D_{30} =	0.06	SM, Silty Sand	0.00%
Sample ID:	B-2 @ 35'	D_{60} =	0.12		% Sand
Source:	SPT	C_C =	1.56	**Specifications**	65.11%
Project:	791 South Waterman Avenue	$C_{U=}$	5.76	custom specs 1	% Silt & Clay
Location:	San Bernardino, California	Liquid Limit=	n/a		34.89%
Boring #:	B-2	Plastic Limit=	n/a	Fineness Modulus	Sample Moisture
Depth:	35'	Plasticity Index=	n/a	0.27	**7.4%**

Coarse Section		Actual Cumulative	Interpolated Cumulative		
Sieve Size		Percent	Percent	Specs	Specs
US	Metric	Passing	Passing	Max	Min
6.00"	150.00		100.0%		
4.00"	100.00		100.0%		
3.00"	75.00		100.0%		
2.50"	63.00		100.0%		
2.00"	50.00		100.0%		
1.75"	45.00		100.0%		
1.50"	37.50		100.0%		
1.25"	31.50		100.0%		
1.00"	25.00	100.0%	100.0%		
7/8"	22.40		100.0%		
3/4"	19.00	100.0%	100.0%		
5/8"	16.00		100.0%		
1/2"	12.50	100.0%	100.0%		
3/8"	9.50	100.0%	100.0%		
1/4"	6.30		100.0%		
#4	4.75	100.0%	100.0%		

Fines Section		Actual Cumulative	Interpolated Cumulative		
Sieve Size		Percent	Percent	Specs	Specs
US	Metric	Passing	Passing	Max	Min
#4	4.750	100.0%	100.0%		
#8	2.360	100.0%	100.0%		
#10	2.000		100.0%		
#16	1.180	100.0%	100.0%		
#20	0.850		100.0%		
#30	0.600	100.0%	100.0%		
#40	0.425		99.6%		
#50	0.300	99.4%	99.4%		
#60	0.250		90.7%		
#80	0.180		78.6%		
#100	0.150	73.5%	73.5%		
#140	0.106		50.8%		
#170	0.090		42.6%		
#200	0.075	34.9%	34.9%		
#270	0.053				

LABORATORY TEST RESULTS

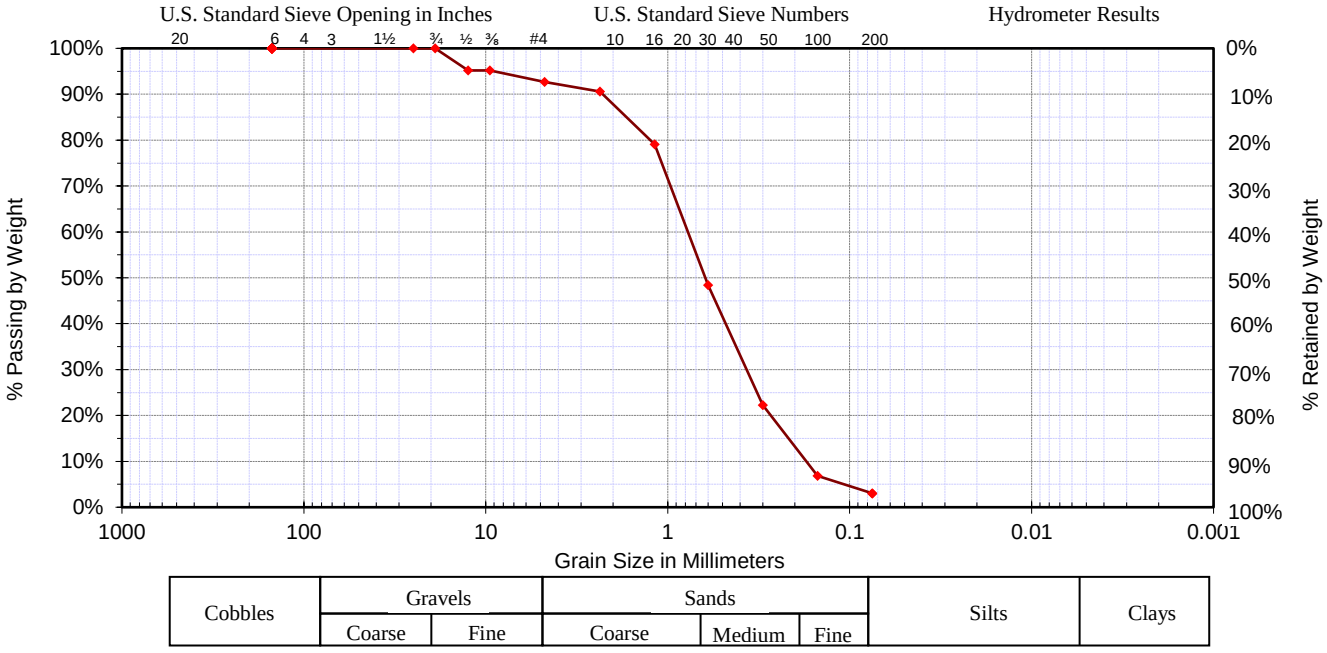


Date :	03/19/20	D_{10} =	0.01	**Classification**	% Gravel
Sample #:		D_{30} =	0.04	ML, Sandy Silt	0.00%
Sample ID:	B-2 @ 45'	D_{60} =	0.07		% Sand
Source:	SPT	C_C =	1.50	**Specifications**	37.05%
Project:	791 South Waterman Avenue	$C_{U=}$	6.00	custom specs 1	% Silt & Clay
Location:	San Bernardino, California	Liquid Limit=	n/a		62.95%
Boring #:	B-2	Plastic Limit=	n/a	Fineness Modulus	Sample Moisture
Depth:	45'	Plasticity Index=	n/a	0.06	**31.3%**

Coarse Section Sieve Size US	Metric	Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
6.00"	150.00		100.0%		
4.00"	100.00		100.0%		
3.00"	75.00		100.0%		
2.50"	63.00		100.0%		
2.00"	50.00		100.0%		
1.75"	45.00		100.0%		
1.50"	37.50		100.0%		
1.25"	31.50		100.0%		
1.00"	25.00	100.0%	100.0%		
7/8"	22.40		100.0%		
3/4"	19.00	100.0%	100.0%		
5/8"	16.00		100.0%		
1/2"	12.50	100.0%	100.0%		
3/8"	9.50	100.0%	100.0%		
1/4"	6.30		100.0%		
#4	4.75	100.0%	100.0%		

Fines Section Sieve Size US	Metric	Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
#4	4.750	100.0%	100.0%		
#8	2.360	100.0%	100.0%		
#10	2.000		100.0%		
#16	1.180	100.0%	100.0%		
#20	0.850		100.0%		
#30	0.600	100.0%	100.0%		
#40	0.425		99.7%		
#50	0.300	99.4%	99.4%		
#60	0.250		97.9%		
#80	0.180		95.7%		
#100	0.150	94.8%	94.8%		
#140	0.106		76.1%		
#170	0.090		69.3%		
#200	0.075	62.9%	62.9%		
#270	0.053				

LABORATORY TEST RESULTS

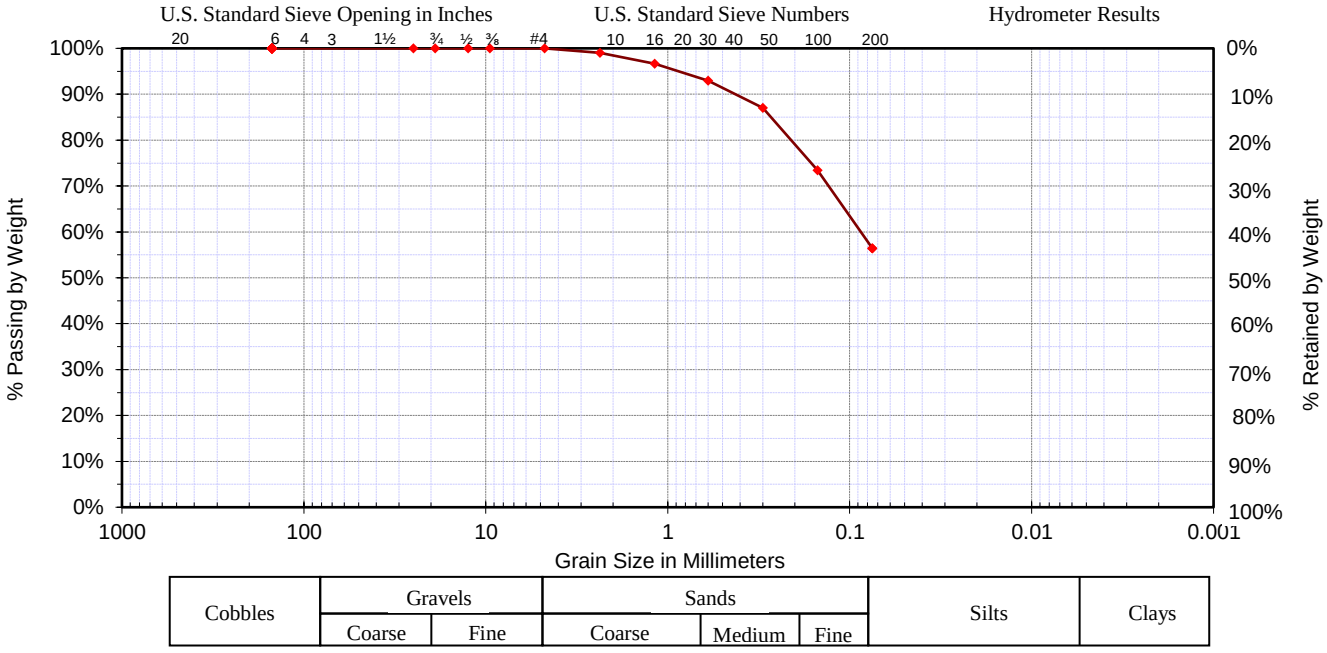


Date :	03/19/20	D_{10} =	0.18	**Classification**	% Gravel
Sample #:		D_{30} =	0.39	SP, Poorly graded Sand	7.31%
Sample ID:	B-3 @ 20'	D_{60} =	0.82		% Sand
Source:	SPT	C_C =	1.02	**Specifications**	89.66%
Project:	791 South Waterman Avenue	$C_{U=}$	4.53	custom specs 1	% Silt & Clay
Location:	San Bernardino, California	Liquid Limit=	n/a		3.03%
Boring #:	B-3	Plastic Limit=	n/a	Fineness Modulus	Sample Moisture
Depth:	20'	Plasticity Index=	n/a	2.65	**6.3%**

Coarse Section		Actual Cumulative	Interpolated Cumulative		
Sieve Size		Percent	Percent	Specs	Specs
US	Metric	Passing	Passing	Max	Min
6.00"	150.00		100.0%		
4.00"	100.00		100.0%		
3.00"	75.00		100.0%		
2.50"	63.00		100.0%		
2.00"	50.00		100.0%		
1.75"	45.00		100.0%		
1.50"	37.50		100.0%		
1.25"	31.50		100.0%		
1.00"	25.00	100.0%	100.0%		
7/8"	22.40		100.0%		
3/4"	19.00	100.0%	100.0%		
5/8"	16.00		97.8%		
1/2"	12.50	95.2%	95.2%		
3/8"	9.50	95.2%	95.2%		
1/4"	6.30		93.5%		
#4	4.75	92.7%	92.7%		

Fines Section		Actual Cumulative	Interpolated Cumulative		
Sieve Size		Percent	Percent	Specs	Specs
US	Metric	Passing	Passing	Max	Min
#4	4.750	92.7%	92.7%		
#8	2.360	90.6%	90.6%		
#10	2.000		87.1%		
#16	1.180	79.1%	79.1%		
#20	0.850		61.6%		
#30	0.600	48.4%	48.4%		
#40	0.425		33.2%		
#50	0.300	22.3%	22.3%		
#60	0.250		17.1%		
#80	0.180		9.9%		
#100	0.150	6.8%	6.8%		
#140	0.106		4.6%		
#170	0.090		3.8%		
#200	0.075	3.0%	3.0%		
#270	0.053				

LABORATORY TEST RESULTS

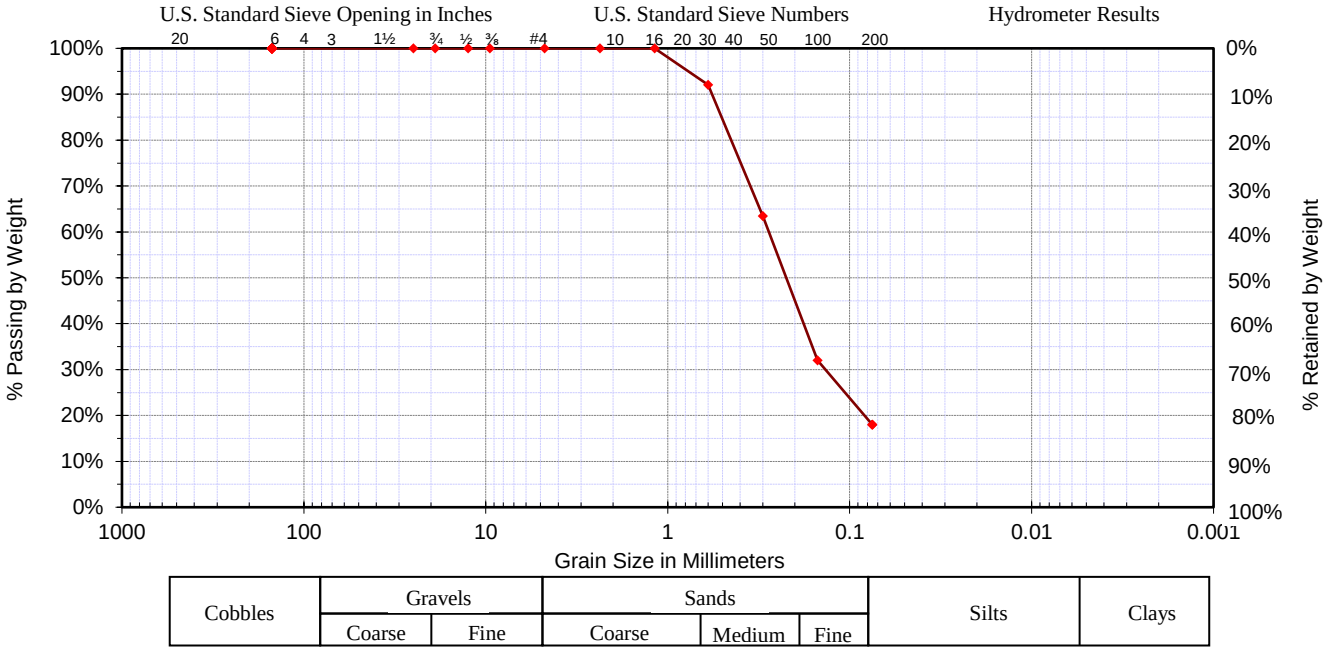


Date :	03/19/20	D_{10} =	0.01	**Classification**	% Gravel
Sample #:		D_{30} =	0.04	ML, Sandy Silt	0.00%
Sample ID:	B-4 @ 15'	D_{60} =	0.09		% Sand
Source:	SPT	C_C =	1.32	**Specifications**	43.59%
Project:	791 South Waterman Avenue	$C_{U=}$	6.83	custom specs 1	% Silt & Clay
Location:	San Bernardino, California	Liquid Limit=	n/a		56.41%
Boring #:	B-4	Plastic Limit=	n/a	Fineness Modulus	Sample Moisture
Depth:	15'	Plasticity Index=	n/a	0.51	**18.6%**

Coarse Section Sieve Size US	Metric	Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
6.00"	150.00		100.0%		
4.00"	100.00		100.0%		
3.00"	75.00		100.0%		
2.50"	63.00		100.0%		
2.00"	50.00		100.0%		
1.75"	45.00		100.0%		
1.50"	37.50		100.0%		
1.25"	31.50		100.0%		
1.00"	25.00	100.0%	100.0%		
7/8"	22.40		100.0%		
3/4"	19.00	100.0%	100.0%		
5/8"	16.00		100.0%		
1/2"	12.50	100.0%	100.0%		
3/8"	9.50	100.0%	100.0%		
1/4"	6.30		100.0%		
#4	4.75	100.0%	100.0%		

Fines Section Sieve Size US	Metric	Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
#4	4.750	100.0%	100.0%		
#8	2.360	99.0%	99.0%		
#10	2.000		98.3%		
#16	1.180	96.6%	96.6%		
#20	0.850		94.5%		
#30	0.600	92.9%	92.9%		
#40	0.425		89.5%		
#50	0.300	87.0%	87.0%		
#60	0.250		82.5%		
#80	0.180		76.1%		
#100	0.150	73.4%	73.4%		
#140	0.106		63.4%		
#170	0.090		59.8%		
#200	0.075	56.4%	56.4%		
#270	0.053				

LABORATORY TEST RESULTS

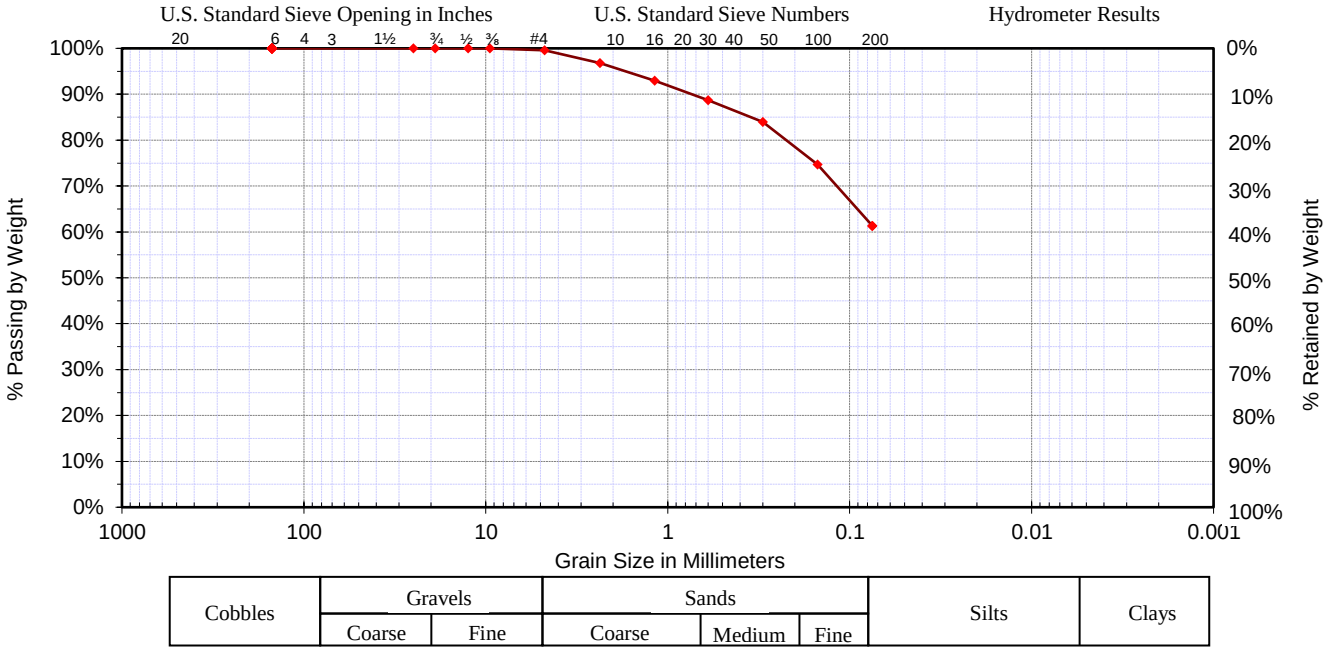


Date :	03/19/20	D_{10} =	0.04	**Classification**	% Gravel
Sample #:		D_{30} =	0.14	SM, Silty Sand	0.00%
Sample ID:	B-4 @ 20'	D_{60} =	0.28		% Sand
Source:	SPT	C_C =	1.64	**Specifications**	82.03%
Project:	791 South Waterman Avenue	$C_{U=}$	6.79	custom specs 1	% Silt & Clay
Location:	San Bernardino, California	Liquid Limit=	n/a		17.97%
Boring #:	B-4	Plastic Limit=	n/a	Fineness Modulus	Sample Moisture
Depth:	20'	Plasticity Index=	n/a	1.13	**11.3%**

Coarse Section		Actual Cumulative	Interpolated Cumulative		
Sieve Size		Percent	Percent	Specs	Specs
US	Metric	Passing	Passing	Max	Min
6.00"	150.00		100.0%		
4.00"	100.00		100.0%		
3.00"	75.00		100.0%		
2.50"	63.00		100.0%		
2.00"	50.00		100.0%		
1.75"	45.00		100.0%		
1.50"	37.50		100.0%		
1.25"	31.50		100.0%		
1.00"	25.00	100.0%	100.0%		
7/8"	22.40		100.0%		
3/4"	19.00	100.0%	100.0%		
5/8"	16.00		100.0%		
1/2"	12.50	100.0%	100.0%		
3/8"	9.50	100.0%	100.0%		
1/4"	6.30		100.0%		
#4	4.75	100.0%	100.0%		

Fines Section		Actual Cumulative	Interpolated Cumulative		
Sieve Size		Percent	Percent	Specs	Specs
US	Metric	Passing	Passing	Max	Min
#4	4.750	100.0%	100.0%		
#8	2.360	100.0%	100.0%		
#10	2.000		100.0%		
#16	1.180	100.0%	100.0%		
#20	0.850		95.5%		
#30	0.600	92.0%	92.0%		
#40	0.425		75.4%		
#50	0.300	63.4%	63.4%		
#60	0.250		53.0%		
#80	0.180		38.3%		
#100	0.150	32.0%	32.0%		
#140	0.106		23.8%		
#170	0.090		20.8%		
#200	0.075	18.0%	18.0%		
#270	0.053				

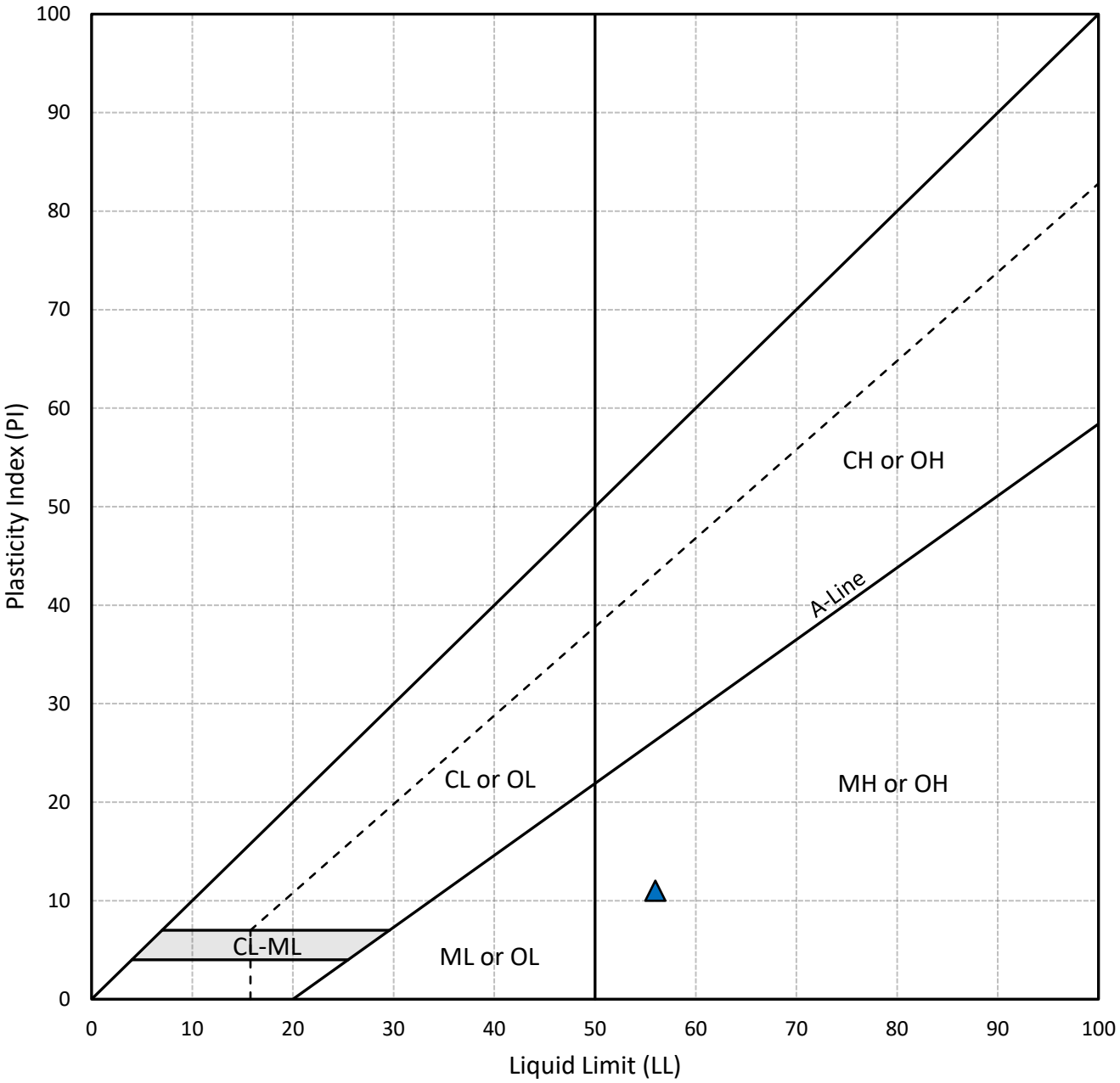
LABORATORY TEST RESULTS



Date :	03/19/20	D_{10} =	0.01	**Classification**	% Gravel
Sample #:		D_{30} =	0.04	CL, Sandy Lean Clay	0.43%
Sample ID:	B-5 @ 5'	D_{60} =	0.07		% Sand
Source:	Ring	C_C =	1.50	**Specifications**	38.25%
Project:	791 South Waterman Avenue	$C_{U=}$	6.00	custom specs 1	% Silt & Clay
Location:	San Bernardino, California	Liquid Limit=	n/a		61.32%
Boring #:	B-5	Plastic Limit=	n/a	Fineness Modulus	Sample Moisture
Depth:	5'	Plasticity Index=	n/a	0.63	**19.1%**

Coarse Section Sieve Size US	Metric	Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min	**Fines Section** Sieve Size US	Metric	Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
6.00"	150.00		100.0%			#4	4.750	99.6%	99.6%		
4.00"	100.00		100.0%			#8	2.360	96.8%	96.8%		
3.00"	75.00		100.0%			#10	2.000		95.6%		
2.50"	63.00		100.0%			#16	1.180	92.9%	92.9%		
2.00"	50.00		100.0%			#20	0.850		90.5%		
1.75"	45.00		100.0%			#30	0.600	88.7%	88.7%		
1.50"	37.50		100.0%			#40	0.425		85.9%		
1.25"	31.50		100.0%			#50	0.300	84.0%	84.0%		
1.00"	25.00	100.0%	100.0%			#60	0.250		80.9%		
7/8"	22.40		100.0%			#80	0.180		76.5%		
3/4"	19.00	100.0%	100.0%			#100	0.150	74.7%	74.7%		
5/8"	16.00		100.0%			#140	0.106		66.8%		
1/2"	12.50	100.0%	100.0%			#170	0.090		64.0%		
3/8"	9.50	100.0%	100.0%			#200	0.075	61.3%	61.3%		
1/4"	6.30		99.7%			#270	0.053				
#4	4.75	99.6%	99.6%								

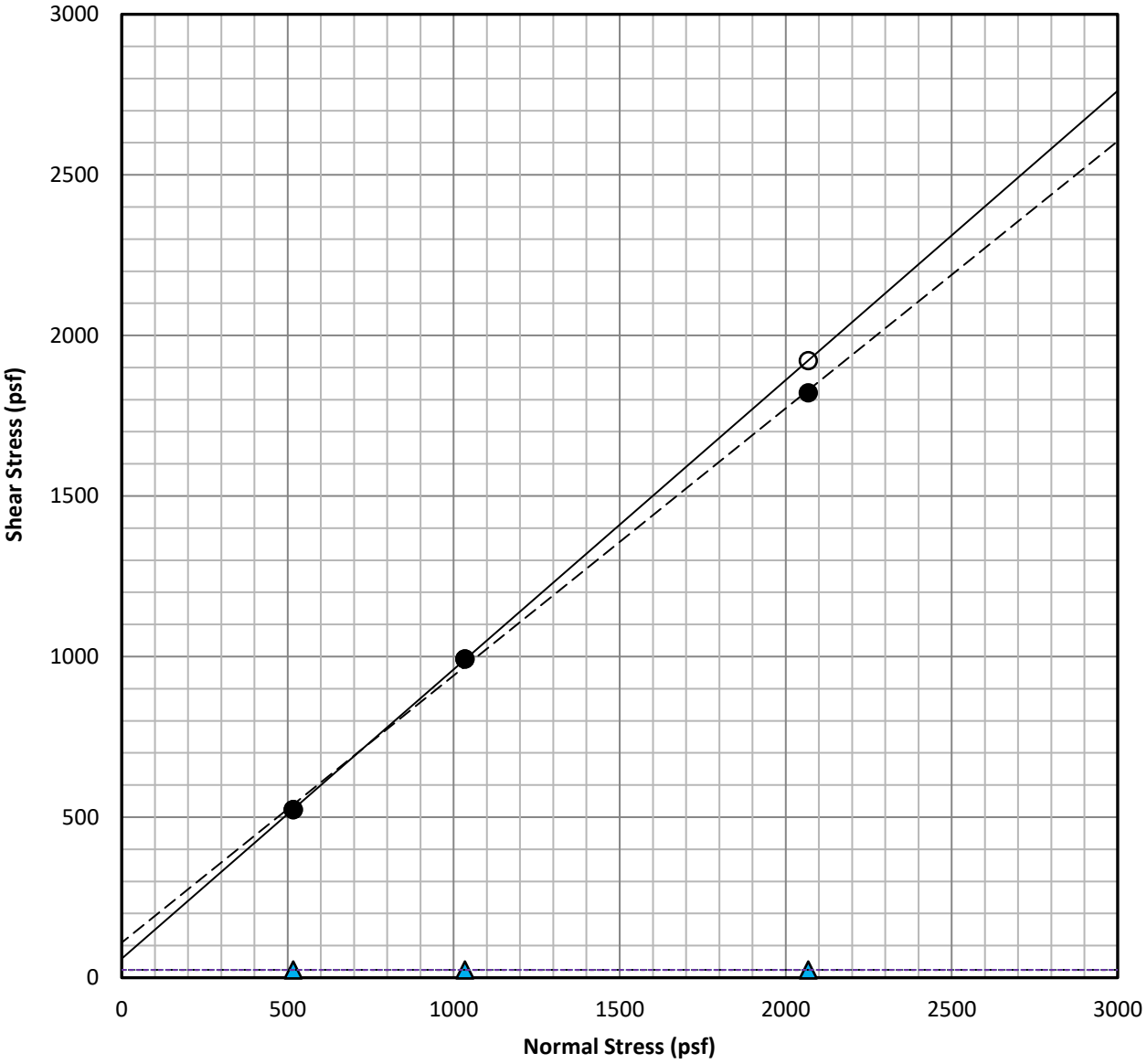
PLASTICITY CHART



LEGEND	CLASSIFICATION	ATTERBERG LIMITS TEST RESULTS LIQUID LIMIT (LL)	PLASTIC LIMIT (PL)	PLASTICITY INDEX (PI)
▲ B2 @ 50'	Olive Brown Elastic Silt	56.0	45.0	11.0

ASTM D4318	Standard Test Method for Liquid Limit, Plastic Limit, and Plasticity Index of Soils	geomat

DIRECT SHEAR TEST RESULTS



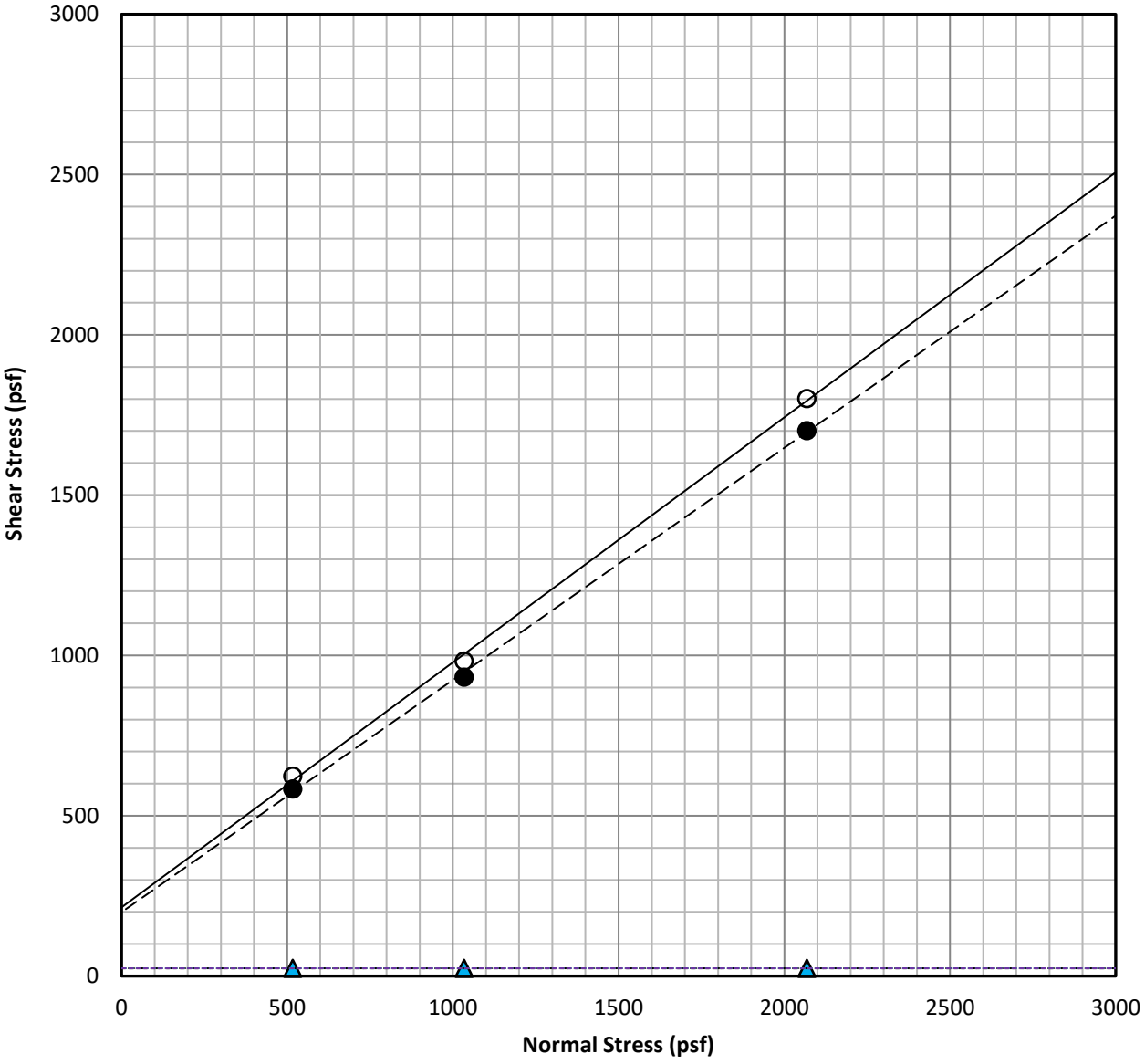
Sample	Symbol	Description	Soil Type [USCS]	Shear Strength	Friction Angle, ϕ [degrees]	Cohesion, c [psf]
B-1 @ 5'	—○—	Sand with Silt	SP-SM	Peak	42.0	59
B-1 @ 5'	—●—	Sand with Silt	SP-SM	Ultimate	39.8	109
B-1 @ 5'	- -△- -	Sand with Silt	SP-SM	*Residual	N/A	N/A

Sample Moisture [%]	Saturated Moisture [%]	Dry Unit Weight [pcf]
11.6	33.5	84.4

ASTM D-3080

*Residual results were determined from the lowest re-shear values obtained after 5 re-shears

DIRECT SHEAR TEST RESULTS



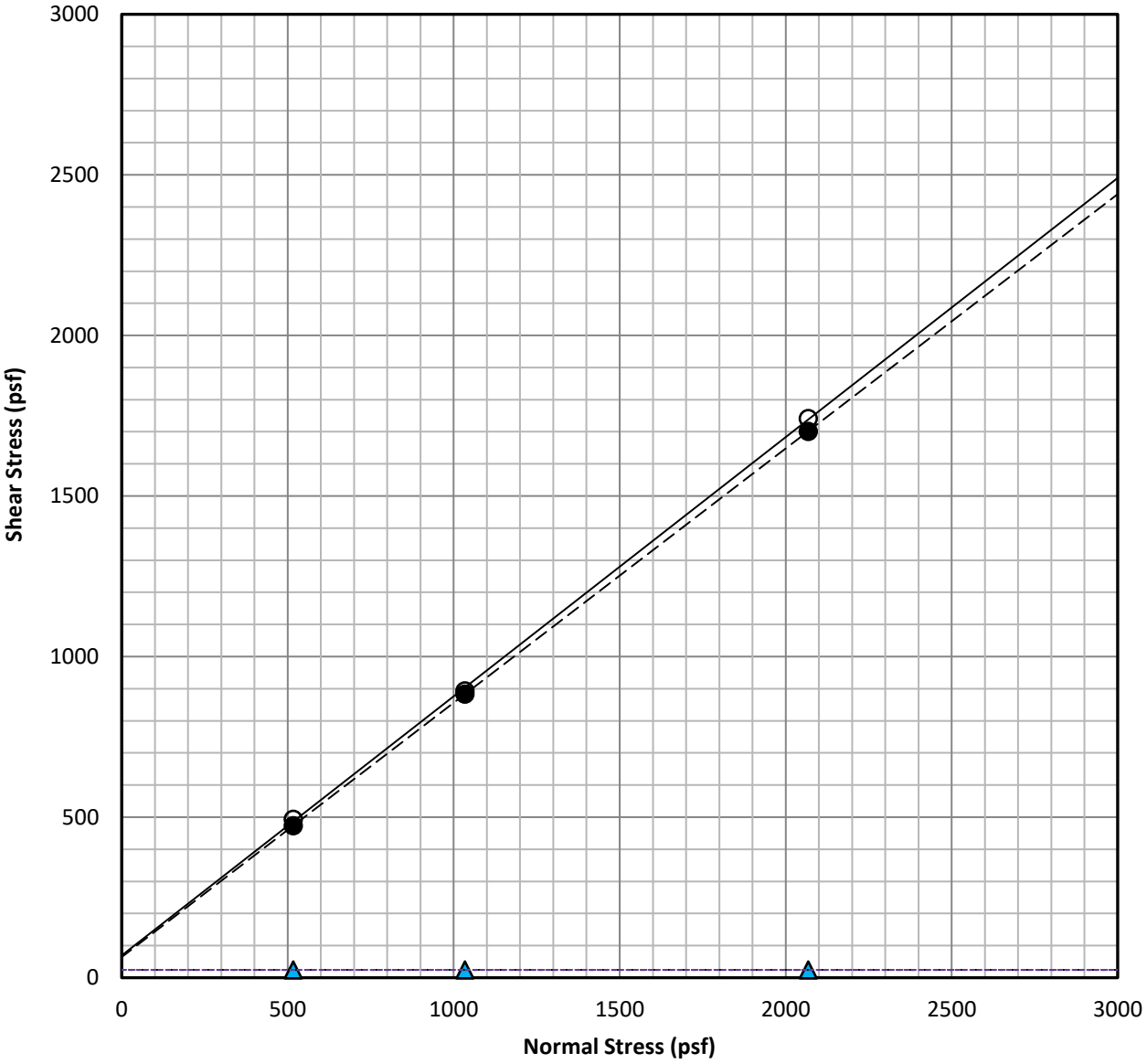
Sample	Symbol	Description	Soil Type [USCS]	Shear Strength	Friction Angle, ϕ [degrees]	Cohesion, c [psf]
B-2 @ 10'	—○—	Sand with Silt	SP-SM	Peak	37.4	214
B-2 @ 10'	—●—	Sand with Silt	SP-SM	Ultimate	35.9	199
B-2 @ 10'	- -△- -	Sand with Silt	SP-SM	*Residual	N/A	N/A

Sample Moisture [%]	Saturated Moisture [%]	Dry Unit Weight [pcf]
10.5	23.8	97.0

ASTM D-3080

*Residual results were determined from the lowest re-shear values obtained after 5 re-shears

DIRECT SHEAR TEST RESULTS



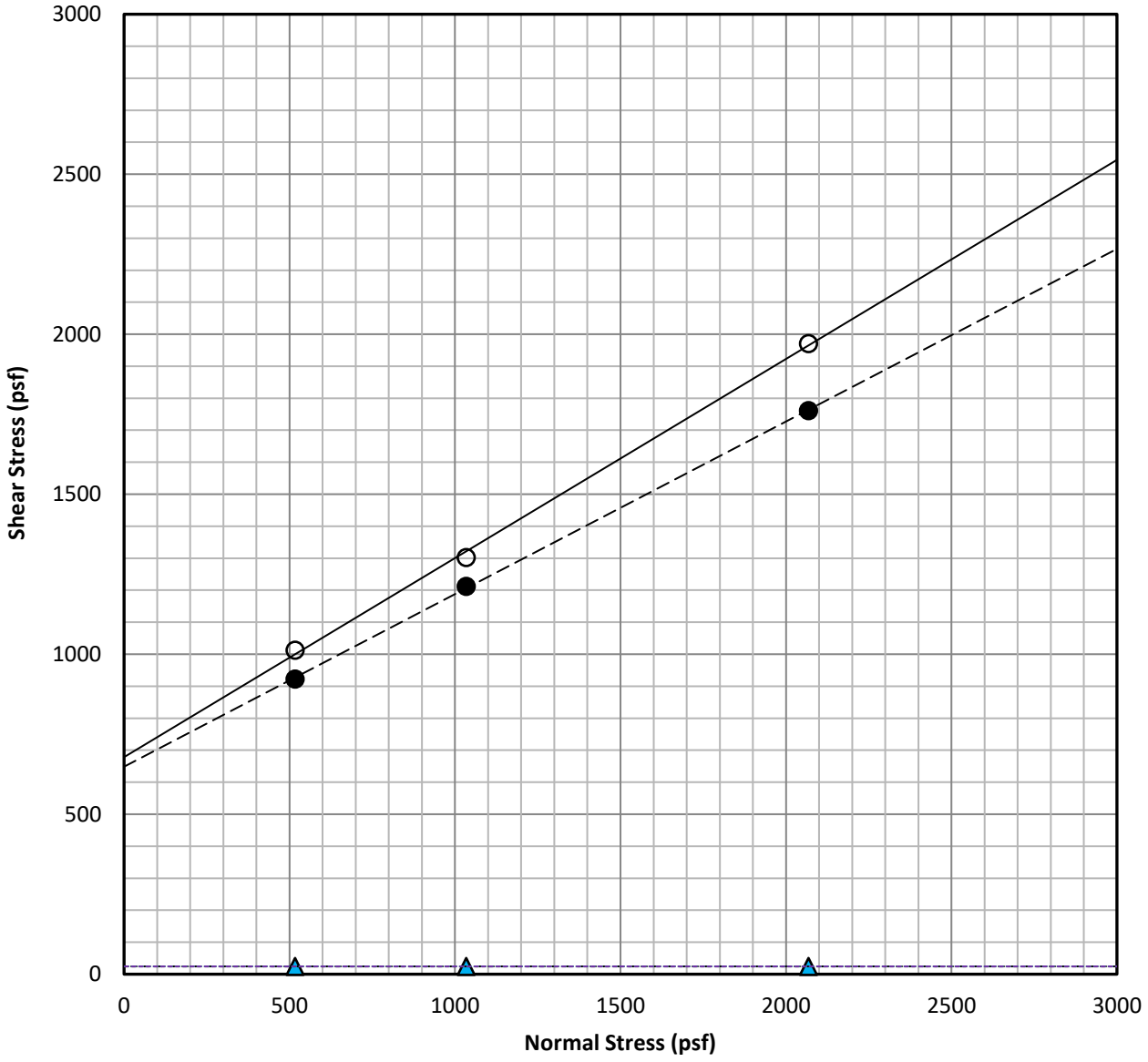
Sample	Symbol	Description	Soil Type [USCS]	Shear Strength	Friction Angle, ϕ [degrees]	Cohesion, c [psf]
B-2 @ 5'	—○—	Sand with Silt	SP-SM	Peak	38.9	69
B-2 @ 5'	—●—	Sand with Silt	SP-SM	Ultimate	38.4	64
B-2 @ 5'	- - △ - -	Sand with Silt	SP-SM	*Residual	N/A	N/A

Sample Moisture [%]	Saturated Moisture [%]	Dry Unit Weight [pcf]
8.7	24.3	91.9

ASTM D-3080

*Residual results were determined from the lowest re-shear values obtained after 5 re-shears

DIRECT SHEAR TEST RESULTS



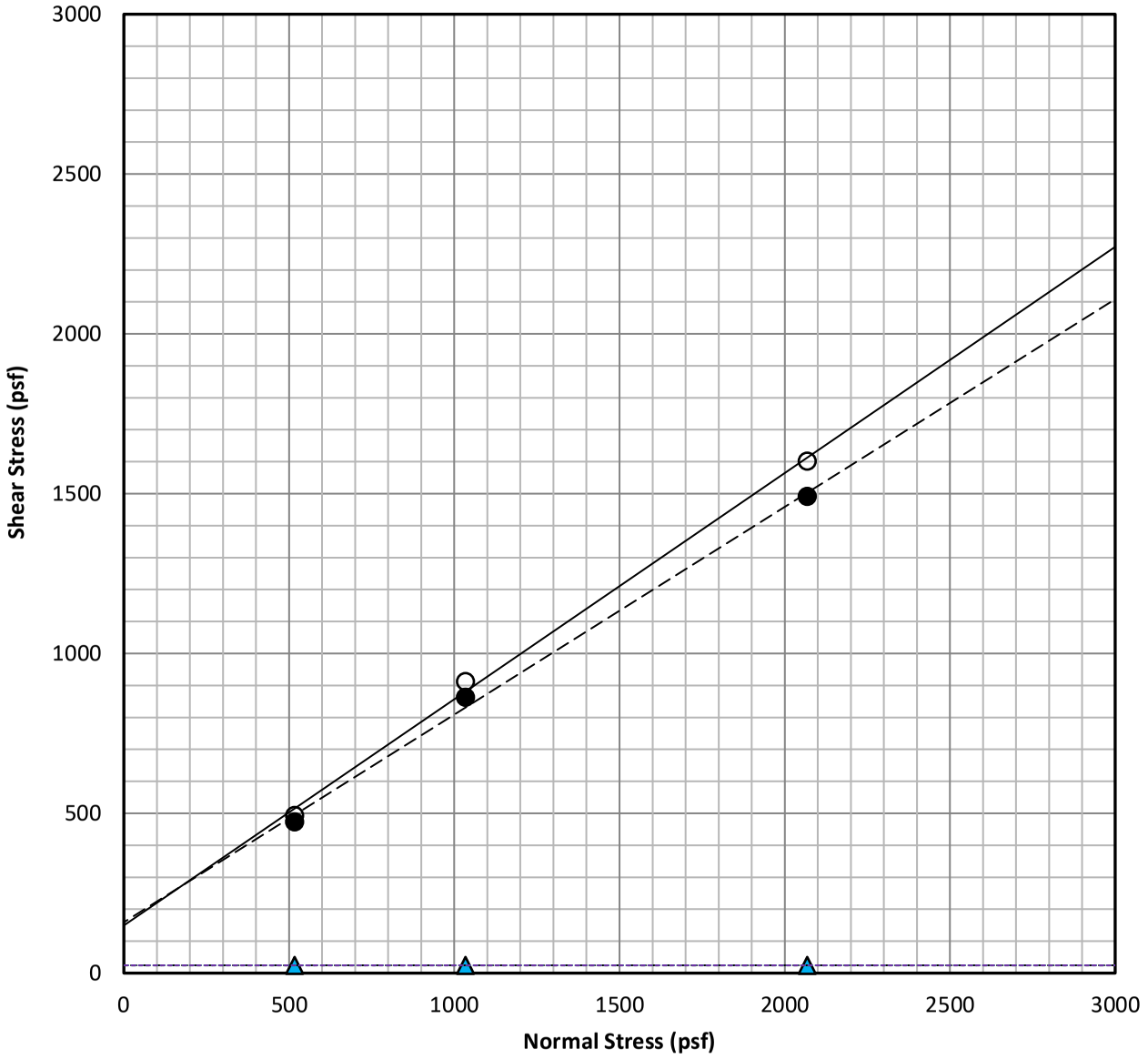
Sample	Symbol	Description	Soil Type [USCS]	Shear Strength	Friction Angle, ϕ [degrees]	Cohesion, c [psf]
B-3 @ 5'	—○—	Sandy Lean Clay	CL	Peak	31.9	678
B-3 @ 5'	— ● —	Sandy Lean Clay	CL	Ultimate	28.3	648
B-3 @ 5'	- - △ - -	Sandy Lean Clay	CL	*Residual	N/A	N/A

Sample Moisture [%]	Saturated Moisture [%]	Dry Unit Weight [pcf]
17.7	18.9	113.9

ASTM D-3080

*Residual results were determined from the lowest re-shear values obtained after 5 re-shears

DIRECT SHEAR TEST RESULTS



Sample	Symbol	Description	Soil Type [USCS]	Shear Strength	Friction Angle, ϕ [degrees]	Cohesion, c [psf]
B-4 @ 5'	—○—	Silty Sand	SM	Peak	35.3	149
B-4 @ 5'	— ● —	Silty Sand	SM	Ultimate	33.0	159
B-4 @ 5'	- - △ - -	Silty Sand	SM	*Residual	N/A	N/A

Sample Moisture [%]	Saturated Moisture [%]	Dry Unit Weight [pcf]
22.0	31.9	86.1

ASTM D-3080

*Residual results were determined from the lowest re-shear values obtained after 5 re-shears

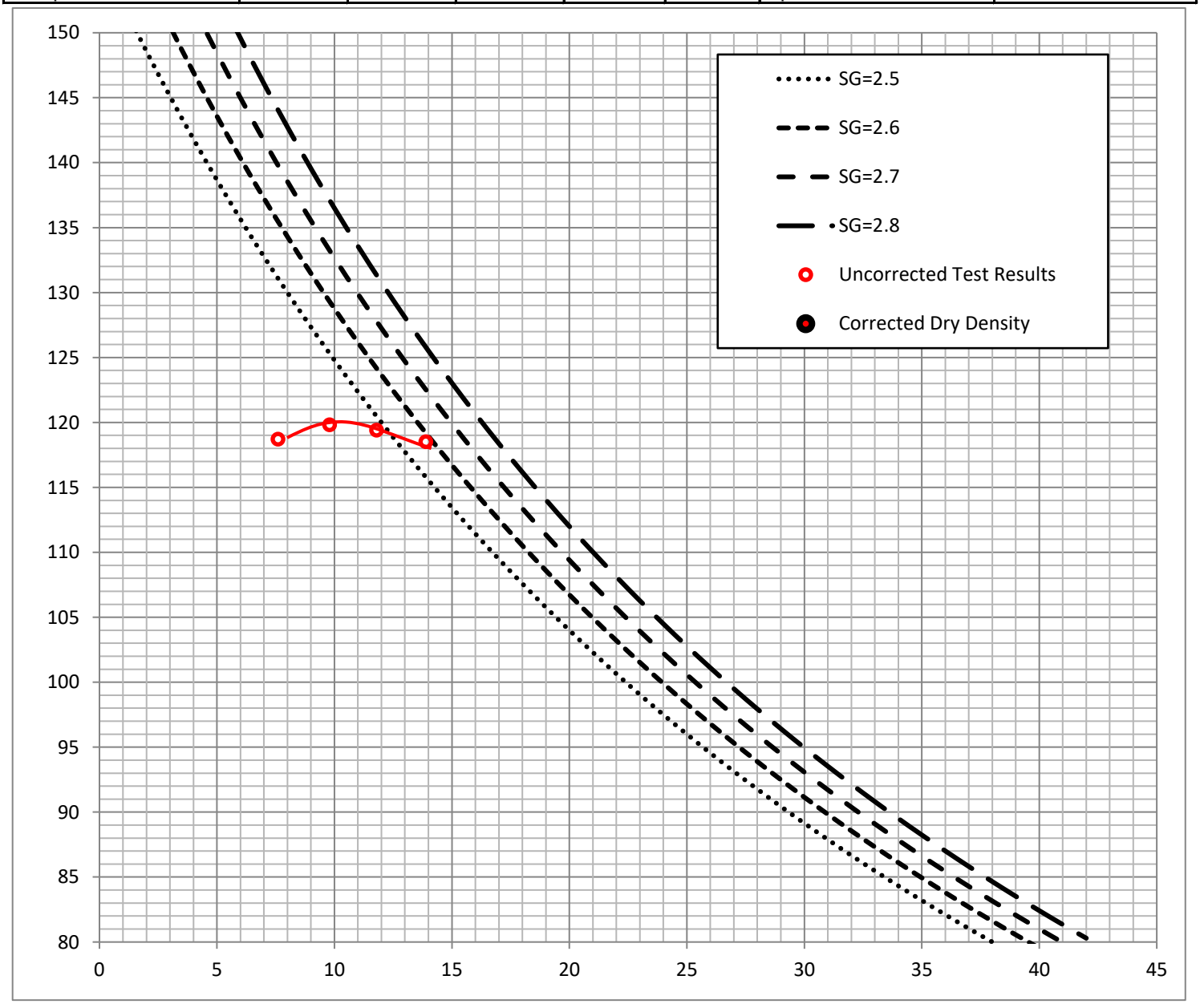
MAXIMUM DRY DENSITY - OPTIMUM MOISTURE

Project Name	791 South Waterman Ave, San Bernardino	**Test Date**	3/25/2020
Project No.	20054-01	**Date Sampled**	3/19/2020
Project Location	791 South Waterman Ave, San Bernardino	**Sampled By**	AM
Location In Structure	B1 @ 0-3'	**Sample Type**	Bulk
Sample Location	Bulk	**Tested By**	AM

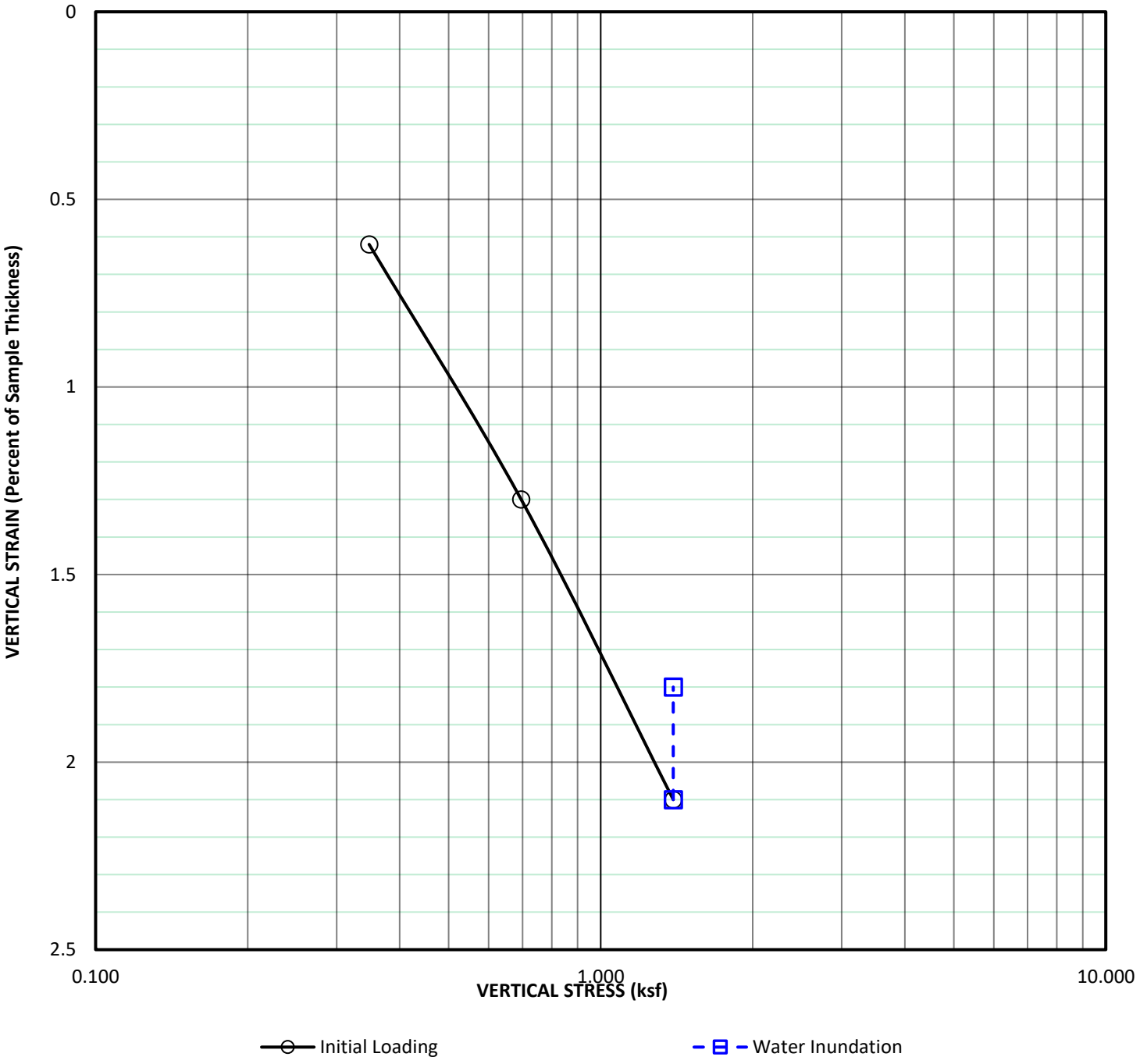
Sample No.	B1	**Mold Size**	4-inch
Sample Depth	0-3'	**No. of Layers**	5
Soil Type	SM	**Blows per Layer**	25
Test Fraction	No.4	**Hammer Wt./Drop**	10-lb/18-inch

Total Sample Weight	g	**Bulk Spec. Grav. of Oversized**	2.650
Weight of Oversized	g	**Percentage of Dry Fines**	%
Weight of Fines	0 g	**Percentage of Dry Oversized**	<5% %
Moisture Content of Oversized	%	**Corrected Dry Density of Soil**	pcf
Moisture Content of Fines	%	**Corrected Optimum Moisture**	%

Test Data	Point 1	Point 2	Point 3	Point 4	Point 5	**Test Results (No Oversized Correction)**	
Compacted Dry Density	118.7	119.8	119.4	118.5		Maximum Dry Density	120.0 pcf
Compacted Moisture	7.6	9.8	11.8	13.9		Optimum Moisture	10.5 %

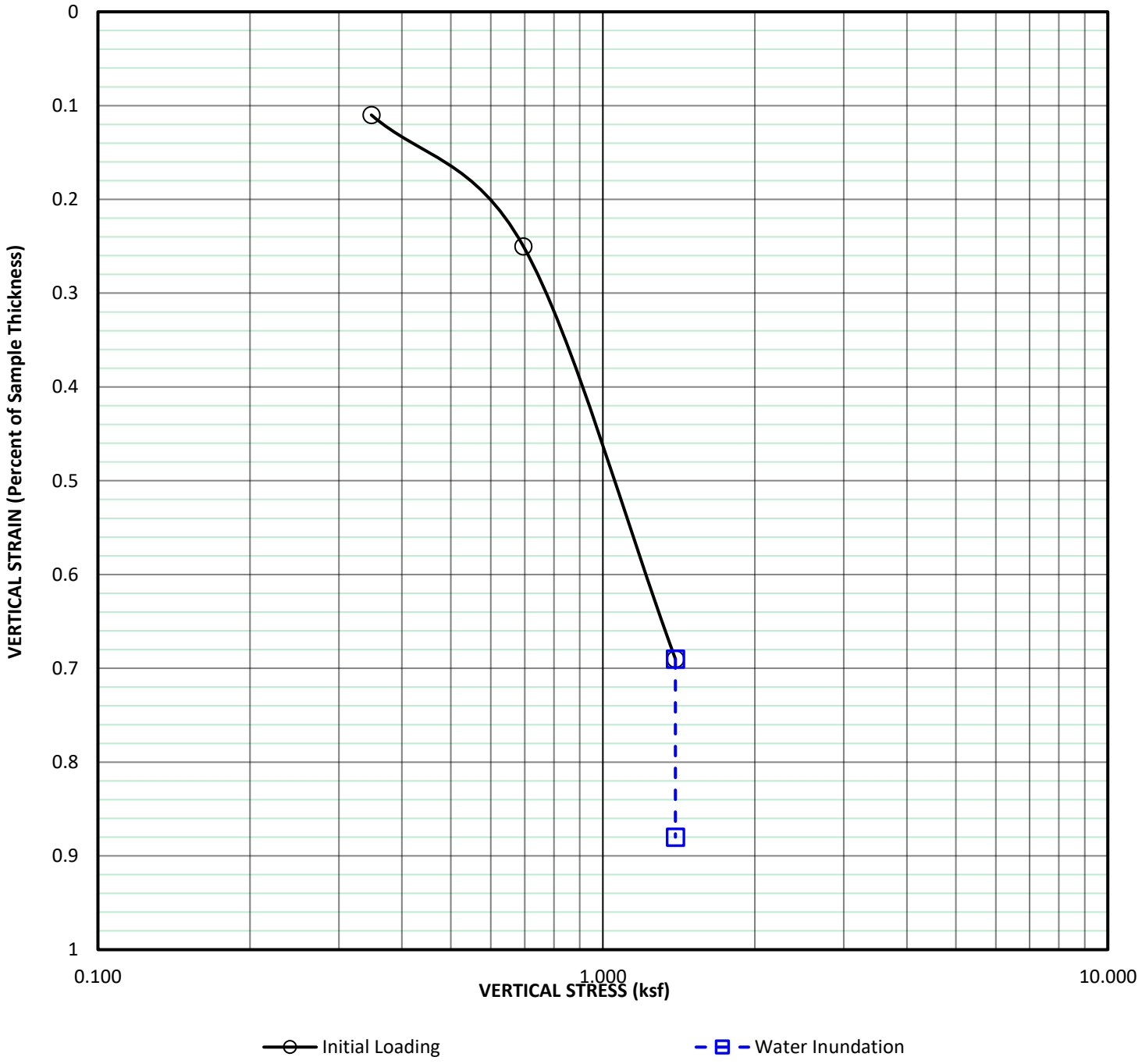


COLLAPSE TEST REPORT



Sampler Type:	California Ring Sampler			Condition:	Before Test			After Test			
Diameter(in):	2.41	Height(in):	1.0	Water Content:	w_0	22.0	%	w_f	22.4	%	
Overburden Pressure, P_0	0.6	tsf		Void Ratio:	e_0	0.521		e_f	0.493		
Preconsol. Pressure, P_c	N/A	ksf		Saturation:	S_0	109.8	%	S_f	117.9	%	
LL: --	PL: --	PI: --		Dry Density:	γ_d	106.6	pcf	γ_d	108.7	pcf	
% Collapse:	-0.30 %	"No Collapse"		Specific Gravity, G_S	2.6	(Assumed)					
Sample Location:	B3 @ 10'			Hydro-Collapse Test							
Soil Classification:	Sandy Lean Clay										

COLLAPSE TEST REPORT



Sampler Type:	California Ring Sampler			Condition:	Before Test			After Test		
Diameter(in):	2.41	Height(in):	1.0	Water Content:	w_0	10.4	%	w_f	25.9	%
Overburden Pressure, P_0	0.6	tsf		Void Ratio:	e_0	0.803		e_f	0.787	
Preconsol. Pressure, P_c	N/A	ksf		Saturation:	S_0	33.6	%	S_f	85.5	%
LL: --	PL: --	PI: --		Dry Density:	γ_d	89.9	pcf	γ_d	90.8	pcf
% Collapse:	0.19 %	"No Problem"		Specific Gravity, G_S		2.6		(Assumed)		
Sample Location:	B4 @ 10'			Hydro-Collapse Test						
Soil Classification:	Silty Sand									

SOIL RESISTIVITY TEST

Project Name:	791 South Waterman Ave, San Bernardino	Sample Collected:	3/19/2020
Project No.:	20054-01	Collected By:	AM
Sample ID:	B1 @ 0-3'	Sample Tested:	3/25/2020
Soil Classification*:	Silty Sand/Clayey Sand (SM/SC)	Tested by:	AM

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 Standard Sieve before resistivity testing. Therefore, this method may not be representative for coarser materials.

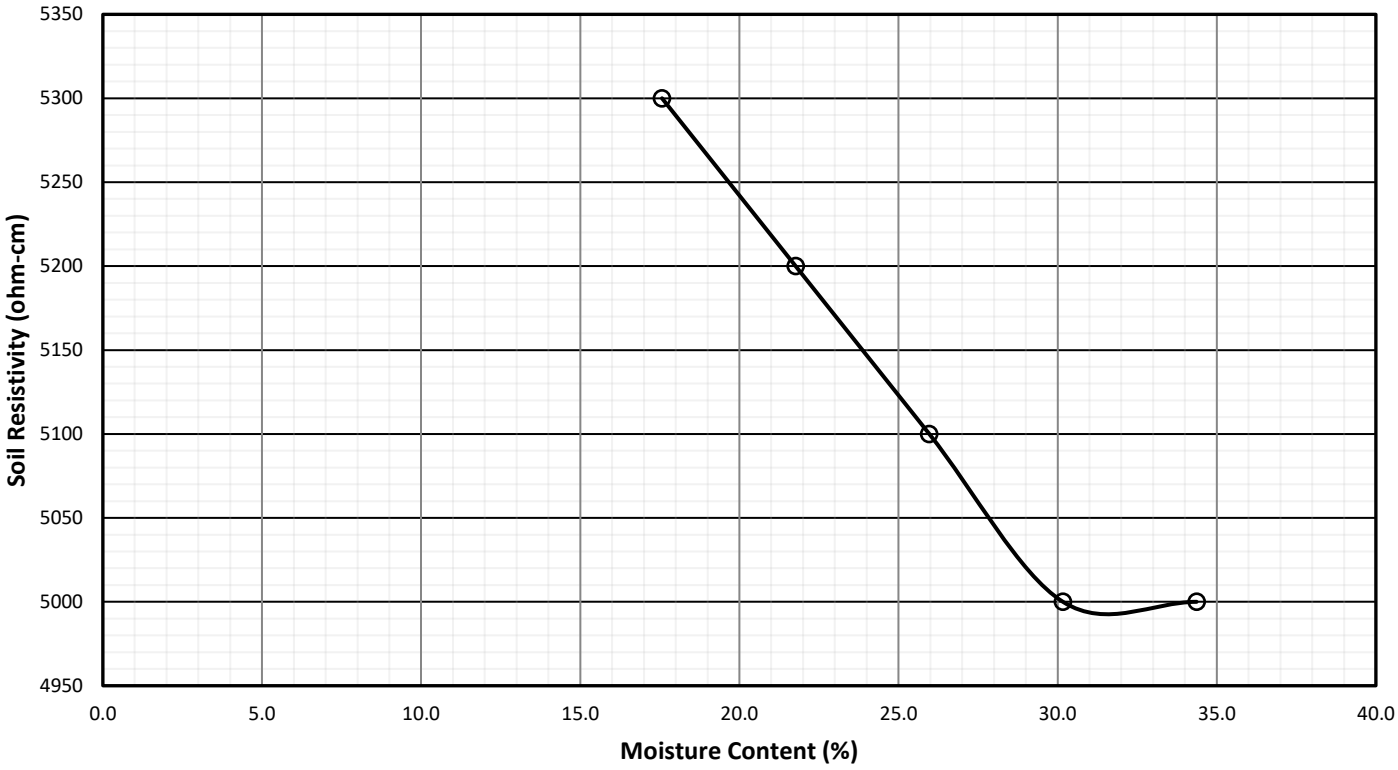
Specimen No.	Water Added (ml), [Wa]	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	10	17.6	5300	5300
2	15	21.8	5200	5200
3	20	26.0	5100	5100
4	25	30.2	5000	5000
5	30	34.4	5000	5000

Moisture Content, [Mci]	9.2	%
Wet Weight of Soil + Cont.	110.7	g
Dry Weight of Soil + Cont.	101.4	g
Weight of Container	0.0	g
Container No.	--	
Initial Soil Weight, [Wt]	130.0	g
Box Constant	1.0	

MC = (((1+Mci/100)x(Wa/Wt+1))-1)x100

TEST RESULTS	
Min. Resistivity (ohm-cm)	Moisture Content (%)
4990	**31.5**
Moderately Corrosive	

Soil Corrosivness	Resistivity (ohm-cm)
Very Severely Corrosive	0 - 900
Severely Corrosive	900 - 2,300
Moderately Corrosive	2,300 - 5,000
Mildly Corrosive	5,000 - 10,000
Very Mildly Corrosive	10,000 - 100,000
Reference: ASTM STP 1013 Titled "Effects of Soil Characteristics on Corrosion" (February, 1989).	



GeoMat Testing Laboratories, Inc.

Soil Engineering, Environmental Engineering, Materials Testing, Geology

SOLUBLE SULFATE AND CHLORIDE TEST RESULTS

Project Name	791 South Waterman Avenue, San Bernardino, CA	**Test Date**	03/25/2020
Project No.	20054-01	**Date Sampled**	03/19/2020
Project Location	791 South Waterman Avenue, San Bernardino, CA	**Sampled By**	AM
Location in Structure	B-1 @ 0-3'	**Sample Type**	Bulk
Sampled Classification	SM	**Tested By**	AM

TESTING INFORMATION

Sample weight before drying	250.6 g
Sample weight after drying	225.5 g
Sample Weight Passing No. 10 Sieve	100.0 g
Moisture	11.1 %

Location	Mixing Ratio	Dilution Factor	Sulfate Reading (ppm)	Sulfate Content (ppm)	Sulfate Content (%)
B-1	3	1	<50	<150	<0.015
			Average		

Chloride Reading (ppm)	Chloride Content (ppm)	Chloride Content (%)
5	15	0.0015
Average		

pH	
6.92	
Average	

ACI 318-14 Table 19.3.2.1 - Requirements for Concrete by Exposure Class

Exposure Class	Water-Soluble Sulfate (%)	Maximum *w/cm*	Minimum *f'c* (psi)	Cementitous Material (Types)			Calcium Chloride Admixture
				ASTM C150-	ASTM C595	ASTM C1157	
S0	<0.10	N/A	2500	No Type Restriction	No Type Restriction	No Type Restriction	No Restriction
S1	0.10 to 0.20	0.50	4000	II	Type IP, IS, or IT with (MS) Designation	MS	No Restriction
S2	0.20 to 2.00	0.45	4500	V	Type IP, IS, or IT with (HS) Designation	HS	Not Permitted
S3	>2.00	0.45	4500	V + Pozzolan or Slag Cement	Type IP, IS, or IT with (HS) Designation + Pozzolan or Slag Cement	HS + Pozzolan or Slag Cement	Not Permitted

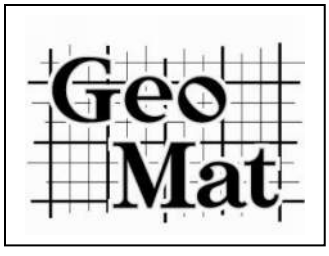
Exposure Class	Maximum *w/cm*	Minimum *f'c* (psi)	Maximum Water-Soluble Chloride ion (Cl^-) Content in Concrete, Percent by Wight of Cement		Additional Provisions
			Non-Prestressed Concrete	Prestressed Concrete	
C0	N/A	2500	1.00	0.06	None
C1	N/A	2500	0.30	0.06	None
C2	0.40	5000	.015	0.06	Concrete Cover

Caltrans classifies a site as corrosive to structural concrete as an area where soil and/or water contains >500pp chloride, >2000ppm sulfate, or has a pH <5.5. A minimum resistivity of less than 1000 ohm-cm indicates the potential for corrosive environment requiring testing for the above criteria.

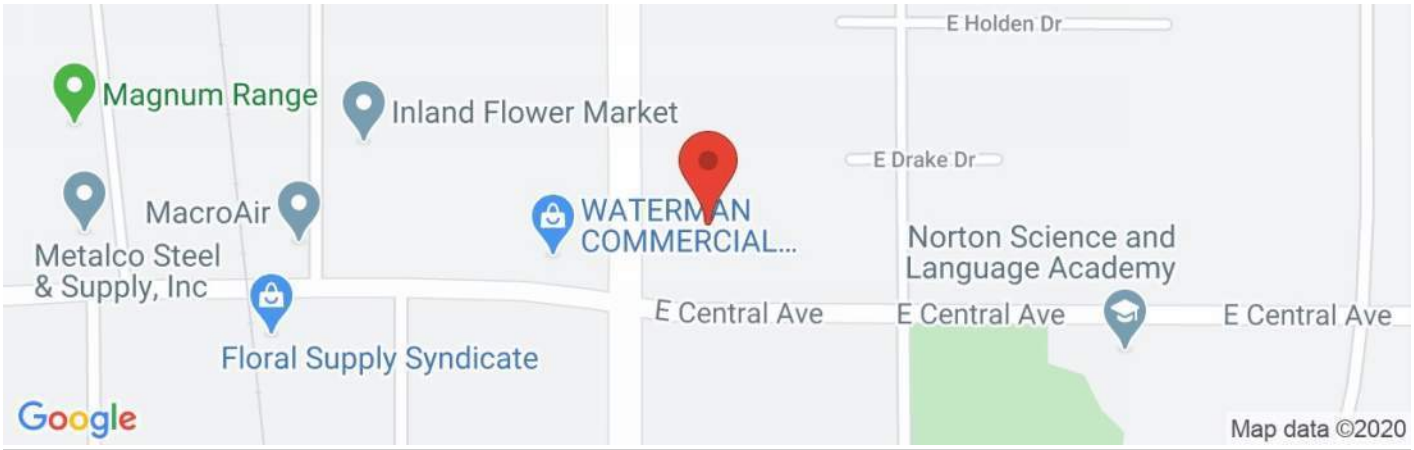
The information in this form is not intended for corrosion engineering design. If corrosion is critical, a corrosion specialist should be contacted to provide further recommendations.

9980 Indiana Avenue ● Suite 14 ● Riverside ● California ● 92503 ● Phone (951) 688-5400 ● Fax (951) 688-5200
www.geomatlabs.com, contact: e-mail: info@geomatlabs.com

APPENDIX D



Latitude, Longitude: 34.086637, -117.277905



Date	3/25/2020, 8:10:26 AM
Design Code Reference Document	ASCE7-16
Risk Category	II
Site Class	D - Default (See Section 11.4.3)

Type	Value	Description
S_S	2.255	MCE_R ground motion. (for 0.2 second period)
S_1	0.9	MCE_R ground motion. (for 1.0s period)
S_{MS}	2.706	Site-modified spectral acceleration value
S_{M1}	null -See Section 11.4.8	Site-modified spectral acceleration value
S_{DS}	1.804	Numeric seismic design value at 0.2 second SA
S_{D1}	null -See Section 11.4.8	Numeric seismic design value at 1.0 second SA

Type	Value	Description
SDC	null -See Section 11.4.8	Seismic design category
F_a	1.2	Site amplification factor at 0.2 second
F_v	null -See Section 11.4.8	Site amplification factor at 1.0 second
PGA	0.95	MCE_G peak ground acceleration
F_{PGA}	1.2	Site amplification factor at PGA
PGA_M	1.141	Site modified peak ground acceleration
T_L	8	Long-period transition period in seconds
SsRT	2.593	Probabilistic risk-targeted ground motion. (0.2 second)
SsUH	2.831	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration
SsD	2.255	Factored deterministic acceleration value. (0.2 second)
S1RT	1.041	Probabilistic risk-targeted ground motion. (1.0 second)
S1UH	1.17	Factored uniform-hazard (2% probability of exceedance in 50 years) spectral acceleration.
S1D	0.9	Factored deterministic acceleration value. (1.0 second)
PGAd	0.95	Factored deterministic acceleration value. (Peak Ground Acceleration)
C_{RS}	0.916	Mapped value of the risk coefficient at short periods
C_{R1}	0.89	Mapped value of the risk coefficient at a period of 1 s

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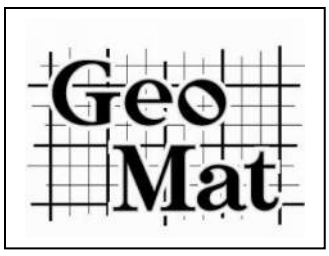
APPENDIX E

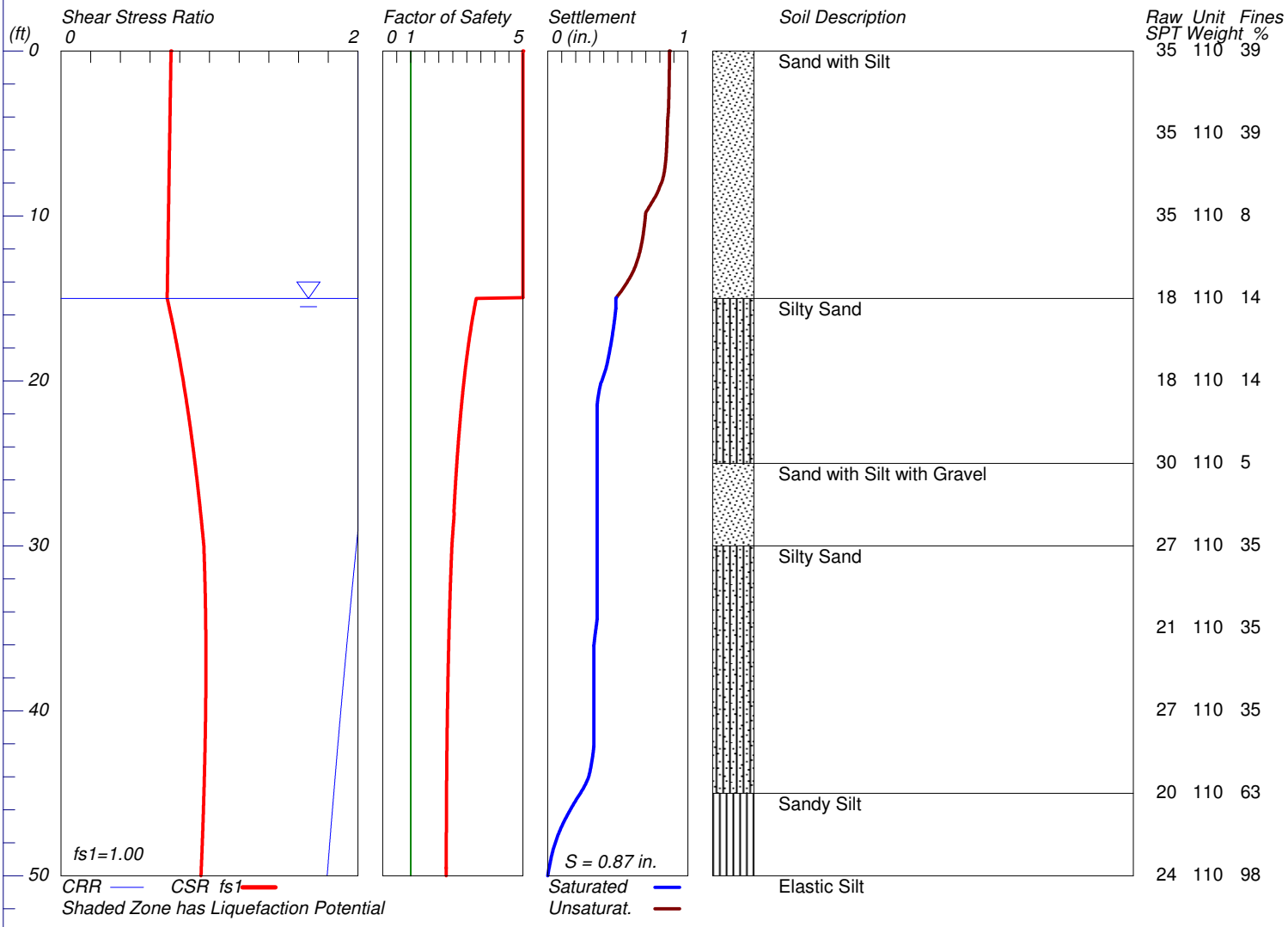


LIQUEFACTION ANALYSIS

791 S. Waterman Ave, San Bernardino

Hole No.=B-1 Water Depth=15 ft

Magnitude=7.0
Acceleration=1.14g



LIQUEFACTION ANALYSIS SUMMARY SHEET

Title: 791 S. Waterman Ave, San Bernardino
Subtitle: Project No. 20054-01

Input Data:
Surface Elev.=
Hole No.=B-2
Depth of Hole=50.0 ft
Water Table during Earthquake= 15.0 ft
Water Table during In-Situ Testing= 50.0 ft
Max. Acceleration=1.14 g
Earthquake Magnitude=7.0

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu / Seed
3. Fines Correction for Liquefaction: Stark/Olson et al.*
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1.35
7. Borehole Diameter, Cb= 1.15
8. Sampling Method, Cs= 1.2
9. User request factor of safety (apply to CSR), User= 1
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: Yes*

* Recommended Options

In-Situ Test Data:

Depth ft	SPT	gamma pcf	Fines %
0.0	35.0	110.0	39.0
5.0	35.0	110.0	39.0
10.0	35.0	110.0	8.0
15.0	18.0	110.0	14.0
20.0	18.0	110.0	14.0
25.0	30.0	110.0	5.0
30.0	27.0	110.0	35.0
35.0	21.0	110.0	35.0
40.0	27.0	110.0	35.0
45.0	20.0	110.0	63.0
50.0	24.0	110.0	98.0

Output Results:
Settlement of Saturated Sands=0.49 in.
Settlement of Unsaturated Sands=0.38 in.
Total Settlement of Saturated and Unsaturated Sands=0.87 in.
Differential Settlement=0.434 to 0.573 in.

Depth ft	CRRv	CSRm	F.S.	S_sat. in.	S_dry in.	S_all in.
0.00	2.00	0.74	5.00	0.49	0.38	0.87
1.00	2.00	0.74	5.00	0.49	0.38	0.87
2.00	2.00	0.74	5.00	0.49	0.38	0.87
3.00	2.00	0.74	5.00	0.49	0.38	0.86
4.00	2.00	0.73	5.00	0.49	0.37	0.86
5.00	2.00	0.73	5.00	0.49	0.37	0.85
6.00	2.00	0.73	5.00	0.49	0.36	0.85
7.00	2.00	0.73	5.00	0.49	0.35	0.84
8.00	2.00	0.73	5.00	0.49	0.32	0.81
9.00	2.00	0.73	5.00	0.49	0.27	0.76
10.00	2.00	0.72	5.00	0.49	0.21	0.70
11.00	2.00	0.72	5.00	0.49	0.20	0.68
12.00	2.00	0.72	5.00	0.49	0.18	0.66
13.00	2.00	0.72	5.00	0.49	0.14	0.63
14.00	2.00	0.72	5.00	0.49	0.08	0.57
15.00	2.00	0.72	3.34	0.49	0.00	0.49
16.00	2.00	0.74	3.23	0.48	0.00	0.48
17.00	2.00	0.76	3.13	0.47	0.00	0.47
18.00	2.00	0.78	3.04	0.45	0.00	0.45
19.00	2.00	0.80	2.97	0.42	0.00	0.42
20.00	2.00	0.82	2.90	0.39	0.00	0.39
21.00	2.00	0.84	2.84	0.36	0.00	0.36
22.00	2.00	0.86	2.78	0.35	0.00	0.35
23.00	2.00	0.87	2.73	0.35	0.00	0.35
24.00	2.00	0.89	2.68	0.35	0.00	0.35
25.00	2.00	0.90	2.64	0.35	0.00	0.35
26.00	2.00	0.92	2.60	0.35	0.00	0.35
27.00	2.00	0.93	2.57	0.35	0.00	0.35
28.00	2.01	0.94	2.55	0.35	0.00	0.35
29.00	2.00	0.95	2.51	0.35	0.00	0.35
30.00	1.99	0.96	2.47	0.35	0.00	0.35
31.00	1.98	0.97	2.44	0.35	0.00	0.35
32.00	1.97	0.97	2.42	0.35	0.00	0.35
33.00	1.96	0.97	2.40	0.35	0.00	0.35
34.00	1.95	0.97	2.38	0.35	0.00	0.35
35.00	1.94	0.97	2.37	0.34	0.00	0.34
36.00	1.92	0.98	2.35	0.33	0.00	0.33
37.00	1.91	0.98	2.34	0.33	0.00	0.33
38.00	1.90	0.98	2.33	0.33	0.00	0.33
39.00	1.89	0.98	2.32	0.33	0.00	0.33
40.00	1.88	0.97	2.31	0.33	0.00	0.33
41.00	1.87	0.97	2.30	0.33	0.00	0.33
42.00	1.87	0.97	2.29	0.33	0.00	0.33
43.00	1.86	0.97	2.29	0.32	0.00	0.32
44.00	1.85	0.97	2.28	0.29	0.00	0.29
45.00	1.84	0.96	2.28	0.23	0.00	0.23
46.00	1.83	0.96	2.27	0.16	0.00	0.16
47.00	1.82	0.96	2.27	0.10	0.00	0.10
48.00	1.81	0.95	2.27	0.05	0.00	0.05
49.00	1.80	0.95	2.27	0.02	0.00	0.02
50.00	1.79	0.94	2.27	0.00	0.00	0.00

* F.S.<1, Liquefaction Potential Zone
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

Units Depth = ft, Stress or Pressure = tsf (atm), Unit Weight = pcf, Settlement = in.

CRRv	Cyclic resistance ratio from soils
CSRm	Cyclic stress ratio induced by a given earthquake (with user request factor of safety)
F.S.	Factor of Safety against liquefaction, F.S.=CRRv/CSRm
S_sat	Settlement from saturated sands
S_dry	Settlement from Unsaturated Sands
S_all	Total Settlement from Saturated and Unsaturated Sands
NoLiq	No-Liquefy Soils

LIQUEFACTION ANALYSIS CALCULATION SHEET

Title: 791 S. Waterman Ave, San Bernardino
Subtitle: Project No. 20054-01

Input Data:
Surface Elev.=
Hole No.=B-2
Depth of Hole=50.0 ft
Water Table during Earthquake= 15.0 ft
Water Table during In-Situ Testing= 50.0 ft
Max. Acceleration=1.14 g
Earthquake Magnitude=7.0

1. SPT or BPT Calculation.
2. Settlement Analysis Method: Tokimatsu / Seed
3. Fines Correction for Liquefaction: Stark/Olson et al.*
4. Fine Correction for Settlement: During Liquefaction*
5. Settlement Calculation in: All zones*
6. Hammer Energy Ratio, Ce = 1.35
7. Borehole Diameter, Cb= 1.15
8. Sampling Method, Cs= 1.2
9. User request factor of safety (apply to CSR), User= 1
   Plot one CSR curve (fs1=User)
10. Use Curve Smoothing: Yes*

* Recommended Options

In-Situ Test Data:

Depth ft	SPT	Gamma pcf	Fines %
0.0	35.0	110.0	39.0
5.0	35.0	110.0	39.0
10.0	35.0	110.0	8.0
15.0	18.0	110.0	14.0
20.0	18.0	110.0	14.0
25.0	30.0	110.0	5.0
30.0	27.0	110.0	35.0
35.0	21.0	110.0	35.0
40.0	27.0	110.0	35.0
45.0	20.0	110.0	63.0
50.0	24.0	110.0	98.0

Output Results:
Calculation segment, dz=0.050 ft
User defined Print Interval, dp=1.00 ft

CSR Calculation:

Depth ft	gamma pcf	sigma tsf	gamma' pcf	sigma' tsf	rd	CSR	fs1	CSRfs *fs1
0.00	110.0	0.000	110.0	0.000	1.00	0.74	1.0	0.74
1.00	110.0	0.055	110.0	0.055	1.00	0.74	1.0	0.74
2.00	110.0	0.110	110.0	0.110	1.00	0.74	1.0	0.74
3.00	110.0	0.165	110.0	0.165	0.99	0.74	1.0	0.74
4.00	110.0	0.220	110.0	0.220	0.99	0.73	1.0	0.73
5.00	110.0	0.275	110.0	0.275	0.99	0.73	1.0	0.73
6.00	110.0	0.330	110.0	0.330	0.99	0.73	1.0	0.73
7.00	110.0	0.385	110.0	0.385	0.98	0.73	1.0	0.73
8.00	110.0	0.440	110.0	0.440	0.98	0.73	1.0	0.73
9.00	110.0	0.495	110.0	0.495	0.98	0.73	1.0	0.73
10.00	110.0	0.550	110.0	0.550	0.98	0.72	1.0	0.72
11.00	110.0	0.605	110.0	0.605	0.97	0.72	1.0	0.72
12.00	110.0	0.660	110.0	0.660	0.97	0.72	1.0	0.72
13.00	110.0	0.715	110.0	0.715	0.97	0.72	1.0	0.72
14.00	110.0	0.770	110.0	0.770	0.97	0.72	1.0	0.72
15.00	110.0	0.825	47.6	0.825	0.97	0.72	1.0	0.72
16.00	110.0	0.880	47.6	0.849	0.96	0.74	1.0	0.74
17.00	110.0	0.935	47.6	0.873	0.96	0.76	1.0	0.76
18.00	110.0	0.990	47.6	0.896	0.96	0.78	1.0	0.78
19.00	110.0	1.045	47.6	0.920	0.96	0.80	1.0	0.80
20.00	110.0	1.100	47.6	0.944	0.95	0.82	1.0	0.82
21.00	110.0	1.155	47.6	0.968	0.95	0.84	1.0	0.84
22.00	110.0	1.210	47.6	0.992	0.95	0.86	1.0	0.86
23.00	110.0	1.265	47.6	1.015	0.95	0.87	1.0	0.87
24.00	110.0	1.320	47.6	1.039	0.94	0.89	1.0	0.89
25.00	110.0	1.375	47.6	1.063	0.94	0.90	1.0	0.90
26.00	110.0	1.430	47.6	1.087	0.94	0.92	1.0	0.92
27.00	110.0	1.485	47.6	1.111	0.94	0.93	1.0	0.93
28.00	110.0	1.540	47.6	1.134	0.93	0.94	1.0	0.94
29.00	110.0	1.595	47.6	1.158	0.93	0.95	1.0	0.95
30.00	110.0	1.650	47.6	1.182	0.93	0.96	1.0	0.96
31.00	110.0	1.705	47.6	1.206	0.92	0.97	1.0	0.97
32.00	110.0	1.760	47.6	1.230	0.91	0.97	1.0	0.97
33.00	110.0	1.815	47.6	1.253	0.91	0.97	1.0	0.97
34.00	110.0	1.870	47.6	1.277	0.90	0.97	1.0	0.97
35.00	110.0	1.925	47.6	1.301	0.89	0.97	1.0	0.97
36.00	110.0	1.980	47.6	1.325	0.88	0.98	1.0	0.98
37.00	110.0	2.035	47.6	1.349	0.87	0.98	1.0	0.98
38.00	110.0	2.090	47.6	1.372	0.86	0.98	1.0	0.98
39.00	110.0	2.145	47.6	1.396	0.86	0.98	1.0	0.98
40.00	110.0	2.200	47.6	1.420	0.85	0.97	1.0	0.97
41.00	110.0	2.255	47.6	1.444	0.84	0.97	1.0	0.97
42.00	110.0	2.310	47.6	1.468	0.83	0.97	1.0	0.97
43.00	110.0	2.365	47.6	1.491	0.82	0.97	1.0	0.97
44.00	110.0	2.420	47.6	1.515	0.82	0.97	1.0	0.97
45.00	110.0	2.475	47.6	1.539	0.81	0.96	1.0	0.96
46.00	110.0	2.530	47.6	1.563	0.80	0.96	1.0	0.96
47.00	110.0	2.585	47.6	1.587	0.79	0.96	1.0	0.96
48.00	110.0	2.640	47.6	1.610	0.78	0.95	1.0	0.95
49.00	110.0	2.695	47.6	1.634	0.78	0.95	1.0	0.95
50.00	110.0	2.750	47.6	1.658	0.77	0.94	1.0	0.94

CSR is based on water table at 15.0 during earthquake

CRR Calculation from SPT or BPT data:

Depth ft	SPT	Cebs	Cr	sigma' tsf	Cn	(N1)60	Fines %	d(N1)60	(N1)60f	CRR7.5
0.00	35.00	1.86	0.75	0.000	1.70	83.14	39.00	7.20	90.34	2.00
1.00	35.00	1.86	0.75	0.055	1.70	83.14	39.00	7.20	90.34	2.00
2.00	35.00	1.86	0.75	0.110	1.70	83.14	39.00	7.20	90.34	2.00
3.00	35.00	1.86	0.75	0.165	1.70	83.14	39.00	7.20	90.34	2.00
4.00	35.00	1.86	0.75	0.220	1.70	83.14	39.00	7.20	90.34	2.00
5.00	35.00	1.86	0.75	0.275	1.70	83.14	39.00	7.20	90.34	2.00
6.00	35.00	1.86	0.75	0.330	1.70	83.14	32.80	6.67	89.81	2.00
7.00	35.00	1.86	0.75	0.385	1.61	78.81	26.60	5.18	84.00	2.00
8.00	35.00	1.86	0.75	0.440	1.51	73.72	20.40	3.70	77.42	2.00
9.00	35.00	1.86	0.85	0.495	1.42	78.78	14.20	2.21	80.98	2.00
10.00	35.00	1.86	0.85	0.550	1.35	74.73	8.00	0.72	75.45	2.00
11.00	31.60	1.86	0.85	0.605	1.29	64.33	9.20	1.01	65.34	2.00
12.00	28.20	1.86	0.85	0.660	1.23	54.97	10.40	1.30	56.26	2.00
13.00	24.80	1.86	0.85	0.715	1.18	46.44	11.60	1.58	48.03	2.00
14.00	21.40	1.86	0.85	0.770	1.14	38.62	12.80	1.87	40.49	2.00
15.00	18.00	1.86	0.95	0.825	1.10	35.07	14.00	2.16	37.23	2.00
16.00	18.00	1.86	0.95	0.880	1.07	33.96	14.00	2.16	36.12	2.00
17.00	18.00	1.86	0.95	0.935	1.03	32.95	14.00	2.16	35.11	2.00
18.00	18.00	1.86	0.95	0.990	1.01	32.02	14.00	2.16	34.18	2.00
19.00	18.00	1.86	0.95	1.045	0.98	31.16	14.00	2.16	33.32	2.00
20.00	18.00	1.86	0.95	1.100	0.95	30.37	14.00	2.16	32.53	2.00
21.00	20.40	1.86	0.95	1.155	0.93	33.59	12.20	1.73	35.32	2.00
22.00	22.80	1.86	0.95	1.210	0.91	36.68	10.40	1.30	37.98	2.00
23.00	25.20	1.86	0.95	1.265	0.89	39.65	8.60	0.86	40.52	2.00
24.00	27.60	1.86	0.95	1.320	0.87	42.52	6.80	0.43	42.95	2.00
25.00	30.00	1.86	0.95	1.375	0.85	45.28	5.00	0.00	45.28	2.00
26.00	29.40	1.86	0.95	1.430	0.84	43.51	11.00	1.44	44.95	2.00
27.00	28.80	1.86	0.95	1.485	0.82	41.83	17.00	2.88	44.71	2.00
28.00	28.20	1.86	1.00	1.540	0.81	42.34	23.00	4.32	46.65	2.00
29.00	27.60	1.86	1.00	1.595	0.79	40.71	29.00	5.76	46.47	2.00
30.00	27.00	1.86	1.00	1.650	0.78	39.16	35.00	7.20	46.36	2.00
31.00	25.80	1.86	1.00	1.705	0.77	36.81	35.00	7.20	44.01	2.00
32.00	24.60	1.86	1.00	1.760	0.75	34.55	35.00	7.20	41.75	2.00
33.00	23.40	1.86	1.00	1.815	0.74	32.36	35.00	7.20	39.56	2.00
34.00	22.20	1.86	1.00	1.870	0.73	30.24	35.00	7.20	37.44	2.00
35.00	21.00	1.86	1.00	1.925	0.72	28.20	35.00	7.20	35.40	2.00
36.00	22.20	1.86	1.00	1.980	0.71	29.39	35.00	7.20	36.59	2.00
37.00	23.40	1.86	1.00	2.035	0.70	30.56	35.00	7.20	37.76	2.00
38.00	24.60	1.86	1.00	2.090	0.69	31.70	35.00	7.20	38.90	2.00
39.00	25.80	1.86	1.00	2.145	0.68	32.82	35.00	7.20	40.02	2.00
40.00	27.00	1.86	1.00	2.200	0.67	33.91	35.00	7.20	41.11	2.00
41.00	25.60	1.86	1.00	2.255	0.67	31.76	40.60	7.20	38.96	2.00
42.00	24.20	1.86	1.00	2.310	0.66	29.66	46.20	7.20	36.86	2.00
43.00	22.80	1.86	1.00	2.365	0.65	27.62	51.80	7.20	34.82	2.00
44.00	21.40	1.86	1.00	2.420	0.64	25.63	57.40	7.20	32.83	2.00
45.00	20.00	1.86	1.00	2.475	0.64	23.68	63.00	7.20	30.88	2.00
46.00	20.80	1.86	1.00	2.530	0.63	24.36	70.00	7.20	31.56	2.00
47.00	21.60	1.86	1.00	2.585	0.62	25.03	77.00	7.20	32.23	2.00
48.00	22.40	1.86	1.00	2.640	0.62	25.68	84.00	7.20	32.88	2.00
49.00	23.20	1.86	1.00	2.695	0.61	26.33	91.00	7.20	33.53	2.00
50.00	24.00	1.86	1.00	2.750	0.60	26.96	98.00	7.20	34.16	2.00

CRR is based on water table at 50.0 during In-Situ Testing

Factor of Safety, - Earthquake Magnitude= 7.0:

Depth ft	sigC' tsf	CRR7.5 tsf	Ksigma	CRRv tsf	CSRfs tsf	MSF	CSRm tsf	F.S. CRRv/CSRm
0.00	0.00	2.00	1.00	2.00	0.74	1.19	0.62	5.00
1.00	0.04	2.00	1.00	2.00	0.74	1.19	0.62	5.00
2.00	0.07	2.00	1.00	2.00	0.74	1.19	0.62	5.00
3.00	0.11	2.00	1.00	2.00	0.74	1.19	0.62	5.00
4.00	0.14	2.00	1.00	2.00	0.73	1.19	0.62	5.00
5.00	0.18	2.00	1.00	2.00	0.73	1.19	0.61	5.00
6.00	0.21	2.00	1.00	2.00	0.73	1.19	0.61	5.00
7.00	0.25	2.00	1.00	2.00	0.73	1.19	0.61	5.00
8.00	0.29	2.00	1.00	2.00	0.73	1.19	0.61	5.00
9.00	0.32	2.00	1.00	2.00	0.73	1.19	0.61	5.00
10.00	0.36	2.00	1.00	2.00	0.72	1.19	0.61	5.00
11.00	0.39	2.00	1.00	2.00	0.72	1.19	0.61	5.00
12.00	0.43	2.00	1.00	2.00	0.72	1.19	0.60	5.00
13.00	0.46	2.00	1.00	2.00	0.72	1.19	0.60	5.00
14.00	0.50	2.00	1.00	2.00	0.72	1.19	0.60	5.00
15.00	0.54	2.00	1.00	2.00	0.72	1.19	0.60	3.34
16.00	0.57	2.00	1.00	2.00	0.74	1.19	0.62	3.23
17.00	0.61	2.00	1.00	2.00	0.76	1.19	0.64	3.13
18.00	0.64	2.00	1.00	2.00	0.78	1.19	0.66	3.04
19.00	0.68	2.00	1.00	2.00	0.80	1.19	0.67	2.97
20.00	0.72	2.00	1.00	2.00	0.82	1.19	0.69	2.90
21.00	0.75	2.00	1.00	2.00	0.84	1.19	0.71	2.84
22.00	0.79	2.00	1.00	2.00	0.86	1.19	0.72	2.78
23.00	0.82	2.00	1.00	2.00	0.87	1.19	0.73	2.73
24.00	0.86	2.00	1.00	2.00	0.89	1.19	0.74	2.68
25.00	0.89	2.00	1.00	2.00	0.90	1.19	0.76	2.64
26.00	0.93	2.00	1.00	2.00	0.92	1.19	0.77	2.60
27.00	0.97	2.00	1.00	2.00	0.93	1.19	0.78	2.57
28.00	1.00	2.00	1.01	2.01	0.94	1.19	0.79	2.55
29.00	1.04	2.00	1.00	2.00	0.95	1.19	0.80	2.51
30.00	1.07	2.00	0.99	1.99	0.96	1.19	0.81	2.47
31.00	1.11	2.00	0.99	1.98	0.97	1.19	0.81	2.44
32.00	1.14	2.00	0.98	1.97	0.97	1.19	0.81	2.42
33.00	1.18	2.00	0.98	1.96	0.97	1.19	0.81	2.40
34.00	1.22	2.00	0.97	1.95	0.97	1.19	0.82	2.38
35.00	1.25	2.00	0.97	1.94	0.97	1.19	0.82	2.37
36.00	1.29	2.00	0.96	1.92	0.98	1.19	0.82	2.35
37.00	1.32	2.00	0.96	1.91	0.98	1.19	0.82	2.34
38.00	1.36	2.00	0.95	1.90	0.98	1.19	0.82	2.33
39.00	1.39	2.00	0.95	1.89	0.98	1.19	0.82	2.32
40.00	1.43	2.00	0.94	1.88	0.97	1.19	0.82	2.31
41.00	1.47	2.00	0.94	1.87	0.97	1.19	0.82	2.30
42.00	1.50	2.00	0.93	1.87	0.97	1.19	0.81	2.29
43.00	1.54	2.00	0.93	1.86	0.97	1.19	0.81	2.29
44.00	1.57	2.00	0.92	1.85	0.97	1.19	0.81	2.28
45.00	1.61	2.00	0.92	1.84	0.96	1.19	0.81	2.28
46.00	1.64	2.00	0.91	1.83	0.96	1.19	0.80	2.27
47.00	1.68	2.00	0.91	1.82	0.96	1.19	0.80	2.27
48.00	1.72	2.00	0.91	1.81	0.95	1.19	0.80	2.27
49.00	1.75	2.00	0.90	1.80	0.95	1.19	0.79	2.27
50.00	1.79	2.00	0.90	1.79	0.94	1.19	0.79	2.27

* F.S.<1: Liquefaction Potential Zone. (If above water table: F.S.=5)
^ No-liquefiable Soils.
(F.S. is limited to 5, CRR is limited to 2, CSR is limited to 2)

CPT convert to SPT for Settlement Analysis:
Fines Correction for Settlement Analysis:

Depth ft	Ic	qc/N60	qc1 tsf	(N1)60	Fines %	d(N1)60	(N1)60s
0.00	-	-	-	90.34	39.0	0.00	90.34
1.00	-	-	-	90.34	39.0	0.00	90.34
2.00	-	-	-	90.34	39.0	0.00	90.34
3.00	-	-	-	90.34	39.0	0.00	90.34
4.00	-	-	-	90.34	39.0	0.00	90.34
5.00	-	-	-	90.34	39.0	0.00	90.34
6.00	-	-	-	89.81	32.8	0.00	89.81
7.00	-	-	-	84.00	26.6	0.00	84.00
8.00	-	-	-	77.42	20.4	0.00	77.42
9.00	-	-	-	80.98	14.2	0.00	80.98
10.00	-	-	-	75.45	8.0	0.00	75.45
11.00	-	-	-	65.34	9.2	0.00	65.34
12.00	-	-	-	56.26	10.4	0.00	56.26
13.00	-	-	-	48.03	11.6	0.00	48.03
14.00	-	-	-	40.49	12.8	0.00	40.49
15.00	-	-	-	37.23	14.0	0.00	37.23
16.00	-	-	-	36.12	14.0	0.00	36.12
17.00	-	-	-	35.11	14.0	0.00	35.11
18.00	-	-	-	34.18	14.0	0.00	34.18
19.00	-	-	-	33.32	14.0	0.00	33.32
20.00	-	-	-	32.53	14.0	0.00	32.53
21.00	-	-	-	35.32	12.2	0.00	35.32
22.00	-	-	-	37.98	10.4	0.00	37.98
23.00	-	-	-	40.52	8.6	0.00	40.52
24.00	-	-	-	42.95	6.8	0.00	42.95
25.00	-	-	-	45.28	5.0	0.00	45.28
26.00	-	-	-	44.95	11.0	0.00	44.95
27.00	-	-	-	44.71	17.0	0.00	44.71
28.00	-	-	-	46.65	23.0	0.00	46.65
29.00	-	-	-	46.47	29.0	0.00	46.47
30.00	-	-	-	46.36	35.0	0.00	46.36
31.00	-	-	-	44.01	35.0	0.00	44.01
32.00	-	-	-	41.75	35.0	0.00	41.75
33.00	-	-	-	39.56	35.0	0.00	39.56
34.00	-	-	-	37.44	35.0	0.00	37.44
35.00	-	-	-	35.40	35.0	0.00	35.40
36.00	-	-	-	36.59	35.0	0.00	36.59
37.00	-	-	-	37.76	35.0	0.00	37.76
38.00	-	-	-	38.90	35.0	0.00	38.90
39.00	-	-	-	40.02	35.0	0.00	40.02
40.00	-	-	-	41.11	35.0	0.00	41.11
41.00	-	-	-	38.96	40.6	0.00	38.96
42.00	-	-	-	36.86	46.2	0.00	36.86
43.00	-	-	-	34.82	51.8	0.00	34.82
44.00	-	-	-	32.83	57.4	0.00	32.83
45.00	-	-	-	30.88	63.0	0.00	30.88
46.00	-	-	-	31.56	70.0	0.00	31.56
47.00	-	-	-	32.23	77.0	0.00	32.23
48.00	-	-	-	32.88	84.0	0.00	32.88
49.00	-	-	-	33.53	91.0	0.00	33.53
50.00	-	-	-	34.16	98.0	0.00	34.16

(N1)60s has been fines corrected in liquefaction analysis, therefore d(N1)60=0.
Fines=NoLiq means the soils are not liquefiable.

Settlement of Saturated Sands:
Settlement Analysis Method: Tokimatsu / Seed

Depth ft	CSRm	F.S.	Fines %	(N1)60s	Dr %	ec %	dsz in.	dsp in.	S in.
49.95	0.79	2.27	97.6	34.13	100.00	0.180	1.1E-3	0.001	0.001
49.00	0.79	2.27	91.0	33.53	98.64	0.199	1.2E-3	0.022	0.023
48.00	0.80	2.27	84.0	32.88	96.97	0.320	1.9E-3	0.031	0.054
47.00	0.80	2.27	77.0	32.23	95.33	0.447	2.7E-3	0.046	0.100
46.00	0.80	2.27	70.0	31.56	93.70	0.550	3.3E-3	0.061	0.161
45.00	0.81	2.28	63.0	30.88	92.09	0.637	3.8E-3	0.071	0.233
44.00	0.81	2.28	57.4	32.83	96.83	0.331	2.0E-3	0.059	0.292
43.00	0.81	2.29	51.8	34.82	100.00	0.157	9.4E-4	0.024	0.316
42.00	0.81	2.29	46.2	36.86	100.00	0.000	0.0E0	0.013	0.329
41.00	0.82	2.30	40.6	38.96	100.00	0.000	0.0E0	0.000	0.329
40.00	0.82	2.31	35.0	41.11	100.00	0.000	0.0E0	0.000	0.329
39.00	0.82	2.32	35.0	40.02	100.00	0.000	0.0E0	0.000	0.329
38.00	0.82	2.33	35.0	38.90	100.00	0.000	0.0E0	0.000	0.329
37.00	0.82	2.34	35.0	37.76	100.00	0.000	0.0E0	0.000	0.329
36.00	0.82	2.35	35.0	36.59	100.00	0.100	6.0E-4	0.001	0.330
35.00	0.82	2.37	35.0	35.40	100.00	0.139	8.3E-4	0.014	0.344
34.00	0.82	2.38	35.0	37.44	100.00	0.000	0.0E0	0.008	0.352
33.00	0.81	2.40	35.0	39.56	100.00	0.000	0.0E0	0.000	0.352
32.00	0.81	2.42	35.0	41.75	100.00	0.000	0.0E0	0.000	0.352
31.00	0.81	2.44	35.0	44.01	100.00	0.000	0.0E0	0.000	0.352
30.00	0.81	2.47	35.0	46.36	100.00	0.000	0.0E0	0.000	0.352
29.00	0.80	2.51	29.0	46.47	100.00	0.000	0.0E0	0.000	0.352
28.00	0.79	2.55	23.0	46.65	100.00	0.000	0.0E0	0.000	0.352
27.00	0.78	2.57	17.0	44.71	100.00	0.000	0.0E0	0.000	0.352
26.00	0.77	2.60	11.0	44.95	100.00	0.000	0.0E0	0.000	0.352
25.00	0.76	2.64	5.0	45.28	100.00	0.000	0.0E0	0.000	0.352
24.00	0.74	2.68	6.8	42.95	100.00	0.000	0.0E0	0.000	0.352
23.00	0.73	2.73	8.6	40.52	100.00	0.000	0.0E0	0.000	0.352
22.00	0.72	2.78	10.4	37.98	100.00	0.000	0.0E0	0.000	0.352
21.00	0.71	2.84	12.2	35.32	100.00	0.141	8.5E-4	0.007	0.359
20.00	0.69	2.90	14.0	32.53	96.09	0.388	2.3E-3	0.026	0.386
19.00	0.67	2.97	14.0	33.32	98.11	0.234	1.4E-3	0.037	0.423
18.00	0.66	3.04	14.0	34.18	100.00	0.178	1.1E-3	0.023	0.446
17.00	0.64	3.13	14.0	35.11	100.00	0.148	8.9E-4	0.020	0.466
16.00	0.62	3.23	14.0	36.12	100.00	0.115	6.9E-4	0.016	0.481
15.00	0.60	3.34	14.0	37.23	100.00	0.000	0.0E0	0.005	0.486

Settlement of Saturated Sands=0.486 in.
qc1 and (N1)60 is after fines correction in liquefaction analysis
dsz is per each segment, dz=0.05 ft
dsp is per each print interval, dp=1.00 ft
S is cumulated settlement at this depth

Settlement of Unsaturated Sands:

Depth ft	sigma' tsf	sigC' tsf	(N1)60s	CSRfs	Gmax tsf	g*Ge/Gm	g_eff	ec7.5 %	Cec	ec %	dsz in.	dsp in.	S in.
14.95	0.82	0.53	37.61	0.72	1094.1	5.4E-4	1.0000	0.3717	0.93	0.3452	4.14E-3	0.004	0.004
14.00	0.77	0.50	40.49	0.72	1085.1	5.1E-4	1.0000	0.3162	0.93	0.2937	3.52E-3	0.077	0.082
13.00	0.72	0.46	48.03	0.72	1106.8	4.6E-4	0.6422	0.2031	0.93	0.1886	2.26E-3	0.059	0.141
12.00	0.66	0.43	56.26	0.72	1120.9	4.2E-4	0.3815	0.1206	0.93	0.1120	1.34E-3	0.035	0.176
11.00	0.61	0.39	65.34	0.72	1128.0	3.9E-4	0.2405	0.0761	0.93	0.0706	8.48E-4	0.021	0.197
10.00	0.55	0.36	75.45	0.72	1128.3	3.5E-4	0.1591	0.0503	0.93	0.0467	5.61E-4	0.014	0.211
9.00	0.50	0.32	80.98	0.73	1095.9	3.3E-4	1.0000	0.3162	0.93	0.2937	3.52E-3	0.059	0.269
8.00	0.44	0.29	77.42	0.73	1017.9	3.1E-4	0.6751	0.2135	0.93	0.1983	2.38E-3	0.055	0.324
7.00	0.39	0.25	84.00	0.73	978.3	2.9E-4	0.2122	0.0671	0.93	0.0623	7.48E-4	0.027	0.351
6.00	0.33	0.21	89.81	0.73	926.2	2.6E-4	0.0951	0.0301	0.93	0.0279	3.35E-4	0.010	0.361
5.00	0.28	0.18	90.34	0.73	847.1	2.4E-4	0.0596	0.0189	0.93	0.0175	2.10E-4	0.005	0.366
4.00	0.22	0.14	90.34	0.73	757.7	2.1E-4	0.1543	0.0488	0.93	0.0453	5.44E-4	0.005	0.371
3.00	0.17	0.11	90.34	0.74	656.2	1.9E-4	0.0457	0.0144	0.93	0.0134	1.61E-4	0.006	0.377
2.00	0.11	0.07	90.34	0.74	535.8	1.5E-4	0.0298	0.0094	0.93	0.0088	1.05E-4	0.003	0.380
1.00	0.06	0.04	90.34	0.74	378.9	1.1E-4	0.0222	0.0070	0.93	0.0065	7.84E-5	0.002	0.381
0.00	0.00	0.00	90.34	0.74	5.1	1.5E-6	0.0010	0.0003	0.93	0.0003	3.58E-6	0.001	0.382

Settlement of Unsaturated Sands=0.382 in.
dsz is per each segment, dz=0.05 ft
dsp is per each print interval, dp=1.00 ft
S is cumulated settlement at this depth

Total Settlement of Saturated and Unsaturated Sands=0.869 in.
Differential Settlement=0.434 to 0.573 in.

Units Depth = ft, Stress or Pressure = tsf (atm), Unit Weight = pcf, Settlement = in.

SPT	Field data from Standard Penetration Test (SPT)
BPT	Field data from Becker Penetration Test (BPT)
qc	Field data from Cone Penetration Test (CPT)
fs	Friction from CPT testing
gamma	Total unit weight of soil
gamma'	Effective unit weight of soil
Fines	Fines content [%]
D50	Mean grain size
Dr	Relative Density
sigma	Total vertical stress [tsf]
sigma'	Effective vertical stress [tsf]
sigC'	Effective confining pressure [tsf]
rd	Stress reduction coefficient
CRR7.5	Cyclic resistance ratio (M=7.5)
Ksigma	Overburden stress correction factor for CRR7.5
CRRv	CRR after overburden stress correction, CRRv=CRR7.5 * Ksigma
F.S.	Calculated factor of safety against liquefaction F.S.=CRRv/CSRm
User	User request factor of safety, which may apply to CSR
fs1	First CSR curve in graphic defined in #9 of Advanced page
fs2	2nd CSR curve in graphic defined in #9 of Advanced page
CSR	Cyclic stress ratio induced by earthquake
CSRfs	CSRfs=CSR*fs1, fs1=1 or User, defined in #9 of Advanced page
MSF	Magnitude scaling factor for CSR
CSRm	After magnitude scaling correction CSRm=CSRfs/MSF
Cebs	Energy Ratio, Borehole Dia., and Sampling Method Corrections
Cr	Rod Length Corrections
Cn	Overburden Pressure Correction
(N1)60	SPT after corrections, (N1)60=SPT * Cr * Cn * Cebs
d(N1)60	Fines correction of SPT
(N1)60f	(N1)60 after fines corrections, (N1)60f=(N1)60 + d(N1)60
Cq	Overburden stress correction factor
qc1	CPT after Overburden stress correction
dqc1	Fines correction of CPT
qc1f	CPT after Fines and Overburden correction, qc1f=qc1 + dqc1
qc1n	CPT after normalization in Robertson's method
Kc	Fine correction factor in Robertson's Method
qc1f	CPT after Fines correction in Robertson's Method
Ic	Soil type index in Suzuki's and Robertson's Methods
(N1)60s	(N1)60 after settlement fines corrections
ec	Volumetric strain for saturated sands
dz	Calculation segment, dz=0.050 ft
dsz	Settlement in each segment, dz
dp	User defined print interval
dsp	Settlement in each print interval, dp
Gmax	Shear Modulus at low strain
g_eff	gamma_eff, Effective shear Strain
g*Ge/Gm	gamma_eff * G_eff/G_max, Strain-modulus ratio
ec7.5	Volumetric Strain for magnitude=7.5
Cec	Magnitude correction factor for any magnitude
ec	Volumetric strain for unsaturated sands, ec=Cec * ec7.5
NoLiq	No-Liquefy Soils

References:

1. NCEER Workshop on Evaluation of Liquefaction Resistance of Soils. Youd, T.L., and Idriss, I.M., eds., Technical Report NCEER 97-0022.

SP117. Southern California Earthquake Center. Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for

Analyzing and Mitigating Liquefaction in California. University of Southern California. March 1999.

2. RECENT ADVANCES IN SOIL LIQUEFACTION ENGINEERING AND SEISMIC SITE RESPONSE EVALUATION, Paper No. SPL-2, PROCEEDINGS: Fourth

International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, San Diego, CA, March 2001.

3. RECENT ADVANCES IN SOIL LIQUEFACTION ENGINEERING: A UNIFIED AND CONSISTENT FRAMEWORK, Earthquake Engineering Research Center,

Report No. EERC 2003-06 by R.B Seed and etc. April 2003.

APPENDIX F

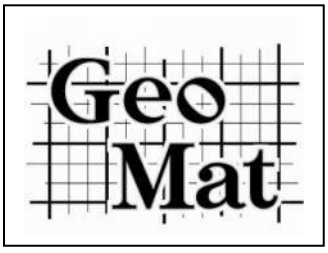


TABLE OF CONTENT

GENERAL

The guidelines contained herein and the standard details attached hereto represent this firm's standard recommendation for grading and other associated operations on construction projects. These guidelines should be considered a portion of the project specifications.
All plates attached hereto shall be considered as part of these guidelines.
The Contractor should not vary from these guidelines without prior recommendation by the Geotechnical Consultant and the approval of the Client or his authorized representative. Recommendation by the Geotechnical Consultant and/or Client should not be considered to preclude requirements for the approval by the controlling agency prior to the execution of any changes.
These Standard Grading Guidelines and Standard Details may be modified and/or superseded by recommendations contained in the text of the preliminary Geotechnical Report and/or subsequent reports.
If disputes arise out of the interpretation of these grading guidelines or standard details, the Geotechnical Consultant shall provide the governing interpretation.

DEFINITION OF TERMS

ALLUVIUM
Unconsolidated soil deposits resulting from flow of water, including sediments deposited in river beds, canyons, flood plains, lakes, fans and estuaries.
AS-GRADED (AS-BUILT): The surface and subsurface conditions at completion of grading.
BACKCUT: A temporary construction slope at the rear of earth retaining structures such as buttresses, shear keys, stabilization fills or retaining walls.
BACKDRAIN: Generally a pipe and gravel or similar drainage system placed behind earth retaining structures such buttresses, stabilization fills, and retaining walls.
BEDROCK: Relatively undisturbed formational rock, more or less solid, either at the surface or beneath superficial deposits of soil.
BENCH: A relatively level step and near vertical rise excavated into sloping ground on which fill is to be placed.
BORROW (Import): Any fill material hauled to the project site from off-site areas.
BUTTRESS FILL::A fill mass, the configuration of which is designed by engineering calculations to retain slope conditions containing adverse geologic features. A buttress is generally specified by minimum key width and depth and by maximum backcut angle. A buttress normally contains a back-drainage system.
CIVIL ENGINEER: The Registered Civil Engineer or consulting firm responsible for preparation of the grading plans, surveying and verifying as-graded topographic conditions.
CLIENT: The Developer or his authorized representative who is chiefly in charge of the project. He shall have the responsibility of reviewing the findings and recommendations made by the Geotechnical Consultant and shall authorize the Contractor and/or other consultants to perform work and/or provide services.
COLLUVIUM: Generally loose deposits usually found near the base of slopes and brought there chiefly by gravity through slow continuous downhill creep (also see Slope Wash).
COMPACTION : Densification of man-placed fill by mechanical means.
CONTRACTOR – A person or company under contract or otherwise retained by the Client to perform demolition, grading and other site improvements.
DEBRIS: All products of clearing, grubbing, demolition, and contaminated soil materials unsuitable for reuse as compacted fill, and/or any other material so designated by the Geotechnical Consultant.
ENGINEERING GEOLOGIST: A Geologist holding a valid certificate of registration in the specialty of Engineering Geology.
ENGINEERED FILL: A fill of which the Geotechnical Consultant or his representative, during grading, has made sufficient tests to enable him to conclude that the fill has been placed in substantial compliance with the recommendations of the Geotechnical Consultant and the governing agency requirements.
EROSION: The wearing away of ground surface as a result of the movement of wind, water, and/or ice.
EXCAVATION: The mechanical removal of earth materials.
EXISTING GRADE: The ground surface configuration prior to grading.
FILL: Any deposits of soil, rock, soil-rock blends or other similar materials placed by man.
FINISH GRADE: The ground surface configuration at which time the surface elevations conform to the approved plan.

GEOFABRIC: Any engineering textile utilized in geotechnical applications including subgrade stabilization and filtering.
GEOLOGIST: A representative of the Geotechnical Consultant educated and trained in the field of geology.
GEOTECHNICAL CONSULTANT: The Geotechnical Engineering and Engineering Geology consulting firm retained to provide technical services for the project. For the purpose of these specifications, observations by the Geotechnical Consultant include observations by the Soil Engineer, Geotechnical Engineer, Engineering Geologist and those performed by persons employed by and responsible to the Geotechnical Consultants.
GEOTECHNICAL ENGINEER: A licensed Geotechnical Engineer or Civil Engineer who applies scientific methods, engineering principles and professional experience to the acquisition, interpretation and use of knowledge of materials of the earth's crust for the evaluation of engineering problems. Geotechnical Engineering encompasses many of the engineering aspects of soil mechanics, rock mechanics, geology, geophysics, hydrology and related sciences.
GRADING: Any operation consisting of excavation, filling or combinations thereof and associated operations.
LANDSIDE DEBRIS: Material, generally porous and of low density, produced from instability of natural or man-made slopes.
MAXIMUM DENSITY: Standard laboratory test for maximum dry unit weight. Unless otherwise specified, the maximum dry unity weight shall be determined in accordance with ASTM Method of Test D 1557-91.
OPTIMUM MOISTURE – Soil moisture content at the test maximum density.
RELATIVE COMPACTION: The degree of compaction (expressed as a percentage) of dry unit weight of a material as compared to the maximum dry unit weight of the material.
ROUGH GRADE: The ground surface configuration at which time the surface elevations approximately conform to the approved plan.
SITE: The particular parcel of land where grading is being performed.
SHEAR KEY: Similar to buttress, however, it is generally constructed by excavating a slot within a natural slope, in order to stabilize the upper portion of the slope without grading encroaching into the lower portion of the slope.
SLOPE: An inclined ground surface, the steepness of which is generally specified as a ration of horizontal:vertical (e.g., 2:1)
SLOPE WASH: Soil and/or rock material that has been transported down a slope by action of gravity assisted by runoff water not confined by channels (also see Colluvium).
SOIL: Naturally occurring deposits of sand, silt, clay, etc., or combinations thereof.
SOIL ENGINEER: Licensed Geotechnical Engineer or Civil Engineer experienced in soil mechanics (also see Geotechnical Engineer).
STABILIZATION FILL: A fill mass, the configuration of which is typically related to slope height and specified by the standards of practice for enhancing the stability of locally adverse conditions. A stabilization fill is normally specified by minimum key width and depth and by maximum backcut angle. A stabilization fill may or may not have a backdrainage system specified.
SUBDRAIN: Generally a pipe and gravel or similar drainage system placed beneath a fill in the alignment of canyons or formed drainage channels.
SLOUGH: Loose, non-compacted fill material generated during grading operations.
TAILINGS: Non-engineered fill which accumulates on or adjacent to equipment haul-roads.
TERRACE: Relatively level step constructed in the face of a graded slope surface for drainage control and maintenance purposes.
TOPSOIL: The presumable fertile upper zone of soil, which is usually darker in color and loose.
WINDROW: A string of large rocks buried within engineered fill in accordance with guidelines set forth by the Geotechnical Consultant.

OBLIGATIONS OF PARTIES

The Geotechnical Consultant should provide observation and testing services and should make evaluations in order to advise the Client on Geotechnical matters. The Geotechnical Consultant should report his findings and recommendations to the Client or his authorized representative.
The client should be chiefly responsible for all aspects of the project. He or his authorized representative has the responsibility of reviewing the findings and recommendations of the Geotechnical Consultant. He shall authorize or cause to have authorized the Contractor and/or other consultants to perform work and/or provide services.

During grading the Client or his authorized representative should remain on-site or should remain reasonably accessible to all concerned parties in order to make decisions necessary to maintain the flow of the project.
The Contractor should be responsible for the safety of the project and satisfactory completion of all grading and other associated operations on construction projects, including but not limited to, earthwork in accordance with the project plans, specifications and controlling agency requirements. During grading, the Contractor or his authorized representative should remain on-site. Overnight and on days off, the Contractor should remain accessible.

SITE PREPARATION

The Client, prior to any site preparation or grading, should arrange and attend a meeting among the Grading Contractor, the Design Engineer, the Geotechnical Consultant, representatives of the appropriate governing authorities as well as any other concerned parties. All parties should be given at least 48 hours notice.
Clearing and grubbing should consist of the removal of vegetation such as brush, grass, woods, stumps, trees, roots of trees and otherwise deleterious natural materials from the areas to be graded. Clearing and grubbing should extend to the outside of all proposed excavation and fill areas.
Demolition should include removal of buildings, structures, foundations, reservoirs, utilities (including underground pipelines, septic tanks, leach fields, seepage pits, cisterns, mining shafts, tunnels, etc.) and man-made surface and subsurface improvements from the areas to be graded. Demolition of utilities should include proper capping and/or re-routing pipelines at the project perimeter and cutoff and capping of wells in accordance with the requirements of the governing authorities and the recommendations of the Geotechnical Consultant at the time of the demolition.
Trees, plants or man-made improvements not planned to be removed or demolished should be protected by the Contractor from damage or injury.
Debris generated during clearing, grubbing and/or demolition operations should be wasted from areas to be graded and disposed off-site. Clearing, grubbing and demolition operations should be performed under the observation of the Geotechnical Consultant.
The Client or Contractor should obtain the required approvals for the controlling authorities for the project prior, during and/or after demolition, site preparation and removals, etc. The appropriate approvals should be obtained prior to proceeding with grading operations.

SITE PROTECTION

Protection of the site during the period of grading should be the responsibility of the Contractor. Unless other provisions are made in writing and agreed upon among the concerned parties, completion of a portion of the project should not be considered to preclude that portion or adjacent areas from the requirements for site protection until such time as the entire project is complete as identified by the Geotechnical Consultant, the Client and the regulating agencies.
The Contractor should be responsible for the stability of all temporary excavations. Recommendations by the Geotechnical Consultant pertaining to temporary excavations (e.g., backcuts) are made in consideration of stability of the completed project and therefore, should not be considered to preclude the responsibilities of the Contractor. Recommendations by the Geotechnical Consultant should not be considered to preclude more restrictive requirements by the regulating agencies.
Precautions should be taken during the performance of site clearing, excavations and grading to protect the work site from flooding, ponding, or inundation by poor or improper surface drainage. Temporary provisions should be made during the rainy season to adequately direct surface drainage away from and off the work site. Where low areas can not be avoided, pumps should be kept on hand to continually remove water during periods of rainfall.
During periods of rainfall, plastic sheeting should be kept reasonably accessible to prevent unprotected slopes from becoming saturated. Where necessary during periods of rainfall, the Contractor should install check-dams de-silting basins, rip-rap, sandbags or other devices or methods necessary to control erosion and provide safe conditions.
During periods of rainfall, the Geotechnical Consultant should be kept informed by the Contractor as to the nature of remedial or preventative work being performed (e.g., pumping, placement of sandbags or plastic sheeting, other labor, dozing, etc.).

Following periods of rainfall, the Contractor should contact the Geotechnical Consultant and arrange a walk-over of the site in order to visually assess rain related damage. The Geotechnical Consultant may also recommend excavations and testing in order to aid in his assessments. At the request of the Geotechnical Consultant, the Contractor shall make excavations in order to evaluate the extent of rain related damage.
Rain-related damage should be considered to include, but may not be limited to, erosion, silting, saturation, swelling, structural distress and other adverse conditions identified by the Geotechnical Consultant. Soil adversely affected should be classified as Unsuitable Materials and should be subject to overexcavation and replaced with compacted fill or other remedial grading as recommended by the Geotechnical Consultant.
Relatively level areas, where saturated soils and/or erosion gullies exist to depths greater then 1 foot, should be overexcavated to unaffected, competent material. Where less than 1 foot in depth, unsuitable materials may be processed in-place to achieve near optimum moisture conditions, then thoroughly recompacted in accordance with the applicable specifications. If the desired results are not achieved, the affected materials should be overexcavated then replaced in accordance with the applicable specifications.
In slope areas, where saturated soil and/or erosion gullies exist to depths of greater than 1 foot, should be over-excavated to unaffected, competent material. Where affected materials exist to depths of 1 foot or less below proposed finished grade, remedial grading by moisture conditioning in-place, followed by thorough recompaction in accordance with the applicable grading guidelines herein may be attempted. If the desired results are not achieved, all affected materials should be overexcavated and replaced as compacted fill in accordance with the slope repair recommendations herein. As field conditions dictate, other slope repair procedures may be recommended by the Geotechnical Consultant.

EXCAVATIONS

UNSUITABLE MATERIALS:
Materials which are unsuitable should be excavated under observation and recommendations of the Geotechnical Consultant. Unsuitable materials include, but may not be limited to dry, loose, soft, wet, organic compressible natural soils and fractured, weathered, soft, bedrock and nonengineered or otherwise deleterious fill materials.
Materials identified by the Geotechnical Consultant as unsatisfactory due to its moisture conditions should be overexcavated, watered or dried, as needed, and thoroughly blended to uniform near optimum moisture condition (per Moisture guidelines presented herein) prior to placement as compacted fill.

CUT SLOPES:
Unless otherwise recommended by the Geotechnical Consultant and approved by the regulating agencies, permanent cut slopes should not be steeper than 2:1 (horizontal:vertical).
If excavations for cut slopes expose loose, cohesionless, significantly fractured or otherwise suitable material, overexcavation and replacement of the unsuitable materials with a compacted stabilization fill should be accomplished as recommended by the Geotechnical Consultant. Unless otherwise specified by the Geotechnical Consultant, stabilization fill construction should conform to the requirements of the Standard Details.
The Geotechnical Consultant should review cut slopes during excavation. The Geotechnical Consultant should be notified by the contractor prior to beginning slope excavations.
If during the course of grading, adverse or potentially adverse geotechnical conditions are encountered which were not anticipated in the preliminary report, the Geotechnical Consultant should explore, analyze and make recommendations to treat these problems.
When cuts slopes are made in the direction of the prevailing drainage, a non-erodible diversion swale (brow ditch) should be provided at the top-of-cut.

PAD AREAS:
All lot pad areas, including side yard terraces, above stabilization fills or buttresses should be over-excavated to provide for a minimum of 3-feet (refer to Standard Details) of compacted fill over the entire pad area. Pad areas with both fill and cut materials exposed and pad areas containing both very shallow (less than 3-feet) and deeper fill should be over- thickness (refer to Standard Details).
Cut areas exposing significantly varying material types should also be overexcavated to provide for at least a 3-foot thick compacted fill blanket. Geotechnical conditions may require greater depth of overexcavation. The actual depth should be delineated by the Geotechnical Consultant during grading.

For pad areas created above cut or natural slopes, positive drainage should be established away from the top-of-slope. This may be accomplished utilizing a berm and/or an appropriate pad gradient. A gradient in soil areas away from the top-of-slope of 2 percent or greater is recommended.

COMPACTED FILL

All fill materials should be compacted as specified below or by other methods specifically recommended by the Geotechnical Consultant. Unless otherwise specified, the minimum degree of compaction (relative compaction) should be 90 percent of the laboratory maximum density.

PLACEMENT

Prior to placement of compacted fill, the Contractor should request a review by the Geotechnical Consultant of the exposed ground surface. Unless otherwise recommended, the exposed ground surface should then be scarified (6-inches minimum), watered or dried as needed, thoroughly blended to achieve near optimum moisture conditions, then thoroughly compacted to a minimum of 90 percent of the maximum density. The review by the Geotechnical Consultants should not be considered to preclude requirements of inspection and approval by the governing agency.

Compacted fill should be placed in thin horizontal lifts not exceeding 8-inches in loose thickness prior to compaction. Each lift should be watered or dried as needed, thoroughly blended to achieve near optimum moisture conditions then thoroughly compacted by mechanical methods to a minimum of 90 percent of laboratory maximum dry density. Each lift should be treated in a like manner until the desired finished grades are achieved.

The Contractor should have suitable and sufficient mechanical compaction equipment and watering apparatus on the job site to handle the amount of fill being placed in consideration of moisture retention properties of the materials. If necessary, excavation equipment should be “shut down” temporarily in order to permit proper compaction of fills. Earth moving equipment should only be considered a supplement and not substituted for conventional compaction equipment.

When placing fill in horizontal lifts adjacent to areas sloping steeper than 5:1 (horizontal:vertical), horizontal keys and vertical benches should be excavated into the adjacent slope area. Keying and benching should be sufficient to provide at least 6-foot wide benches and minimum of 4-feet of vertical bench height within the firm natural ground, firm bedrock or engineered compacted fill. No compacted fill should be placed in an area subsequent to keying and benching until the area has been reviewed by the Geotechnical Consultant. Material generated by the benching operation should be moved sufficiently away from the bench area to allow for the recommended review of the horizontal bench prior to placement of fill. Typical keying and benching details have been included within the accompanying Standard Details.

Within a single fill area where grading procedures dictate two or more separate fills, temporary slopes (false slopes) may be created. When placing fill adjacent to a false slope, benching should be conducted in the same manner as above described. At least a 3-foot vertical bench should be established within the firm core of adjacent approved compacted fill prior to placement of additional fill. Benching should proceed in at least 3-foot vertical increments until the desired finished grades are achieved.

Fill should be tested for compliance with the recommended relative compaction and moisture conditions. Field density testing should conform to ASTM Method of Testing D 1556-64, D 2922-78 and/or D2937-71. Tests should be provided for about every 2 vertical feet or 1,000 cubic yards of fill placed. Actual test intervals may vary as field conditions dictate. Fill found not to be in conformance with the grading recommendations should be removed or otherwise handled as recommended by the Geotechnical Consultant.

The Contractor should assist the Geotechnical Consultant and/or his representative by digging test pits for removal determinations and/or for testing compacted fill.

As recommended by the Geotechnical Consultant, the Contractor should “shutdown” or remove any grading equipment from an area being tested.

The Geotechnical Consultant should maintain a plan with estimated locations of field tests. Unless the client provides for actual surveying of test locations, by the Geotechnical Consultant should only be considered rough estimates and should not be utilized for the purpose of preparing cross sections showing test locations or in any case for the purpose of after-the-fact evaluating of the sequence of fill placement.

MOISTURE

For field testing purposes, “near optimum” moisture will vary with material type and other factors including compaction procedures. “Near optimum” may be specifically recommended in Preliminary Investigation Reports and/or may be evaluated during grading.

Prior to placement of additional compacted fill following an overnight or other grading delay, the exposed surface of previously compacted fill should be processed by scarification, watered or dried as needed, thoroughly blended to near-optimum moisture conditions, then recompacted to a minimum of 90 percent of laboratory maximum dry density. Where wet or other dry or other unsuitable materials exist to depths of greater than one foot, the unsuitable materials should be overexcavated.

Following a period of flooding, rainfall or overwatering by other means, no additional fill should be placed until damage assessments have been made and remedial grading performed as described herein.

FILL MATERIAL

Excavated on-site materials which are acceptable to the Geotechnical Consultant may be utilized as compacted fill, provided trash, vegetation and other deleterious materials are removed prior to placement.

Where import materials are required for use on-site, the Geotechnical Consultant should be notified at least 72 hours in advance of importing, in order to sample and test materials from proposed borrow sites. No import materials should be delivered for use on-site without prior sampling and testing by Geotechnical Consultant.

Where oversized rock or similar irreducible material is generated during grading, it is recommended, where practical, to waste such material off-site or on-site in areas designated as “nonstructural rock disposal areas”. Rock placed in disposal areas should be placed with sufficient fines to fill voids. The rock should be compacted in lifts to an unyielding condition. The disposal area should be covered with at least 3-feet of compacted fill, which is free of oversized material. The upper 3-feet should be placed in accordance with the guidelines for compacted fill herein.

Rocks 3 inches in maximum dimension and smaller may be utilized within the compacted fill, provided they are placed in such a manner that nesting of the rock in avoided. Fill should be placed and thoroughly compacted over and around all rock. The amount of rock should not exceed 40 percent by dry weight passing the $^{3}/_{4}$-inch sieve size. The 3-inch and 40 percent recommendations herein may vary as field conditions dictate.

During the course of grading operations, rocks or similar irreducible materials greater than 3-inch maximum dimension (oversized material) may be generated. These rocks should not be placed within the compacted fill unless placed as recommended by the Geotechnical Consultant.

Where rocks or similar irreducible materials of greater that 3-inches but less than 4-feet of maximum dimension are generated during grading, or otherwise desired to be placed within an engineered fill, special handling in accordance with the accompanying Standard Details is recommended. Rocks greater than 4 feet should be broken down or disposed off-site. Rocks up to 4-feet maximum dimension should be placed below the upper 10-feet of any fill and should not be closer than 20-feet to any slope face. These recommendations could vary as locations of improvements dictate. Where practical, oversized material should not be placed below areas where structures of deep utilities are proposes.

Oversized material should be placed in windrows on a clean, overexcavated or unyielding compacted fill or firm natural ground surface. Select native or imported granular soil (S.E. 30 or higher) should be placed and thoroughly flooded over and around all windrowed rock, such that voids are filled. Windrows of oversized material should be staggered so that successive strata of oversized material are not in the same vertical plane.

It may be possible to dispose of individual larger rock as field conditions dictate and as recommended by the Geotechnical Consultant at time of placement.

Material that is considered unsuitable by the Geotechnical Consultant should not be utilized in the compacted fill.

During grading operations, placing and mixing the materials from the cut and/or borrow areas may result in soil mixtures which possess unique physical properties. Testing may be required of samples obtained directly from the fill areas in order to verify conformance with the specifications. Processing of these additional samples may take two or more working days. The Contractor may elect to move the operation to other areas within the project, or may continue placing compacted fill pending laboratory and field test results. Should he elect the second alternative, fill placed is done so at the Contractor’s risk.

Any fill placed in areas not previously reviewed and evaluated by the Geotechnical Consultant, and/or in other areas, without prior notification to the Geotechnical Consultant may require removal and recompaction at the Contractor's expense. Determination of overexcavations should be made upon review of field conditions by the Geotechnical Consultant.

FILL SLOPES

Unless otherwise recommended by the Geotechnical Consultant and approved by the regulating agencies, permanent fill slopes should not be steeper than 2:1 (horizontal to vertical).

Except as specifically recommended otherwise or as otherwise provided for in these grading guidelines (Reference Fill Materials), compacted fill slopes should be overbuilt and cut back to grade, exposing the firm, compacted fill inner core. The actual amount of overbuilding may vary as field conditions dictate. If the desired results are not achieved, the existing slopes should be overexcavated and reconstructed under the guidelines of the Geotechnical Consultant. The degree of overbuilding shall be increased until the desired compacted slope surface condition is achieved. Care should be taken by the Contractor to provide thorough mechanical compaction to the outer edge of the overbuilt slope surface.

Although no construction procedure produces a slope free from risk of future movement, overfilling and cutting back of slope to a compacted inner core is, given no other constraints, the most desirable procedure. Other constraints, however, must often be considered. These constraints may include property line situations, access, the critical nature of the development, and cost. Where such constraints are identified, slope face compaction may be attempted by conventional construction procedures including backrolling techniques upon specific recommendations by the Geotechnical Consultant.

As a second best alternative for slopes of 2:1 (horizontal to vertical) or flatter, slope construction may be attempted as outlined herein. Fill placement should proceed in thin lifts, (i.e., 6 to 8 inch loose thickness). Each lift should be moisture conditioned and thoroughly compacted. The desired moisture condition should be maintained and/or reestablished, where necessary, during the period between successive lifts. Selected lifts should be tested to ascertain that desired compaction is being achieved. Care should be taken to extend compactive effort to the outer edge of the slope. Each lift should extend horizontally to the desired finished slope surface or more as needed to ultimately establish desired grades. Grade during construction should not be allowed to roll off at the edge of the slope. It may be helpful to elevate slightly the outer edge of the slope. Slough resulting from the placement of individual lifts should not be allowed to drift down over previous lifts. At intervals not exceeding 4-feet in vertical slope height or the capability of available equipment, whichever is less, fill slopes should be thoroughly backrolled utilizing a conventional sheepsfoot-type roller. Care should be taken to maintain the desired moisture conditions and/or reestablishing same as needed prior to backrolling. Upon achieving final grade, the slopes should again be moisture conditioned and thoroughly backrolled. The use of a side-boom roller will probably be necessary and vibratory methods are strongly recommended. Without delay, so as to avoid (if possible) further moisture conditioning, the slopes should then be grid-rolled to achieve a relatively smooth surface and uniformly compact condition.

In order to monitor slope construction procedures, moisture and density tests will be taken at regular intervals. Failure to achieve the desired results will likely result in a recommendation by the Geotechnical Consultant to overexcavate the slope surfaces followed by reconstruction of the slopes utilizing overfilling and cutting back procedures and/or further attempt at the conventional backrolling approach. Other recommendations may also be provided which would be commensurate with field conditions.

Where placement of fill above a natural slope or above a cut slope is proposed, the fill slope configuration as presented in the accompanying standard Details should be adopted.

For pad areas above fill slopes, positive drainage should be established away from the top-of-slope. This may be accomplished utilizing a berm and pad gradients of at least 2-percent in soil area.

OFF-SITE FILL

Off-site fill should be treated in the same manner as recommended in these specifications for site preparation, excavation, drains, compaction, etc.

Off-site canyon fill should be placed in preparation for future additional fill, as shown in the accompanying Standard Details.

Off-site fill subdrains temporarily terminated (up canyon) should be surveyed for future relocation and connection.

DRAINAGE

Canyon sub-drain systems specified by the Geotechnical Consultant should be installed in accordance with the Standard Details.
Typical sub-drains for compacted fill buttresses, slope stabilization or sidehill masses, should be installed in accordance with the specifications of the accompanying Standard Details.
Roof, pad and slope drainage should be directed away from slopes and areas of structures to suitable disposal areas via non-erodible devices (i.e., gutters, downspouts, concrete swales).
For drainage over soil areas immediately away from structures (i.e., within 4-feet), a minimum of 4 percent gradient should be maintained. Pad drainage of at least 2 percent should be maintained over soil areas. Pad drainage may be reduced to at least 1 percent for projects where no slopes exist, either natural or man-made, or greater than 10-feet in height and where no slopes are planned, either natural or man-made, steeper than 2:1 (horizontal to vertical slope ratio).
Drainage patterns established at the time of fine grading should be maintained throughout the life of the project. Property owners should be made aware that altering drainage patterns can be detrimental to slope stability and foundation performance.

STAKING

In all fill areas, the fill should be compacted prior to the placement of the stakes. This particularly is important on fill slopes. Slope stakes should not be placed until the slope is thoroughly compacted (backrolled). If stakes must be placed prior to the completion of compaction procedures, it must be recognized that they will be removed and/or demolished at such time as compaction procedures resume.
In order to allow for remedial grading operations, which could include overexcavations or slope stabilization, appropriate staking offsets should be provided. For finished slope and stabilization backcut areas, we recommend at least 10-feet setback from proposed toes and tops-of-cut.

SLOPE MAINTENANCE LANDSCAPE PLANTS

In order to enhance superficial slope stability, slope planting should be accomplished at the completion of grading. Slope planting should consist of deep-rooting vegetation requiring little watering. Plants native to the Southern California area and plants relative to native plants are generally desirable. Plants native to other semiarid and arid areas may also be appropriate. A Landscape Architect would be the best party to consult regarding actual types of plants and planting configuration.

IRRIGATION

Irrigation pipes should be anchored to slope faces, not placed in trenches excavated into slope faces.
Slope irrigation should be minimized. If automatic timing devices are utilized on irrigation systems, provisions should be made for interrupting normal irrigation during periods of rainfall.
Though not a requirement, consideration should be give to the installation of near-surface moisture monitoring control devices. Such devices can aid in the maintenance of relatively uniform and reasonably constant moisture conditions.
Property owners should be made aware that overwatering of slopes is detrimental to slope stability.

MAINTENANCE

Periodic inspections of landscaped slope areas should be planned and appropriate measures should be taken to control weeds and enhance growth of the landscape plants. Some areas may require occasional replanting and/or reseeding.
Terrace drains and downdrains should be periodically inspected and maintained free of debris. Damage to drainage improvements should be repaired immediately.
Property owners should be made aware that burrowing animals can be detrimental to slope stability. A preventative program should be established to control burrowing animals.
As a precautionary measure, plastic sheeting should be readily available, or kept on hand, to protect all slope areas from saturation by periods of heavy or prolonged rainfall. This measure is strongly recommended, beginning with the period of time prior to landscape planting.

REPAIRS

If slope failures occur, the Geotechnical Consultant should be contacted for a field review of site conditions and development of recommendations for evaluation and repair.

If slope failure occurs as a result of exposure to periods of heavy rainfall, the failure areas and currently unaffected areas should be covered with plastic sheeting to protect against additional saturation.

In the accompanying Standard Details, appropriate repair procedures are illustrated for superficial slope failures (i.e., occurring typically within the outer 1 foot to 3 feet of a slope face).

TRENCH BACKFILL

Utility trench backfill should, unless otherwise recommended, be compacted by mechanical means. Unless otherwise recommended, the degree of compaction should be a minimum of 95 percent of the laboratory maximum density.

Approved granular material (sand equivalent greater than 30) should be used to bed and backfill utilities to a depth of at least 1 foot over the pipe. This backfill should be uniformly watered, compacted and/or wheel-rolled from the surface to a firm condition for pipe support.

The remainder of the backfill shall be typical on-site soil or imported soil which should be placed in lifts not exceeding 8 inches in thickness, watered or aerated to at least 3 percent above the optimum moisture content, and mechanically compacted to at least 95 percent of maximum dry density (based on ASTM D1557).

Backfill of exterior and interior trenches extending below a 1:1 projection from the outer edge of foundations should be mechanically compacted to a minimum of 95 percent of the laboratory maximum density.

Within slab areas, but outside the influence of foundations, trenches up to 1 foot wide and 2 feet deep may be backfilled with sand and consolidated by uniformly watering or by mechanical means. If on-site materials are utilized, they should be wheel-rolled, tamped or otherwise compacted to a firm condition. For minor interior trenches, density testing may be deleted or spot testing may be elected if deemed necessary, based on review of back-fill operations during construction.

If utility contractors indicate that it is undesirable to use compaction equipment in close proximity to a buried conduit, the Contractor may elect the utilization of light weight compaction equipment and/or shading of the conduit with clean, granular material, which should be thoroughly jetted in-place above the conduit, prior to initiating mechanical compaction procedures. Other methods of utility trench compaction may also be appropriate, upon review by the Geotechnical Consultant at the time of construction.

In cases where clean granular materials are proposed for use in lieu of native materials or where flooding or jetting is proposed, the procedures should be considered subject to review by the Geotechnical Consultant.

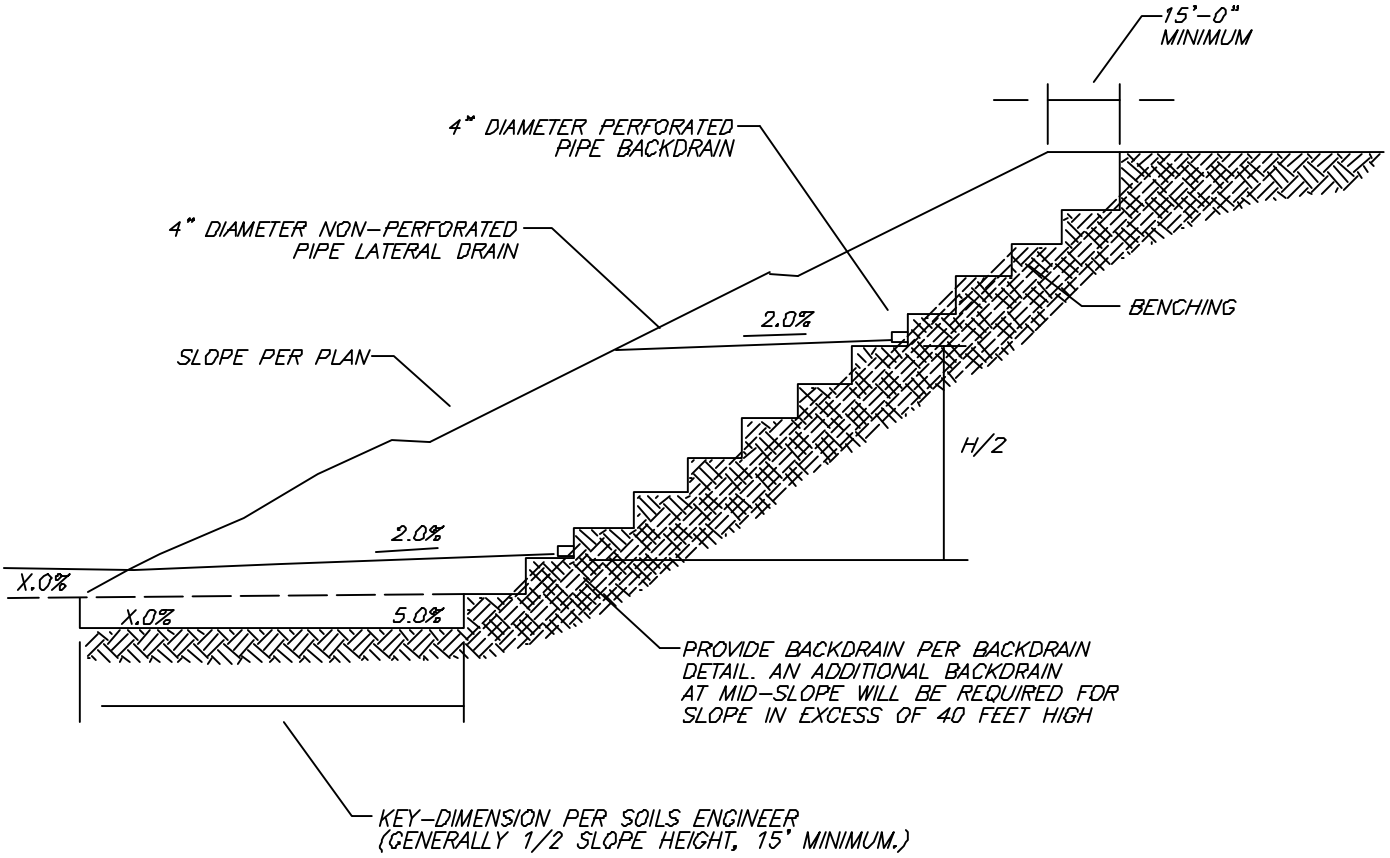
Clean Granular backfill and/or bedding are not recommended in slope areas unless provisions are made for a drainage system to mitigate the potential build-up of seepage forces.

STATUS OF GRADING

Prior to proceeding with any grading operation, the Geotechnical Consultant should be notified at least two working days in advance in order to schedule the necessary observation and testing services.

Prior to any significant expansion of cut back in the grading operation, the Geotechnical Consultant should be provided with adequate notice (i.e., two days) in order to make appropriate adjustments in observation and testing services.

Following completion of grading operations and/or between phases of a grading operation, the Geotechnical Consultant should be provided with at least two working days notice in advance of commencement of additional grading operations.



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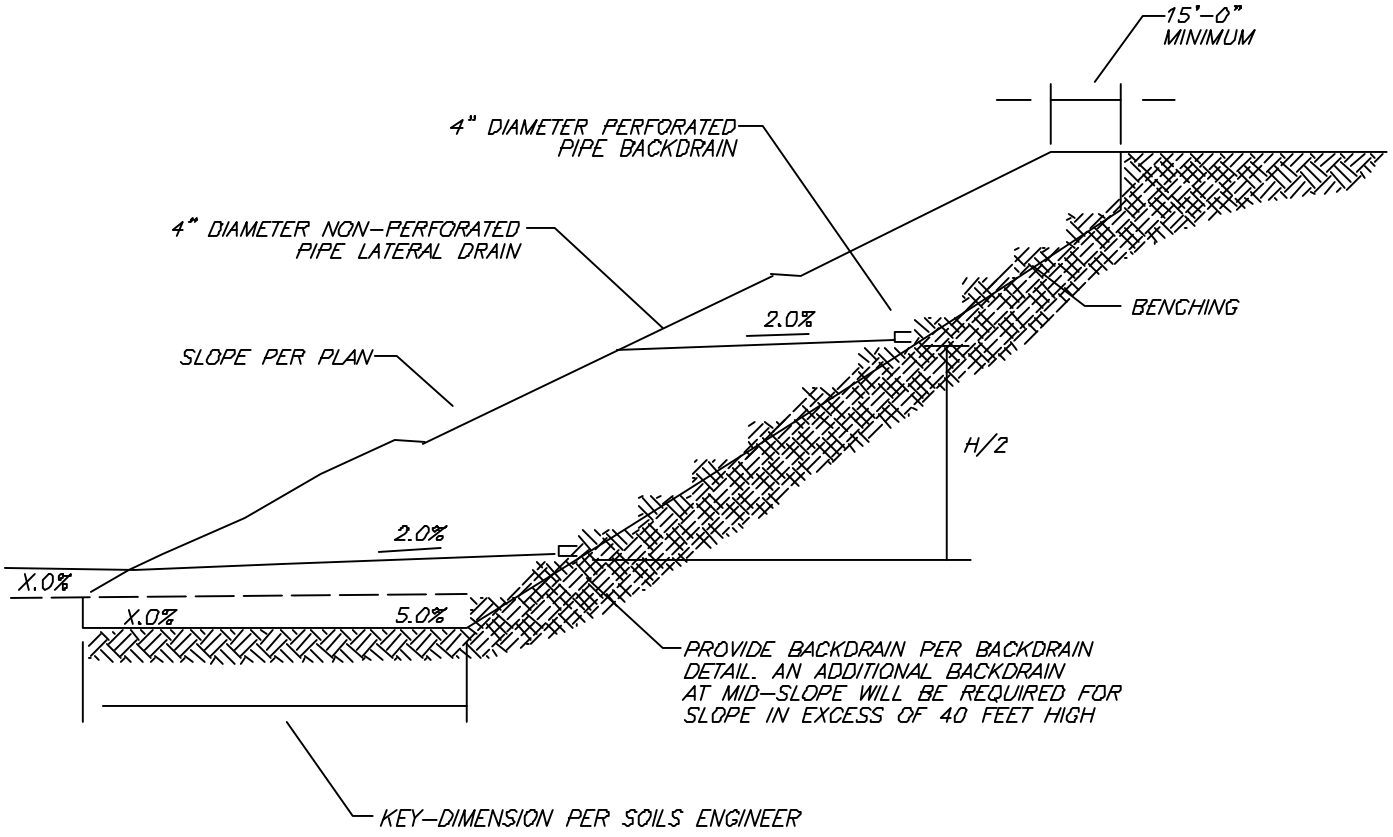
TYPICAL STABILIZATION FILL DETAIL

GENERAL EARTHWORK AND GRADING SPECIFICATIONS
SHEET 1



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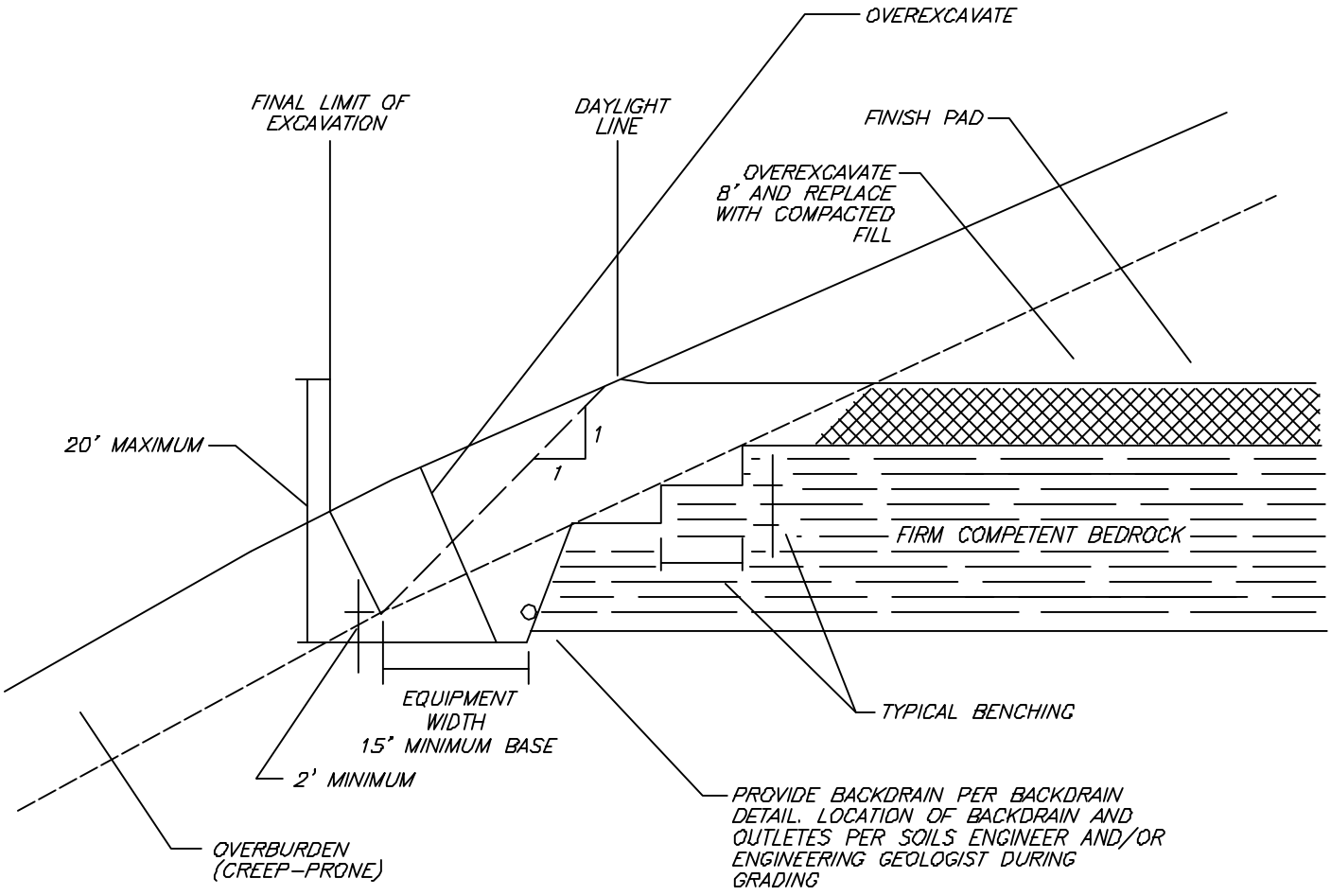
TYPICAL BUTTRESS FILL DETAIL

GENERAL EARTHWORK AND GRADING SPECIFICATIONS
SHEET 2



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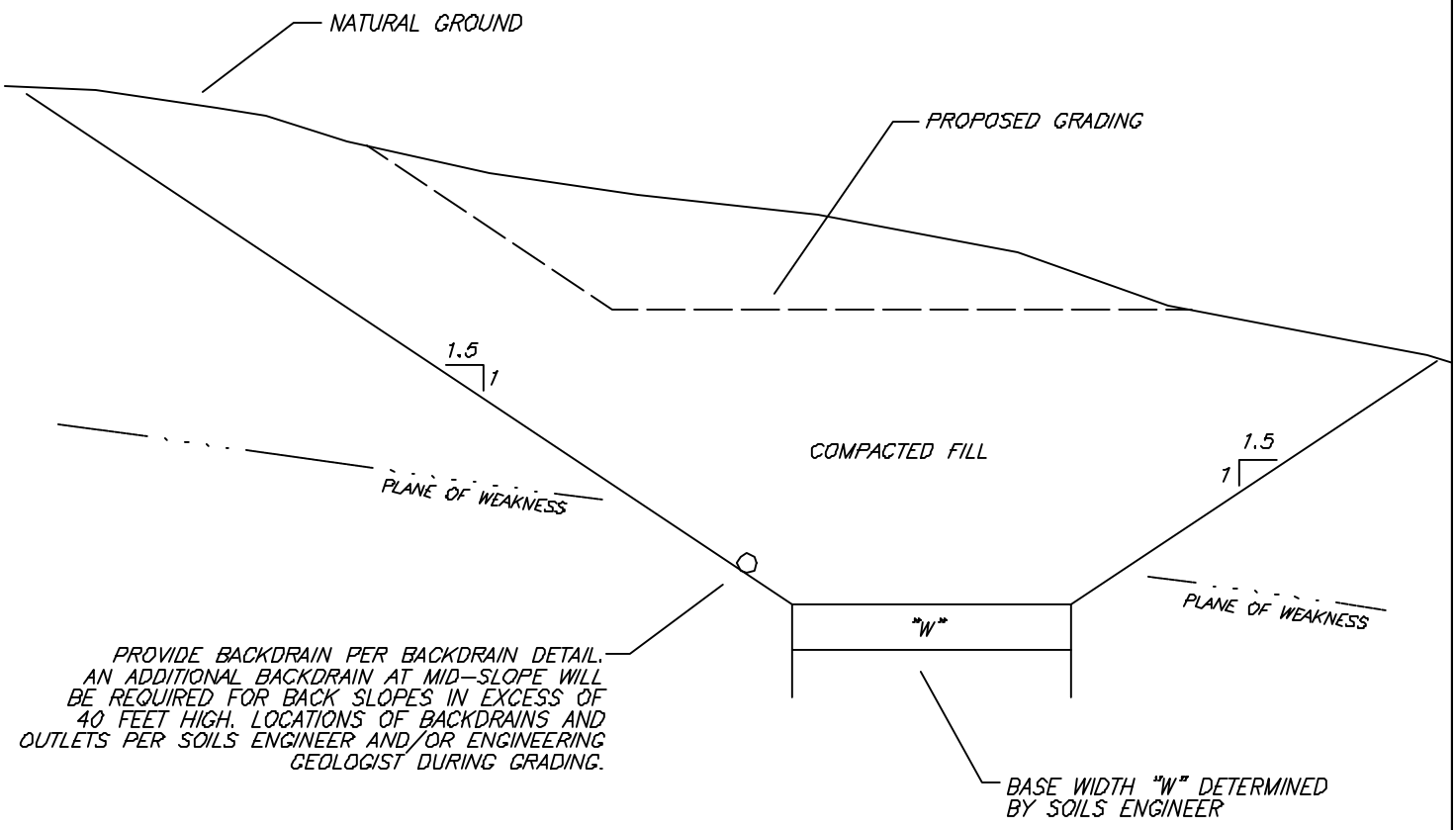
DAYLIGHT SHEAR KEY DETAIL

GENERAL EARTHWORK AND GRADING SPECIFICATIONS
SHEET 3



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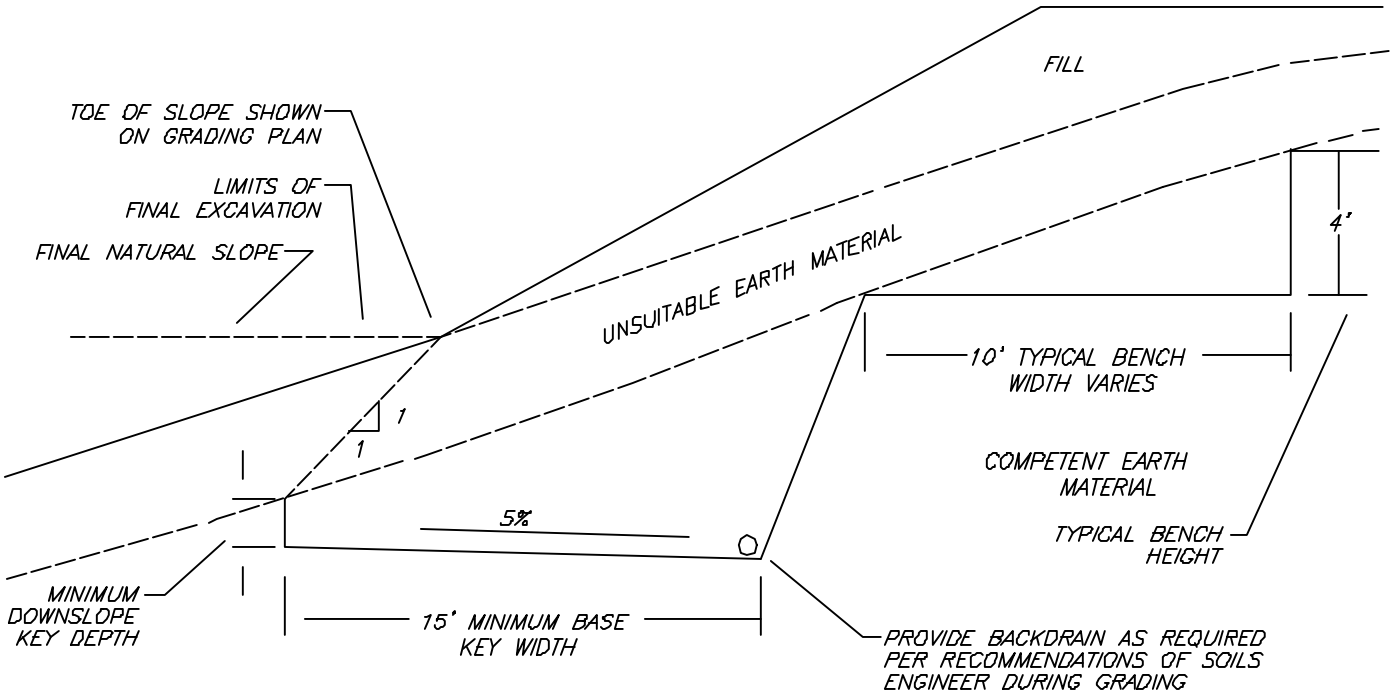
TYPICAL SHEAR KEY DETAIL

GENERAL EARTHWORK AND GRADING SPECIFICATIONS
SHEET 4



WHERE NATURAL SLOPE IS 5:1 OR LESS, BENCHING IS NOT NECESSARY, HOWEVER, FILL IS NOT TO BE PLACED ON COMPRESSIBLE OR UNSUITABLE MATERIAL.

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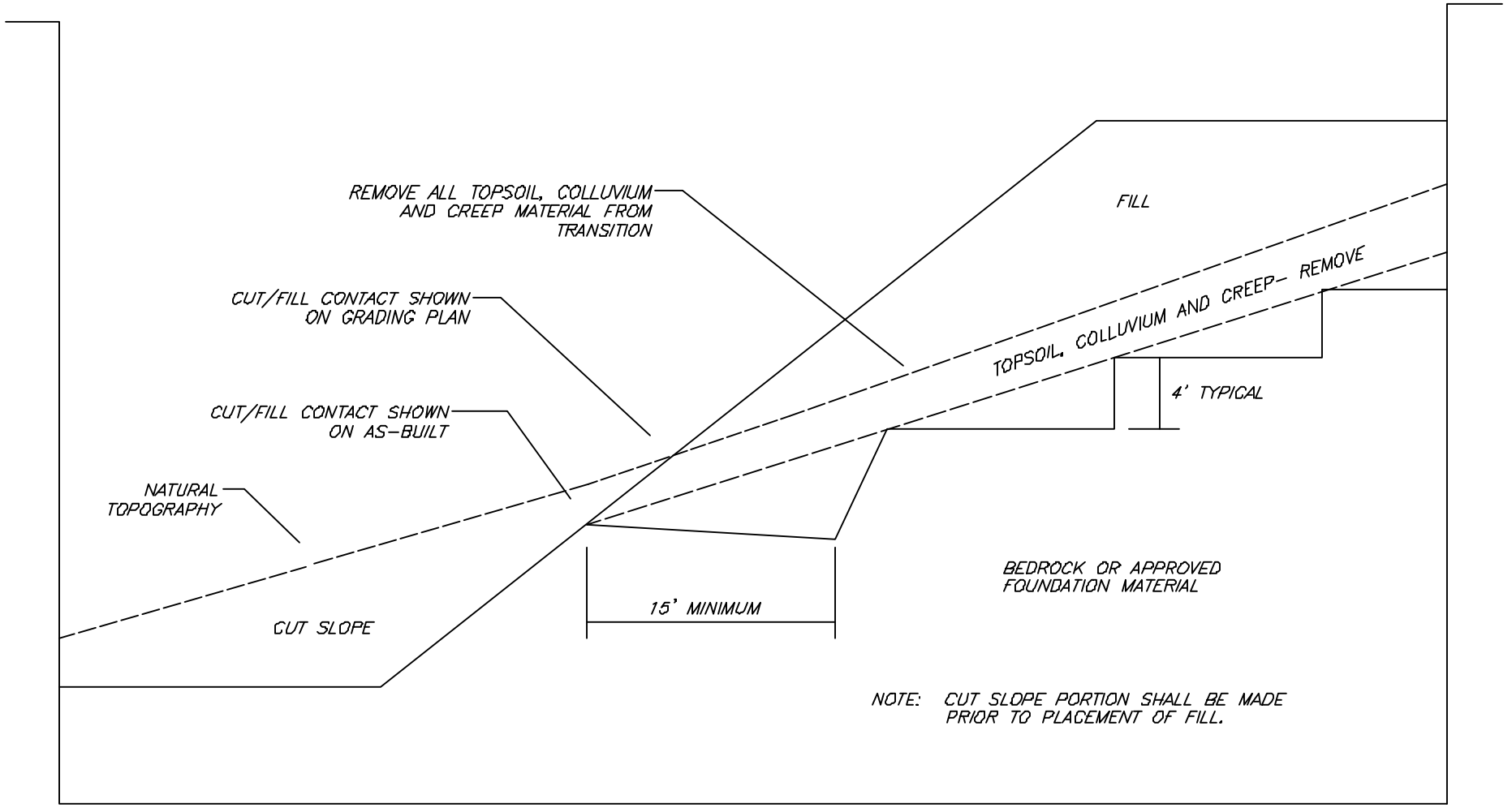
FILL SLOPE ABOVE NATURAL GROUND DETAIL

GENERAL EARTHWORK AND GRADING SPECIFICATIONS
SHEET 5



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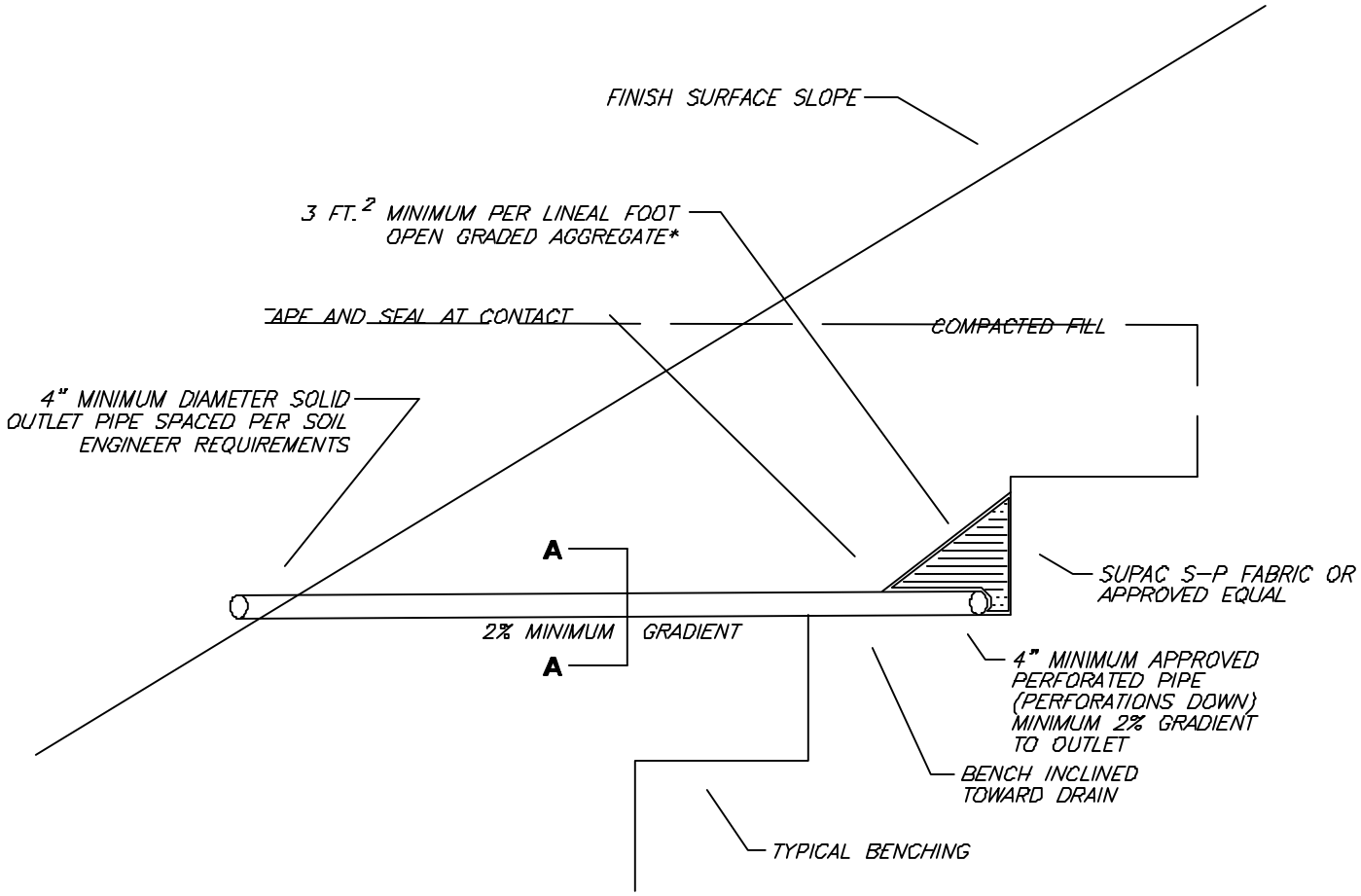
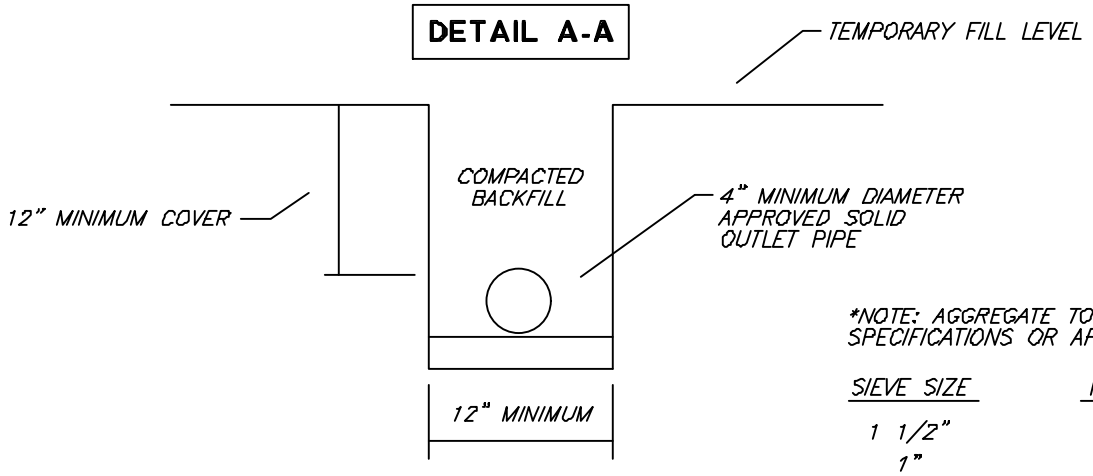
FILL SLOPE ABOVE CUT SLOPE DETAIL

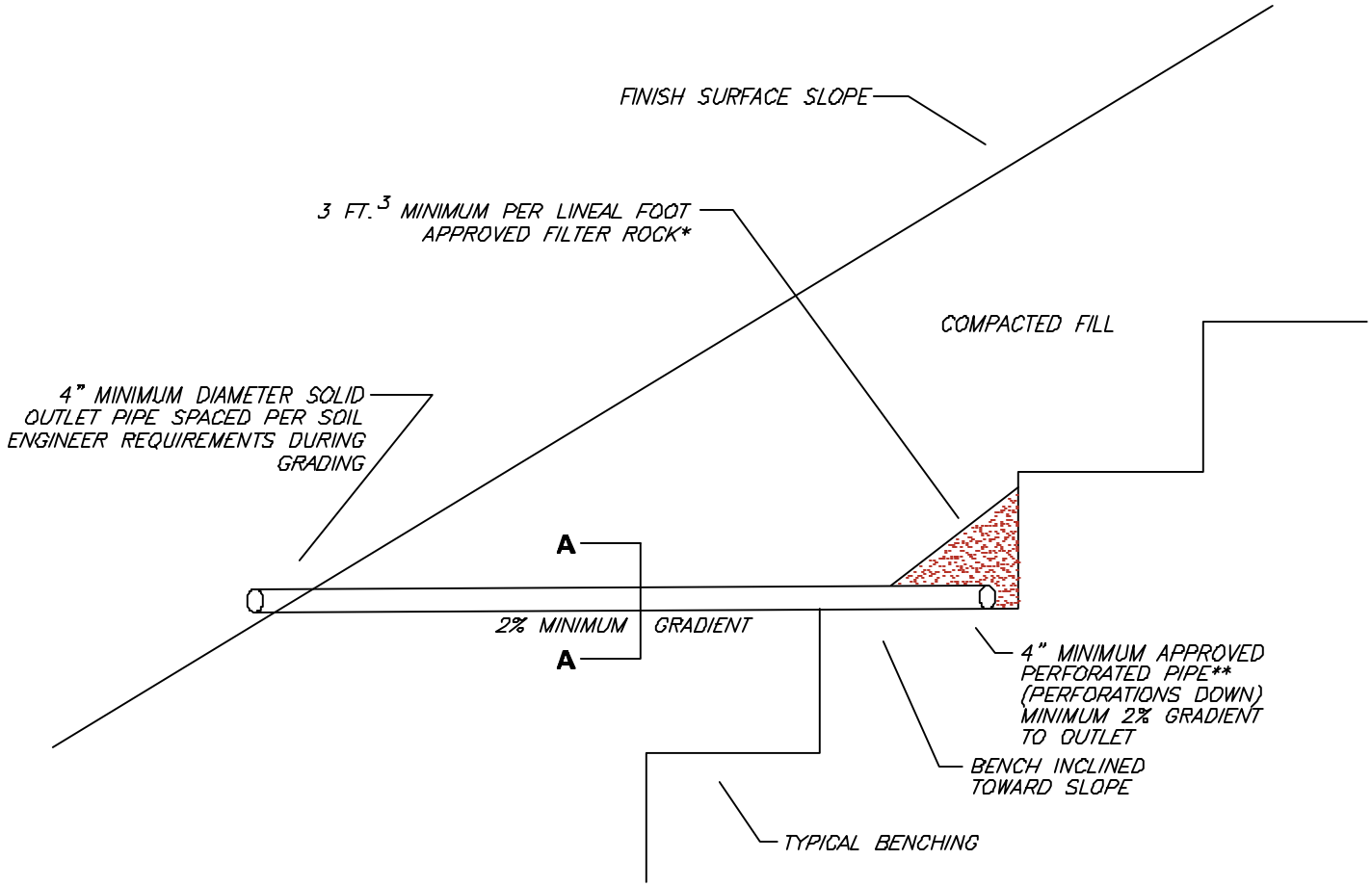
GENERAL EARTHWORK AND GRADING SPECIFICATIONS
SHEET 6



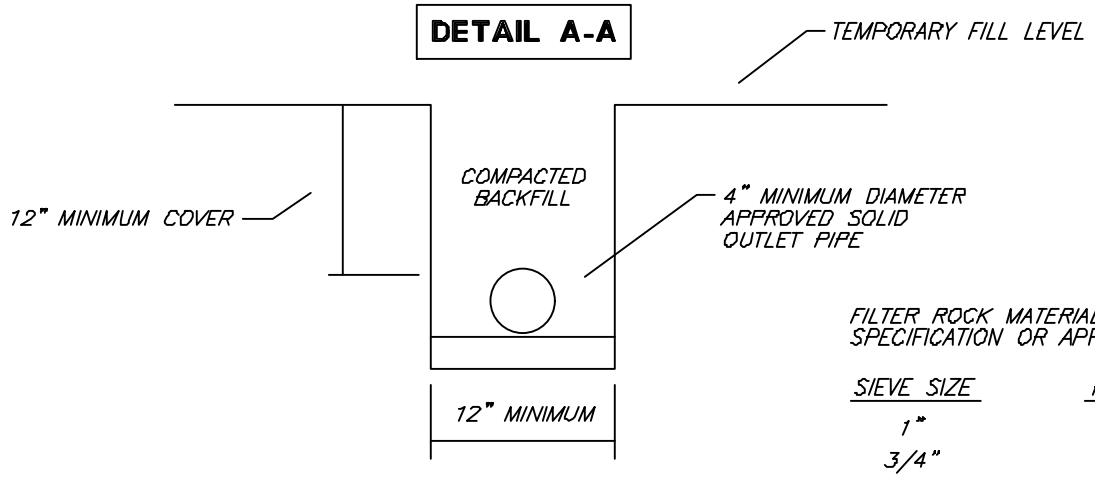


*NOTE: AGGREGATE TO MEET FOLLOWING SPECIFICATIONS OR APPROVED EQUAL:

SIEVE SIZE	PERCENTAGE PASSING
1 1/2"	100
1"	5-40
3/4"	0-17
3/8"	0-7
NO. 200	0-3



DETAIL A-A



FILTER ROCK MATERIAL TO MEET FOLLOWING SPECIFICATION OR APPROVED EQUAL:

SIEVE SIZE	PERCENTAGE
1"	100
3/4"	90–100
3/8"	40–100
NO. 4	25–40
NO. 30	5–15
NO. 50	0–7
NO. 200	0–3

**APPROVED PIPE TYPE:

SCHEDULE 40 POLYVINYL CHLORIDE (P.V.C.) OR APPROVED EQUAL. MINIMUM CRUSH STRENGTH 1000 PSI.

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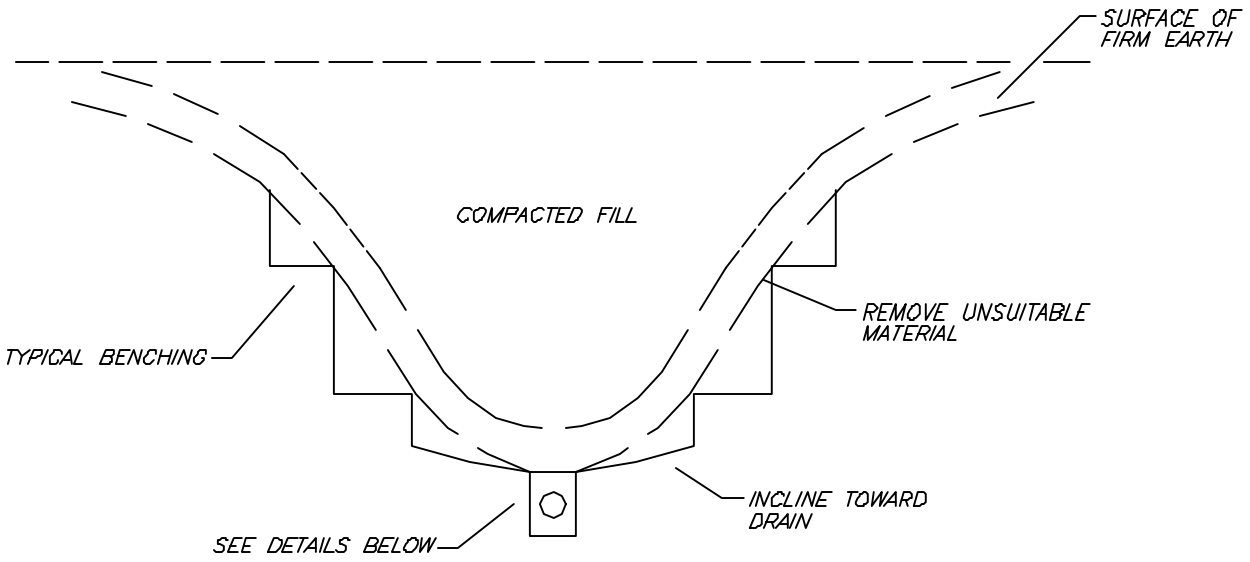
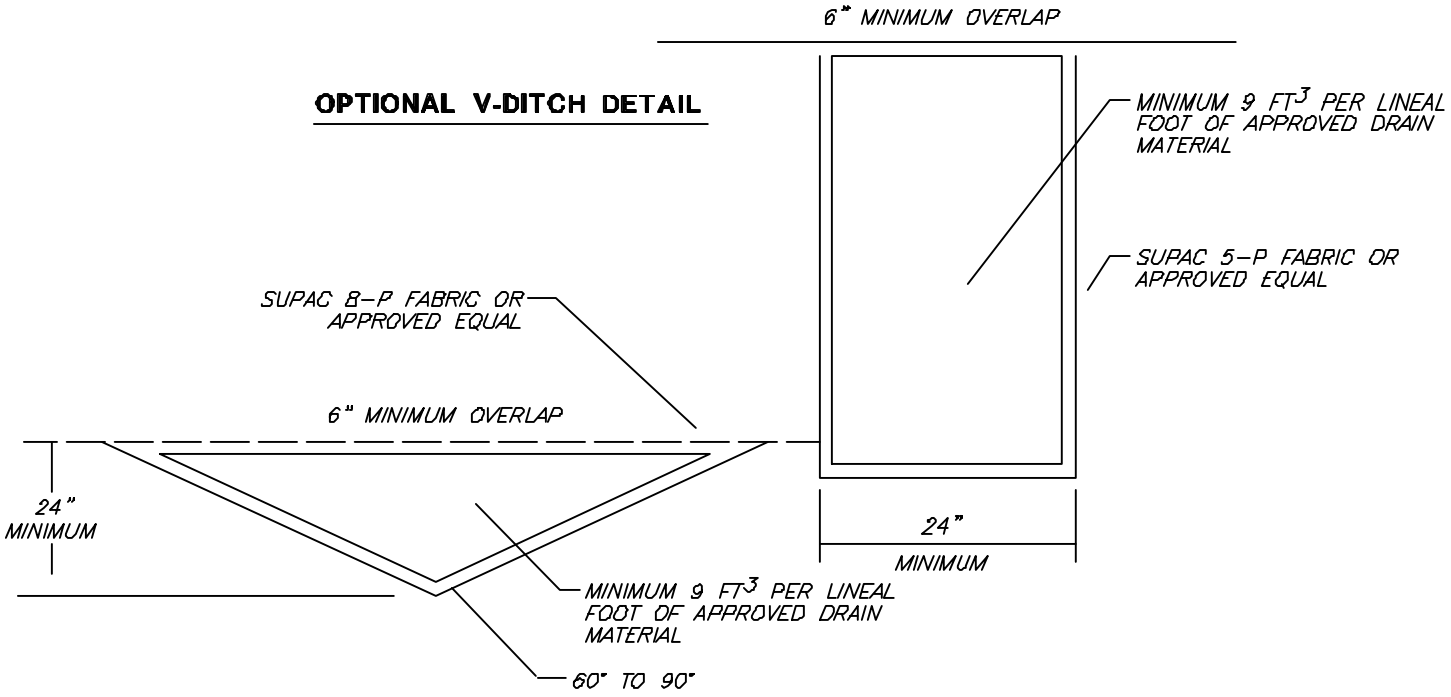
TYPICAL BACKDRAIN DETAIL

GENERAL EARTHWORK AND GRADING SPECIFICATIONS
SHEET 8



TRENCH DETAIL

OPTIONAL V-DITCH DETAIL



DRAIN MATERIAL TO MEET FOLLOWING SPECIFICATION OR APPROVED EQUAL:

SIEVE SIZE	PERCENTAGE PASSING
1-1/2"	88-100
1"	5-40
3/4"	0-17
3/8"	0-7
NO.:200	0-3

ADD MINIMUM 4" DIAMETER APPROVED PERFORATED PIPE WHEN GRADIENT IS LESS THAN 2%

APPROVED PIPE TO BE SCHEDULE 40 POLY-VINYL-CHLORIDE (P.V.C.) OR APPROVED EQUAL. MINIMUM CRUSH STRENGTH 1000 psi.

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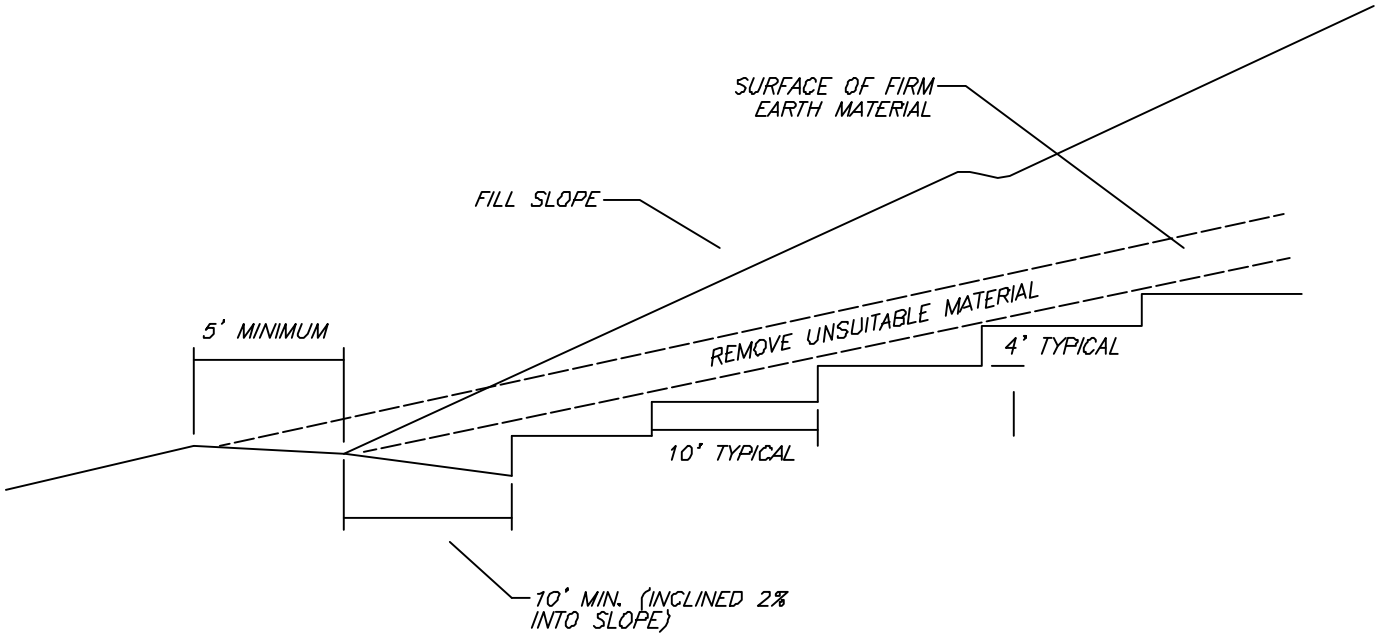
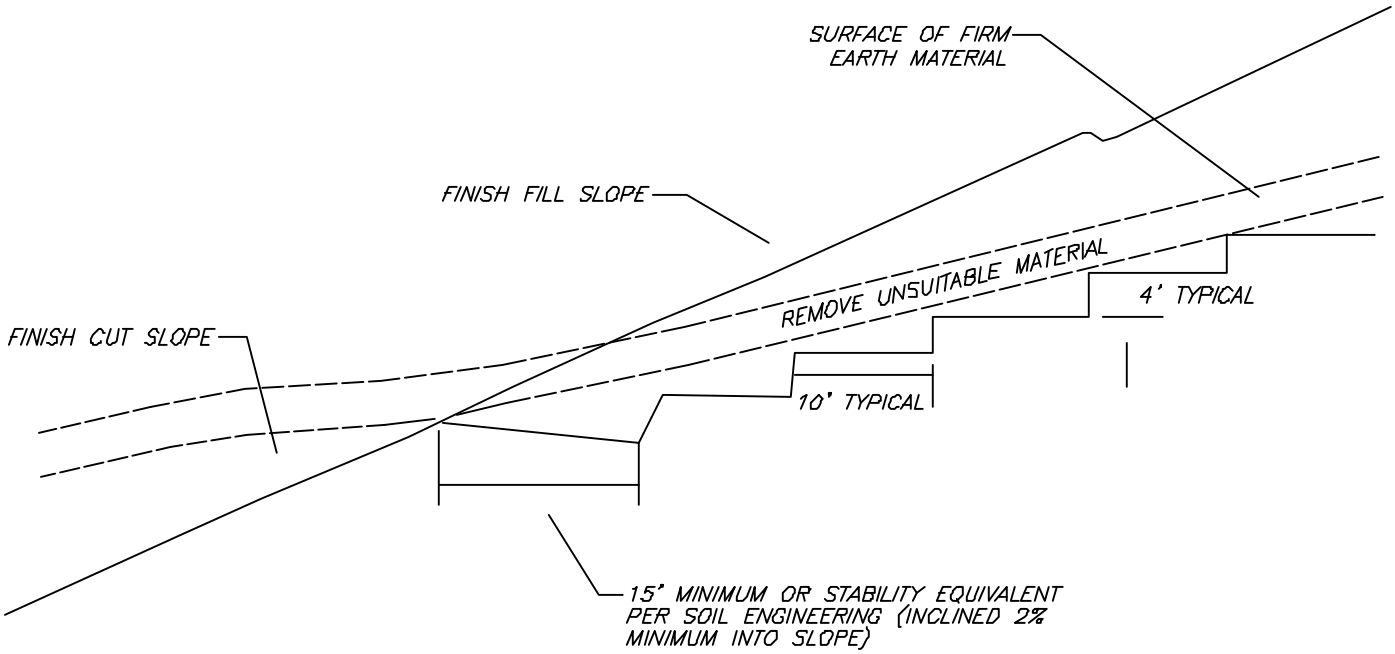
GEOFABRIC SUBDRAIN DETAIL

GENERAL EARTHWORK AND GRADING SPECIFICATIONS
SHEET 9

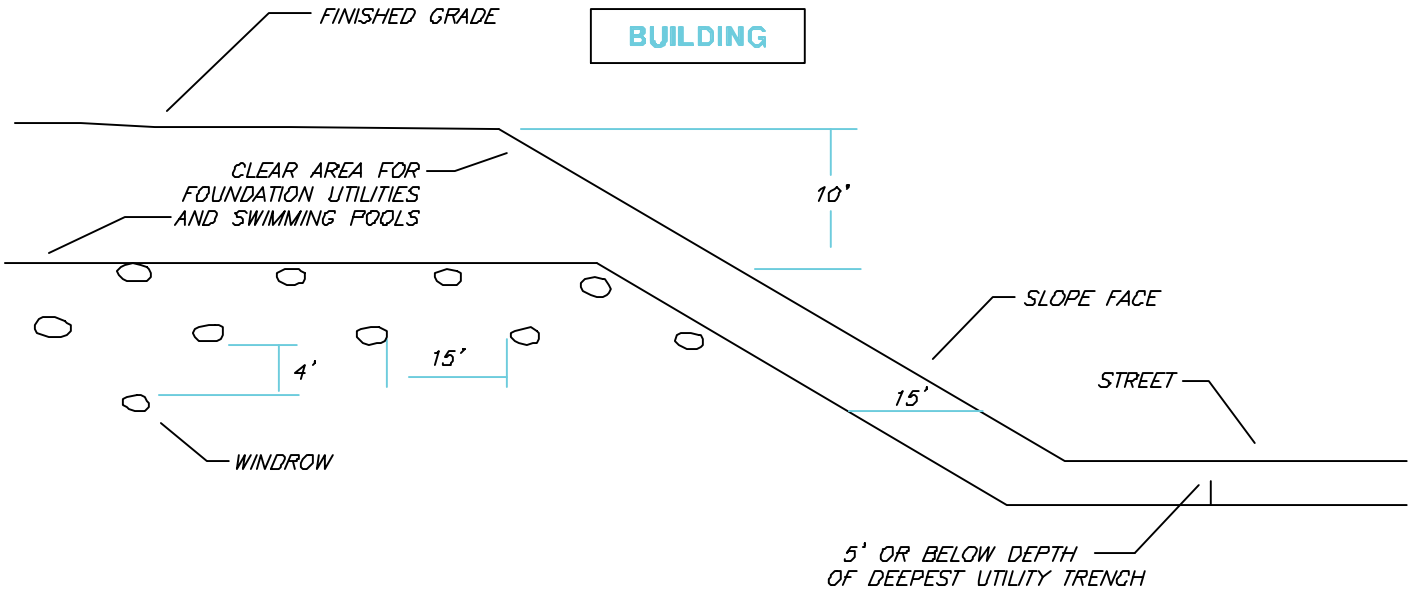
BENCHING FILL OVER NATURAL



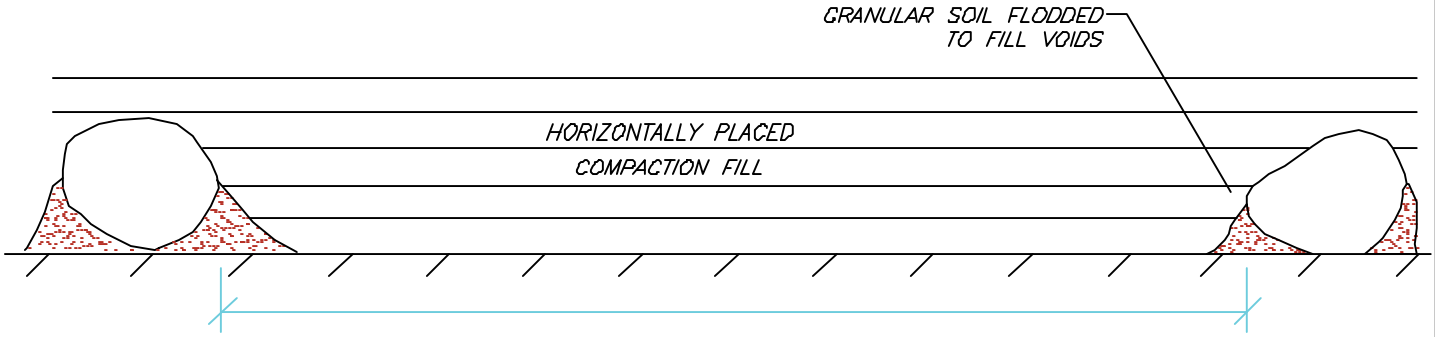
BENCHING FILL OVER CUT



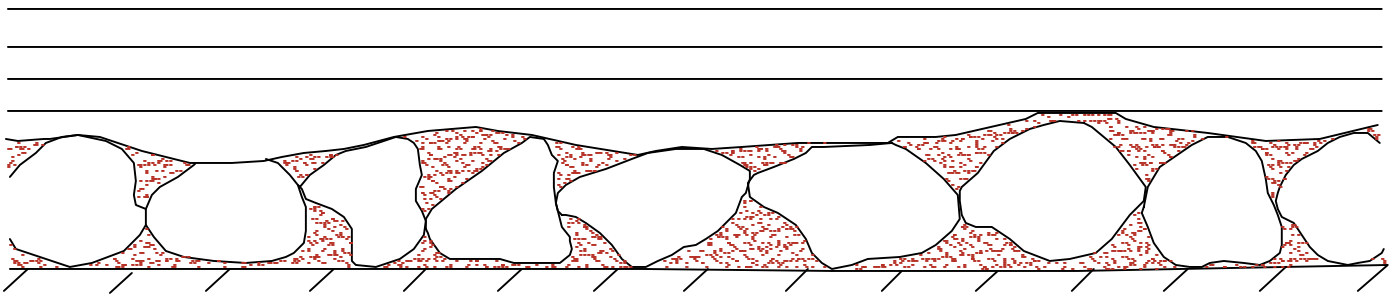
geomat	BENCHING FOR COMPACTED FILL DETAIL	GENERAL EARTHWORK AND GRADING SPECIFICATIONS SHEET 10

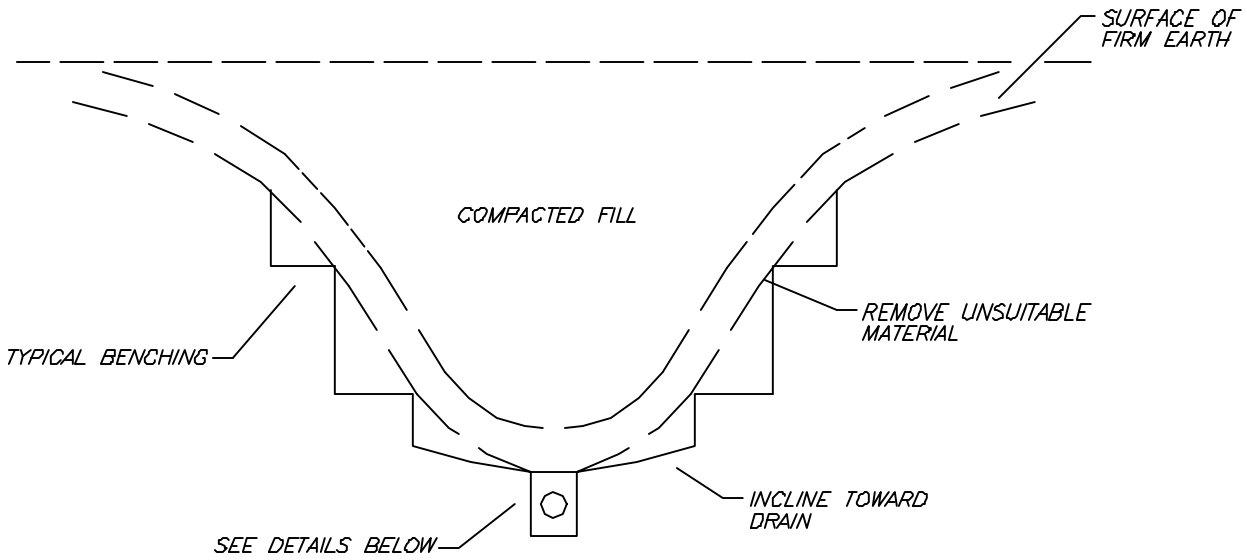


TYPICAL WINDROW DETAIL (EDGE VIEW)

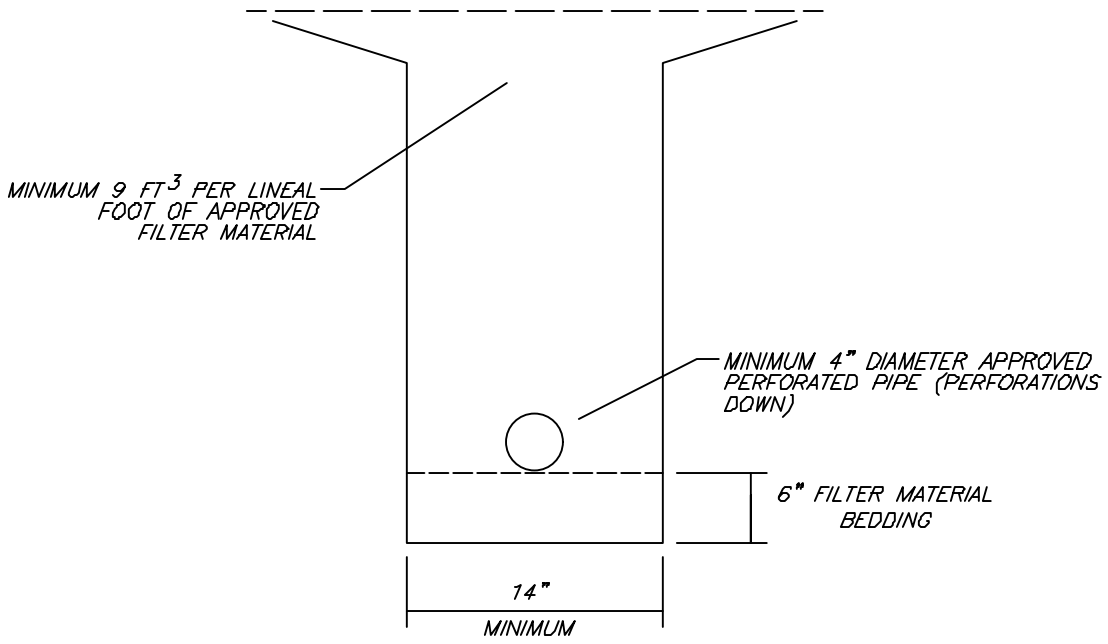


PROFILE VIEW





TRENCH DETAIL



FILTER MATERIAL TO MEET FOLLOWING SPECIFICATION OR APPROVED EQUAL:

SIEVE SIZE	PERCENTAGE
1"	100
3/4"	90–100
3/8"	40–100
NO. 4	25–40
NO. 30	5–15
NO. 50	0–7
NO. 200	0–3

APPROVED PIPE TO BE SCHEDULE 40 POLY–VINYL–CHLORIDE (P.V.C.) OR APPROVED EQUAL. MINIMUM CRUSH STRENGTH 1000 psi.

PIPE DIAMETER TO MEET THE FOLLOWING CRITERIA. SUBJECT TO FIELD REVIEW BASED ON ACTUAL GEOTECHNICAL CONDITIONS ENCOUNTERED DURING GRADING.

LENGTH OF RUN	PIPE DIAMETER
UPPER 500'	4"
NEXT 1000'	6"
> 1500'	8"

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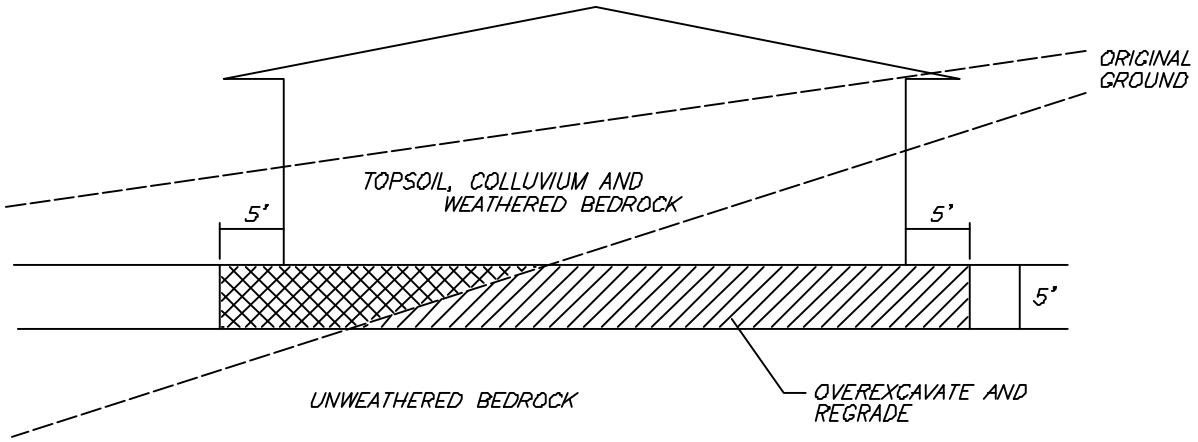
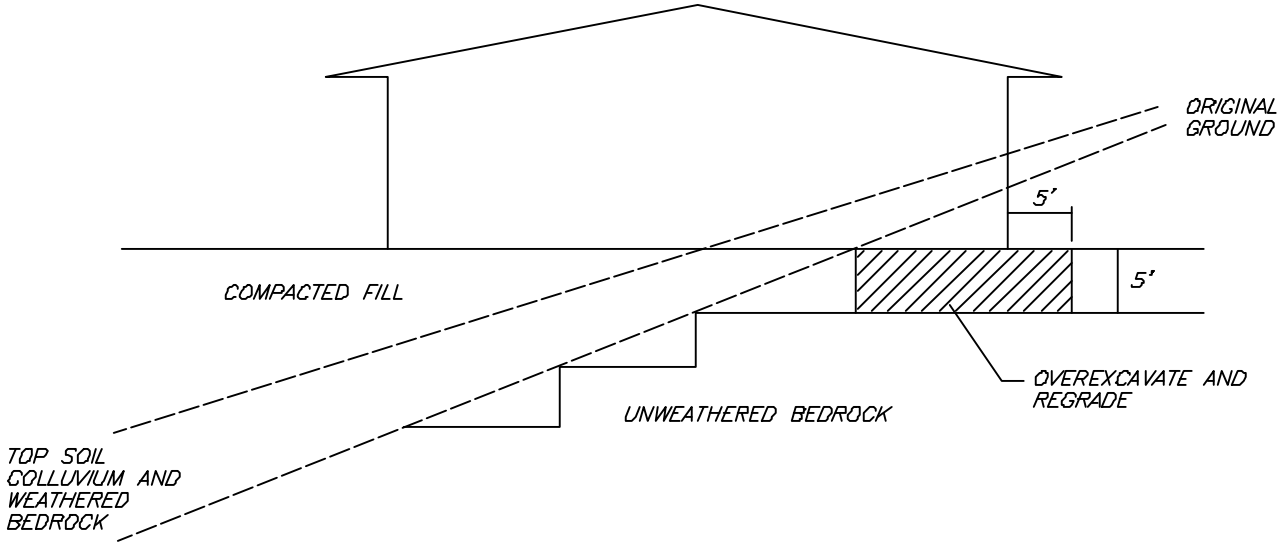
TYPICAL CANYON SUBDRAIN DETAIL

GENERAL EARTHWORK AND GRADING SPECIFICATIONS
SHEET 12

CUT LOT



CUT/FILL LOT (TRANSITION)



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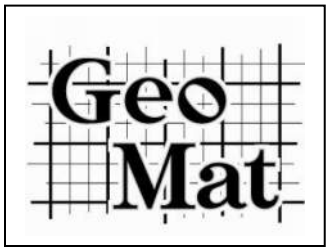
TRANSITION LOT DETAIL

GENERAL EARTHWORK AND GRADING SPECIFICATIONS
SHEET 13

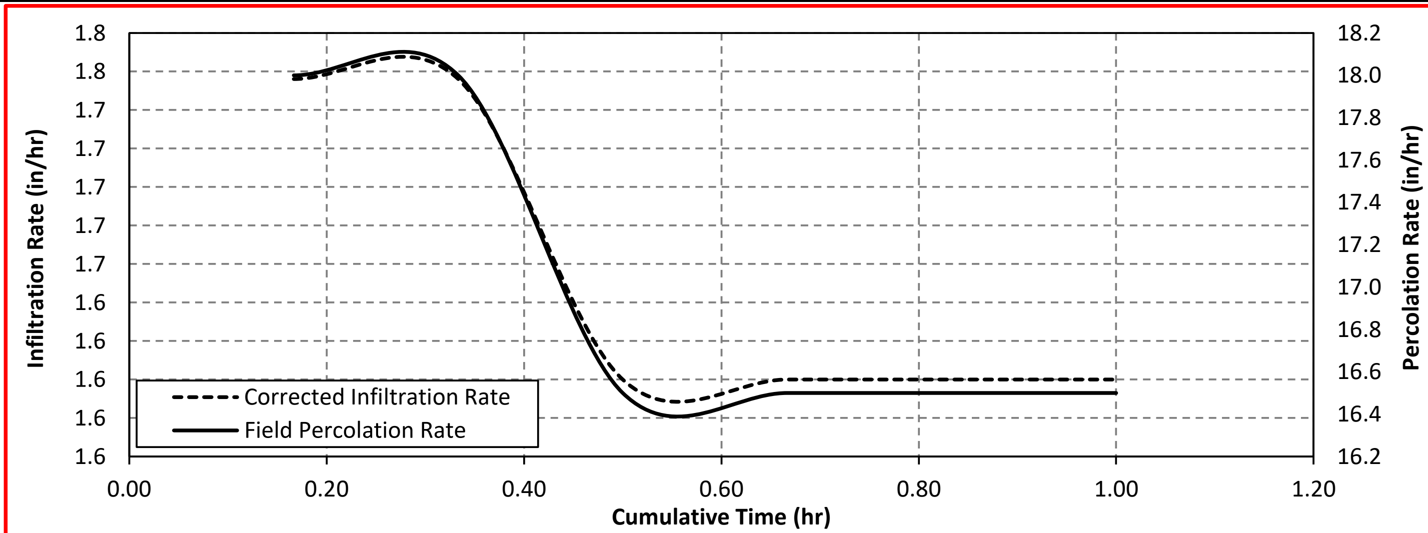
APPENDIX G



PERCOLATION TEST - P-1

Project No.	20054-01	Project Name	791 South Waterman Avenue, San Bernardino, CA
Project Location	791 South Waterman Avenue, San Bernardino, CA	Soak Method	5 gallons
Drilling Date	3/12/2020	Soak Date	3/18/2020
Depth of Hole (in)	96		
Testing Date	3/19/2020	Borehole Diameter (in)	8
Test Refill Depth (in)	20		

CRITERIA	TIME	TIME INTERVAL (min)	D_0, INITIAL DEPTH TO WATER (in)	D_f, FINAL DEPTH TO WATER (in)	ΔH, WATER DROP (in)	AVERAGE WETTED DEPTH (in)	PERC RATE (min/in)	PERC RATE (in/hr)	CORRECTED* INFILTRATION RATE (in/hr)
Sandy Soil Criteria	0:00:00 / 0:15:00	0:15:00 / 15.00	76	82	6	*Corrected utilizing the Porchet Method			
	0:00:00 / 0:22:00	0:22:00 / 22.00	76	82	6	Was Sandy Soil Criteria Met?			YES
Percolation Test Data	0:00:00 / 0:10:00	0:10:00 / 10.00	76	79	3	18.5	3.33	18.00	1.76
	0:00:00 / 0:10:00	0:10:00 / 10.00	76	79	3	18.5	3.33	18.00	1.76
	0:00:00 / 0:10:00	0:10:00 / 10.00	76	78.75	2.75	18.625	3.64	16.50	1.60
	0:00:00 / 0:10:00	0:10:00 / 10.00	76	78.75	2.75	18.625	3.64	16.50	1.60
	0:00:00 / 0:10:00	0:10:00 / 10.00	76	78.75	2.75	18.625	3.64	16.50	1.60
	0:00:00 / 0:10:00	0:10:00 / 10.00	76	78.75	2.75	18.625	3.64	16.50	1.60



PERCOLATION TEST - P-2

Project No.	20054-01	Project Name	791 South Waterman Avenue, San Bernardino, CA
Project Location	791 South Waterman Avenue, San Bernardino, CA	Soak Method	5 gallons
Drilling Date	3/12/2020	Soak Date	3/18/2020
		Depth of Hole (in)	48
Testing Date	3/19/2020	Borehole Diameter (in)	8
		Test Refill Depth (in)	20

CRITERIA	TIME	TIME INTERVAL (min)	D_0, INITIAL DEPTH TO WATER (in)	D_f, FINAL DEPTH TO WATER (in)	ΔH, WATER DROP (in)	AVERAGE WETTED DEPTH (in)	PERC RATE (min/in)	PERC RATE (in/hr)	CORRECTED* INFILTRATION RATE (in/hr)
Sandy Soil Criteria						*Corrected utilizing the Porchet Method			
						Was Sandy Soil Criteria Met?			NO
Percolation Test Data	0:00:00	0:30:00	28	34	6	17	5.00	12.00	1.26
	0:30:00	30.00							
	0:00:00	0:30:00	28	32.25	4.25	17.875	7.06	8.50	0.86
	0:30:00	30.00							
	0:00:00	0:30:00	28	31.75	3.75	18.125	8.00	7.50	0.75
	0:30:00	30.00							
	0:00:00	0:30:00	28	31.5	3.5	18.25	8.57	7.00	0.69
	0:30:00	30.00							
	0:00:00	0:30:00	28	31.5	3.5	18.25	8.57	7.00	0.69
	0:30:00	30.00							
	0:00:00	0:30:00	28	31.5	3.5	18.25	8.57	7.00	0.69
	0:30:00	30.00							
	0:00:00	0:30:00	28	31.5	3.5	18.25	8.57	7.00	0.69
	0:30:00	30.00							
	0:00:00	0:30:00	28	31.5	3.5	18.25	8.57	7.00	0.69
	0:30:00	30.00							
	0:00:00	0:30:00	28	31.5	3.5	18.25	8.57	7.00	0.69
	0:30:00	30.00							
	0:00:00	0:30:00	28	31.5	3.5	18.25	8.57	7.00	0.69
	0:30:00	30.00							
	0:00:00	0:30:00	28	31.5	3.5	18.25	8.57	7.00	0.69
	0:30:00	30.00							
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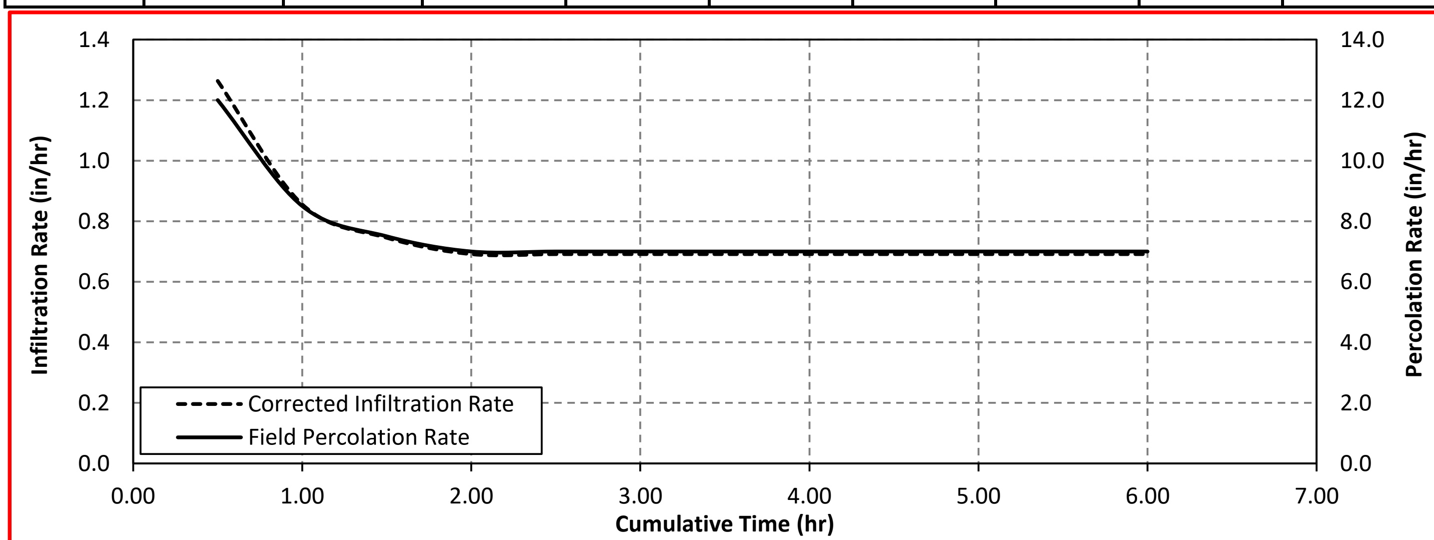
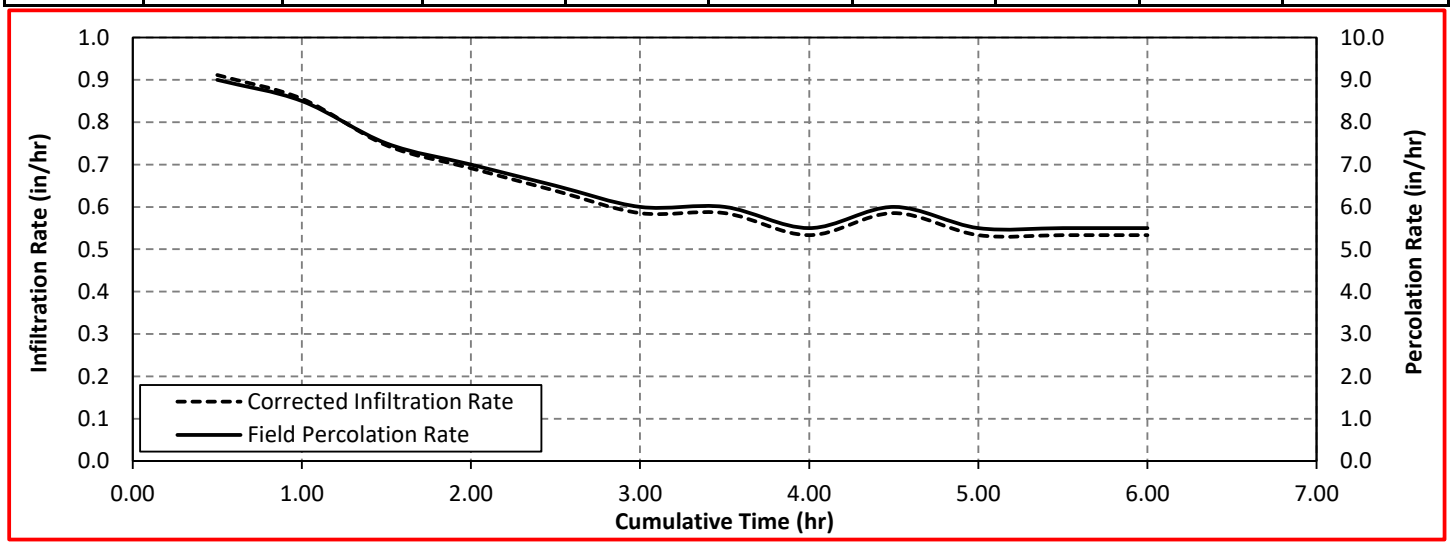
	0:30:00	30.00							



PERCOLATION TEST - P-3

Project No.	20054-01	Project Name	791 South Waterman Avenue, San Bernardino, CA		
Project Location	791 South Waterman Avenue, San Bernardino, CA			Soak Method	5 gallons
Drilling Date	3/12/2020	Soak Date	3/18/2020	Depth of Hole (in)	96
Testing Date	3/19/2020	Borehole Diameter (in)	8	Test Refill Depth (in)	20

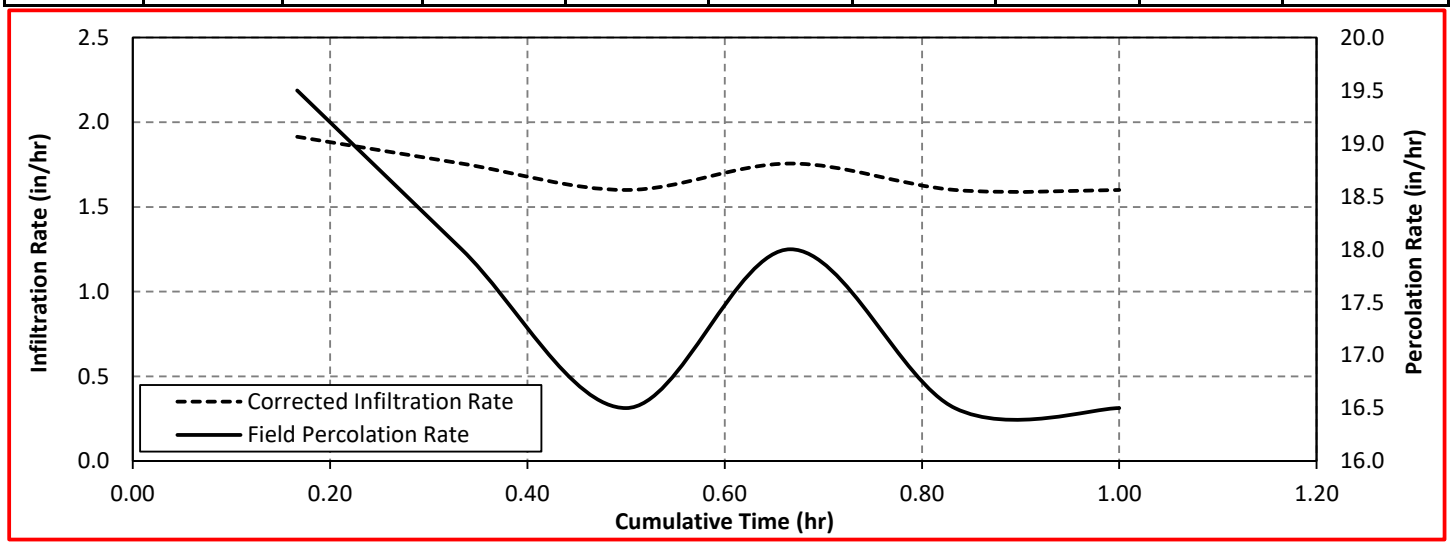
CRITERIA	TIME	TIME INTERVAL (min)	D_0, INITIAL DEPTH TO WATER (in)	D_f, FINAL DEPTH TO WATER (in)	ΔH, WATER DROP (in)	AVERAGE WETTED DEPTH (in)	PERC RATE (min/in)	PERC RATE (in/hr)	CORRECTED* INFILTRATION RATE (in/hr)
Sandy Soil Criteria						*Corrected utilizing the Porchet Method			
						Was Sandy Soil Criteria Met?			NO
Percolation Test Data	0:00:00	0:30:00	76	80.5	4.5	17.75	6.67	9.00	0.91
	0:30:00	30.00							
	0:00:00	0:30:00	76	80.25	4.25	17.875	7.06	8.50	0.86
	0:30:00	30.00							
	0:00:00	0:30:00	76	79.75	3.75	18.125	8.00	7.50	0.75
	0:30:00	30.00							
	0:00:00	0:30:00	76	79.5	3.5	18.25	8.57	7.00	0.69
	0:30:00	30.00							
	0:00:00	0:30:00	76	79.25	3.25	18.375	9.23	6.50	0.64
	0:30:00	30.00							
	0:00:00	0:30:00	76	79	3	18.5	10.00	6.00	0.59
	0:30:00	30.00							
	0:00:00	0:30:00	76	79	3	18.5	10.00	6.00	0.59
	0:30:00	30.00							
	0:00:00	0:30:00	76	78.75	2.75	18.625	10.91	5.50	0.53
	0:30:00	30.00							
	0:00:00	0:30:00	76	79	3	18.5	10.00	6.00	0.59
	0:30:00	30.00							
	0:00:00	0:30:00	76	78.75	2.75	18.625	10.91	5.50	0.53
	0:30:00	30.00							
	0:00:00	0:30:00	76	78.75	2.75	18.625	10.91	5.50	0.53
	0:30:00	30.00							
	0:00:00	0:30:00	76	78.75	2.75	18.625	10.91	5.50	0.53
	0:30:00	30.00							



PERCOLATION TEST - P-4

Project No.	20054-01	Project Name	791 South Waterman Avenue, San Bernardino, CA		
Project Location	791 South Waterman Avenue, San Bernardino, CA			Soak Method	5 gallons
Drilling Date	3/12/2020	Soak Date	3/18/2020	Depth of Hole (in)	48
Testing Date	3/19/2020	Borehole Diameter (in)	8	Test Refill Depth (in)	20

CRITERIA	TIME	TIME INTERVAL (min)	D_0, INITIAL DEPTH TO WATER (in)	D_f, FINAL DEPTH TO WATER (in)	ΔH, WATER DROP (in)	AVERAGE WETTED DEPTH (in)	PERC RATE (min/in)	PERC RATE (in/hr)	CORRECTED* INFILTRATION RATE (in/hr)
Sandy Soil Criteria	0:00:00	0:17:00	28	34	6	*Corrected utilizing the Porchet Method			
	0:17:00	17.00							
	0:00:00	0:18:00	28	34	6	Was Sandy Soil Criteria Met?			YES
	0:18:00	18.00							
Percolation Test Data	0:00:00	0:10:00	28	31.25	3.25	18.375	3.08	19.50	1.91
	0:10:00	10.00							
	0:00:00	0:10:00	28	31	3	18.5	3.33	18.00	1.76
	0:10:00	10.00							
	0:00:00	0:10:00	28	30.75	2.75	18.625	3.64	16.50	1.60
	0:10:00	10.00							
	0:00:00	0:10:00	28	31	3	18.5	3.33	18.00	1.76
	0:10:00	10.00							
	0:00:00	0:10:00	28	30.75	2.75	18.625	3.64	16.50	1.60
	0:10:00	10.00							
	0:00:00	0:10:00	28	30.75	2.75	18.625	3.64	16.50	1.60
	0:10:00	10.00							



Appendix – D

Preliminary Water Quality Management Plan

Water Quality Management Plan

For:

Amazing 34 Warehouse

Prepared for:

TR Design Group, Inc

7179 Magnolia Avenue

Riverside, CA 92504

(951) 742-7179

Prepared by:

adkan
ENGINEERS

6879 Airport Drive

Riverside, CA 92504

(951) 688-0241

Submittal Date: June 8, 2020

Revision Date: _____

Approval Date:_____

Project Owner's Certification

This Water Quality Management Plan (WQMP) has been prepared for Amazing 34 by Adkan Engineers. The WQMP is intended to comply with the requirements of the City of San Bernardino and the NPDES Areawide Stormwater Program requiring the preparation of a WQMP. The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with San Bernardino County's Municipal Storm Water Management Program and the intent of the NPDES Permit for San Bernardino County and the incorporated cities of San Bernardino County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors in interest and the city/county shall be notified of the transfer. The new owner will be informed of its responsibility under this WQMP. A copy of the approved WQMP shall be available on the subject site in perpetuity.

"I certify under a penalty of law that the provisions (implementation, operation, maintenance, and funding) of the WQMP have been accepted and that the plan will be transferred to future successors."

.

Project Data			
Permit/Application Number(s):		Grading Permit Number(s):	
Tract/Parcel Map Number(s):		Building Permit Number(s):	
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			

Owner's Signature			
Owner Name: Nabeel Shaikh			
Title			
Company	Amazing 34, LLC.		
Address	15 W. 34th Street 7th Floor, New York, NY 10001		
Email			
Telephone #	(212) 742-7179		
Signature		Date	

Preparer's Certification

Project Data			
Permit/Application Number(s):		Grading Permit Number(s):	
Tract/Parcel Map Number(s):		Building Permit Number(s):	
CUP, SUP, and/or APN (Specify Lot Numbers if Portions of Tract):			

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan were prepared under my oversight and meet the requirements of Regional Water Quality Control Board Order No. R8-2010-0036."

Engineer: Michael Brendecke		PE Stamp Below
Title	Project Manager	
Company	Adkan Engineers	
Address	6879 Airport Drive, Riverside CA 92504	
Email	mbrendecke@adkan.com	
Telephone #	(9510 688-0241	
Signature		
Date		

Table of Contents

Forms

Section 1 Discretionary Permit(s)

Form 1-1 Project Information					
Project Name	Amazing 34 Warehouse				
Project Owner Contact Name:	Nabeel Shaikh				
Mailing Address:	15 W. 34th Street 7th Floor	E-mail Address:		Telephone:	212-695-0998
Permit/Application Number(s):		Tract/Parcel Map Number(s):			
Additional Information/ Comments:					
Description of Project:	Will consist of a new 79,854square foot tilt up warehouse				
Provide summary of Conceptual WQMP conditions (if previously submitted and approved). Attach complete copy.					

Section 2 Project Description

2.1 Project Information

This section of the WQMP should provide the information listed below. The information provided for Conceptual/ Preliminary WQMP should give sufficient detail to identify the major proposed site design and LID BMPs and other anticipated water quality features that impact site planning. Final Project WQMP must specifically identify all BMP incorporated into the final site design and provide other detailed information as described herein.

The purpose of this information is to help determine the applicable development category, pollutants of concern, watershed description, and long term maintenance responsibilities for the project, and any applicable water quality credits. This information will be used in conjunction with the information in Section 3, Site Description, to establish the performance criteria and to select the LID BMP or other BMP for the project or other alternative programs that the project will participate in, which are described in Section 4.

Form 2.1-1 Description of Proposed Project

1 Development Category (Select all that apply):

☒ Significant re-development involving the addition or replacement of 5,000 ft² or more of impervious surface on an already developed site	☐ New development involving the creation of 10,000 ft² or more of impervious surface collectively over entire site	☐ Automotive repair shops with standard industrial classification (SIC) codes 5013, 5014, 5541, 7532- 7534, 7536-7539	☐ Restaurants (with SIC code 5812) where the land area of development is 5,000 ft² or more
☐ Hillside developments of 5,000 ft² or more which are located on areas with known erosive soil conditions or where the natural slope is 25 percent or more	☐ Developments of 2,500 ft² of impervious surface or more adjacent to (within 200 ft) or discharging directly into environmentally sensitive areas or waterbodies listed on the CWA Section 303(d) list of impaired waters.	☐ Parking lots of 5,000 ft² or more exposed to storm water	☐ Retail gasoline outlets that are either 5,000 ft² or more, or have a projected average daily traffic of 100 or more vehicles per day

☐ Non-Priority / Non-Category Project *May require source control LID BMPs and other LIP requirements. Please consult with local jurisdiction on specific requirements*.

2 Project Area (ft2):	172,543	**3** Number of Dwelling Units:	0	**4** SIC Code:	1541

5 Is Project going to be phased? Yes ☐ No ☒ *If yes, ensure that the WQMP evaluates each phase as a distinct DA, requiring LID BMPs to address runoff at time of completion.*

6 Does Project include roads? Yes ☐ No ☒ *If yes, ensure that applicable requirements for transportation projects are addressed (see Appendix A of TGD for WQMP)*

2.2 Property Ownership/Management

Describe the ownership/management of all portions of the project and site. State whether any infrastructure will transfer to public agencies (City, County, Caltrans, etc.) after project completion. State if a homeowners or property owners association will be formed and be responsible for the long-term maintenance of project stormwater facilities. Describe any lot-level stormwater features that will be the responsibility of individual property owners.

Form 2.2-1 Property Ownership/Management

Describe property ownership/management responsible for long-term maintenance of WQMP stormwater facilities:

Amazing34, LLC
15 W. 34th Street 7th Floor
New York, NY 10001
(212) 695-0998

2.3 Potential Stormwater Pollutants

Determine and describe expected stormwater pollutants of concern based on land uses and site activities (refer to Table 3-3 in the TGD for WQMP).

Form 2.3-1 Pollutants of Concern			
Pollutant	Please check: E=Expected, N=Not Expected		Additional Information and Comments
Pathogens (Bacterial / Virus)	E ☒	N ☐	
Nutrients - Phosphorous	E ☒	N ☐	
Nutrients - Nitrogen	E ☒	N ☐	
Noxious Aquatic Plants	E ☐	N ☒	
Sediment	E ☒	N ☐	
Metals	E ☒	N ☐	
Oil and Grease	E ☒	N ☐	
Trash/Debris	E ☒	N ☐	
Pesticides / Herbicides	E ☒	N ☐	
Organic Compounds	E ☒	N ☐	

2.4 Water Quality Credits

A water quality credit program is applicable for certain types of development projects if it is not feasible to meet the requirements for on-site LID. Proponents for eligible projects, as described below, can apply for water quality credits that would reduce project obligations for selecting and sizing other treatment BMP or participating in other alternative compliance programs. Refer to Section 6.2 in the TGD for WQMP to determine if water quality credits are applicable for the project.

Form 2.4-1 Water Quality Credits

1 Project Types that Qualify for Water Quality Credits: *Select all that apply*			
☐ Redevelopment projects that reduce the overall impervious footprint of the project site. [Credit = % impervious reduced]	Higher density development projects ☐ Vertical density [20%] ☐ 7 units/ acre [5%]	☐ Mixed use development, (combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that demonstrate environmental benefits not realized through single use projects) [20%]	☐ Brownfield redevelopment (redevelop real property complicated by presence or potential of hazardous contaminants) [25%]
☐ Redevelopment projects in established historic district, historic preservation area, or similar significant core city center areas [10%]	☐ Transit-oriented developments (mixed use residential or commercial area designed to maximize access to public transportation) [20%]	☐ In-fill projects (conversion of empty lots & other underused spaces < 5 acres, substantially surrounded by urban land uses, into more beneficially used spaces, such as residential or commercial areas) [10%]	☐ Live-Work developments (variety of developments designed to support residential and vocational needs) [20%]
2 Total Credit % *(Total all credit percentages up to a maximum allowable credit of 50 percent)*			
Description of Water Quality Credit Eligibility (if applicable)			

Section 3 Site and Watershed Description

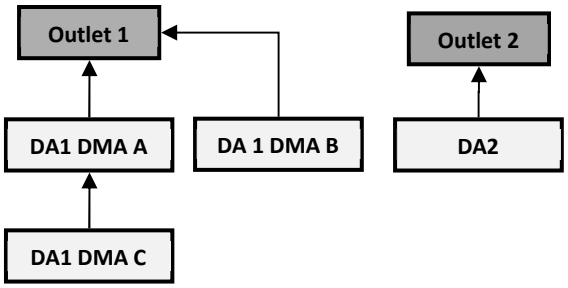
Describe the project site conditions that will facilitate the selection of BMP through an analysis of the physical conditions and limitations of the site and its receiving waters. Identify distinct drainage areas (DA) that collect flow from a portion of the site and describe how runoff from each DA (and sub-watershed DMAs) is conveyed to the site outlet(s). Refer to Section 3.2 in the TGD for WQMP. The form below is provided as an example. Then complete Forms 3.2 and 3.3 for each DA on the project site. ***If the project has more than one drainage area for stormwater management, then complete additional versions of these forms for each DA / outlet.***

Form 3-1 Site Location and Hydrologic Features

Site coordinates *take GPS measurement at approximate center of site*	Latitude: 34.086658	Longitude: 117.277809	Thomas Bros Map page: 606

1 San Bernardino County climatic region: ☒ Valley ☐ Mountain

2 Does the site have more than one drainage area (DA): Yes☐ No☒ *If no, proceed to Form 3-2. If yes, then use this form to show a conceptual schematic describing DMAs and hydrologic feature connecting DMAs to the site outlet(s). An example is provided below that can be modified for proposed project or a drawing clearly showing DMA and flow routing may be attached*



Example only – modify for project specific WQMP using additional form

Conveyance	Briefly describe on-site drainage features to convey runoff that is not retained within a DMA
DA1 DMA C flows to DA1 DMA A	*Ex. Bioretention overflow to vegetated bioswale with 4' bottom width, 5:1 side slopes and bed slope of 0.01. Conveys runoff for 1000' through DMA 1 to existing catch basin on SE corner of property*
DA1 DMA A to Outlet 1	Flows go into bioretention at the NE corner of intersection of Waterman Ave and Central Ave. Outflows flow to existing catch basin on Waterman Ave.
DA1 DMA B to Outlet 1	
DA2 to Outlet 2	

Form 3-2 Existing Hydrologic Characteristics for Drainage Area 1

For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA A	DMA B	DMA C	DMA D
1 DMA drainage area (ft^2)	172,543			
2 Existing site impervious area (ft^2)				
3 Antecedent moisture condition *For desert areas, use http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf*				
4 Hydrologic soil group *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*	B – HaC Hanford Coarse Sandy Loam 2 to 9%			
5 Longest flowpath length (ft)				
6 Longest flowpath slope (ft/ft)				
7 Current land cover type(s) *Select from Fig C-3 of Hydrology Manual*				
8 Pre-developed pervious area condition: *Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating*	POOR	POOR	POOR	POOR

Form 3-2 Existing Hydrologic Characteristics for Drainage Area 1 (use only as needed for additional DMA w/in DA 1)				
For Drainage Area 1's sub-watershed DMA, provide the following characteristics	DMA E	DMA F	DMA G	DMA H
1 DMA drainage area (ft^2)				
2 Existing site impervious area (ft^2)				
3 Antecedent moisture condition *For desert areas, use http://www.sbcounty.gov/dpw/floodcontrol/pdf/20100412_map.pdf*				
4 Hydrologic soil group *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*				
5 Longest flowpath length (ft)				
6 Longest flowpath slope (ft/ft)				
7 Current land cover type(s) *Select from Fig C-3 of Hydrology Manual*				
8 Pre-developed pervious area condition: *Based on the extent of wet season vegetated cover good >75%; Fair 50-75%; Poor <50% Attach photos of site to support rating*				

Form 3-3 Watershed Description for Drainage Area

Receiving waters *Refer to Watershed Mapping Tool - http://permitrack.sbcounty.gov/wap/ See 'Drainage Facilities" link at this website*	Santa Ana River Reach 4
Applicable TMDLs *Refer to Local Implementation Plan*	N/A
303(d) listed impairments *Refer to Local Implementation Plan and Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/ and State Water Resources Control Board website – http://www.waterboards.ca.gov/santaana/water_issues/programs/tmdl/index.shtml*	Pathogens
Environmentally Sensitive Areas (ESA) *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*	No
Unlined Downstream Water Bodies *Refer to Watershed Mapping Tool – http://permitrack.sbcounty.gov/wap/*	No
Hydrologic Conditions of Concern	☐ Yes *Complete Hydrologic Conditions of Concern (HCOC) Assessment. Include Forms 4.2-2 through Form 4.2-5 and Hydromodification BMP Form 4.3-10 in submittal* ☒ No
Watershed–based BMP included in a RWQCB approved WAP	☐ Yes *Attach verification of regional BMP evaluation criteria in WAP* • *More Effective than On-site LID* • *Remaining Capacity for Project DCV* • *Upstream of any Water of the US* • *Operational at Project Completion* • *Long-Term Maintenance Plan* ☒ No

Section 4 Best Management Practices (BMP)

4.1 Source Control BMP

4.1.1 Pollution Prevention

Non-structural and structural source control BMP are required to be incorporated into all new development and significant redevelopment projects. Form 4.1-1 and 4.1-2 are used to describe specific source control BMPs used in the WQMP or to explain why a certain BMP is not applicable. Table 7-3 of the TGD for WQMP provides a list of applicable source control BMP for projects with specific types of potential pollutant sources or activities. The source control BMP in this table must be implemented for projects with these specific types of potential pollutant sources or activities.

The preparers of this WQMP have reviewed the source control BMP requirements for new development and significant redevelopment projects. The preparers have also reviewed the specific BMP required for project as specified in Forms 4.1-1 and 4.1-2. All applicable non-structural and structural source control BMP shall be implemented in the project.

Form 4.1-1 Non-Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N1	Education of Property Owners, Tenants and Occupants on Stormwater BMPs	☒	☐	
N2	Activity Restrictions	☒	☐	
N3	Landscape Management BMPs	☒	☐	
N4	BMP Maintenance	☒	☐	
N5	Title 22 CCR Compliance (How development will comply)	☒	☐	
N6	Local Water Quality Ordinances	☒	☐	
N7	Spill Contingency Plan	☒	☐	
N8	Underground Storage Tank Compliance	☐	☒	
N9	Hazardous Materials Disclosure Compliance	☒	☐	

Form 4.1-1 Non-Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, if not applicable, state reason
		Included	Not Applicable	
N10	Uniform Fire Code Implementation	☒	☐	
N11	Litter/Debris Control Program	☒	☐	
N12	Employee Training	☒	☐	
N13	Housekeeping of Loading Docks	☒	☐	
N14	Catch Basin Inspection Program	☒	☐	
N15	Vacuum Sweeping of Private Streets and Parking Lots	☒	☐	
N16	Other Non-structural Measures for Public Agency Projects	☐	☒	
N17	Comply with all other applicable NPDES permits	☒	☐	

Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S1	Provide storm drain system stencilling and signage (CASQA New Development BMP Handbook SD-13)	☒	☐	
S2	Design and construct outdoor material storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-34)	☐	☒	
S3	Design and construct trash and waste storage areas to reduce pollution introduction (CASQA New Development BMP Handbook SD-32)	☒	☐	
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control (Statewide Model Landscape Ordinance; CASQA New Development BMP Handbook SD-12)	☒	☐	
S5	Finish grade of landscaped areas at a minimum of 1-2 inches below top of curb, sidewalk, or pavement	☒	☐	
S6	Protect slopes and channels and provide energy dissipation (CASQA New Development BMP Handbook SD-10)	☐	☒	
S7	Covered dock areas (CASQA New Development BMP Handbook SD-31)	☐	☒	
S8	Covered maintenance bays with spill containment plans (CASQA New Development BMP Handbook SD-31)	☐	☒	
S9	Vehicle wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	☐	☒	
S10	Covered outdoor processing areas (CASQA New Development BMP Handbook SD-36)	☐	☒	

Form 4.1-2 Structural Source Control BMPs

Identifier	Name	Check One		Describe BMP Implementation OR, If not applicable, state reason
		Included	Not Applicable	
S11	Equipment wash areas with spill containment plans (CASQA New Development BMP Handbook SD-33)	☐	☒	
S12	Fueling areas (CASQA New Development BMP Handbook SD-30)	☐	☒	
S13	Hillside landscaping (CASQA New Development BMP Handbook SD-10)	☐	☒	
S14	Wash water control for food preparation areas	☐	☒	
S15	Community car wash racks (CASQA New Development BMP Handbook SD-33)	☐	☒	

4.1.2 Preventative LID Site Design Practices

Site design practices associated with new LID requirements in the MS4 Permit should be considered in the earliest phases of a project. Preventative site design practices can result in smaller DCV for LID BMP and hydromodification control BMP by reducing runoff generation. Describe site design and drainage plan including:

- A narrative of site design practices utilized or rationale for not using practices
- A narrative of how site plan incorporates preventive site design practices
- Include an attached Site Plan layout which shows how preventative site design practices are included in WQMP

Refer to Section 5.2 of the TGD for WQMP for more details.

Form 4.1-3 Preventative LID Site Design Practices Checklist

Site Design Practices *If yes, explain how preventative site design practice is addressed in project site plan. If no, other LID BMPs must be selected to meet targets*
Minimize impervious areas: Yes ☐ No ☒ Explanation: Site will be expanding the footprint of preexisting commercial development.
Maximize natural infiltration capacity: Yes ☐ No ☒ Explanation: Per soils investigation infiltration is not recommended.
Preserve existing drainage patterns and time of concentration: Yes ☒ No ☐ Explanation:
Disconnect impervious areas: Yes ☐ No ☒ Explanation: All flows will flow to proposed BMP for treatment.
Protect existing vegetation and sensitive areas: Yes ☐ No ☒ Explanation: Site will remain as a commercial facility, per the existing site development.
Re-vegetate disturbed areas: Yes ☐ No ☒ Explanation: site will incorporate some additional landscape areas.
Minimize unnecessary compaction in stormwater retention/infiltration basin/trench areas: Yes ☐ No ☒ Explanation: Site will use Bioretention to treat runoff and will pump the water to existing drainage facilities.
Utilize vegetated drainage swales in place of underground piping or imperviously lined swales: Yes ☐ No ☒ Explanation: Site will use Bioretention to treat runoff.
Stake off areas that will be used for landscaping to minimize compaction during construction : Yes ☐ No ☒ Explanation: The entire site will be graded.

4.2 Project Performance Criteria

The purpose of this section of the Project WQMP is to establish targets for post-development hydrology based on performance criteria specified in the MS4 Permit. These targets include runoff volume for water quality control (referred to as LID design capture volume), and runoff volume, time of concentration, and peak runoff for protection of any downstream waterbody segments with a HCOC. ***If the project has more than one outlet for stormwater runoff, then complete additional versions of these forms for each DA / outlet.***

Methods applied in the following forms include:

- For LID BMP Design Capture Volume (DCV), the San Bernardino County Stormwater Program requires use of the P_6 method (MS4 Permit Section XI.D.6a.ii) – Form 4.2-1
- For HCOC pre- and post-development hydrologic calculation, the San Bernardino County Stormwater Program requires the use of the Rational Method (San Bernardino County Hydrology Manual Section D). Forms 4.2-2 through Form 4.2-5 calculate hydrologic variables including runoff volume, time of concentration, and peak runoff from the project site pre- and post-development using the Hydrology Manual Rational Method approach. For projects greater than 640 acres (1.0 mi^2), the Rational Method and these forms should not be used. For such projects, the Unit Hydrograph Method (San Bernardino County Hydrology Manual Section E) shall be applied for hydrologic calculations for HCOC performance criteria.

Refer to Section 4 in the TGD for WQMP for detailed guidance and instructions.

Form 4.2-1 LID BMP Performance Criteria for Design Capture Volume (DA 1)

1 Project area DA 1 (ft^2): 172,543	**2** Imperviousness after applying preventative site design practices (Imp%): 90	**3** Runoff Coefficient (Rc): 0.89 *$R_c = 0.858(Imp\%)^{\wedge 3}-0.78(Imp\%)^{\wedge 2}+0.774(Imp\%)+0.04$*
4 Determine 1-hour rainfall depth for a 2-year return period $P_{2yr\text{-}1hr}$ (in): 0.500 *http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html*		
5 Compute P_6, Mean 6-hr Precipitation (inches): 0.7404 *P_6 = Item 4 *C_1, where C_1 is a function of site climatic region specified in Form 3-1 Item 1 (Valley = 1.4807; Mountain = 1.909; Desert = 1.2371)*		
6 Drawdown Rate *Use 48 hours as the default condition. Selection and use of the 24 hour drawdown time condition is subject to approval by the local jurisdiction. The necessary BMP footprint is a function of drawdown time. While shorter drawdown times reduce the performance criteria for LID BMP design capture volume, the depth of water that can be stored is also reduced.*		24-hrs ☒ 48-hrs ☐
7 Compute design capture volume, DCV (ft^3): 14,983 *DCV = 1/12 * [Item 1* Item 3 *Item 5 * C_2], where C_2 is a function of drawdown rate (24-hr = 1.582; 48-hr = 1.963)* *Compute separate DCV for each outlet from the project site per schematic drawn in Form 3-1 Item 2*		

Form 4.2-2 Summary of HCOC Assessment (DA 1)

Does project have the potential to cause or contribute to an HCOC in a downstream channel: Yes ☐ No ☒

Go to: *http://permitrack.sbcounty.gov/wap/*

If "Yes", then complete HCOC assessment of site hydrology for 2yr storm event using Forms 4.2-3 through 4.2-5 and insert results below

(Forms 4.2-3 through 4.2-5 may be replaced by computer software analysis based on the San Bernardino County Hydrology Manual)

If "No," then proceed to Section 4.3 Project Conformance Analysis

Condition	Runoff Volume (ft^3)	Time of Concentration (min)	Peak Runoff (cfs)
Pre-developed	**1** *Form 4.2-3 Item 12*	**2** *Form 4.2-4 Item 13*	**3** *Form 4.2-5 Item 10*
Post-developed	**4** *Form 4.2-3 Item 13*	**5** *Form 4.2-4 Item 14*	**6** *Form 4.2-5 Item 14*
Difference	**7** *Item 4 – Item 1*	**8** *Item 2 – Item 5*	**9** *Item 6 – Item 3*
Difference (as % of pre-developed)	**10** % *Item 7 / Item 1*	**11** % *Item 8 / Item 2*	**12** % *Item 9 / Item 3*

Form 4.2-3 HCOC Assessment for Runoff Volume (DA 1)

Weighted Curve Number Determination for: Pre-developed DA	DMA A	DMA B	DMA C	DMA D	DMA E	DMA F	DMA G	DMA H
1a Land Cover type								
2a Hydrologic Soil Group (HSG)								
3a DMA Area, ft^2 *sum of areas of DMA should equal area of DA*								
4a Curve Number (CN) *use Items 1 and 2 to select the appropriate CN from Appendix C-2 of the TGD for WQMP*								
Weighted Curve Number Determination for: Post-developed DA	DMA A	DMA B	DMA C	DMA D	DMA E	DMA F	DMA G	DMA H
1b Land Cover type								
2b Hydrologic Soil Group (HSG)								
3b DMA Area, ft^2 *sum of areas of DMA should equal area of DA*								
4b Curve Number (CN) *use Items 5 and 6 to select the appropriate CN from Appendix C-2 of the TGD for WQMP*								

5 Pre-Developed area-weighted CN:	**7** Pre-developed soil storage capacity, S (in): *S = (1000 / Item 5) - 10*	**9** Initial abstraction, I_a (in): *I_a = 0.2 * Item 7*
6 Post-Developed area-weighted CN:	**8** Post-developed soil storage capacity, S (in): *S = (1000 / Item 6) - 10*	**10** Initial abstraction, I_a (in): *I_a = 0.2 * Item 8*

11 Precipitation for 2 yr, 24 hr storm (in):
Go to: http://hdsc.nws.noaa.gov/hdsc/pfds/sa/sca_pfds.html

12 Pre-developed Volume (ft^3):
*V_{pre} =(1 / 12) * (Item sum of Item 3) * [(Item 11 – Item 9)^2 / ((Item 11 – Item 9 + Item 7)*

13 Post-developed Volume (ft^3):
*V_{pre} =(1 / 12) * (Item sum of Item 3) * [(Item 11 – Item 10)^2 / ((Item 11 – Item 10 + Item 8)*

14 Volume Reduction needed to meet HCOC Requirement, (ft^3):
*V_{HCOC} = (Item 13 * 0.95) – Item 12*

Form 4.2-4 HCOC Assessment for Time of Concentration (DA 1)

Compute time of concentration for pre and post developed conditions for each DA *(For projects using the Hydrology Manual complete the form below)*

Variables	Pre-developed DA1 *Use additional forms if there are more than 4 DMA*				Post-developed DA1 *Use additional forms if there are more than 4 DMA*			
	DMA A	DMA B	DMA C	DMA D	DMA A	DMA B	DMA C	DMA D
1 Length of flowpath (ft) *Use Form 3-2 Item 5 for pre-developed condition*								
2 Change in elevation (ft)								
3 Slope (ft/ft), S_o *= Item 2 / Item 1*								
4 Land cover								
5 Initial DMA Time of Concentration (min) *Appendix C-1 of the TGD for WQMP*								
6 Length of conveyance from DMA outlet to project site outlet (ft) *May be zero if DMA outlet is at project site outlet*								
7 Cross-sectional area of channel (ft^2)								
8 Wetted perimeter of channel (ft)								
9 Manning's roughness of channel (n)								
10 Channel flow velocity (ft/sec) V_{fps} *= (1.49 / Item 9) * (Item 7/Item 8)^0.67 * (Item 3)^0.5*								
11 Travel time to outlet (min) T_t *= Item 6 / (Item 10 * 60)*								
12 Total time of concentration (min) T_c *= Item 5 + Item 11*								
13 Pre-developed time of concentration (min): *Minimum of Item 12 pre-developed DMA*								
14 Post-developed time of concentration (min): *Minimum of Item 12 post-developed DMA*								
15 Additional time of concentration needed to meet HCOC requirement (min): $T_{C\text{-}HCOC}$ *= (Item 13 * 0.95) – Item 14*								

Form 4.2-5 HCOC Assessment for Peak Runoff (DA 1)

Compute peak runoff for pre- and post-developed conditions

Variables		Pre-developed DA to Project Outlet (*Use additional forms if more than 3 DMA)*			Post-developed DA to Project Outlet (*Use additional forms if more than 3 DMA)*		
		DMA A	DMA B	DMA C	DMA A	DMA B	DMA C
1 Rainfall Intensity for storm duration equal to time of concentration *I_{peak} = 10^(LOG Form 4.2-1 Item 4 - 0.6 LOG Form 4.2-4 Item 5 /60)*							
2 Drainage Area of each DMA (Acres) *For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
3 Ratio of pervious area to total area *For DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
4 Pervious area infiltration rate (in/hr) *Use pervious area CN and antecedent moisture condition with Appendix C-3 of the TGD for WQMP*							
5 Maximum loss rate (in/hr) *F_m = Item 3 * Item 4* *Use area-weighted F_m from DMA with outlet at project site outlet, include upstream DMA (Using example schematic in Form 3-1, DMA A will include drainage from DMA C)*							
6 Peak Flow from DMA (cfs) *Q_p =Item 2 * 0.9 * (Item 1 - Item 5)*							
7 Time of concentration adjustment factor for other DMA to site discharge point *Form 4.2-4 Item 12 DMA / Other DMA upstream of site discharge point (If ratio is greater than 1.0, then use maximum value of 1.0)*	DMA A	*n/a*			*n/a*		
	DMA B		*n/a*			*n/a*	
	DMA C			*n/a*			*n/a*

8 Pre-developed Q_p at T_c for DMA A: *Q_p = Item 6_{DMAA} + [Item 6_{DMAB} * (Item 1_{DMAA} - Item 5_{DMAB})/(Item 1_{DMAB} - Item 5_{DMAB})* Item $7_{DMAA/2}$] + [Item 6_{DMAC} * (Item 1_{DMAA} - Item 5_{DMAC})/(Item 1_{DMAC} - Item 5_{DMAC})* Item $7_{DMAA/3}$]*	**9** Pre-developed Q_p at T_c for DMA B: *Q_p = Item 6_{DMAB} + [Item 6_{DMAA} * (Item 1_{DMAB} - Item 5_{DMAA})/(Item 1_{DMAA} - Item 5_{DMAA})* Item $7_{DMAB/1}$] + [Item 6_{DMAC} * (Item 1_{DMAB} - Item 5_{DMAC})/(Item 1_{DMAC} - Item 5_{DMAC})* Item $7_{DMAB/3}$]*	**10** Pre-developed Q_p at T_c for DMA C: *Q_p = Item 6_{DMAC} + [Item 6_{DMAA} * (Item 1_{DMAC} - Item 5_{DMAA})/(Item 1_{DMAA} - Item 5_{DMAA})* Item $7_{DMAC/1}$] + [Item 6_{DMAB} * (Item 1_{DMAC} - Item 5_{DMAB})/(Item 1_{DMAB} - Item 5_{DMAB})* Item $7_{DMAC/2}$]*
10 Peak runoff from pre-developed condition confluence analysis (cfs):	*Maximum of Item 8, 9, and 10 (including additional forms as needed)*	
11 Post-developed Q_p at T_c for DMA A: *Same as Item 8 for post-developed values*	**12** Post-developed Q_p at T_c for DMA B: *Same as Item 9 for post-developed values*	**13** Post-developed Q_p at T_c for DMA C: *Same as Item 10 for post-developed values*
14 Peak runoff from post-developed condition confluence analysis (cfs):	*Maximum of Item 11, 12, and 13 (including additional forms as needed)*	
15 Peak runoff reduction needed to meet HCOC Requirement (cfs):	$Q_{p\text{-}HCOC}$ = *(Item 14 * 0.95) – Item 10*	

4.3 Project Conformance Analysis

Complete the following forms for each project site DA to document that the proposed LID BMPs conform to the project DCV developed to meet performance criteria specified in the MS4 Permit (WQMP Template Section 4.2). For the LID DCV, the forms are ordered according to hierarchy of BMP selection as required by the MS4 Permit (see Section 5.3.1 in the TGD for WQMP). The forms compute the following for on-site LID BMP:

- Site Design and Hydrologic Source Controls (Form 4.3-2)
- Retention and Infiltration (Form 4.3-3)
- Harvested and Use (Form 4.3-4) or
- Biotreatment (Form 4.3-5).

At the end of each form, additional fields facilitate the determination of the extent of mitigation provided by the specific BMP category, allowing for use of the next category of BMP in the hierarchy, if necessary.

The first step in the analysis, using Section 5.3.2.1 of the TGD for WQMP, is to complete Forms 4.3-1 and 4.3-3) to determine if retention and infiltration BMPs are infeasible for the project. For each feasibility criterion in Form 4.3-1, if the answer is "Yes," provide all study findings that includes relevant calculations, maps, data sources, etc. used to make the determination of infeasibility.

Next, complete Forms 4.3-2 and 4.3-4 to determine the feasibility of applicable HSC and harvest and use BMPs, and, if their implementation is feasible, the extent of mitigation of the DCV.

If no site constraints exist that would limit the type of BMP to be implemented in a DA, evaluate the use of combinations of LID BMPs, including all applicable HSC BMPs to maximize on-site retention of the DCV. If no combination of BMP can mitigate the entire DCV, implement the single BMP type, or combination of BMP types, that maximizes on-site retention of the DCV within the minimum effective area.

If the combination of LID HSC, retention and infiltration, and harvest and use BMPs are unable to mitigate the entire DCV, then biotreatment BMPs may be implemented by the project proponent. If biotreatment BMPs are used, then they must be sized to provide sufficient capacity for effective treatment of the remainder of the volume-based performance criteria that cannot be achieved with LID BMPs (TGD for WQMP Section 5.4.4.2). **Under no circumstances shall any portion of the DCV be released from the site without effective mitigation and/or treatment**.

Form 4.3-1 Infiltration BMP Feasibility (DA 1)

Feasibility Criterion – Complete evaluation for each DA on the Project Site

[1] Would infiltration BMP pose significant risk for groundwater related concerns? Yes ☐ No ☒
Refer to Section 5.3.2.1 of the TGD for WQMP

If Yes, Provide basis: (attach)

[2] Would installation of infiltration BMP significantly increase the risk of geotechnical hazards? Yes ☐ No ☒
(Yes, if the answer to any of the following questions is yes, as established by a geotechnical expert):

- The location is less than 50 feet away from slopes steeper than 15 percent
- The location is less than eight feet from building foundations or an alternative setback.
- A study certified by a geotechnical professional or an available watershed study determines that stormwater infiltration would result in significantly increased risks of geotechnical hazards.

If Yes, Provide basis: (attach)

[3] Would infiltration of runoff on a Project site violate downstream water rights? Yes ☐ No ☒

If Yes, Provide basis: (attach)

[4] Is proposed infiltration facility located on hydrologic soil group (HSG) D soils or does the site geotechnical investigation indicate presence of soil characteristics, which support categorization as D soils? Yes ☐ No ☒

If Yes, Provide basis: (attach)

[5] Is the design infiltration rate, after accounting for safety factor of 2.0, below proposed facility less than 0.3 in/hr (accounting for soil amendments)? Yes ☐ No ☒

If Yes, Provide basis: (attach)

[6] Would on-site infiltration or reduction of runoff over pre-developed conditions be partially or fully inconsistent with watershed management strategies as defined in the WAP, or impair beneficial uses? Yes ☐ No ☒
See Section 3.5 of the TGD for WQMP and WAP

If Yes, Provide basis: (attach)

[7] Any answer from Item 1 through Item 3 is "Yes": Yes ☐ No ☒
If yes, infiltration of any volume is not feasible onsite. Proceed to Form 4.3-4, Harvest and Use BMP. If no, then proceed to Item 8 below.

[8] Any answer from Item 4 through Item 6 is "Yes": Yes ☐ No ☒
If yes, infiltration is permissible but is not required to be considered. Proceed to Form 4.3-2, Hydrologic Source Control BMP.
If no, then proceed to Item 9, below.

[9] All answers to Item 1 through Item 6 are "No":
Infiltration of the full DCV is potentially feasible, LID infiltration BMP must be designed to infiltrate the full DCV to the MEP.
Proceed to Form 4.3-2, Hydrologic Source Control BMP.

4.3.1 Site Design Hydrologic Source Control BMP

Section XI.E. of the Permit emphasizes the use of LID preventative measures; and the use of LID HSC BMPs reduces the portion of the DCV that must be addressed in downstream BMPs. Therefore, all applicable HSC shall be provided except where they are mutually exclusive with each other, or with other BMPs. Mutual exclusivity may result from overlapping BMP footprints such that either would be potentially feasible by itself, but both could not be implemented. Please note that while there are no numeric standards regarding the use of HSC, if a project cannot feasibly meet BMP sizing requirements or cannot fully address HCOCs, feasibility of all applicable HSC must be part of demonstrating that the BMP system has been designed to retain the maximum feasible portion of the DCV. Complete Form 4.3-2 to identify and calculate estimated retention volume from implementing site design HSC BMP. Refer to Section 5.4.1 in the TGD for more detailed guidance.

Form 4.3-2 Site Design Hydrologic Source Control BMPs (DA 1)

1 Implementation of Impervious Area Dispersion BMP (i.e. routing runoff from impervious to pervious areas), excluding impervious areas planned for routing to on-lot infiltration BMP: Yes ☐ No ☒ *If yes, complete Items 2-5; If no, proceed to Item 6*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Total impervious area draining to pervious area (ft^2)			
3 Ratio of pervious area receiving runoff to impervious area			
4 Retention volume achieved from impervious area dispersion (ft^3) *V = Item2 * Item 3 * (0.5/12), assuming retention of 0.5 inches of runoff*			
5 Sum of retention volume achieved from impervious area dispersion (ft^3):		$V_{retention}$ *=Sum of Item 4 for all BMPs*	
6 Implementation of Localized On-lot Infiltration BMPs (e.g. on-lot rain gardens): Yes ☐ No ☒ *If yes, complete Items 7-13 for aggregate of all on-lot infiltration BMP in each DA; If no, proceed to Item 14*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
7 Ponding surface area (ft^2)			
8 Ponding depth (ft)			
9 Surface area of amended soil/gravel (ft^2)			
10 Average depth of amended soil/gravel (ft)			
11 Average porosity of amended soil/gravel			
12 Retention volume achieved from on-lot infiltration (ft^3) $V_{retention}$ *= (Item 7 *Item 8) + (Item 9 * Item 10 * Item 11)*			
13 Runoff volume retention from on-lot infiltration (ft^3):		$V_{retention}$ *=Sum of Item 12 for all BMPs*	

Form 4.3-2 cont. Site Design Hydrologic Source Control BMPs (DA 1)

14 Implementation of evapotranspiration BMP (green, brown, or blue roofs): Yes ☐ No ☒ *If yes, complete Items 15-20. If no, proceed to Item 21*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
15 Rooftop area planned for ET BMP (ft^2)			
16 Average wet season ET demand (in/day) *Use local values, typical ~ 0.1*			
17 Daily ET demand (ft^3/day) *Item 15 * (Item 16 / 12)*			
18 Drawdown time (hrs) *Copy Item 6 in Form 4.2-1*			
19 Retention Volume (ft^3) *$V_{retention}$ = Item 17 * (Item 18 / 24)*			
20 Runoff volume retention from evapotranspiration BMPs (ft^3): *$V_{retention}$ =Sum of Item 19 for all BMPs*			
21 Implementation of Street Trees: Yes ☐ No ☒ *If yes, complete Items 22-25. If no, proceed to Item 26*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
22 Number of Street Trees			
23 Average canopy cover over impervious area (ft^2)			
24 Runoff volume retention from street trees (ft^3) *$V_{retention}$ = Item 22 * Item 23 * (0.05/12) assume runoff retention of 0.05 inches*			
25 Runoff volume retention from street tree BMPs (ft^3): *$V_{retention}$ = Sum of Item 24 for all BMPs*			
26 Implementation of residential rain barrel/cisterns: Yes☐ No ☒ *If yes, complete Items 27-29; If no, proceed to Item 30*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
27 Number of rain barrels/cisterns			
28 Runoff volume retention from rain barrels/cisterns (ft^3) *$V_{retention}$ = Item 27 * 3*			
29 Runoff volume retention from residential rain barrels/Cisterns (ft3): *$V_{retention}$ =Sum of Item 28 for all BMPs*			
30 Total Retention Volume from Site Design Hydrologic Source Control BMPs: 0 *Sum of Items 5, 13, 20, 25 and 29*			

4.3.2 Infiltration BMPs

Use Form 4.3-3 to compute on-site retention of runoff from proposed retention and infiltration BMPs. Volume retention estimates are sensitive to the percolation rate used, which determines the amount of runoff that can be infiltrated within the specified drawdown time. The infiltration safety factor reduces field measured percolation to account for potential inaccuracy associated with field measurements, declining BMP performance over time, and compaction during construction. Appendix D of the TGD for WQMP provides guidance on estimating an appropriate safety factor to use in Form 4.3-3.

If site constraints limit the use of BMPs to a single type and implementation of retention and infiltration BMPs mitigate no more than 40% of the DCV, then they are considered infeasible and the Project Proponent may evaluate the effectiveness of BMPs lower in the LID hierarchy of use (Section 5.5.1 of the TGD for WQMP)

If implementation of infiltrations BMPs is feasible as determined using Form 4.3-1, then LID infiltration BMPs shall be implemented to the MEP (section 4.1 of the TGD for WQMP).

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Form 4.3-3 Infiltration LID BMP - including underground BMPs (DA 1)

1 Remaining LID DCV not met by site design HSC BMP (ft^3): *V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30*			
BMP Type *Use columns to the right to compute runoff volume retention from proposed infiltration BMP (select BMP from Table 5-4 in TGD for WQMP) - Use additional forms for more BMPs*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Infiltration rate of underlying soils (in/hr) *See Section 5.4.2 and Appendix D of the TGD for WQMP for minimum requirements for assessment methods*			
3 Infiltration safety factor *See TGD Section 5.4.2 and Appendix D*			
4 Design percolation rate (in/hr) *P_{design} = Item 2 / Item 3*			
5 Ponded water drawdown time (hr) *Copy Item 6 in Form 4.2-1*			
6 Maximum ponding depth (ft) *BMP specific, see Table 5-4 of the TGD for WQMP for BMP design details*			
7 Ponding Depth (ft) *d_{BMP} = Minimum of (1/12*Item 4*Item 5) or Item 6*			
8 Infiltrating surface area, *SA_{BMP}* (ft^2) *the lesser of the area needed for infiltration of full DCV or minimum space requirements from Table 5.7 of the TGD for WQMP*			
9 Amended soil depth, *d_{media}* (ft) *Only included in certain BMP types, see Table 5-4 in the TGD for WQMP for reference to BMP design details*			
10 Amended soil porosity			
11 Gravel depth, *d_{media}* (ft) *Only included in certain BMP types, see Table 5-4 of the TGD for WQMP for BMP design details*			
12 Gravel porosity			
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*			
14 Above Ground Retention Volume (ft^3) *$V_{retention}$ = Item 8 * [Item7 + (Item 9 * Item 10) + (Item 11 * Item 12) + (Item 13 * (Item 4 / 12))]*			
15 Underground Retention Volume (ft^3) *Volume determined using manufacturer's specifications and calculations*			
16 Total Retention Volume from LID Infiltration BMPs: *(Sum of Items 14 and 15 for all infiltration BMP included in plan)*			
17 Fraction of DCV achieved with infiltration BMP: % *Retention% = Item 16 / Form 4.2-1 Item 7*			
18 Is full LID DCV retained onsite with combination of hydrologic source control and LID retention/infiltration BMPs? Yes ☐ No ☐ *If yes, demonstrate conformance using Form 4.3-10; If no, then reduce Item 3, Factor of Safety to 2.0 and increase Item 8, Infiltrating Surface Area, such that the portion of the site area used for retention and infiltration BMPs equals or exceeds the minimum effective area thresholds (Table 5-7 of the TGD for WQMP) for the applicable category of development and repeat all above calculations.*			

4.3.3 Harvest and Use BMP

Harvest and use BMP may be considered if the full LID DCV cannot be met by maximizing infiltration BMPs. Use Form 4.3-4 to compute on-site retention of runoff from proposed harvest and use BMPs.

Volume retention estimates for harvest and use BMPs are sensitive to the on-site demand for captured stormwater. Since irrigation water demand is low in the wet season, when most rainfall events occur in San Bernardino County, the volume of water that can be used within a specified drawdown period is relatively low. The bottom portion of Form 4.3-4 facilitates the necessary computations to show infeasibility if a minimum incremental benefit of 40 percent of the LID DCV would not be achievable with MEP implementation of on-site harvest and use of stormwater (Section 5.5.4 of the TGD for WQMP).

Form 4.3-4 Harvest and Use BMPs (DA 1)

1 Remaining LID DCV not met by site design HSC or infiltration BMP (ft^3): *V_{unmet} = Form 4.2-1 Item 7 - Form 4.3-2 Item 30 – Form 4.3-3 Item 16*			
BMP Type(s) *Compute runoff volume retention from proposed harvest and use BMP (Select BMPs from Table 5-4 of the TGD for WQMP) - Use additional forms for more BMPs*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
2 Describe cistern or runoff detention facility			
3 Storage volume for proposed detention type (ft^3) *Volume of cistern*			
4 Landscaped area planned for use of harvested stormwater (ft^2)			
5 Average wet season daily irrigation demand (in/day) Use local values, typical ~ 0.1 in/day			
6 Daily water demand (ft^3/day) *Item 4 * (Item 5 / 12)*			
7 Drawdown time (hrs) *Copy Item 6 from Form 4.2-1*			
8 Retention Volume (ft^3) *$V_{retention}$ = Minimum of (Item 3) or (Item 6 * (Item 7 / 24))*			
9 Total Retention Volume (ft^3) from Harvest and Use BMP *Sum of Item 8 for all harvest and use BMP included in plan*			
10 Is the full DCV retained with a combination of LID HSC, retention and infiltration, and harvest & use BMPs? Yes ☐ No ☐ *If yes, demonstrate conformance using Form 4.3-10. If no, then re-evaluate combinations of all LID BMP and optimize their implementation such that the maximum portion of the DCV is retained on-site (using a single BMP type or combination of BMP types). If the full DCV cannot be mitigated after this optimization process, proceed to Section 4.3.4.*			

4.3.4 Biotreatment BMP

Biotreatment BMPs may be considered if the full LID DCV cannot be met by maximizing retention and infiltration, and harvest and use BMPs. A key consideration when using biotreatment BMP is the effectiveness of the proposed BMP in addressing the pollutants of concern for the project (see Table 5-5 of the TGD for WQMP).

Use Form 4.3-5 to summarize the potential for volume based and/or flow based biotreatment options to biotreat the remaining unmet LID DCV w. Biotreatment computations are included as follows:

- Use Form 4.3-6 to compute biotreatment in small volume based biotreatment BMP (e.g. bioretention w/underdrains);
- Use Form 4.3-7 to compute biotreatment in large volume based biotreatment BMP (e.g. constructed wetlands);
- Use Form 4.3-8 to compute sizing criteria for flow-based biotreatment BMP (e.g. bioswales)

Form 4.3-5 Selection and Evaluation of Biotreatment BMP (DA 1)

<table>
<tr><td colspan="2">1 Remaining LID DCV not met by site design HSC, infiltration, or harvest and use BMP for potential biotreatment (ft³): 0 Form 4.2-1 Item 7 - Form 4.3-2 Item 30 – Form 4.3-3 Item 16- Form 4.3-4 Item 9</td><td colspan="2">List pollutants of concern Copy from Form 2.3-1.
Pathogens, Grease/Oil, Nutrients, Sediment, Metals, Trash/Debris, Pesticides/Herbicides, Organic Compounds</td></tr>
<tr><td rowspan="2">2 Biotreatment BMP Selected
(Select biotreatment BMP(s) necessary to ensure all pollutants of concern are addressed through Unit Operations and Processes, described in Table 5-5 of the TGD for WQMP)</td><td>Volume-based biotreatment
Use Forms 4.3-6 and 4.3-7 to compute treated volume</td><td colspan="2">Flow-based biotreatment
Use Form 4.3-8 to compute treated volume</td></tr>
<tr><td>☒ Bioretention with underdrain
☐ Planter box with underdrain
☐ Constructed wetlands
☐ Wet extended detention
☐ Dry extended detention</td><td colspan="2">☒ Vegetated swale
☐ Vegetated filter strip
☐ Proprietary biotreatment</td></tr>
<tr><td>3 Volume biotreated in volume based biotreatment BMP (ft³): 19,080 Form 4.3-6 Item 15 + Form 4.3-7 Item 13</td><td>4 Compute remaining LID DCV with implementation of volume based biotreatment BMP (ft³): 19,080 Item 1 – Item 3</td><td colspan="2">5 Remaining fraction of LID DCV for sizing flow based biotreatment BMP: 0% Item 4 / Item 1</td></tr>
<tr><td colspan="4">6 Flow-based biotreatment BMP capacity provided (cfs): Use Figure 5-2 of the TGD for WQMP to determine flow capacity required to provide biotreatment of remaining percentage of unmet LID DCV (Item 5), for the project's precipitation zone (Form 3-1 Item 1)</td></tr>
<tr><td colspan="4">7 Metrics for MEP determination:
• Provided a WQMP with the portion of site area used for suite of LID BMP equal to minimum thresholds in Table 5-7 of the TGD for WQMP for the proposed category of development: ☐ If maximized on-site retention BMPs is feasible for partial capture, then LID BMP implementation must be optimized to retain and infiltrate the maximum portion of the DCV possible within the prescribed minimum effective area. The remaining portion of the DCV shall then be mitigated using biotreatment BMP.</td></tr>
</table>

Form 4.3-6 Volume Based Biotreatment (DA 1) – Bioretention and Planter Boxes with Underdrains

Biotreatment BMP Type *(Bioretention w/underdrain, planter box w/underdrain, other comparable BMP)*	DA 1 DMA A BMP Type Bio	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
1 Pollutants addressed with BMP *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in Table 5-5 of the TGD for WQMP*	Pathogens, Grease/Oil, Nutrients, Sediment, Metals, Trash/Debris, Pesticides/ Herbicides, Organic Compounds		
2 Amended soil infiltration rate *Typical ~ 5.0*	5.0		
3 Amended soil infiltration safety factor *Typical ~ 2.0*	2.0		
4 Amended soil design percolation rate (in/hr) P_{design} *= Item 2 / Item 3*	2.5		
5 Ponded water drawdown time (hr) *Copy Item 6 from Form 4.2-1*	24-Hr		
6 Maximum ponding depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*	0.5		
7 Ponding Depth (ft) d_{BMP} *= Minimum of (1/12 * Item 4 * Item 5) or Item 6*	0.5		
8 Amended soil surface area (ft^2)	6,876		
9 Amended soil depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*	3.0		
10 Amended soil porosity, *n*	0.50		
11 Gravel depth (ft) *see Table 5-6 of the TGD for WQMP for reference to BMP design details*	1.0		
12 Gravel porosity, *n*	0.40		
13 Duration of storm as basin is filling (hrs) *Typical ~ 3hrs*	3.0		
14 Biotreated Volume (ft^3) $V_{biotreated}$ *= Item 8 * [(Item 7/2) + (Item 9 * Item 10) +(Item 11 * Item 12) + (Item 13 * (Item 4 / 12))]*	19,080		
15 Total biotreated volume from bioretention and/or planter box with underdrains BMP: 19,080			

Sum of Item 14 for all volume-based BMPs included in this form

Form 4.3-7 Volume Based Biotreatment (DA 1) – Constructed Wetlands and Extended Detention

Biotreatment BMP Type *Constructed wetlands, extended wet detention, extended dry detention, or other comparable proprietary BMP. If BMP includes multiple modules (e.g. forebay and main basin), provide separate estimates for storage and pollutants treated in each module.*	DA DMA BMP Type		DA DMA BMP Type *(Use additional forms for more BMPs)*	
	Forebay	Basin	Forebay	Basin
1 Pollutants addressed with BMP forebay and basin *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in Table 5-5 of the TGD for WQMP*				
2 Bottom width (ft)				
3 Bottom length (ft)				
4 Bottom area (ft^2) A_{bottom} = *Item 2 * Item 3*				
5 Side slope (ft/ft)				
6 Depth of storage (ft)				
7 Water surface area (ft^2) $A_{surface}$ =*(Item 2 + (2 * Item 5 * Item 6)) * (Item 3 + (2 * Item 5 * Item 6))*				
8 Storage volume (ft^3) *For BMP with a forebay, ensure fraction of total storage is within ranges specified in BMP specific fact sheets, see Table 5-6 of the TGD for WQMP for reference to BMP design details* V =*Item 6 / 3 * [Item 4 + Item 7 + (Item 4 * Item 7)^0.5]*				
9 Drawdown Time (hrs) *Copy Item 6 from Form 2.1*				
10 Outflow rate (cfs) Q_{BMP} = *(Item* $8_{forebay}$ *+ Item* 8_{basin}*) / (Item 9 * 3600)*				
11 Duration of design storm event (hrs)				
12 Biotreated Volume (ft^3) $V_{biotreated}$ = *(Item* $8_{forebay}$ *+ Item* 8_{basin}*) +(Item 10 * Item 11 * 3600)*				
13 Total biotreated volume from constructed wetlands, extended dry detention, or extended wet detention : *(Sum of Item 12 for all BMP included in plan)*				

Form 4.3-8 Flow Based Biotreatment (DA 1)

Biotreatment BMP Type *Vegetated swale, vegetated filter strip, or other comparable proprietary BMP*	DA DMA BMP Type	DA DMA BMP Type	DA DMA BMP Type *(Use additional forms for more BMPs)*
1 Pollutants addressed with BMP *List all pollutant of concern that will be effectively reduced through specific Unit Operations and Processes described in TGD Table 5-5*			
2 Flow depth for water quality treatment (ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
3 Bed slope (ft/ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
4 Manning's roughness coefficient			
5 Bottom width (ft) b_w *= (Form 4.3-5 Item 6 * Item 4) / (1.49 * Item 2^1.67 * Item 3^0.5)*			
6 Side Slope (ft/ft) *BMP specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
7 Cross sectional area (ft^2) *A = (Item 5 * Item 2) + (Item 6 * Item 2^2)*			
8 Water quality flow velocity (ft/sec) *V = Form 4.3-5 Item 6 / Item 7*			
9 Hydraulic residence time (min) *Pollutant specific, see Table 5-6 of the TGD for WQMP for reference to BMP design details*			
10 Length of flow based BMP (ft) *L = Item 8 * Item 9 * 60*			
11 Water surface area at water quality flow depth (ft^2) SA_{top} *= (Item 5 + (2 * Item 2 * Item 6)) * Item 10*			

4.3.5 Conformance Summary

Complete Form 4.3-9 to demonstrate how on-site LID DCV is met with proposed site design hydrologic source control, infiltration, harvest and use, and/or biotreatment BMP. The bottom line of the form is used to describe the basis for infeasibility determination for on-site LID BMP to achieve full LID DCV, and provides methods for computing remaining volume to be addressed in an alternative compliance plan. If the project has more than one outlet, then complete additional versions of this form for each outlet.

Form 4.3-9 Conformance Summary and Alternative Compliance Volume Estimate (DA 1)

1 Total LID DCV for the Project DA-1 (ft^3): *Copy Item 7 in Form 4.2-1*

2 On-site retention with site design hydrologic source control LID BMP (ft^3): *Copy Item 30 in Form 4.3-2*

3 On-site retention with LID infiltration BMP (ft^3): *Copy Item 16 in Form 4.3-3*

4 On-site retention with LID harvest and use BMP (ft^3): *Copy Item 9 in Form 4.3-4*

5 On-site biotreatment with volume based biotreatment BMP (ft^3): *Copy Item 3 in Form 4.3-5*

6 Flow capacity provided by flow based biotreatment BMP (cfs): *Copy Item 6 in Form 4.3-5*

7 LID BMP performance criteria are achieved if answer to any of the following is "Yes":

- Full retention of LID DCV with site design HSC, infiltration, or harvest and use BMP: Yes ☐ No ☐
  If yes, sum of Items 2, 3, and 4 is greater than Item 1
- Combination of on-site retention BMPs for a portion of the LID DCV and volume-based biotreatment BMP that address all pollutants of concern for the remaining LID DCV: Yes ☐ No ☐
  If yes, a) sum of Items 2, 3, 4, and 5 is greater than Item 1, and Items 2, 3 and 4 are maximized; or b) Item 6 is greater than Form 4.3--5 Item 6 and Items 2, 3 and 4 are maximized
- On-site retention and infiltration is determined to be infeasible and biotreatment BMP provide biotreatment for all pollutants of concern for full LID DCV: Yes ☐ No ☐
  If yes, Form 4.3-1 Items 7 and 8 were both checked yes

8 If the LID DCV is not achieved by any of these means, then the project may be allowed to develop an alternative compliance plan. Check box that describes the scenario which caused the need for alternative compliance:

- Combination of HSC, retention and infiltration, harvest and use, and biotreatment BMPs provide less than full LID DCV capture: ☐
  Checked yes for Form 4.3-5 Item 7, Item 6 is zero, and sum of Items 2, 3, 4, and 5 is less than Item 1. If so, apply water quality credits and calculate volume for alternative compliance, V_{alt} *= (Item 1 – Item 2 – Item 3 – Item 4 – Item 5) * (100 - Form 2.4-1 Item 2)%*
- An approved Watershed Action Plan (WAP) demonstrates that water quality and hydrologic impacts of urbanization are more effective when managed in at an off-site facility: ☐
  Attach appropriate WAP section, including technical documentation, showing effectiveness comparisons for the project site and regional watershed

4.3.6 Hydromodification Control BMP

Use Form 4.3-10 to compute the remaining runoff volume retention, after LID BMP are implemented, needed to address HCOC, and the increase in time of concentration and decrease in peak runoff necessary to meet targets for protection of waterbodies with a potential HCOC. Describe hydromodification control BMP that address HCOC, which may include off-site BMP and/or in-stream controls. Section 5.6 of the TGD for WQMP provides additional details on selection and evaluation of hydromodification control BMP.

Form 4.3-10 Hydromodification Control BMPs (DA 1)

1 Volume reduction needed for HCOC performance criteria (ft^3): *(Form 4.2-2 Item 4 * 0.95) – Form 4.2-2 Item 1*	**2** On-site retention with site design hydrologic source control, infiltration, and harvest and use LID BMP (ft^3): *Sum of Form 4.3-9 Items 2, 3, and 4 Evaluate option to increase implementation of on-site retention in Forms 4.3-2, 4.3-3, and 4.3-4 in excess of LID DCV toward achieving HCOC volume reduction*
3 Remaining volume for HCOC volume capture (ft^3): *Item 1 – Item 2*	**4** Volume capture provided by incorporating additional on-site or off-site retention BMPs (ft^3): *Existing downstream BMP may be used to demonstrate additional volume capture (if so, attach to this WQMP a hydrologic analysis showing how the additional volume would be retained during a 2-yr storm event for the regional watershed)*

5 If Item 4 is less than Item 3, incorporate in-stream controls on downstream waterbody segment to prevent impacts due to hydromodification ☐ *Attach in-stream control BMP selection and evaluation to this WQMP*

6 Is Form 4.2-2 Item 11 less than or equal to 5%: Yes ☐ No ☐

If yes, HCOC performance criteria is achieved. If no, select one or more mitigation options below:

- Demonstrate increase in time of concentration achieved by proposed LID site design, LID BMP, and additional on-site or off-site retention BMP ☐
  BMP upstream of a waterbody segment with a potential HCOC may be used to demonstrate increased time of concentration through hydrograph attenuation (if so, show that the hydraulic residence time provided in BMP for a 2-year storm event is equal or greater than the addition time of concentration requirement in Form 4.2-4 Item 15)
- Increase time of concentration by preserving pre-developed flow path and/or increase travel time by reducing slope and increasing cross-sectional area and roughness for proposed on-site conveyance facilities ☐
- Incorporate appropriate in-stream controls for downstream waterbody segment to prevent impacts due to hydromodification, in a plan approved and signed by a licensed engineer in the State of California ☐

7 Form 4.2-2 Item 12 less than or equal to 5%: Yes ☐ No ☐

If yes, HCOC performance criteria is achieved. If no, select one or more mitigation options below:

- Demonstrate reduction in peak runoff achieved by proposed LID site design, LID BMPs, and additional on-site or off-site retention BMPs ☐
  BMPs upstream of a waterbody segment with a potential HCOC may be used to demonstrate additional peak runoff reduction through hydrograph attenuation (if so, attach to this WQMP, a hydrograph analysis showing how the peak runoff would be reduced during a 2-yr storm event)
- Incorporate appropriate in-stream controls for downstream waterbody segment to prevent impacts due to hydromodification, in a plan approved and signed by a licensed engineer in the State of California ☐

4.4 Alternative Compliance Plan (if applicable)

Describe an alternative compliance plan (if applicable) for projects not fully able to infiltrate, harvest and use, or biotreat the DCV via on-site LID practices. A project proponent must develop an alternative compliance plan to address the remainder of the LID DCV. Depending on project type some projects may qualify for water quality credits that can be applied to reduce the DCV that must be treated prior to development of an alternative compliance plan (see Form 2.4-1, Water Quality Credits). Form 4.3-9 Item 8 includes instructions on how to apply water quality credits when computing the DCV that must be met through alternative compliance. Alternative compliance plans may include one or more of the following elements:

- On-site structural treatment control BMP - All treatment control BMP should be located as close to possible to the pollutant sources and should not be located within receiving waters;
- Off-site structural treatment control BMP - Pollutant removal should occur prior to discharge of runoff to receiving waters;
- Urban runoff fund or In-lieu program, if available

Depending upon the proposed alternative compliance plan, approval by the executive officer may or may not be required (see Section 6 of the TGD for WQMP).

Section 5 Inspection and Maintenance Responsibility for Post Construction BMP

All BMP included as part of the project WQMP are required to be maintained through regular scheduled inspection and maintenance (refer to Section 8, Post Construction BMP Requirements, in the TGD for WQMP). Fully complete Form 5-1 summarizing all BMP included in the WQMP. Attach additional forms as needed. The WQMP shall also include a detailed Operation and Maintenance Plan for all BMP and may require a Maintenance Agreement (consult the jurisdiction's LIP). If a Maintenance Agreement is required, it must also be attached to the WQMP.

Form 5-1 BMP Inspection and Maintenance (use additional forms as necessary)

BMP	Reponsible Party(s)	Inspection/ Maintenance Activities Required	Minimum Frequency of Activities
Bio	Amazing 34 LLC	Routine maintenance should include a biannual health evaluation of the trees and shrubs and subsequent removal of any dead or diseased vegetation (EPA, 1999). Diseased vegetation should be treated as needed using preventative and low-toxic measures to the extent possible. BMPs have the potential to create very attractive habitats for mosquitoes and other vectors because of highly organic, often heavily vegetated areas mixed with shallow water. Routine inspections for areas of standing water within the BMP and corrective measures to restore proper infiltration rates are necessary to prevent creating mosquito and other vector habitat. In addition, bioretention BMPs are susceptible to invasion by aggressive plant species such as cattails, which increase the chances of water standing and subsequent vector production if not routinely maintained.	6 Months

Section 6 WQMP Attachments

6.1. Site Plan and Drainage Plan

Include a site plan and drainage plan sheet set containing the following minimum information:

- Project location
- Site boundary
- Land uses and land covers, as applicable
- Suitability/feasibility constraints
- Structural Source Control BMP locations
- Site Design Hydrologic Source Control BMP locations
- LID BMP details
- Drainage delineations and flow information
- Drainage connections

6.2 Electronic Data Submittal

Minimum requirements include submittal of PDF exhibits in addition to hard copies. Format must not require specialized software to open. If the local jurisdiction requires specialized electronic document formats (as described in their local Local Implementation Plan), this section will describe the contents (e.g., layering, nomenclature, geo-referencing, etc.) of these documents so that they may be interpreted efficiently and accurately.

6.3 Post Construction

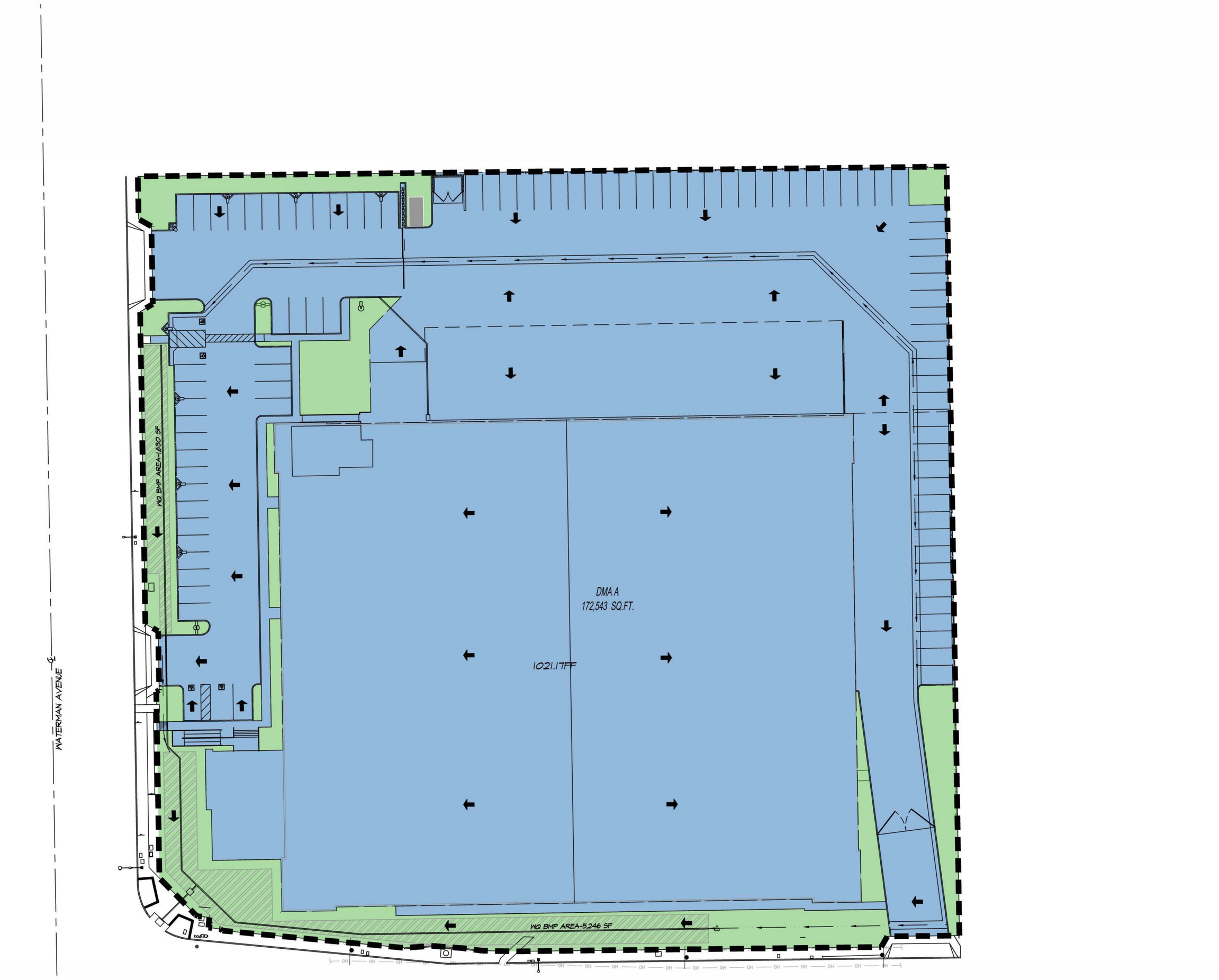
Attach all O&M Plans and Maintenance Agreements for BMP to the WQMP.

6.4 Other Supporting Documentation

- BMP Educational Materials
- Activity Restriction – C, C&R's & Lease Agreements

BMP MAP

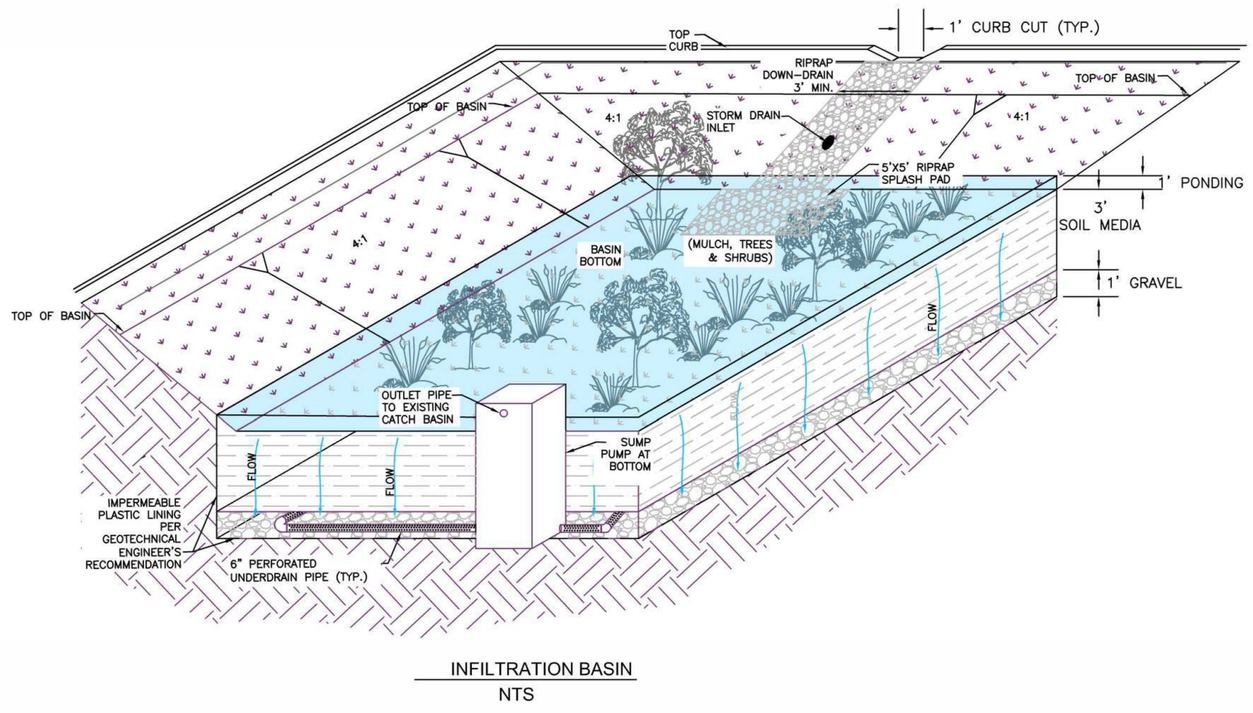
AMAZING 34 NEW WAREHOUSE



LEGEND

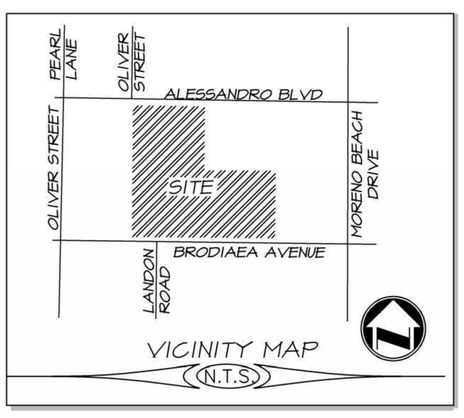
- ROOF/PARKING LOT
- LANDSCAPING
- DMA BOUNDARY
- DRAINAGE PATH

BMP DATA								
DMA	AREA (SF)	% IMPERVIOUS	RUNOFF COEFFICIENT	P_2YR-1HR (IN)	P_6 (IN)	DRAWDOWN RATE (HRS)	DCV (CF) REQ.	BMP V_BMP (CF) PROVIDED
A	172,543	90.00	0.89	0.50	0.74	24	14,983	19,080
TOTAL	172,543							



INFILTRATION BASIN

NTS



0 30 90

15 60 120

SCALE: 1" = 30'

AMAZING 34
NEW WAREHOUSE
PREPARATION DATE : JUNE 2020

PLAN PREPARED BY:
adkan ENGINEERS
Civil Engineering · Surveying · Planning
6879 Airport Drive, Riverside, CA 92504
Tel:(951) 688-0241 · Fax:(951) 688-0599

Bioretention TC-32

Design Considerations

- Soil for Infiltration
- Tributary Area
- Slope
- Aesthetics
- Environmental Side-effects

Description

The bioretention best management practice (BMP) functions as a soil and plant-based filtration device that removes pollutants through a variety of physical, biological, and chemical treatment processes. These facilities normally consist of a grass buffer strip, sand bed, ponding area, organic layer or mulch layer, planting soil, and plants. The runoff's velocity is reduced by passing over or through buffer strip and subsequently distributed evenly along a ponding area. Exfiltration of the stored water in the bioretention area planting soil into the underlying soils occurs over a period of days.

Targeted Constituents

✓	Sediment	■
✓	Nutrients	▲
✓	Trash	■
✓	Metals	■
✓	Bacteria	■
✓	Oil and Grease	■
✓	Organics	■

Legend ***(Removal Effectiveness)***

- ● Low
- ▲ Medium
- ■ High

California Experience

None documented. Bioretention has been used as a stormwater BMP since 1992. In addition to Prince George's County, MD and Alexandria, VA, bioretention has been used successfully at urban and suburban areas in Montgomery County, MD; Baltimore County, MD; Chesterfield County, VA; Prince William County, VA; Smith Mountain Lake State Park, VA; and Cary, NC.

Advantages

- Bioretention provides stormwater treatment that enhances the quality of downstream water bodies by temporarily storing runoff in the BMP and releasing it over a period of four days to the receiving water (EPA, 1999).
- The vegetation provides shade and wind breaks, absorbs noise, and improves an area's landscape.

Limitations

- The bioretention BMP is not recommended for areas with slopes greater than 20% or where mature tree removal would

CASQA California Stormwater Quality Association

be required since clogging may result, particularly if the BMP receives runoff with high sediment loads (EPA, 1999).

- Bioretention is not a suitable BMP at locations where the water table is within 6 feet of the ground surface and where the surrounding soil stratum is unstable.
- By design, bioretention BMPs have the potential to create very attractive habitats for mosquitoes and other vectors because of highly organic, often heavily vegetated areas mixed with shallow water.
- In cold climates the soil may freeze, preventing runoff from infiltrating into the planting soil.

Design and Sizing Guidelines

- The bioretention area should be sized to capture the design storm runoff.
- In areas where the native soil permeability is less than 0.5 in/hr an underdrain should be provided.
- Recommended minimum dimensions are 15 feet by 40 feet, although the preferred width is 25 feet. Excavated depth should be 4 feet.
- Area should drain completely within 72 hours.
- Approximately 1 tree or shrub per 50 ft^2 of bioretention area should be included.
- Cover area with about 3 inches of mulch.

Construction/Inspection Considerations

Bioretention area should not be established until contributing watershed is stabilized.

Performance

Bioretention removes stormwater pollutants through physical and biological processes, including adsorption, filtration, plant uptake, microbial activity, decomposition, sedimentation and volatilization (EPA, 1999). Adsorption is the process whereby particulate pollutants attach to soil (e.g., clay) or vegetation surfaces. Adequate contact time between the surface and pollutant must be provided for in the design of the system for this removal process to occur. Thus, the infiltration rate of the soils must not exceed those specified in the design criteria or pollutant removal may decrease. Pollutants removed by adsorption include metals, phosphorus, and hydrocarbons. Filtration occurs as runoff passes through the bioretention area media, such as the sand bed, ground cover, and planting soil.

Common particulates removed from stormwater include particulate organic matter, phosphorus, and suspended solids. Biological processes that occur in wetlands result in pollutant uptake by plants and microorganisms in the soil. Plant growth is sustained by the uptake of nutrients from the soils, with woody plants locking up these nutrients through the seasons. Microbial activity within the soil also contributes to the removal of nitrogen and organic matter. Nitrogen is removed by nitrifying and denitrifying bacteria, while aerobic bacteria are responsible for the decomposition of the organic matter. Microbial processes require oxygen and can result in depleted oxygen levels if the bioretention area is not adequately

aerated. Sedimentation occurs in the swale or ponding area as the velocity slows and solids fall out of suspension.

The removal effectiveness of bioretention has been studied during field and laboratory studies conducted by the University of Maryland (Davis et al, 1998). During these experiments, synthetic stormwater runoff was pumped through several laboratory and field bioretention areas to simulate typical storm events in Prince George's County, MD. Removal rates for heavy metals and nutrients are shown in Table 1.

Table 1 Laboratory and Estimated Bioretention Davis et al. (1998); PGDER (1993)

Pollutant	Removal Rate
Total Phosphorus	70-83%
Metals (Cu, Zn, Pb)	93-98%
TKN	68-80%
Total Suspended Solids	90%
Organics	90%
Bacteria	90%

Results for both the laboratory and field experiments were similar for each of the pollutants analyzed. Doubling or halving the influent pollutant levels had little effect on the effluent pollutants concentrations (Davis et al, 1998).

The microbial activity and plant uptake occurring in the bioretention area will likely result in higher removal rates than those determined for infiltration BMPs.

Siting Criteria

Bioretention BMPs are generally used to treat stormwater from impervious surfaces at commercial, residential, and industrial areas (EPA, 1999). Implementation of bioretention for stormwater management is ideal for median strips, parking lot islands, and swales. Moreover, the runoff in these areas can be designed to either divert directly into the bioretention area or convey into the bioretention area by a curb and gutter collection system.

The best location for bioretention areas is upland from inlets that receive sheet flow from graded areas and at areas that will be excavated (EPA, 1999). In order to maximize treatment effectiveness, the site must be graded in such a way that minimizes erosive conditions as sheet flow is conveyed to the treatment area. Locations where a bioretention area can be readily incorporated into the site plan without further environmental damage are preferred. Furthermore, to effectively minimize sediment loading in the treatment area, bioretention only should be used in stabilized drainage areas.

Additional Design Guidelines

The layout of the bioretention area is determined after site constraints such as location of utilities, underlying soils, existing vegetation, and drainage are considered (EPA, 1999). Sites with loamy sand soils are especially appropriate for bioretention because the excavated soil can be backfilled and used as the planting soil, thus eliminating the cost of importing planting soil.

The use of bioretention may not be feasible given an unstable surrounding soil stratum, soils with clay content greater than 25 percent, a site with slopes greater than 20 percent, and/or a site with mature trees that would be removed during construction of the BMP.

Bioretention can be designed to be off-line or on-line of the existing drainage system (EPA, 1999). The drainage area for a bioretention area should be between 0.1 and 0.4 hectares (0.25 and 1.0 acres). Larger drainage areas may require multiple bioretention areas. Furthermore, the maximum drainage area for a bioretention area is determined by the expected rainfall intensity and runoff rate. Stabilized areas may erode when velocities are greater than 5 feet per second (1.5 meter per second). The designer should determine the potential for erosive conditions at the site.

The size of the bioretention area, which is a function of the drainage area and the runoff generated from the area is sized to capture the water quality volume.

The recommended minimum dimensions of the bioretention area are 15 feet (4.6 meters) wide by 40 feet (12.2 meters) long, where the minimum width allows enough space for a dense, randomly-distributed area of trees and shrubs to become established. Thus replicating a natural forest and creating a microclimate, thereby enabling the bioretention area to tolerate the effects of heat stress, acid rain, runoff pollutants, and insect and disease infestations which landscaped areas in urban settings typically are unable to tolerate. The preferred width is 25 feet (7.6 meters), with a length of twice the width. Essentially, any facilities wider than 20 feet (6.1 meters) should be twice as long as they are wide, which promotes the distribution of flow and decreases the chances of concentrated flow.

In order to provide adequate storage and prevent water from standing for excessive periods of time the ponding depth of the bioretention area should not exceed 6 inches (15 centimeters). Water should not be left to stand for more than 72 hours. A restriction on the type of plants that can be used may be necessary due to some plants' water intolerance. Furthermore, if water is left standing for longer than 72 hours mosquitoes and other insects may start to breed.

The appropriate planting soil should be backfilled into the excavated bioretention area. Planting soils should be sandy loam, loamy sand, or loam texture with a clay content ranging from 10 to 25 percent.

Generally the soil should have infiltration rates greater than 0.5 inches (1.25 centimeters) per hour, which is typical of sandy loams, loamy sands, or loams. The pH of the soil should range between 5.5 and 6.5, where pollutants such as organic nitrogen and phosphorus can be adsorbed by the soil and microbial activity can flourish. Additional requirements for the planting soil include a 1.5 to 3 percent organic content and a maximum 500 ppm concentration of soluble salts.

Soil tests should be performed for every 500 cubic yards (382 cubic meters) of planting soil, with the exception of pH and organic content tests, which are required only once per bioretention area (EPA, 1999). Planting soil should be 4 inches (10.1 centimeters) deeper than the bottom of the largest root ball and 4 feet (1.2 meters) altogether. This depth will provide adequate soil for the plants' root systems to become established, prevent plant damage due to severe wind, and provide adequate moisture capacity. Most sites will require excavation in order to obtain the recommended depth.

Planting soil depths of greater than 4 feet (1.2 meters) may require additional construction practices such as shoring measures (EPA, 1999). Planting soil should be placed in 18 inches or greater lifts and lightly compacted until the desired depth is reached. Since high canopy trees may be destroyed during maintenance the bioretention area should be vegetated to resemble a terrestrial forest community ecosystem that is dominated by understory trees. Three species each of both trees and shrubs are recommended to be planted at a rate of 2500 trees and shrubs per hectare (1000 per acre). For instance, a 15 foot (4.6 meter) by 40 foot (12.2 meter) bioretention area (600 square feet or 55.75 square meters) would require 14 trees and shrubs. The shrub-to-tree ratio should be 2:1 to 3:1.

Trees and shrubs should be planted when conditions are favorable. Vegetation should be watered at the end of each day for fourteen days following its planting. Plant species tolerant of pollutant loads and varying wet and dry conditions should be used in the bioretention area.

The designer should assess aesthetics, site layout, and maintenance requirements when selecting plant species. Adjacent non-native invasive species should be identified and the designer should take measures, such as providing a soil breach to eliminate the threat of these species invading the bioretention area. Regional landscaping manuals should be consulted to ensure that the planting of the bioretention area meets the landscaping requirements established by the local authorities. The designers should evaluate the best placement of vegetation within the bioretention area. Plants should be placed at irregular intervals to replicate a natural forest. Trees should be placed on the perimeter of the area to provide shade and shelter from the wind. Trees and shrubs can be sheltered from damaging flows if they are placed away from the path of the incoming runoff. In cold climates, species that are more tolerant to cold winds, such as evergreens, should be placed in windier areas of the site.

Following placement of the trees and shrubs, the ground cover and/or mulch should be established. Ground cover such as grasses or legumes can be planted at the beginning of the growing season. Mulch should be placed immediately after trees and shrubs are planted. Two to 3 inches (5 to 7.6 cm) of commercially-available fine shredded hardwood mulch or shredded hardwood chips should be applied to the bioretention area to protect from erosion.

Maintenance

The primary maintenance requirement for bioretention areas is that of inspection and repair or replacement of the treatment area's components. Generally, this involves nothing more than the routine periodic maintenance that is required of any landscaped area. Plants that are appropriate for the site, climatic, and watering conditions should be selected for use in the bioretention cell. Appropriately selected plants will aide in reducing fertilizer, pesticide, water, and overall maintenance requirements. Bioretention system components should blend over time through plant and root growth, organic decomposition, and the development of a natural

soil horizon. These biologic and physical processes over time will lengthen the facility's life span and reduce the need for extensive maintenance.

Routine maintenance should include a biannual health evaluation of the trees and shrubs and subsequent removal of any dead or diseased vegetation (EPA, 1999). Diseased vegetation should be treated as needed using preventative and low-toxic measures to the extent possible. BMPs have the potential to create very attractive habitats for mosquitoes and other vectors because of highly organic, often heavily vegetated areas mixed with shallow water. Routine inspections for areas of standing water within the BMP and corrective measures to restore proper infiltration rates are necessary to prevent creating mosquito and other vector habitat. In addition, bioretention BMPs are susceptible to invasion by aggressive plant species such as cattails, which increase the chances of water standing and subsequent vector production if not routinely maintained.

In order to maintain the treatment area's appearance it may be necessary to prune and weed. Furthermore, mulch replacement is suggested when erosion is evident or when the site begins to look unattractive. Specifically, the entire area may require mulch replacement every two to three years, although spot mulching may be sufficient when there are random void areas. Mulch replacement should be done prior to the start of the wet season.

New Jersey's Department of Environmental Protection states in their bioretention systems standards that accumulated sediment and debris removal (especially at the inflow point) will normally be the primary maintenance function. Other potential tasks include replacement of dead vegetation, soil pH regulation, erosion repair at inflow points, mulch replenishment, unclogging the underdrain, and repairing overflow structures. There is also the possibility that the cation exchange capacity of the soils in the cell will be significantly reduced over time. Depending on pollutant loads, soils may need to be replaced within 5-10 years of construction (LID, 2000).

Cost

Construction Cost

Construction cost estimates for a bioretention area are slightly greater than those for the required landscaping for a new development (EPA, 1999). A general rule of thumb (Coffman, 1999) is that residential bioretention areas average about $3 to $4 per square foot, depending on soil conditions and the density and types of plants used. Commercial, industrial and institutional site costs can range between $10 to $40 per square foot, based on the need for control structures, curbing, storm drains and underdrains.

Retrofitting a site typically costs more, averaging $6,500 per bioretention area. The higher costs are attributed to the demolition of existing concrete, asphalt, and existing structures and the replacement of fill material with planting soil. The costs of retrofitting a commercial site in Maryland, Kettering Development, with 15 bioretention areas were estimated at $111,600.

In any bioretention area design, the cost of plants varies substantially and can account for a significant portion of the expenditures. While these cost estimates are slightly greater than those of typical landscaping treatment (due to the increased number of plantings, additional soil excavation, backfill material, use of underdrains etc.), those landscaping expenses that would be required regardless of the bioretention installation should be subtracted when determining the net cost.

Perhaps of most importance, however, the cost savings compared to the use of traditional structural stormwater conveyance systems makes bioretention areas quite attractive financially. For example, the use of bioretention can decrease the cost required for constructing stormwater conveyance systems at a site. A medical office building in Maryland was able to reduce the amount of storm drain pipe that was needed from 800 to 230 feet - a cost savings of $24,000 (PGDER, 1993). And a new residential development spent a total of approximately $100,000 using bioretention cells on each lot instead of nearly $400,000 for the traditional stormwater ponds that were originally planned (Rappahanock,). Also, in residential areas, stormwater management controls become a part of each property owner's landscape, reducing the public burden to maintain large centralized facilities.

Maintenance Cost

The operation and maintenance costs for a bioretention facility will be comparable to those of typical landscaping required for a site. Costs beyond the normal landscaping fees will include the cost for testing the soils and may include costs for a sand bed and planting soil.

References and Sources of Additional Information

Coffman, L.S., R. Goo and R. Frederick, 1999: Low impact development: an innovative alternative approach to stormwater management. Proceedings of the 26th Annual Water Resources Planning and Management Conference ASCE, June 6-9, Tempe, Arizona.

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U.S. EPA Office of Water, 1999. Stormwater Technology Fact Sheet: Bioretention. EPA 832-F-99-012.

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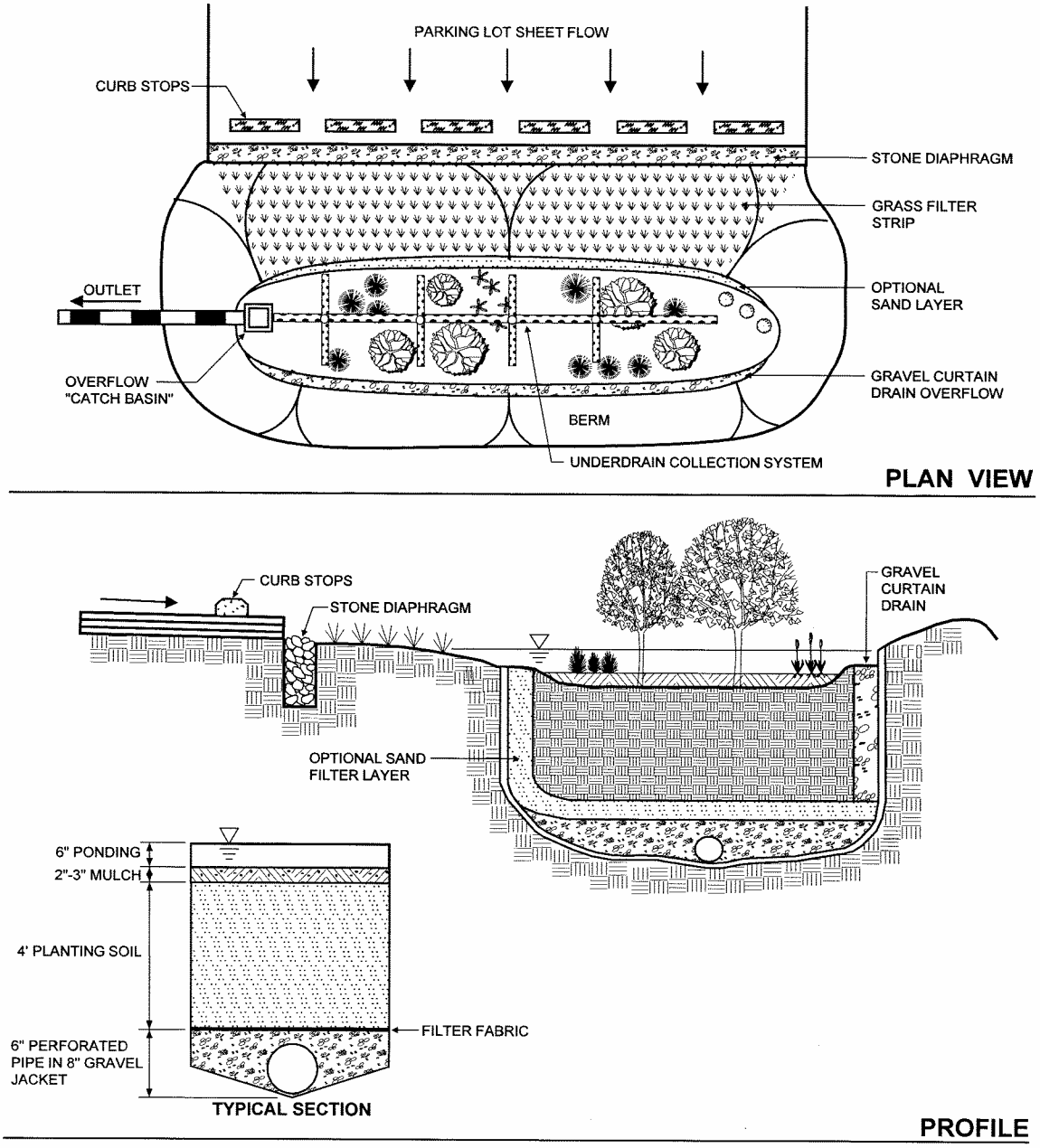


Schematic of a Bioretention Facility (MDE, 2000)

Appendix – E

Traffic Impact Analysis

August 13, 2021

Mr. Michael Brendecke
Adkan Engineers
6879 Airport Drive
Riverside, CA 92504

SUBJECT: AMAZING 34 WAREHOUSE VEHICLE MILES TRAVELED (VMT) SCREENING EVALUATION

Dear Mr. Michael Brendecke:

The following VMT Screening Analysis has been prepared for the proposed Amazing 34 Warehouse (**Project**), which is located at 791 South Waterman Avenue in the City of San Bernardino.

PROJECT OVERVIEW

It is our understanding that the Project is to consist of the development of 89,475 square feet (SF) of warehouse use. Replacing a currently vacant existing 47,521 SF industrial warehouse building.

BACKGROUND

Changes to California Environmental Quality Act (CEQA) Guidelines were adopted in December 2018, which require all lead agencies to adopt VMT as a replacement for automobile delay-based level of service (LOS) as the new measure for identifying transportation impacts for land use projects. This statewide mandate went into effect July 1, 2020.

It is our understanding that the City of San Bernardino utilizes the San Bernardino County Transportation Authority (SBCTA) VMT Screening Tool (**Screening Tool**). The Screening Tool allows users to input an assessor's parcel number (APN) to determine if a project's location meets one or more of the screening thresholds for land use projects as identified in San Bernardino County Transportation Authority (SBCTA) Recommended Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment (**SBCTA Guidelines**) that addresses both traditional automobile delay-based level of service (LOS) and new VMT analysis requirements. (2) The City of San Bernardino then used the SBCTA Guidelines to develop its City of San Bernardino Traffic Impact Analysis Guidelines (August 2020) (**City Guidelines**). (3) These guidelines have been used to conduct this screening analysis.

PROJECT SCREENING

The City Guidelines provides details on appropriate screening thresholds that can be used to identify when a proposed land use project is anticipated to result in a less than significant impact without conducting a more detailed project level analysis. Screening thresholds are broken into the following three steps:

- Transit Priority Area (TPA) Screening
- Low VMT Area Screening
- Project Type Screening

A land use project need only to meet one of the above screening thresholds to result in a less than significant impact.

TPA SCREENING

As described in the City Guidelines, projects located within a Transit Priority Area (TPA) (i.e., within ½ mile of an existing "major transit stop"[1] or an existing stop along a "high-quality transit corridor"[2]) may be presumed to have a less than significant impact absent substantial evidence to the contrary. However, the presumption may not be appropriate if a project:

- Has a Floor Area Ratio (FAR) of less than 0.75;
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization); or
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

Based on screening tool results, the Project is not located within ½ mile of an existing major transit stop, or along a high-quality transit corridor. (See Attachment A)

The TPA screening threshold is not met.

LOW VMT AREA SCREENING

The City Guidelines states that "residential and office projects located within a low VMT-generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition, other employment-related and mixed-use land use projects may qualify for the use of screening if the project can reasonably be expected to generate VMT per resident, per worker or per service population that is similar to the existing land uses in the low VMT area." The Screening Tool uses the sub-regional San Bernardino Transportation Analysis Model (SBTAM) to measure VMT performance within individual traffic analysis zones (TAZ's) within the SBCTA region. The Project's physical location based on the APN is input into the Screening Tool to determine VMT generated by the existing TAZ as compared to the City's impact threshold of "better than General Plan Buildout VMT per service

[1] Pub. Resources Code, § 21064.3 ("'Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.").
[2] Pub. Resources Code, § 21155 ("For purposes of this section, a high-quality transit corridor means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.").

population"[3]. The parcel containing the proposed Project was selected and the Screening Tool was run for the Origin-Destination VMT per service population measure of VMT. Based on the Screening Tool results (see Attachment A), the Project is not located within a low VMT generating zone.

The Low VMT Area screening threshold is not met.

PROJECT TYPE SCREENING

The City Guidelines identifies that local serving retail projects less than 50,000 SF may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition to local serving retail, other types of local serving uses such as community institutions (public libraries, fire stations, local government, etc.) may also be presumed to have a less than significant impact as their uses are local serving in nature and would tend to shorten vehicle trips.

Additionally, City Guidelines states that small projects anticipated to generate low traffic volumes (i.e., 110 daily vehicle trips or less[4]) are presumed to have a less than significant impact absent substantial evidence to the contrary. Vehicle trips anticipated to be generated by the existing and proposed land uses on the Project site have been estimated based on trip generation rates collected by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition, 2017. (1) The existing industrial building is estimated to have generated up to 84 daily vehicle trips. Comparatively, the proposed Project is anticipated to generate 158 daily vehicle trips, which results in a net increase of only 74 daily vehicle trips, which is less than the 110 daily vehicle trip threshold. (See Attachment B)

Project Type screening threshold is met.

CONCLUSION

Based on our review of applicable VMT screening thresholds, the proposed Project meets the Project Type screening and would therefore be assumed to result in a less than significant VMT impact; no additional VMT analysis is required.

If you have any questions, please contact me directly at 949-660-1994.

Respectfully submitted,

URBAN CROSSROADS, INC.

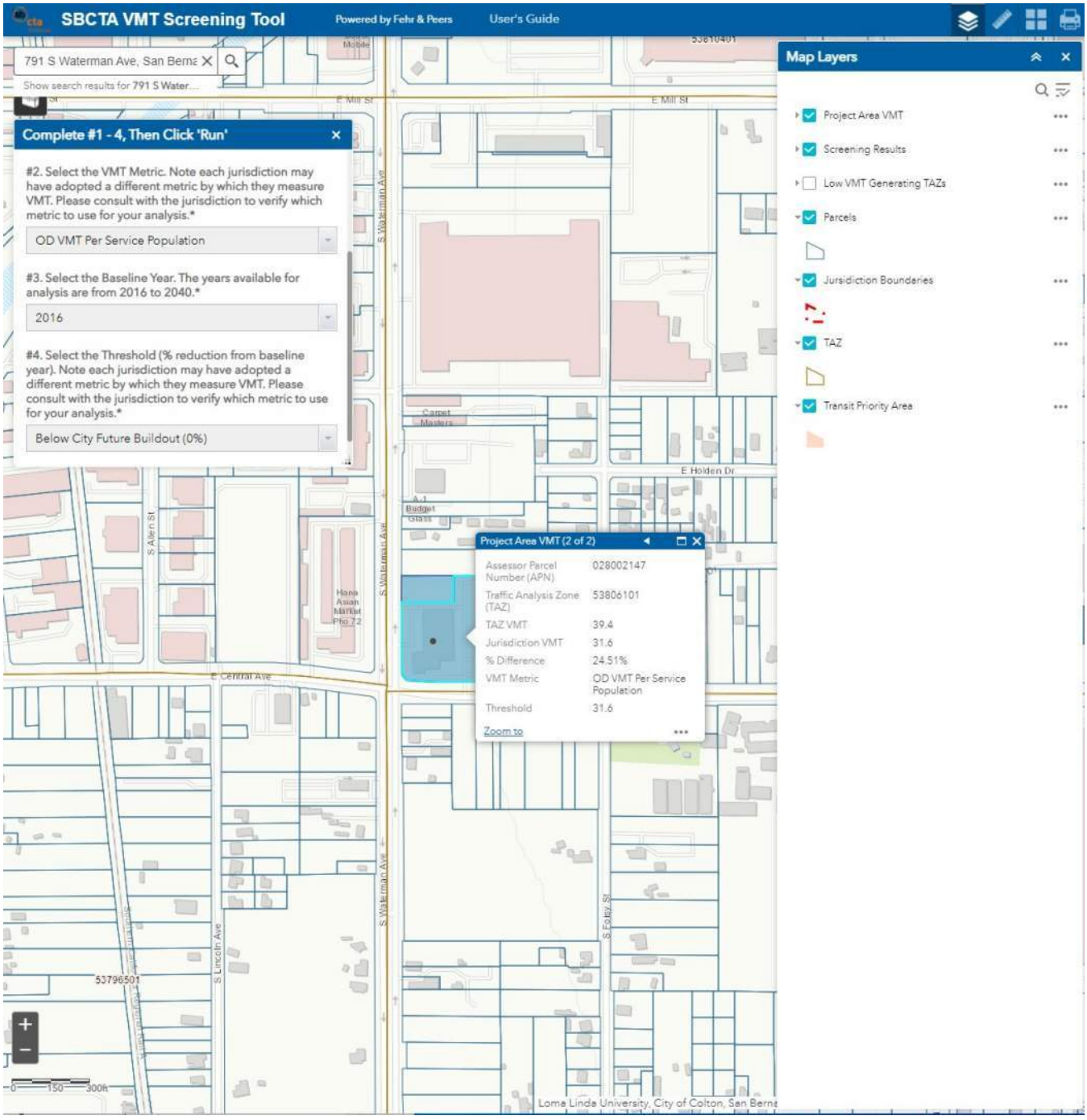
Alexander So
Senior Analyst

[3] City Guidelines; page 28
[4] City Guidelines; Page 25, footnote

REFERENCES

1. **Institute of Transportation Engineers.** *Trip Generation Manual.* 10th Edition. 2017.
2. **San Bernardino County Transportation Authority (SBCTA).** *Recommended Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment.* February 2020.
3. **City of San Bernardino.** *Traffic Impact Analysis Guidelines .* City of San Bernardino : s.n., August 2020.

ATTACHMENT A:
SBCTA SCREENING TOOL RESULTS


SBCTA VMT Screening Tool
Powered by Fehr & Peers
User's Guide
791 S Waterman Ave, San Berna
Show search results for 791 S Water...
Complete #1 - 4, Then Click 'Run'
#2. Select the VMT Metric. Note each jurisdiction may have adopted a different metric by which they measure VMT. Please consult with the jurisdiction to verify which metric to use for your analysis.*
OD VMT Per Service Population
#3. Select the Baseline Year. The years available for analysis are from 2016 to 2040.*
2016
#4. Select the Threshold (% reduction from baseline year). Note each jurisdiction may have adopted a different metric by which they measure VMT. Please consult with the jurisdiction to verify which metric to use for your analysis.*
Below City Future Buildout (0%)
Map Layers
Project Area VMT
Screening Results
Low VMT Generating TAZs
Parcels
Jurisdiction Boundaries
TAZ
Transit Priority Area
Project Area VMT (2 of 2)
Assessor Parcel Number (APN) 028002147
Traffic Analysis Zone (TAZ) 53806101
TAZ VMT 39.4
Jurisdiction VMT 31.6
% Difference 24.51%
VMT Metric OD VMT Per Service Population
Threshold 31.6
Zoom to
E Mill St
E Holden Dr
E Central Ave
S Waterman Ave
S Allen St
S Lincoln Ave
S Foisy St
53796501
Loma Linda University, City of Colton, San Berna

ATTACHMENT B:
PROJECT TRIP GENERATION COMPARISON

Land Use[1]	Units[2]	ITE LU Code	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Actual Vehicle Trip Generation Rates:									
Warehousing[3]	TSF	150	0.131	0.039	0.170	0.051	0.139	0.190	1.740
Passenger Cars			0.114	0.034	0.148	0.044	0.118	0.162	1.270
2-Axle Trucks			0.003	0.001	0.004	0.001	0.003	0.005	0.078
3-Axle Trucks			0.004	0.001	0.005	0.002	0.004	0.006	0.097
4+-Axle Trucks			0.011	0.003	0.014	0.005	0.013	0.018	0.294

[1] Source: ITE Trip Generation Manual, 10th Edition, 2017.

[2] TSF = thousand square feet

[3] Vehicle Mix Source: ITE Trip Generation Handbook Supplement (2020), Appendix C.
Truck Mix: South Coast Air Quality Management District's (SCAQMD) recommended truck mix, by axle type.
Normalized % - Without Cold Storage: 16.7% 2-Axle trucks, 20.7% 3-Axle trucks, 62.6% 4-Axle trucks.

Land Use	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Existing Trip Generation Summary:									
Warehousing	47.521	TSF							
Passenger Cars:			5	2	7	2	6	8	60
2-axle Trucks:			0	0	0	0	0	0	4
3-axle Trucks:			0	0	0	0	0	0	6
4+-axle Trucks:			1	0	1	0	1	1	14
Total Truck Trips:			1	0	1	0	1	1	24
Total Trips (Actual Vehicles)[2]			**6**	**2**	**8**	**2**	**7**	**9**	**84**
Project Trip Generation Summary:									
Warehousing	89.475	TSF							
Passenger Cars:			10	3	13	4	11	15	114
2-axle Trucks:			0	0	0	0	0	0	8
3-axle Trucks:			0	0	0	0	0	0	10
4+-axle Trucks:			1	0	1	0	1	1	26
Total Truck Trips:			1	0	1	0	1	1	44
Total Trips (Actual Vehicles)[2]			**11**	**3**	**14**	**4**	**12**	**16**	**158**

[1] TSF = thousand square feet

[2] Total Trips = Passenger Cars + Truck Trips.

Net Change	Quantity	Units[1]	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total	Daily
Existing Warehouse	47.521	TSF							
Passenger Cars:			5	2	7	2	6	8	60
Trucks:			1	0	1	0	1	1	24
Proposed Warehouse	89.475	TSF							
Passenger Cars:			10	3	13	4	11	15	114
Trucks:			1	0	1	0	1	1	44
Net Change (Passenger Cars)			**5**	**1**	**6**	**2**	**5**	**7**	**54**
Net Change (Trucks)			**0**	**0**	**0**	**0**	**0**	**0**	**20**
Total Net Change			**5**	**1**	**6**	**2**	**5**	**7**	**74**

Appendix – F

Biological Resources Memo

GENERAL BIOLOGICAL RESOURCE ASSESSMENT AND HABITAT ASSESSMENT FOR APN 260-021-34, 260-021-44 and 260-021-47 (Amazing 34) PROJECT

In the City of San Bernardino
San Bernardino County, CA
USGS 7.5-minute topographic quadrangle map San Bernardino South in San Bernardino Section of Township 1 South, Range 4 West

Prepared By and Principal Investigator**:**

GONZALES
ENVIRONMENTAL CONSULTING, LLC

358 Crystal Drive
San Jacinto, CA 92583
(760) 777-1621

Report Date: July 15, 2021

TABLE OF CONTENTS

I. TITLE PAGE

A. **Date report prepared**: July 15, 2021

B. **Report Title:** GENERAL BIOLOGICAL RESOURCE ASSESSMENT AND HABITAT ASSESSMENT FOR APN 260-021-34, 260-021-44 AND 260-021-47 (AMAZING 34) PROJECT

C. **Project site location:** USGS 7.5-minute topographic quadrangle map San Bernardino South in San Bernardino Section of Township 1 South, Range 4 West

D. **Assessor's Parcel Number(s) and any related County assigned planning application numbers (i.e., Tract Map #) :** APN 260-021-34, 260-021-44 and 260-021-47

E. **Owner/Applicant:**
Amazing 34

F. **Principal Investigator(s):** Gonzales Environmental Consulting, LLC
Address: 358 Crystal Drive
San Jacinto, CA 92583
Phone: 760.777-1621

G. **Name and phone number of person preparing report and of all persons who performed fieldwork on the site.**

Name of Person	Role on project
Teresa Gonzales	Prepared report and performed fieldwork
Paul Gonzales	Performed fieldwork

II. EXECUTIVE SUMMARY

Findings and Conclusions

The proposed project consists of the development of an existing warehouse property and structures of which will be demolished and reconstructed with a new 81,747 square foot tilt-up warehouse located in the City of San Bernardino of San Bernardino County, California. In June 2021, Teresa Gonzales, Principal Biologist, conducted general biological resource assessment, native plant assessment and habitat assessment for to characterize biological resources on the site, and to identify any biological constraints to the proposed project.

The site consists of habitat characterized as disturbed. The locations of native plant communities within the project footprint have been previously impacted by anthropogenic activities in the area, and do not exist on the project site.

We found no sensitive, threatened or endangered species on the proposed project site. The entire site has been previously developed and is now disturbed.

Habitat Assessment surveys were conducted in June, 2021 and found no signs of the sensitive species using the proposed project site or the zone of influence. Nesting birds could occur within the existing trees on the project site and adjacent to the project site.

A circumstance of a negative result is not necessarily evidence that the species does not exist on the site or that the site is not actual or potential habitat of the species. The survey results for sensitive species detailed above are only good for one year. Regardless of the survey results, sensitive species cannot be taken under State and Federal law. The survey report and any mitigation measures included do not constitute authorization for incidental take of sensitive species.

III. PROJECT AND PROPERTY DESCRIPTION

A. Property Description

Proposed Project Area

The proposed project site is located in the City of San Bernardino. The project area is located north of Interstate 10, east of Interstate 215, and west of State Route 210.

Proposed Project Site

The project site (site) discussed in this report is located east of South Waterman Avenue, north of East Central Avenue, and south of Mill Street in the City of San Bernardino, San Bernardino County, California. See Figures 3.1, 3.2 and 3.3.

The site is located within San Bernardino Meridian in a portion of San Bernardino Section, Township 1 South, Range 4 West, San Bernardino County, California (Figures 3.1, 3.2 and 3.3). This location is shown on the San Bernardino South, California 7.5-minute U.S. Geological Survey (USGS) quadrangle San Bernardino South Photorevised 1980. The approximate center of the site is located at latitude 34.087544° and longitude -117.277252.

Elevation of the assessment area ranges from a from a low of 1015± feet above mean sea level (msl) in the southwestern portion of the assessment area to a high of 1022± feet above msl in the northeastern portion of the assessment area. This represents an elevational change across the assessment area of 7± feet. The entire site consists of relatively level land. Land use in the surrounding area is light industrial and industrial.

One vegetation community/land cover type was observed on the project site: Disturbed.

There are no potential rare, and/or endangered or otherwise sensitive habitats associated with the proposed project site.

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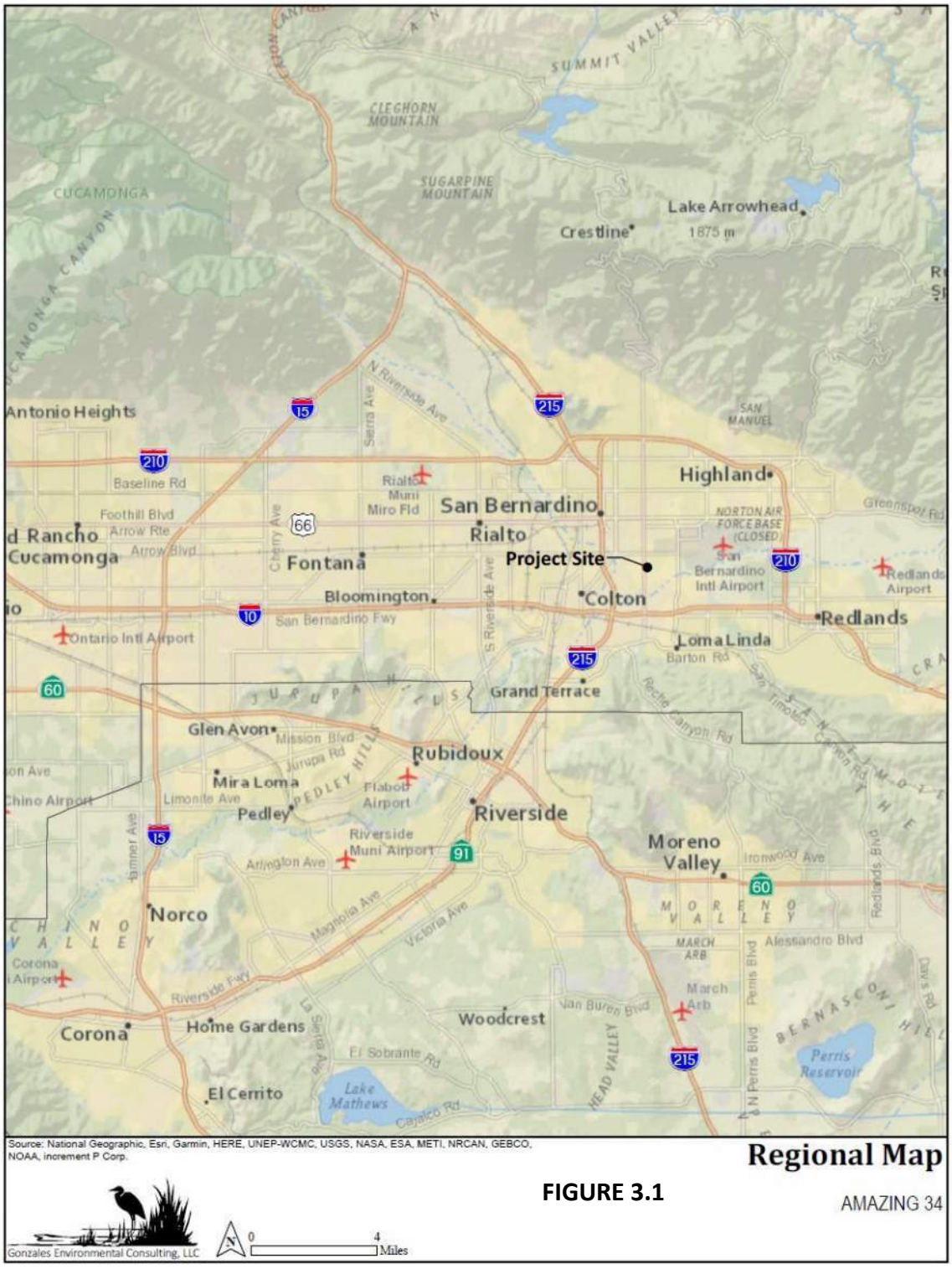
SUMMIT VALLEY
CLEGHORN MOUNTAIN
SUGARPINE MOUNTAIN
CUCAMONGA
CUCAMONGA CANYON
Lake Arrowhead
Crestline
1875 m
Antonio Heights
Baseline Rd
Foothill Blvd
Arrow Rte
Arrow Blvd
d Rancho Cucamonga
Ontario Intl Airport
Rialto Muni Miro Fld
San Bernardino
Rialto
Project Site
Fontana
Bloomington
Colton
San Bernardino Fwy
Cherry Ave
Sierra Ave
N Riverside Ave
S Riverside Ave
SAN MANUEL
Highland
NORTON AIR FORCE BASE (CLOSED)
San Bernardino Intl Airport
Redlands Airport
Redlands
Loma Linda
Barton Rd
Grand Terrace
JURUPA HILLS
Glen Avon
Mission Blvd
Jurupa Rd
Rubidoux
Mira Loma
Limonite Ave
Chino Airport
PEDLEY HILLS
Flabob Airport
Pedley
Riverside
Riverside Muni Airport
Arlington Ave
Moreno Valley
Ironwood Ave
Norco
CHINO VALLEY
Magnolia Ave
Victoria Ave
MORENO VALLEY
MARCH ARB
Alessandro Blvd
March Arb
Corona Airport
Riverside Fwy
Van Buren Blvd
Woodcrest
Corona
Home Gardens
El Sobrante Rd
HEAD VALLEY
Perris Reservoir
BERNASCONI HILL
El Cerrito
Lake Mathews
Cajalco Rd
Source: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.
Regional Map
AMAZING 34
Gonzales Environmental Consulting, LLC
0
4
Miles

FIGURE 3.1

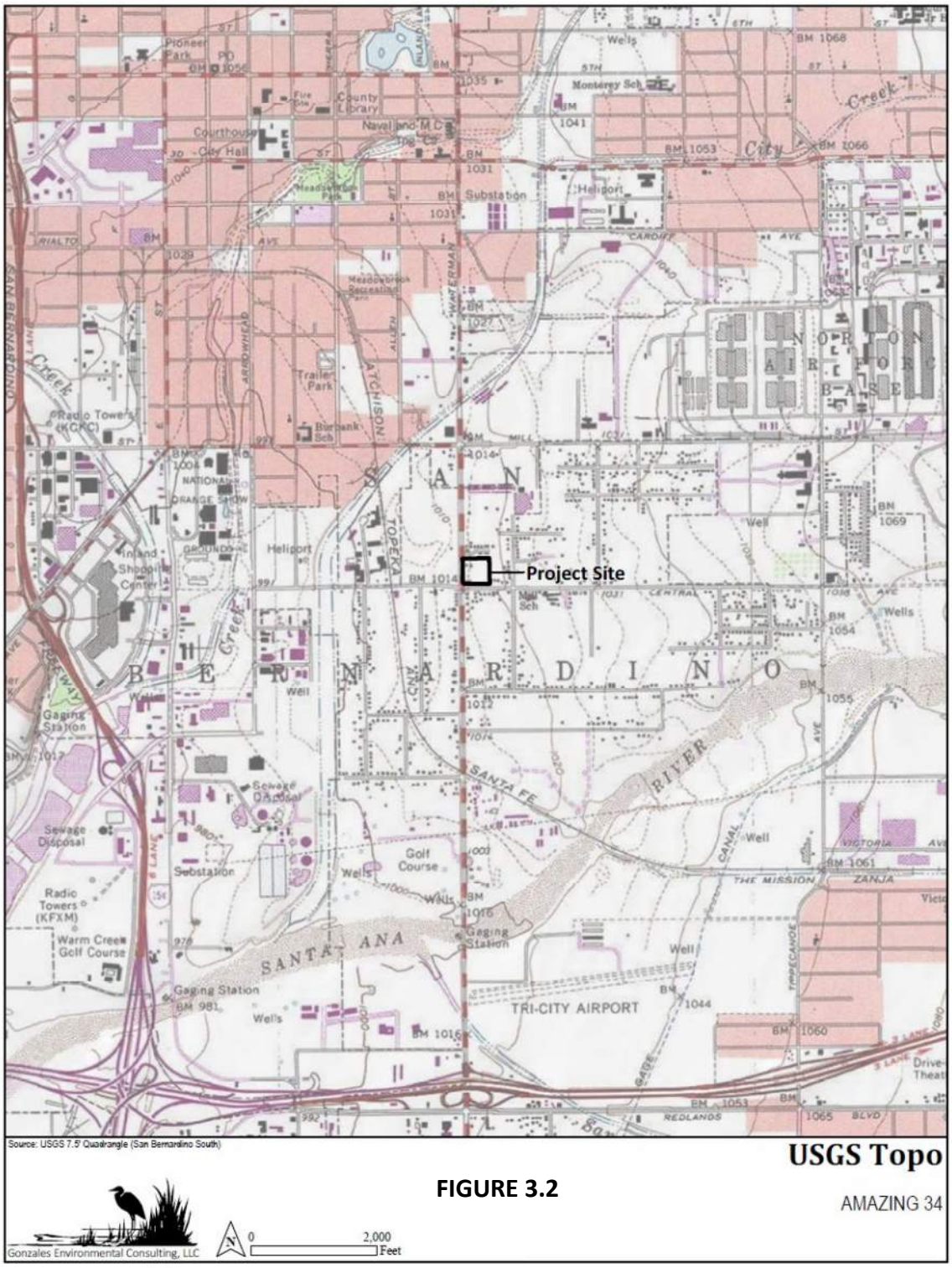
Project Site
Source: USGS 7.5' Quadrangle (San Bernardino South)
USGS Topo
AMAZING 34
Gonzales Environmental Consulting, LLC
0
2,000
Feet

FIGURE 3.2

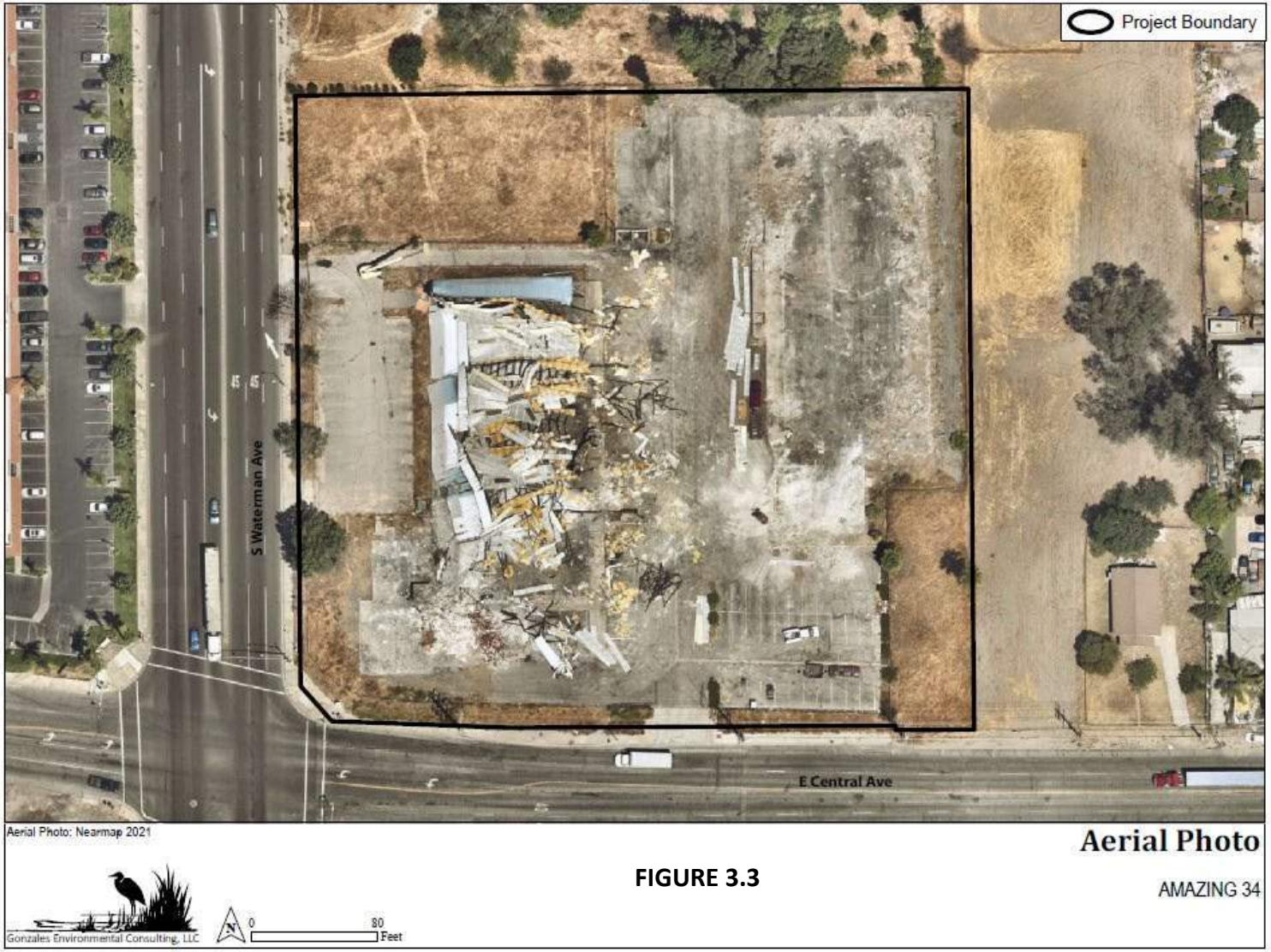
Project Boundary
S Waterman Ave
E Central Ave
Aerial Photo: Nearmap 2021
Gonzales Environmental Consulting, LLC
N
0
80
Feet
Aerial Photo
AMAZING 34

FIGURE 3.3

SOILS

Hanford-Greenfield-San Emigdio Association is found on the site. It is nearly level, moderately sloping, well-drained, very deep soils on alluvial valley floors and fans. The soil series mapped for the area are described in Table 3.1. The soils found are consistent with the soils mapped for the area. Soils have been compacted due to anthropogenic activities.

TABLE 3.1

SOIL SERIES MAPPED FOR THE AREA

Name	Description
Grangeville fine sandy loam	Consists of somewhat poorly drained, nearly level soils. These soils formed on the slopes of alluvial fans in moderately coarse textured granitic alluvium. Slopes are 0-2%. Elevation is 1,000-1,200 feet. Vegetation is annual grasses and forbs and scattered cottonwood trees. The average annual precipitation is 12-15 inches, the mean annual air temperature is 62-65F and the frost-free season is 230-280 days.
Hanford coarse sandy loam, 2-9% slopes	Consists of well-drained, nearly level to strongly sloping soils that formed in recent granitic alluvium on valley floors and alluvial fans. Slopes are 2-9%. Elevation is 1,000-1,800 feet. Vegetation is mainly annual grasses and forbs. The average annual precipitation is 12-16 inches, the mean annual air temperature is 62-64F and the frost-free season is 340-280 days.
Tujunga gravelly loamy sand, 0-9% slopes	Consists of somewhat excessively drained, nearly level to moderately sloping soils that formed on alluvial fans in granitic alluvium Slopes are 0-9%. Elevation is 1,000-2,000 feet. Vegetation thin strands of chamise, some big sagebrush, and annual grasses and forbs. The average annual precipitation is 12-16 inches, the mean annual air temperature is 61-65F and the frost-free season is 230-280 days.

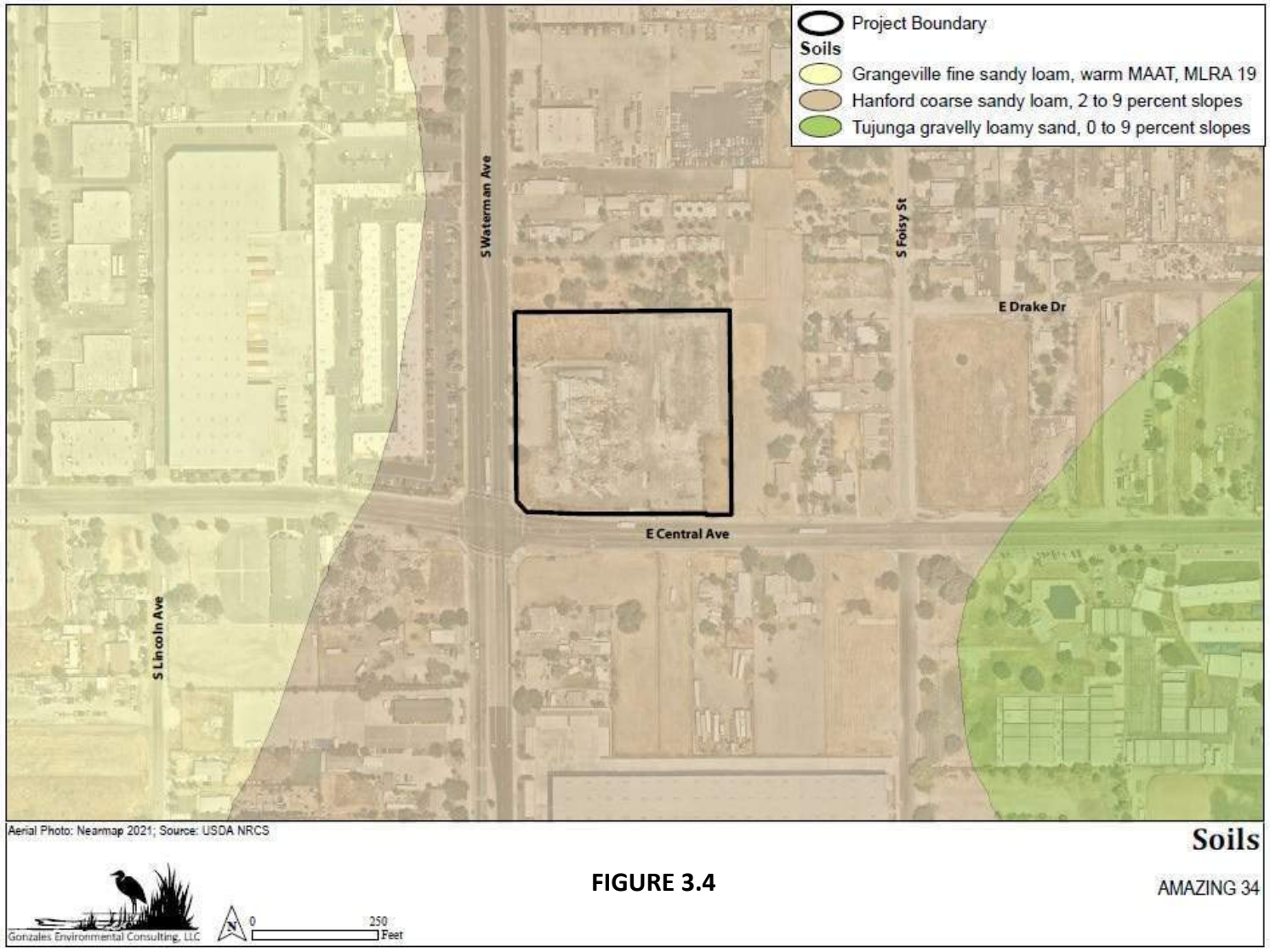
Project Boundary
Soils
Grangeville fine sandy loam, warm MAAT, MLRA 19
Hanford coarse sandy loam, 2 to 9 percent slopes
Tujunga gravelly loamy sand, 0 to 9 percent slopes
S Waterman Ave
S Foisy St
E Drake Dr
E Central Ave
S Lincoln Ave
Aerial Photo: Nearmap 2021; Source: USDA NRCS
Gonzales Environmental Consulting, LLC
0
250
Feet
Soils
AMAZING 34

FIGURE 3.4

WETLANDS/STREAMBEDS

There are no wetlands or streambeds on the project site.

B. Proposed Project Description

The proposed project consists of the development of an existing warehouse property and structures of which will be demolished and reconstructed with a new 81,747 square foot tilt-up warehouse located in the City of San Bernardino of San Bernardino County, California.

IV. FOCUS STUDY/SPECIES OF CONCERN

A. List from U.S. Fish and Wildlife Service (USFWS)/California Department of Fish and Wildlife (CDFW)

USFWS provided the following species:

Dipodomys merriami parvus	San Bernardino Merriam's Kangaroo Rat FE
Dipodomys stephensi	Stephens' Kangaroo Rat FE
Polioptila californica californica	Coastal California Gnatcatcher FT
Vireo bellii pusillus	Least Bell's Vireo FE
Empidonax traillii extimus	Southwestern Willow Flycatcher FE
Catostomus santaanae	Santa Ana Sucker FT
Rorippa gambellii	Gambel's Watercress FE
Ambrosia pumila	San Diego Ambrosia FE
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River Woolly-star FE
Dodecahema leptoceras	Slender-horned Spineflower FE

FT=Federal Threatened
FE=Federal Endangered

Migratory Bird Treaty Act of 1918 and the Bald and Golden Eagle Protection Act of 1940:

Allen's Hummingbird	*Selasphorus sasin* BCC
Burrowing Owl	*Athene cunicularia* BCC
Clark's Grebe	*Aechmophorus clarkii* BCC
Common Yellowthroat	*Geothlypis trichas sinuosa* BCC
Costa's Hummingbird	*Calypte costae* BCC
Lawrence's Goldfinch	*Carduelis lawrencei* BCC
Nuttall's Woodpecker	*Picoides nuttallii* BCC
Rufous Hummingbird	*Selasphorus rufus* BCC
Song Sparrow	*Melospiza melodia* BCC
Spotted Towhee	*Pipilo masculatus clementae* BCC
Tricolored Blackbird	*Agelaius tricolor* BCC

BCC= Bird of Conservation Concern

California Department of Fish and Wildlife (CDFW) provided the following species. See Table 4.1 below.

TABLE 4.1

CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE (CDFW) LIST

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	CALIF STATUS	CDFG	CNPS
Rana draytonii	California red-legged frog	Threatened	None	SSC	-
Spea hammondii	western spadefoot	None	None	SSC	-
Artemisiospiza belli belli	Bell's sage sparrow	None	None	WL	-
Athene cunicularia	burrowing owl	None	None	SSC	-
Laterallus jamaicensis coturniculus	California black rail	None	Threatened	FP	-
Gymnogyps californianus	California condor	Endangered	Endangered	FP	-
Polioptila californica californica	coastal California gnatcatcher	Threatened	None	SSC	-
Accipiter cooperii	Cooper's hawk	None	None	WL	-
Calypte costae	Costa's hummingbird	None	None	-	-
Phalacrocorax auritus	double-crested cormorant	None	None	WL	-
Aquila chrysaetos	golden eagle	None	None	FP ; WL	-
Ardea herodias	great blue heron	None	None	-	-
Ardea alba	great egret	None	None	-	-
Spinus lawrencei	Lawrence's goldfinch	None	None	-	-
Vireo bellii pusillus	least Bell's vireo	Endangered	Endangered	-	-
Lanius ludovicianus	loggerhead shrike	None	None	SSC	-
Falco columbarius	merlin	None	None	WL	-
Accipiter gentilis	northern goshawk	None	None	SSC	-
Contopus cooperi	olive-sided flycatcher	None	None	SSC	-
Falco mexicanus	prairie falcon	None	None	WL	-
Progne subis	purple martin	None	None	SSC	-
Sphyrapicus ruber	red-breasted sapsucker	None	None	-	-
Egretta thula	snowy egret	None	None	-	-
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	None	None	WL	-
Empidonax traillii extimus	southwestern willow flycatcher	Endangered	Endangered	-	-
Buteo swainsoni	Swainson's hawk	None	Threatened	-	-
Agelaius tricolor	tricolored blackbird	None	Threatened	SSC	-
Chaetura vauxi	Vaux's swift	None	None	SSC	-
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Threatened	Endangered	-	-

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	CALIF STATUS	CDFG	CNPS
Empidonax traillii	willow flycatcher	None	Endangered	-	-
Setophaga petechia	yellow warbler	None	None	SSC	-
Icteria virens	yellow-breasted chat	None	None	SSC	-
Xanthocephalus xanthocephalus	yellow-headed blackbird	None	None	SSC	-
Gila orcuttii	arroyo chub	None	None	SSC	-
Catostomus santaanae	Santa Ana sucker	Threatened	None	-	-
*Oncorhynchus mykiss irideu*s pop. 10	steelhead - southern California DPS	Endangered	None	-	-
Carolella busckana	Busck's gallmoth	None	None	-	-
Bombus crotchii	Crotch bumble bee	None	Candidate Endangered	-	-
Rhaphiomidas terminatus abdominalis	Delhi Sands flower-loving fly	Endangered	None	-	-
Euphydryas editha quino	quino checkerspot butterfly	Endangered	None	-	-
Taxidea taxus	American badger	None	None	SSC	-
Dipodomys simulans	Dulzura kangaroo rat	None	None	-	-
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None	None	SSC	-
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None	None	SSC	-
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	None	None	SSC	-
Nyctinomops femorosaccus	pocketed free-tailed bat	None	None	SSC	-
Glaucomys oregonensis californicus	San Bernardino flying squirrel	None	None	SSC	-
Dipodomys merriami parvus	San Bernardino kangaroo rat	Endangered	Candidate Endangered	SSC	-
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None	None	SSC	-
Neotoma lepida intermedia	San Diego desert woodrat	None	None	SSC	-
Onychomys torridus ramona	southern grasshopper mouse	None	None	SSC	-
Dipodomys stephensi	Stephens' kangaroo rat	Endangered	Threatened	-	-
Eumops perotis californicus	western mastiff bat	None	None	SSC	-
Lasiurus xanthinus	western yellow bat	None	None	SSC	-
Arizona elegans occidentalis	California glossy snake	None	None	SSC	-
Phrynosoma blainvillii	coast horned lizard	None	None	SSC	-
Aspidoscelis tigris stejnegeri	coastal whiptail	None	None	SSC	-
Aspidoscelis hyperythra	orange-throated whiptail	None	None	WL	-
Crotalus ruber	red-diamond rattlesnake	None	None	SSC	-

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	CALIF STATUS	CDFG	CNPS
Diadophis punctatus modestus	San Bernardino ringneck snake	None	None	-	-
Coleonyx variegatus abbotti	San Diego banded gecko	None	None	SSC	-
Thamnophis sirtalis pop. 1	south coast gartersnake	None	None	SSC	-
Anniella stebbinsi	Southern California legless lizard	None	None	SSC	-
Thamnophis hammondii	two-striped gartersnake	None	None	SSC	-
Galium californicum ssp. *primum*	Alvin Meadow bedstraw	None	None	-	1B.2
Carex comosa	bristly sedge	None	None	-	2B.1
Senecio aphanactis	chaparral ragwort	None	None	-	2B.2
Nasturtium gambelii	Gambel's water cress	Endangered	Threatened	-	1B.1
Astragalus hornii var. *hornii*	Horn's milk-vetch	None	None	-	1B.1
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower	None	None	-	1A
Arenaria paludicola	marsh sandwort	Endangered	Endangered	-	1B.1
Horkelia cuneata var. *puberula*	mesa horkelia	None	None	-	1B.1
Malacothamnus parishii	Parish's bush-mallow	None	None	-	1A
Lycium parishii	Parish's desert-thorn	None	None	-	2B.3
Ribes divaricatum var. *parishii*	Parish's gooseberry	None	None	-	1A
Chorizanthe parryi var. *parryi*	Parry's spineflower	None	None	-	1B.1
Chorizanthe leptotheca	Peninsular spineflower	None	None	-	4.2
Cuscuta obtusiflora var. *glandulosa*	Peruvian dodder	None	None	-	2B.2
Sphenopholis obtusata	prairie wedge grass	None	None	-	2B.2
Monardella pringlei	Pringle's monardella	None	None	-	1A
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None	None	-	4.3
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	Endangered	Endangered	-	1B.2
Sidalcea neomexicana	salt spring checkerbloom	None	None	-	2B.2
Symphyotrichum defoliatum	San Bernardino aster	None	None	-	1B.2
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woollystar	Endangered	Endangered	-	1B.1
Dodecahema leptoceras	slender-horned spineflower	Endangered	Endangered	-	1B.1

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	CALIF STATUS	CDFG	CNPS
Centromadia pungens ssp. *laevis*	smooth tarplant	None	None	-	1B.1
Juglans californica	southern California black walnut	None	None	-	4.2
Asplenium vespertinum	western spleenwort	None	None	-	4.2

Legend

FE: Federally-listed as endangered
FT: Federally-listed as threatened
SCE: State candidate for listing as endangered
FC: Federal Candidate
SE: State-listed as endangered
ST: State-listed as threatened
SR: State rare

CNPS List= California Native Plant Society
CNPS 1B= Rare or Endangered In California and Elsewhere
CNPS 2= Rare or Endangered in California, More Common Elsewhere
CNPS 3= Need More Information
CNPS 4= Plants of Limited Distribution
CNPS New Threat Code extensions and their meanings:
.1 - Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 – Fairly endangered in California (20-80% occurrences threatened)
.3 – Not very endangered in California (<20% of occurrences threatened or no current threats known)

B. Consult with California Natural Diversity Database (CNDDB)

TABLE 4.2

CNDDB RARE, THREATENED OR ENDANGERED SPECIES IN SAN BERNARDINO SOUTH QUADRANGLE

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	CALIF STATUS	CDFG	CNPS
Rana draytonii	California red-legged frog	Threatened	None	SSC	-
Spea hammondii	western spadefoot	None	None	SSC	-
Artemisiospiza belli belli	Bell's sage sparrow	None	None	WL	-
Athene cunicularia	burrowing owl	None	None	SSC	-
Laterallus jamaicensis coturniculus	California black rail	None	Threatened	FP	-
Gymnogyps californianus	California condor	Endangered	Endangered	FP	-
Polioptila californica californica	coastal California gnatcatcher	Threatened	None	SSC	-
Accipiter cooperii	Cooper's hawk	None	None	WL	-
Calypte costae	Costa's hummingbird	None	None	-	-
Phalacrocorax auritus	double-crested cormorant	None	None	WL	-
Aquila chrysaetos	golden eagle	None	None	FP ; WL	-
Ardea herodias	great blue heron	None	None	-	-
Ardea alba	great egret	None	None	-	-
Spinus lawrencei	Lawrence's goldfinch	None	None	-	-
Vireo bellii pusillus	least Bell's vireo	Endangered	Endangered	-	-
Lanius ludovicianus	loggerhead shrike	None	None	SSC	-
Falco columbarius	merlin	None	None	WL	-
Accipiter gentilis	northern goshawk	None	None	SSC	-
Contopus cooperi	olive-sided flycatcher	None	None	SSC	-
Falco mexicanus	prairie falcon	None	None	WL	-
Progne subis	purple martin	None	None	SSC	-
Sphyrapicus ruber	red-breasted sapsucker	None	None	-	-
Egretta thula	snowy egret	None	None	-	-
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	None	None	WL	-
Empidonax traillii extimus	southwestern willow flycatcher	Endangered	Endangered	-	-
Buteo swainsoni	Swainson's hawk	None	Threatened	-	-
Agelaius tricolor	tricolored blackbird	None	Threatened	SSC	-

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	CALIF STATUS	CDFG	CNPS
Chaetura vauxi	Vaux's swift	None	None	SSC	-
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Threatened	Endangered	-	-
Empidonax traillii	willow flycatcher	None	Endangered	-	-
Setophaga petechia	yellow warbler	None	None	SSC	-
Icteria virens	yellow-breasted chat	None	None	SSC	-
Xanthocephalus xanthocephalus	yellow-headed blackbird	None	None	SSC	-
Gila orcuttii	arroyo chub	None	None	SSC	-
Catostomus santaanae	Santa Ana sucker	Threatened	None	-	-
Oncorhynchus mykiss irideus pop. 10	steelhead - southern California DPS	Endangered	None	-	-
Carolella busckana	Busck's gallmoth	None	None	-	-
Bombus crotchii	Crotch bumble bee	None	Candidate Endangered	-	-
Rhaphiomidas terminatus abdominalis	Delhi Sands flower-loving fly	Endangered	None	-	-
Euphydryas editha quino	quino checkerspot butterfly	Endangered	None	-	-
Taxidea taxus	American badger	None	None	SSC	-
Dipodomys simulans	Dulzura kangaroo rat	None	None	-	-
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None	None	SSC	-
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None	None	SSC	-
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	None	None	SSC	-
Nyctinomops femorosaccus	pocketed free-tailed bat	None	None	SSC	-
Glaucomys oregonensis californicus	San Bernardino flying squirrel	None	None	SSC	-
Dipodomys merriami parvus	San Bernardino kangaroo rat	Endangered	Candidate Endangered	SSC	-
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None	None	SSC	-
Neotoma lepida intermedia	San Diego desert woodrat	None	None	SSC	-
Onychomys torridus ramona	southern grasshopper mouse	None	None	SSC	-
Dipodomys stephensi	Stephens' kangaroo rat	Endangered	Threatened	-	-
Eumops perotis californicus	western mastiff bat	None	None	SSC	-
Lasiurus xanthinus	western yellow bat	None	None	SSC	-
Arizona elegans occidentalis	California glossy snake	None	None	SSC	-
Phrynosoma blainvillii	coast horned lizard	None	None	SSC	-
Aspidoscelis tigris stejnegeri	coastal whiptail	None	None	SSC	-

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	CALIF STATUS	CDFG	CNPS
Aspidoscelis hyperythra	orange-throated whiptail	None	None	WL	-
Crotalus ruber	red-diamond rattlesnake	None	None	SSC	-
Diadophis punctatus modestus	San Bernardino ringneck snake	None	None	-	-
Coleonyx variegatus abbotti	San Diego banded gecko	None	None	SSC	-
Thamnophis sirtalis pop. 1	south coast gartersnake	None	None	SSC	-
Anniella stebbinsi	Southern California legless lizard	None	None	SSC	-
Thamnophis hammondii	two-striped gartersnake	None	None	SSC	-
Galium californicum ssp. *primum*	Alvin Meadow bedstraw	None	None	-	1B.2
Carex comosa	bristly sedge	None	None	-	2B.1
Senecio aphanactis	chaparral ragwort	None	None	-	2B.2
Nasturtium gambelii	Gambel's water cress	Endangered	Threatened	-	1B.1
Astragalus hornii var. *hornii*	Horn's milk-vetch	None	None	-	1B.1
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower	None	None	-	1A
Arenaria paludicola	marsh sandwort	Endangered	Endangered	-	1B.1
Horkelia cuneata var. *puberula*	mesa horkelia	None	None	-	1B.1
Malacothamnus parishii	Parish's bush-mallow	None	None	-	1A
Lycium parishii	Parish's desert-thorn	None	None	-	2B.3
Ribes divaricatum var. *parishii*	Parish's gooseberry	None	None	-	1A
Chorizanthe parryi var. *parryi*	Parry's spineflower	None	None	-	1B.1
Chorizanthe leptotheca	Peninsular spineflower	None	None	-	4.2
Cuscuta obtusiflora var. *glandulosa*	Peruvian dodder	None	None	-	2B.2
Sphenopholis obtusata	prairie wedge grass	None	None	-	2B.2
Monardella pringlei	Pringle's monardella	None	None	-	1A
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None	None	-	4.3
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	Endangered	Endangered	-	1B.2
Sidalcea neomexicana	salt spring checkerbloom	None	None	-	2B.2
Symphyotrichum defoliatum	San Bernardino aster	None	None	-	1B.2

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	CALIF STATUS	CDFG	CNPS
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woollystar	Endangered	Endangered	-	1B.1
Dodecahema leptoceras	slender-horned spineflower	Endangered	Endangered	-	1B.1
Centromadia pungens ssp. *laevis*	smooth tarplant	None	None	-	1B.1
Juglans californica	southern California black walnut	None	None	-	4.2
Asplenium vespertinum	western spleenwort	None	None	-	4.2

Legend

FE:	Federally-listed as endangered	SE:	State-listed as endangered
FT:	Federally-listed as threatened	ST:	State-listed as threatened
SCE:	State candidate for listing as endangered	SR:	State rare
FC:	Federal Candidate		

CNPS List= California Native Plant Society
CNPS 1B= Rare or Endangered In California and Elsewhere
CNPS 2= Rare or Endangered in California, More Common Elsewhere
CNPS 3= Need More Information
CNPS 4= Plants of Limited Distribution
CNPS New Threat Code extensions and their meanings:
.1 - Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 – Fairly endangered in California (20-80% occurrences threatened)
.3 – Not very endangered in California (<20% of occurrences threatened or no current threats known)

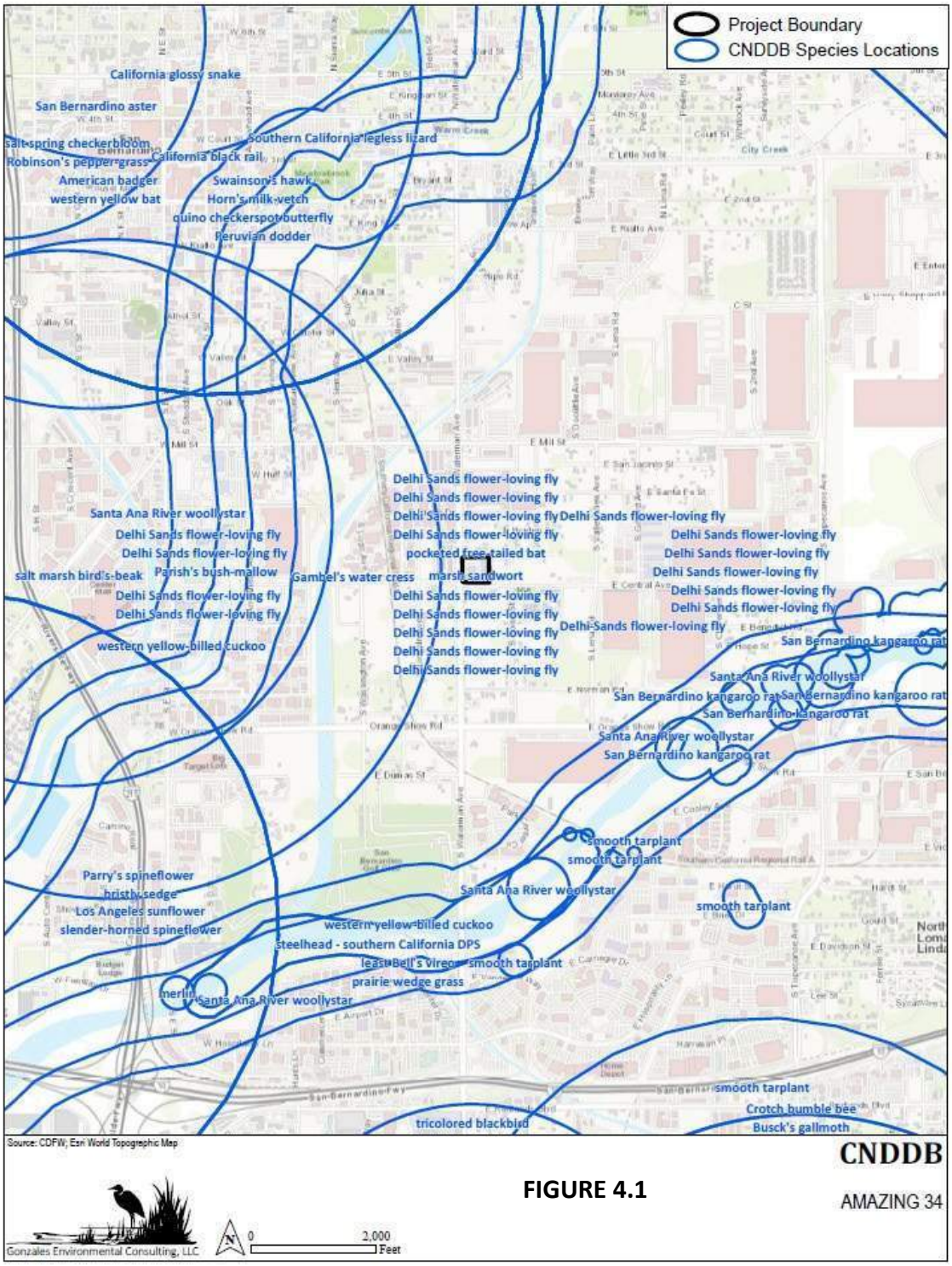
Project Boundary
CNDDB Species Locations
California glossy snake
San Bernardino aster
Salt-spring checkerbloom
Robinson's pepper-grass
Southern California legless lizard
California black rail
American badger
western yellow bat
Swainson's hawk
Horn's milk-vetch
quino checkerspot butterfly
Peruvian dodder
Delhi Sands flower-loving fly
Santa Ana River woollystar
salt marsh bird's-beak
Parish's bush-mallow
Gambel's water cress
pocketed free-tailed bat
marsh sandwort
western yellow-billed cuckoo
San Bernardino kangaroo rat
smooth tarplant
Parry's spineflower
brisly sedge
Los Angeles sunflower
slender-horned spineflower
Santa Ana River woollystar
western yellow-billed cuckoo
steelhead - southern California DPS
least Bell's vireo
prairie wedge grass
merlin
tricolored blackbird
Crotch bumble bee
Busck's gallmoth
Source: CDFW; Esri World Topographic Map
Gonzales Environmental Consulting, LLC
0
2,000
Feet
CNDDB
AMAZING 34

FIGURE 4.1

C. Literature Review

Prior to visiting the proposed action area, a desktop review of the existing literature and data was conducted by a Gonzales Environmental Consulting, LLC to investigate the potential occurrence of special-status species in the vicinity of the proposed action areas. This desktop review provided a potential list of special-status resources known to occur in the area that needs to be surveyed during a field evaluation. The following resources were used in order to generate a list of potential species:

- California Natural Diversity Database (CNDDB) Rarefind 5 (CDFW 2021) data within the U.S. Geological Survey San Bernardino South and surrounding 7.5 minute topographic quadrangles
- California Native Plant Society's (CNPS) online Inventory of Rare and Endangered Plants containing species-specific habitat requirements for plant species (CNPS 2021)
- United States Fish and Wildlife Service (USFWS) database of designated Critical Habitat
- United States Fish and Wildlife Service (USFWS) Information, Planning and Conservation System (IPaC) (IPaC 2021)
- The Jepson Manual, second edition (Baldwin et al. 2012)
- A Manual of California Vegetation (Sawyer et al. 2009)
- Current U.S. Forest Service sensitive (USFS) plant and animal
- eBird: An online database of bird distribution and abundance [web application] (eBird 2021)
- California Herps: A Guide to the Amphibians and Reptiles of California (Nafis 2021)
- Calflora What Grows Here online application (Calflora 2021)

D. Consultation with Experts on Species/Agencies

California Department of Fish and Wildlife, Region 6 was contacted regarding species.

U.S. Fish and Wildlife Service, Carlsbad Field Office was contacted regarding species in the project area.

V. METHODOLOGY

Biological Surveys

Baseline biological studies of the proposed project were conducted in June 2021. Existing biological data was collected using Personal Computers (PCs) and Geographic Positioning System (GPS). This allowed for data to be collected in real time. Data layers uploaded onto these PCs included recent aerial photography, and topographic contours. Biological data was mapped onto the aerial photograph layers as polygon, line, and point attributes.

Checklists of biological information were uploaded onto the PCs, which allowed us to accurately label all data points, ensure consistency, and keep a running electronic account of all species encountered during the surveys. Finally, these checklists allowed for the inclusion of supplemental field notes, most notably, ranking of the quality of the various habitats including dominant and associate species for each vegetation polygon; assessing habitats for the potential presence of sensitive species not observed during the surveys; and identifying areas that would require protocol-level sensitive species surveys (i.e., USFWS protocol-level surveys for federal threatened and endangered species.

Habitats for specific species of wildlife and plants identified during surveys were classified as: not expected, low, moderate, high, or expected. These classifications were based on the quality of the habitat for each species and the proximity of the habitat to a known occurrence of a species obtained from CNDDB data. The definitions of each of the classifications are as follows:

Not Expected: Species not previously reported in the vicinity of the site, and suitable habitat very marginal due to disturbances, fragmentation, and/or isolation.

Low: Species previously reported from the vicinity of the site, but suitable habitat is marginal due to disturbances, fragmentation, and/or isolation.

Moderate: Species previously reported from the vicinity of the site, and large areas of contiguous high-quality habitat present; or species previously reported in the vicinity of the site, but suitable habitat quality is moderate due to disturbances, fragmentation, and/or isolation.

High: Species previously reported from regional vicinity of the site, and large areas of contiguous high-quality habitat are present.

Expected: Species previously reported from very close vicinity of the site, and large areas of contiguous high-quality habitat are present.

Vegetation Methods

Aerial photography and digital vegetation maps were reviewed to determine potential community types within the project area. Preliminary ground-truthing surveys concurred with digital vegetation maps, and additional surveys were performed to accurately define the community types and boundaries.

Wetlands and Aquatic Resources Methods

General aquatic resource assessments of the proposed project site were conducted which included general mapping of habitat(s) that may be subject to jurisdiction of the ACOE pursuant to section 404 of the Clean Water Act and CDFW pursuant to sections 1600-12 of the California Fish and Game Code.

A brief assessment of the streambed jurisdictional communities encountered was also conducted which described the dominant and associate plant species of each community and the presence and/or absence of visual field indicators (e.g., dominance of hydrophytic species, presence of drift lines).

Wildlife Survey and Habitat Assessment Methods

General reconnaissance and habitat assessment surveys were completed to determine habitat suitability for listed species and special status plant, wildlife, and aquatic species. Suitable habitat for listed species and special status species was determined by the presence of specific habitat elements. The surveys coincided with the period during which many wildlife species, including migratory species, would have been most detectable. A faunal inventory of all species observed during the course of the surveys was also prepared.

Special Status Species Methods

Special Status Rare Plant Species Survey Methods

Information on special status rare plant species within the project area was gathered from several sources including California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants of California (CNPS 2021), CNDDB (CNDDB 2021), and CalFlora (CalFlora 2021). Maps depicting all known sensitive plant species locations within the project area were produced to aid in determining the target species for survey. General reconnaissance and habitat assessment surveys were completed to determine habitat suitability for listed species and special status plants. Suitable habitat for listed species and special status species was determined by the presence of specific habitat elements.

Plant surveys of the project area were conducted in March, and April 2021. This time period corresponds to the time during which most ephemeral spring annuals and herbaceous perennials, especially sensitive plant species, in valley areas of San Bernardino County would be most detectable. Focused rare plant level surveys were not conducted. Sensitive species that potentially could occur within the project area were documented. The likelihood of these species occurrence (expected, high, moderate, low, or not expected) was also assessed.

A floral inventory of all species observed during the course of the surveys was also documented.

Special Status Wildlife Species Survey Methods

Prior to conducting habitat assessment surveys, CNDDB and other sources were reviewed for the records of special status wildlife species potentially occurring in the project area. General reconnaissance and habitat assessment surveys were conducted to assess the presence of special status wildlife species habitats within the project area. Maps depicting all known sensitive plant species locations within the regional vicinity of the project were produced to aid in determining the target species to survey.

All wildlife species encountered during surveys were documented. Any specific areas (e.g., potential nesting, breeding, and foraging habitat) encountered during the surveys that have a high probability for supporting sensitive wildlife were documented. The likelihood of these species occurrence (not expected, low, moderate, high, expected) was also assessed.

General habitat assessments were also conducted. General habitat assessments involved evaluating the specific vegetation communities encountered and their potential to support these sensitive species (expected, high, moderate, low, not expected).

Surveys

A complete floristic survey of the project area, as required in a complete CEQA analysis, was conducted in June, 2021 to determine whether listed or special status plant species or sensitive plant communities occur. No listed plants are known to occur within the immediate area.

Transects for general reconnaissance and habitat assessment surveys were conducted to assess the presence of special status wildlife and plant species habitats within the project area. Please see Figure 5.1. Survey information is included in Tables 5.1 and 5.2.

TABLE 5.1

SURVEY LOCATIONS, PERSONNEL, DATES, AND PURPOSE

Surveyor(s)	Date(s)	Purpose
	2021	
TG	June 26, 30	General Biological Survey (Plant and Wildlife Habitat Assessments)
TG, JP	June 26, 30	Vegetation Mapping
TG, JP	June 26, 30	Various Assessments, Vegetation Mapping

LEGEND:
TG=Teresa Gonzales, GEC Biologist
JP= Justin Palmer, AJP GIS

TABLE 5.2

SURVEY SUMMARY 2021

Date	Air Temperature (F)	Wind Speed (mph)	Cloud Cover	Precipitation	Time-Duration*
June 26	65-72	0-3	Clear	No	0600/0700 60 minutes
June 30	70-75	5	76%cloud cover	No	0700/0800 60 minutes

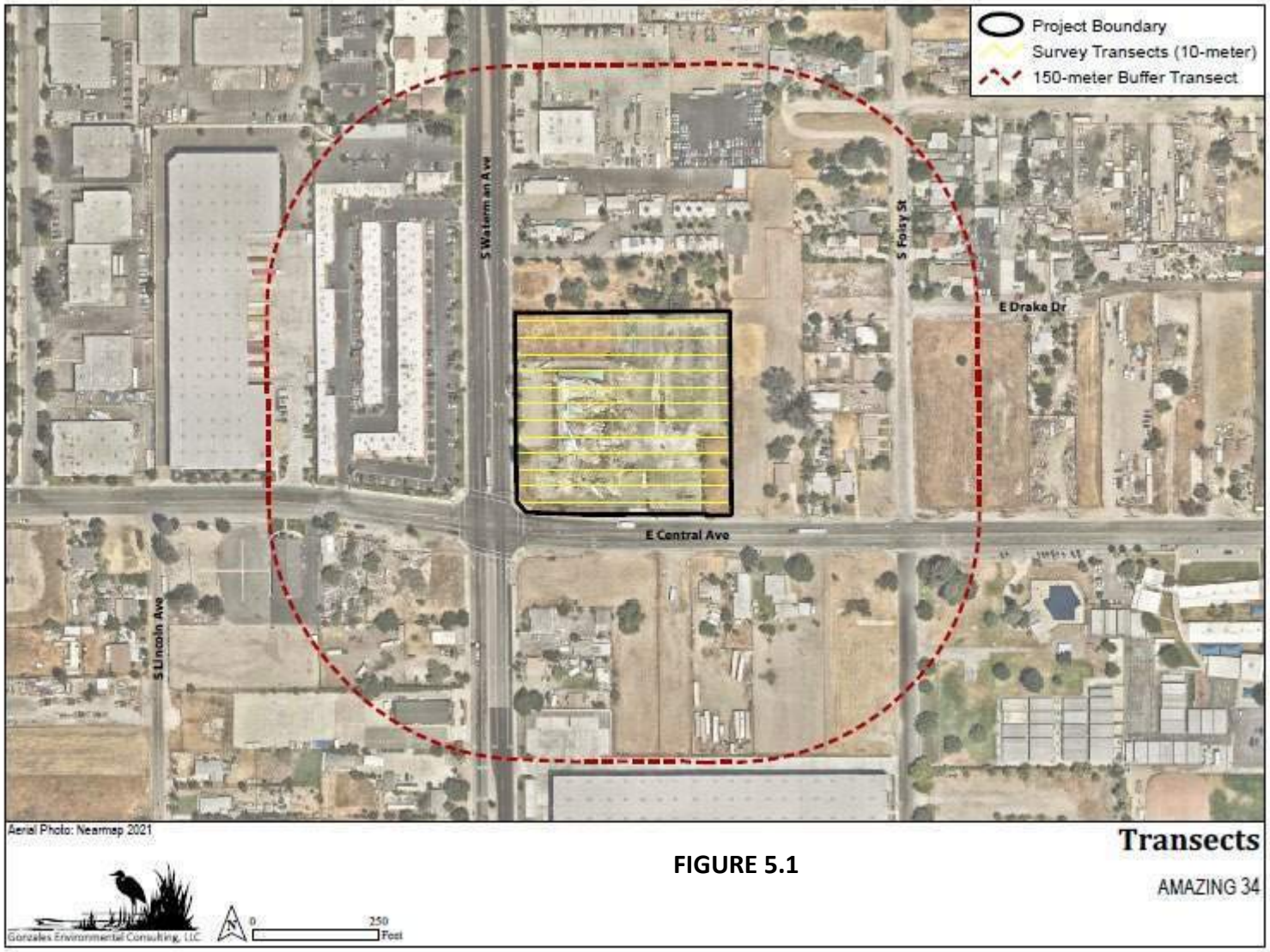
Project Boundary
Survey Transects (10-meter)
150-meter Buffer Transect
S Waterman Ave
S Foisy St
E Drake Dr
E Central Ave
S Lincoln Ave
Aerial Photo: Nearmap 2021
Gonzales Environmental Consulting, LLC
0
250
Feet
Transects
AMAZING 34

FIGURE 5.1

VI. GENERAL BIOLOGICAL SURVEY RESULTS

A. Plant associations

One vegetation community/land cover type was observed on the project site: Disturbed. The existing plant communities are described in more detail below.

Disturbed

Disturbed areas are characterized by predominantly non-native species introduced and established through human action. These areas are not typically artificially irrigated, but receive water from precipitation or runoff. Disturbed or barren areas are areas that either completely lack vegetation or have a predominance of non-native species.

TABLE 6.1
ACREAGE OF HABITAT TYPES

Vegetation	Existing Survey Boundary
Developed	3.94
TOTAL (acres)	**3.94**

Biological resources map

FIGURE 6.1

TABLE 6.2

PLANTS OBSERVED ON THE PROJECT SITE

Scientific name	Common name	Estimated abundance within project site*	Native/Non-Native
ASTERACEAE			
Helianthus annuus	Common sunflower	U	Native
PLATANACEAE			
Platanus racemose	Western sycamore	U	Native (landscape planted)
ULMACEAE			
Ulmus sp	Elm	U	Non-Native
POACEAE			
Cynodon dactylon	Bermuda grass	C	Non-Native
Bromus diandrus	Ripgut brome	C	Non-Native
Bromus hordeaceus	Soft Chess	C	Non-Native
Elymus condensatus	Giant wild rye	U	Native

TABLE 6.3

AVIAN SPECIES OBSERVED ON THE PROJECT SITE

SCIENTIFIC NAME	COMMON NAME	SPECIAL STATUS/REGIONAL STATUS	NATIVE SPECIES	OBSERVATION TYPE	POPULATION SIZE (OBSERVED #/# OF VISITS)[1]
AVES	**BIRDS**				
COLUMBIDAE	**PIGEONS AND DOVES**				
Zenaida macroura	Mourning Dove	No	No	Visual	3
CORVIDAE	**CROWS & JAYS**				
Corvus corax	Common raven	No	Yes	Visual	2
FRINGILLIDAE	**FINCHES**				
Carpodacus mexicanus	House finch	No	Yes	Visual	3
PASSERELLIDAE	**OLD WORLD SPARROWS**				
Passer domesticus	House Sparrow	No	No	Visual	2

Legend:
CDFW=California Department of Fish and Wildlife
SSC=California Species of Concern
FP=Fully Protected
WL=Audubon watch list

[1] Population size determined by the following formula: number of species divided by number of visits

VII. RARE, ENDANGERED OR SENSITIVE SPECIES AND HABITATS RESULTS

According to the CNDDB, no special-status species have been documented on the proposed project site (Rarefind 5 2021). However, fourteen special-status species (all records are from the 1800's -early 1900's and not on or near the project site) have been documented within one mile of the proposed project site (See Table 7.1). We did not detect any special-status species at the site during our field assessment.

TABLE 7.1

SAN BERNARDINO SOUTH QUADRANGLE SENSITIVE STATUS SPECIES

SCIENTIFIC NAME	COMMON NAME	FEDERAL STATUS	CALIF STATUS	CDFG	CNPS
Anniella stebbinsi	Southern California legless lizard	None	None	SSC	
Arenaria paludicola	marsh sandwort	Endangered	Endangered		1B.1
Arizona elegans occidentalis	California glossy snake	None	None	SSC	
Astragalus hornii var. *hornii*	Horn's milk-vetch	None	None		1B.1
Buteo swainsoni	Swainson's hawk	None	Threatened		
Carex comosa	bristly sedge	None	None		2B.1
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	Endangered	Endangered		1B.2
Chorizanthe parryi var. *parryi*	Parry's spineflower	None	None		1B.1
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Threatened	Endangered		
Cuscuta obtusiflora var. *glandulosa*	Peruvian dodder	None	None		2B.2
Dodecahema leptoceras	slender-horned spineflower	Endangered	Endangered		1B.1
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woollystar	Endangered	Endangered		1B.1
Euphydryas editha quino	quino checkerspot butterfly	Endangered	None		
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower	None	None		1A
Lasiurus xanthinus	western yellow bat	None	None	SSC	
Laterallus jamaicensis coturniculus	California black rail	None	Threatened	FP	
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None	None		4.3
Malacothamnus parishii	Parish's bush-mallow	None	None		1A
Nasturtium gambelii	Gambel's water cress	Endangered	Threatened		1B.1
Nyctinomops femorosaccus	pocketed free-tailed bat	None	None	SSC	
Rhaphiomidas terminatus abdominalis	Delhi Sands flower-loving fly	Endangered	None		

Legend:
CDFG=California Department of Fish and Game
CNPS List= California Native Plant Society
C=Candidate
E=Endangered
T=Threatened
WL=Watchlist
FP=Fully Protected
SSC=Species of Special Concern
CNPS 1B= Rare or Endangered In California and Elsewhere
CNPS 2=Plants rare, threatened, endangered in California, more common elsewhere
CNPS 3= Distributed in one to several highly restricted occurrences, or present in such small numbers that it is seldom reported
CNPS 4=Plants of limited distribution
New Threat Code extensions and their meanings:
.1 - Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)
.2 – Fairly endangered in California (20-80% occurrences threatened)
.3 – Not very endangered in California (<20% of occurrences threatened or no current threats known)

Sensitive Habitat

Riversidian Alluvial Fan Sage Scrub, Southern Cottonwood Willow Riparian Forest and Southern Riparian Scrub habitats are listed by the California Department of Fish and Wildlife as sensitive habitats. We found no sensitive habitat on the project site.

Sensitive Species

Plants

Botanical surveys included multiple site visits and spanned two months; March through April 2021. Survey area limitations due to the entire site being developed or landscaped are identified. The survey results found no sensitive plant species on the project site or in adjacent areas. All of the other special species identified as having a moderate to high occurrence potential, were absent during the surveys.

Plants

We did not detect any special-status plant species during our surveys. Eleven special status plants species were documented within 1-mile of the project site from late 1800's to early 1900's. In the subsequent text, we list special-status plant species documented within the San Bernardino South quadrangle, and we discuss each species' possibility of occurring at the project site.

TABLE 7.2

SAN BERNARDINO SOUTH QUADRANGLE SENSITIVE STATUS PLANT SPECIES

SCIENTIFIC NAME	COMMON NAME	Listing Status	Other STATUS	Habitat	Potential Occurrence
				Chaparral and yellow pine forests	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Galium californicum ssp. *primum*	Alvin Meadow bedstraw	None	1B.2	Lake-margins and edges	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Carex comosa	bristly sedge	None	2B.1	Alkaline flats	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Senecio aphanactis	chaparral ragwort	None	2B.2	Freshwater marsh, coastal sage scrub and chaparral	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Nasturtium gambelii	Gambel's water cress	Endangered/Threatened	1B.1	Salty flats and lakeshores	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Astragalus hornii var. *hornii*	Horn's milk-vetch	None	1B.1	Coastal salt marsh	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Helianthus nuttallii ssp. *parishii*	Los Angeles sunflower	None	1A	Freshwater-marsh, Wet meadows, marshes	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Arenaria paludicola	marsh sandwort	Endangered/Endangered	1B.1	Chaparral and coastal sage scrub	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Malacothamnus parishii	Parish's bush-mallow	None	1A	Creosote Brush Scrub and Coastal Sage Scrub habitats	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Lycium parishii	Parish's desert-thorn	None	2B.3	Moist woodland	There is no appropriate habitat on the project site. There is no
Ribes divaricatum var. *parishii*	Parish's gooseberry	None	1A		

SCIENTIFIC NAME	COMMON NAME	Listing Status	Other STATUS	Habitat	Potential Occurrence
					potential for this species to occur on the project site
				Chaparral, sage scrub, alluvial fan sage scrub and Juniper woodland	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Chorizanthe parryi var. *parryi*	Parry's spineflower	None	1B.1		
				Chaparral, yellow pine forest, coastal sage scrub	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Chorizanthe leptotheca	Peninsular spineflower	None	4.2		
				Found on herbs including *Alternanthera, Dalea, Lythrum, Polygonum* and *Xanthium*	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Cuscuta obtusiflora var. *glandulosa*	Peruvian dodder	None	2B.2		
				Wet meadows, streambanks, ponds	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Sphenopholis obtusata	prairie wedge grass	None	2B.2		
				Interior sand dunes in sandy soils	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Monardella pringlei	Pringle's monardella	None	1A		
				Coastal sage scrub, chaparral	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Lepidium virginicum var. *robinsonii*	Robinson's pepper-grass	None	4.3		
				Coastal Strand and Coastal Salt Marsh and under natural conditions in wetlands at an elevation less than 10 meters	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Chloropyron maritimum ssp. *maritimum*	salt marsh bird's-beak	Endangered/Endangered	1B.2		
				Creosote Bush Scrub, Chaparral, Yellow Pine Forest, Coastal Sage Scrub and Alkali Sink	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Sidalcea neomexicana	salt spring checkerbloom	None	2B.2		
				Chaparral, granitic soils	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Symphyotrichum defoliatum	San Bernardino aster	None	1B.2		
				Washes, floodplains, dry riverbeds	There is no appropriate habitat on the project site. There is no potential for this species to occur
Eriastrum densifolium ssp. *sanctorum*	Santa Ana River woollystar	Endangered/Endangered	1B.1		

SCIENTIFIC NAME	COMMON NAME	Listing Status	Other STATUS	Habitat	Potential Occurrence
					on the project site
				Alluvial washes	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Dodecahema leptoceras	slender-horned spineflower	Endangered/Endangered	1B.1		
				Marshes and swamps	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Centromadia pungens ssp. *laevis*	smooth tarplant	None	1B.1		
				Hillsides and canyons	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Juglans californica	southern California black walnut	None	4.2		
				Moist, shady, rocky places, such as the shadows beneath cliff overhangs	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Asplenium vespertinum	western spleenwort	None	4.2		

Legend:
CDFG=California Department of Fish and Game
CNPS List= California Native Plant Society
C=Candidate
E=Endangered
T=Threatened
WL=Watchlist
FP=Fully Protected
SSC=Species of Special Concern
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.2 – Fairly endangered in California (20-80% occurrences threatened)
.3 – Not very endangered in California (<20% of occurrences threatened or no current threats known)

Wildlife

The habitat around San Bernardino South is developed and utilized primarily for residential and commercial purposes. There was limited avian activity observed. Only common avian species were observed, for example: Mourning dove (*Zenaida macroura*) and English sparrow (*Passer domesticus*). There were no reptiles or amphibians observed during surveys. No special status animals were observed during field surveys.

Reptiles

Ten special-status reptile species have been documented in the San Bernardino South quadrangle (Rarefind 5-2021). Documentation of two reptile species within one mile of the project area was made in 1940 and 1946. During the site assessment we observed no reptiles or special-status reptile species on the site. In Table 7.3 below, we discuss the reptile species that have been documented in the San Bernardino South quadrangle.

TABLE 7.3

SAN BERNARDINO SOUTH QUADRANGLE SENSITIVE STATUS REPTILE SPECIES

SCIENTIFIC NAME	COMMON NAME	Listing Status	Other STATUS	Habitat	Potential Occurrence
Arizona elegans occidentalis	California glossy snake	None	SSC	Sage scrub habitat	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Phrynosoma blainvillii	coast horned lizard	None	SSC	Grassland and scrub habitats	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Aspidoscelis tigris stejnegeri	coastal whiptail	None	SSC	Open scrub habitats	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Aspidoscelis hyperythra	orange-throated whiptail	None	WL	Open scrub and woodlands	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Crotalus ruber	red-diamond rattlesnake	None	SSC	Arid scrub, coastal chaparral, oak and pine woodlands, rocky grassland and cultivated areas	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Diadophis punctatus modestus	San Bernardino ringneck snake	None	-	Moist habitats, including wet meadows, rocky hillsides, gardens, farmland, grassland, chaparral, mixed coniferous forests, woodlands	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Coleonyx variegatus abbotti	San Diego banded gecko	None	SSC	Sage scrub and chaparral	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Thamnophis sirtalis pop. 1	south coast gartersnake	None	SSC	Forests, mixed woodlands, grassland, chaparral, farmlands, often near ponds, marshes, or streams	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Anniella stebbinsi	Southern California legless lizard	None	SSC	Beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream	There is no appropriate habitat on the project site. There is no potential for this species to occur

SCIENTIFIC NAME	COMMON NAME	Listing Status	Other STATUS	Habitat	Potential Occurrence
				terraces with sycamores, cottonwoods, or oaks	on the project site
				Permanent streams, although it also may occur in association with vernal pools or intermittent creeks. It has been found considerable distances	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Thamnophis hammondii	two-striped gartersnake	None	SSC	from water sources in chaparral	

Legend:
SSC=Species of Special Concern
ST=State Threatened
FT=Federal Threatened
WL=Watchlist

Amphibians

Two special-status amphibian species has been documented in the San Bernardino South quadrangle (Rarefind 5-2021). During the site assessment we found no special-status amphibian species on site and we determined that it has no potential to occur on the project site.

TABLE 7.4

SAN BERNARDINO SOUTH QUADRANGLE SENSITIVE STATUS AMPHIBIAN SPECIES

SCIENTIFIC NAME	COMMON NAME	Listing Status	Other STATUS	Habitat	Potential Occurrence
Rana draytonii	California red-legged frog	T/None	SSC	Streams with slow-moving water and deep pools with dense shrubby riparian vegetation	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Spea hammondii	western spadefoot	None	SSC	Coastal sage scrub, chaparral and grassland habitats	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.

Avian

Four special status avian species were documented within 1-mile of the project site in the early 1900's. In the subsection below, we discuss the special-status avian species that have been documented in the San Bernardino South Quadrangle of the site and USFWS list of migratory birds.

TABLE 7.5

SAN BERNARDINO SOUTH QUADRANGLE SENSITIVE STATUS AVIAN SPECIES & USFWS MIGRATORY BIRD LIST

SCIENTIFIC NAME	COMMON NAME	Listing Status	Other STATUS	Habitat	Potential Occurrence
Artemisiospiza belli belli	Bell's sage sparrow	None	WL	Shrub lands (from coastal sage scrub to various types of chaparral	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Athene cunicularia	burrowing owl	None	SSC	Open habitats, primarily grasslands and deserts.	There is no appropriate habitat on the project site. There is **no potential** for this species to occur on the project site.
Laterallus jamaicensis coturniculus	California black rail	None/Threatened	FP	Saltwater, brackish, and freshwater marshes	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Gymnogyps californianus	California condor	E/E	FP	Scrubby chaparral to forested mountain regions up to about 6,000 feet elevation. Foraging areas are in open grasslands and can be far from primary nesting sites	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Polioptila californica californica	coastal California gnatcatcher	Threatened/None	SSC	Coastal sage scrub	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Accipiter cooperii	Cooper's hawk	None	WL	Woodland areas, especially dense stands of live oak and riparian vegetation. It typically nests in second growth conifers or in deciduous riparian stands.	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Calypte costae	Costa's hummingbird	None	-	Arid brushy foothills and chaparral habitats	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Phalacrocorax auritus	double-crested cormorant	None	WL	Aquatic bodies big enough to support their mostly fish diet.	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Aquila chrysaetos	golden eagle	None	FP ; WL	Foothills, mountain areas, sage-juniper flats, and deserts	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Ardea herodias	great blue heron	None	-	Rivers, lake edges, marshes, saltwater seacoasts, and swamps	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Ardea alba	great egret	None	-	Streams, lakes, ponds, mud flats, saltwater and freshwater marshes	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Spinus lawrencei	Lawrence's goldfinch	None	-	Dry grassy slopes with weed patches, chaparral and open woodlands	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.

SCIENTIFIC NAME	COMMON NAME	Listing Status	Other STATUS	Habitat	Potential Occurrence
Vireo bellii pusillus	least Bell's vireo	Endangered/Endangered	-	Dense undergrowth of young willows or mulefat, typically combined with an overstory of taller willows and associated with flowing water	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Lanius ludovicianus	loggerhead shrike	None	SSC	Open habitats with sparse shrubs and trees, other suitable perches, bare ground, and low or sparse herbaceous cover	There is appropriate habitat on the project site. There is **low** potential for this species to occur on the project site.
Falco columbarius	merlin	None	WL	Open forests, grasslands	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Accipiter gentilis	northern goshawk	None	SSC	Dense woods	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Contopus cooperi	olive-sided flycatcher	None	SSC	Boreal and western coniferous forests	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Falco mexicanus	prairie falcon	None	WL	Forages over open grassland habitats. It nests in cliffs in the interior portions of the area.	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Progne subis	purple martin	None	SSC	Saguaro cactus and western montane forests	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Sphyrapicus ruber	red-breasted sapsucker	None	-	Coniferous forests, but also uses deciduous and riparian habitat	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Egretta thula	snowy egret	None	-	Mudflats, beaches, and wetlands	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	None	WL	Steep, dry, herbage-covered hillsides with scattered shrubs and rock outcrops	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Empidonax traillii extimus	southwestern willow flycatcher	E/E	-	Extensive willow-riparian woodlands are required. Found in wet meadows and montane riparian habitats	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Buteo swainsoni	Swainson's hawk	None/Threatened	-	Juniper-sage flats, riparian areas, and in oak savannah	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Agelaius tricolor	tricolored blackbird	None/Threatened	SSC	Freshwater marshes and ponds	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site

SCIENTIFIC NAME	COMMON NAME	Listing Status	Other STATUS	Habitat	Potential Occurrence
				Coniferous or mixed forest	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Chaetura vauxi	Vaux's swift	None	SSC		
Coccyzus americanus occidentalis	western yellow-billed cuckoo	Threatened/Endangered	-	Extensive deciduous riparian thickets or forests with dense, low-level or understory foliage	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Empidonax traillii	willow flycatcher	None/Endangered	-	Moist, shrubby areas, often with standing or running water	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Setophaga petechia	yellow warbler	None	SSC	Edges of marshes and swamps, willow-lined streams, and leafy bogs	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Icteria virens	yellow-breasted chat	None	SSC	Well-developed riparian thickets	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Xanthocephalus xanthocephalus	yellow-headed blackbird	None	SSC	Freshwater wetlands with dense, emergent vegetation such as cattails	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.

Legend:
Delisted=No longer listed as endangered or threatened species by federal agency
E=Endangered
SSC=Species of Special Concern
WL=Watch List
FP=Fully Protected
BCC=Bird of Conservation Concern

Global Rankings (Species or Natural Community Level):

G1 = Critically Imperiled – At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
G2 = Imperiled – At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
G3 = Vulnerable – At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.
G4 = Apparently Secure – Uncommon but not rare; some cause for long-term concern due to declines or other factors.
G5 = Secure – Common; widespread and abundant.

Subspecies Level: Taxa which are subspecies or varieties receive a taxon rank (T-rank**)** attached to their G-rank. Where the G-rank reflects the condition of the entire species, the T-rank reflects the global situation of just the subspecies. For example: the Point Reyes mountain beaver, *Aplodontia rufa* ssp. *phaea* is ranked G5T2. The G-rank refers to the whole species range i.e., *Aplodontia rufa.* The T-rank refers only to the global condition of ssp. *phaea*.

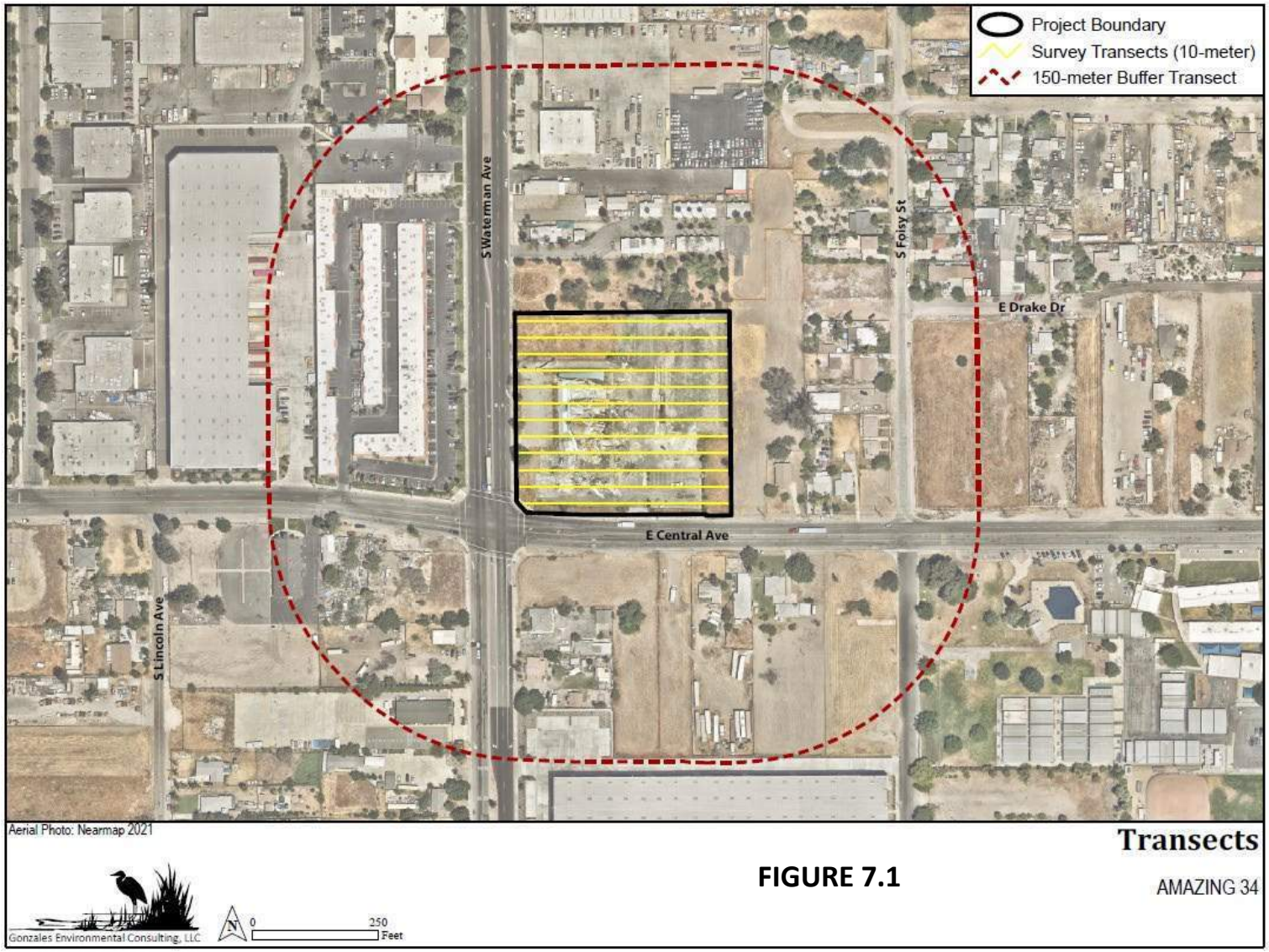
Project Boundary
Survey Transects (10-meter)
150-meter Buffer Transect
S Waterman Ave
S Foisy St
E Drake Dr
E Central Ave
S Lincoln Ave
Aerial Photo: Nearmap 2021
Gonzales Environmental Consulting, LLC
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FIGURE 7.1

Mammals

Fourteen special-status mammal species have been documented in the San Bernardino South quadrangle (Rarefind 5 2021). Three special status mammal species were documented within 1-mile of the project area in 1985 and 1992. None of the species have the potential to occur on the site. In Table 7.6 below, we discuss the mammal species that have been documented in the vicinity of the site.

TABLE 7.6

SAN BERNARDINO SOUTH QUADRANGLE SENSITIVE STATUS MAMMAL SPECIES

SCIENTIFIC NAME	COMMON NAME	Listing Status	Other STATUS	Habitat	Potential Occurrence
Taxidea taxus	American badger	None	SSC	Dry, open grasslands, fields, and pastures	There is appropriate habitat on the project site. There is **low** potential for this species to occur on the project site.
Dipodomys simulans	Dulzura kangaroo rat	None	-	Dry grassland and scrub, and chaparral	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Perognathus longimembris brevinasus	Los Angeles pocket mouse	None	SSC	Grassland, alluvial sage scrub, and coastal sage scrub	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Chaetodipus fallax fallax	northwestern San Diego pocket mouse	None	SSC	Coastal sage scrub, sage scrub/grassland ecotones, and chaparral	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Chaetodipus fallax pallidus	pallid San Diego pocket mouse	None	SSC	Open, weedy sand areas of the low desert and foothills	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Nyctinomops femorosaccus	pocketed free-tailed bat	None	SSC	Rocky, desert areas with relatively high cliffs	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Glaucomys oregonensis californicus	San Bernardino flying squirrel	None	SSC	Forested uplands	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Dipodomys merriami parvus	San Bernardino kangaroo rat	Endangered/ Candidate Endangered	SSC	Sandy soils with scattered rocks and shrubs	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.

SCIENTIFIC NAME	COMMON NAME	Listing Status	Other STATUS	Habitat	Potential Occurrence
				Grasslands and scrub communities	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Lepus californicus bennettii	San Diego black-tailed jackrabbit	None	SSC		
				Sage scrub habitat	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Neotoma lepida intermedia	San Diego desert woodrat	None	SSC		
				Scrub, grassland and riparian	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Onychomys torridus ramona	southern grasshopper mouse	None	SSC		
				Open grasslands or sparse shrub lands	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Dipodomys stephensi	Stephens' kangaroo rat	Endangered/Threatened			
				Desert scrub, chaparral, mixed conifer forest, giant sequoia forests, and montane meadows	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Eumops perotis californicus	western mastiff bat	None	SSC		
				Leafy vegetation of the deserts of the southwestern United States. It is known to roost in sycamore trees	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Lasiurus xanthinus	western yellow bat	None	SSC		

Legend:
SSC=Species of Special Concern
E=Endangered
CE=Candidate Endangered

Global Rankings (Species or Natural Community Level):

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

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

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

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

Subspecies Level: Taxa which are subspecies or varieties receive a taxon rank (T-rank**)** attached to their G-rank. Where the G-rank reflects the condition of the entire species, the T-rank reflects the global situation of just the subspecies. For example: the Point Reyes mountain beaver, *Aplodontia rufa* ssp. *phaea* is ranked G5T2. The G-rank refers to the whole species range i.e., *Aplodontia rufa.* The T-rank refers only to the global condition of ssp. *phaea*.

Insects

Four special-status invertebrate species has been documented in the San Bernardino South quadrangle (Rarefind 5 2021). One special status insect species has been documented within 1-mile of the project site from 1990-2013. None have the potential to occur on the site. In Table 7.7 below, we discuss the insect species that have been documented in the San Bernardino South quadrangle.

TABLE 7.7

SAN BERNARDINO SOUTH QUADRANGLE SENSITIVE STATUS INSECT SPECIES

SCIENTIFIC NAME	COMMON NAME	Listing Status	Other STATUS	Habitat	Potential Occurrence
Carolella busckana	Busck's gallmoth	None	-	Beaches, salt marshes, and sand dunes	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site
Bombus crotchii	Crotch bumble bee	None/ Candidate Endangered	-	Relatively warm and dry sites in open grassland and scrub habitats	There is appropriate habitat on the project site. There is l**ow** potential for this species to occur on the project site.
Rhaphiomidas terminatus abdominalis	Delhi Sands flower-loving fly	Endangered/None	G1T1	Delhi fine sandy soils and dunes, scrub and ruderal vegetation in the sand verbena series with <50% cover	There is appropriate habitat on the project site. There is low potential for this species to occur on the project site.
Euphydryas editha quino	quino checkerspot butterfly	Endangered/None	G5T1T2/S1S2	Open grasslands, generally with abundant dwarf plantain	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.

Legend:
E=Endangered
CE=Candidate Endangered

Global Rankings (Species or Natural Community Level):

G1 = Critically Imperiled – At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
G2 = Imperiled – At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
G3 = Vulnerable – At moderate risk of extinction due to a restricted range, relatively few populations (often 80 or fewer), recent and widespread declines, or other factors.
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G5 = Secure – Common; widespread and abundant.

Subspecies Level: Taxa which are subspecies or varieties receive a taxon rank (T-rank**)** attached to their G-rank. Where the G-rank reflects the condition of the entire species, the T-rank reflects the global situation of just the subspecies. For example: the Point Reyes mountain beaver, *Aplodontia rufa* ssp. *phaea* is ranked G5T2. The G-rank refers to the whole species range i.e., *Aplodontia rufa.* The T-rank refers only to the global condition of ssp. *phaea.*

Fish

Three special-status fish species has been documented in the San Bernardino South quadrangle (Rarefind 5 2021). They have no potential to occur on the site. In the subsection below, we discuss the fish species that have been documented in the San Bernardino South quadrangle.

TABLE 7.8

SAN BERNARDINO SOUTH QUADRANGLE SENSITIVE STATUS FISH SPECIES

SCIENTIFIC NAME	COMMON NAME	Listing Status	Other STATUS	Habitat	Potential Occurrence
Gila orcuttii	arroyo chub	None	SSC	Slow moving or backwater sections of warm to cool streams with substrates of sand or mud	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Catostomus santaanae	Santa Ana sucker	Threatened/None		Small to medium-sized (<7 m wide) permanent streams	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.
Oncorhynchus mykiss irideus pop. 10	steelhead - southern California DPS	Endangered/None	-	Warm, dry lower reaches on the coastal plain	There is no appropriate habitat on the project site. There is no potential for this species to occur on the project site.

Legend:
E= Endangered
T=Threatened

Global Rankings (Species or Natural Community Level):

G1 = Critically Imperiled – At very high risk of extinction due to extreme rarity (often 5 or fewer populations), very steep declines, or other factors.
G2 = Imperiled – At high risk of extinction due to very restricted range, very few populations (often 20 or fewer), steep declines, or other factors.
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Other Sensitive Biological Resources

San Bernardino County has several ordinances regarding plant protection and management (Chapter 88.01: Plant Protection and Management). There are none that apply to the project site.

Wildlife Corridor Analysis

We evaluated the project in relationship to the facilitation of wildlife movement and whether it provides links to seasonal foraging grounds or affects the exchange of genetic information between disjunct subpopulations. Portions of the project site are utilized for local movement by resident wildlife, primarily birds. Biological surveys of the study area did not detect wildlife trails, bedding areas, or burrows which could be used as dens for smaller and larger mammals.

Currently the project site provides fly over connectivity. Land usage and altering of native vegetation have compromised the integrity of wildlife dispersion on the project site. Birds, due to their movement capabilities, are able to disperse via flying over the project site.

VIII. IMPACTS AND RECOMMENDATIONS

A. Probable impacts

The number of individuals of each sensitive species inhabiting the habitat areas was not determined, for the following reasons: (a) many species are amphibians or reptiles, which are difficult to detect during routine field surveys, (b) intensive population studies of small mammals inhabiting the various habitats were not conducted due to the excessive time required to complete such investigations, and (c) some of the bird species known from habitats immediately adjacent to the project area were not observed during field surveys but, due to their capacity of flight, could inhabit the area any time in the future.

DIRECT AND INDIRECT IMPACTS TO VEGETATION

Direct impacts consist of any ground-disturbing activities (i.e., vegetation removal, grading, paving, building of structures, etc.). Impacts will occur to developed habitat. Most of these impacts will occur in the grading by removal of habitat. Direct and indirect disturbance from construction activities could result in the loss or degradation of biological resources from installation of solar structures through the following ground-disturbing activities:

- Plowing or trenching during construction;
- Temporary stockpiling of soil or construction materials and sidecasting of soil and other construction wastes;
- Excavation for foundations;
- Use of designated equipment staging areas (impacts on biological resources are unlikely because locations that are already developed, including those that have compacted dirt and gravel, will be used as staging areas);
- Soil compaction, dust, and water runoff;
- Noise disturbance to wildlife species from construction activities; and
- Temporary parking of vehicles outside the construction zone on sites that support sensitive resources (sites not designated as equipment staging areas).

DIRECT AND INDIRECT IMPACTS TO WILDLIFE

The habitat marginally supports common native wildlife species that would be indirectly affected by the construction of the project. This would include common species of birds. Construction of the project is taking place in previously developed area. Under current field conditions, no endangered, threatened or sensitive species would be lost from implementation of this project. Anticipated impacts to most wildlife species would be relatively minor, for the following reason: (a) the majority of the project area is previously developed and disturbed by anthropogenic activities.

B. Cumulative Impacts

The project may affect biological resources. Some species may utilize several habitat types, or similar microhabitat features contained within different habitat types, during their typical life cycle. Therefore, any habitat-specific impacts discussed below should be considered an approximate description of expected impacts to particular species. Some habitats would only be temporarily disturbed, such as at construction staging sites that are active only during the construction phase of the project. Such temporary disturbance would either kill resident wildlife or displace them into adjacent or more distant habitats, depending on the species. Some of the surviving species would return to the disturbed site following completion of the construction activity.

Temporary indirect impacts would occur to most wildlife species residing in, or using, habitats immediately adjacent to project construction areas, due to increased noise, lighting, dust, human presence or ground vibrations. Depending on the species and the type/intensity of disturbance, diurnal species would be reduced in number or completely displaced. Nocturnal species would be less affected since construction would presumably occur primarily or entirely during the daytime.

The site features disturbed habitat. The disturbed vegetation on the project site (site) and its history of anthropogenic disturbances limits its value to native plant and animal species.

B. RECOMMENDATIONS

Based on the identified impacts, the following measures are recommended. Recommendations regarding the time period that implementation of the recommended measures should be completed vary. Therefore, the recommended measures are organized around that timeline. The following recommendations shall be implemented prior to or during site clearing and grading:

<u>Migratory Birds</u>

If construction is to occur during the MBTA nesting cycle (February 1-September 30) than a nesting bird survey should be conducted by a qualified biologist. Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) may be considered take and is potentially punishable by fines or imprisonment. Active bird nests should be mapped utilizing a hand-held global positioning system (GPS) and a 300' buffer will be flagged around the nest (500' buffer for raptor nests). Construction should not be permitted within the buffer areas while the nest continues to be active (eggs, chicks, etc.).

<u>Burrowing Owls</u>

A 30-day pre-construction survey for burrowing owls is required prior to initial ground-disturbing activities (including but not limited to vegetation clearing, clearing and grubbing, tree removal, site watering) to ensure that no owls have colonized the site in the days or weeks preceding the ground-disturbing activities. If burrowing owls have colonized the project site prior to the initiation

of ground-disturbing activities, the project proponent will immediately inform San Bernardino County and the Wildlife Agencies, and will need to coordinate further with San Bernardino County and the Wildlife Agencies, including the possibility of preparing a Burrowing Owl Protection and Relocation Plan, prior to initiating ground disturbance. If ground-disturbing activities occur but the site is left undisturbed for more than 30 days, a pre-construction survey will again be necessary to ensure burrowing owl has not colonized the site since it was last disturbed. If burrow owl is found, the same coordination described above will be necessary.

Exotics

The project landscaping design should limit plantings to non-invasives, avoiding those species listed by the California Exotic Plant Pest Council (CalEPPC) as the "exotic pest plants of greatest concern" (CalEPPC).

Maintenance and Refueling

Maintenance and refueling of construction equipment shall be limited to areas specified as appropriate by the project biologist. Storage of potentially hazardous materials, including but not limited to fuel, paint, stains, pesticides, herbicides, solvents, and oils will not be permitted within 50 feet of any habitat area to be retained by the project. During construction, disposal of such material will occur in a controlled area that is physically separated from potential storm water runoff.

Runoff

Silt fencing or other sediment trapping devices should be installed and maintained in order to prevent run-off from entering the water systems during construction activities.

IX. PROPOSED MITIGATION MEASURES

MITIGATION RECOMMENDATIONS

Migratory Birds

If construction is to occur during the MBTA nesting cycle (February 1-September 30) than a nesting bird survey should be conducted by a qualified biologist. Disturbance that causes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young) may be considered take and is potentially punishable by fines or imprisonment. Active bird nests should be mapped utilizing a hand-held global positioning system (GPS) and a 300' buffer will be flagged around the nest (500' buffer for raptor nests). Construction should not be permitted within the buffer areas while the nest continues to be active (eggs, chicks, etc.).

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Exotics

The project landscaping design should limit plantings to non-invasives, avoiding those species listed by the California Exotic Plant Pest Council (CalEPPC) as the "exotic pest plants of greatest concern" (CalEPPC).

Maintenance and Refueling

Maintenance and refueling of construction equipment shall be limited to areas specified as appropriate by the project biologist. Storage of potentially hazardous materials, including but not limited to fuel, paint, stains, pesticides, herbicides, solvents, and oils will not be permitted within 50 feet of any habitat area to be retained by the project. During construction, disposal of such material will occur in a controlled area that is physically separated from potential storm water runoff.

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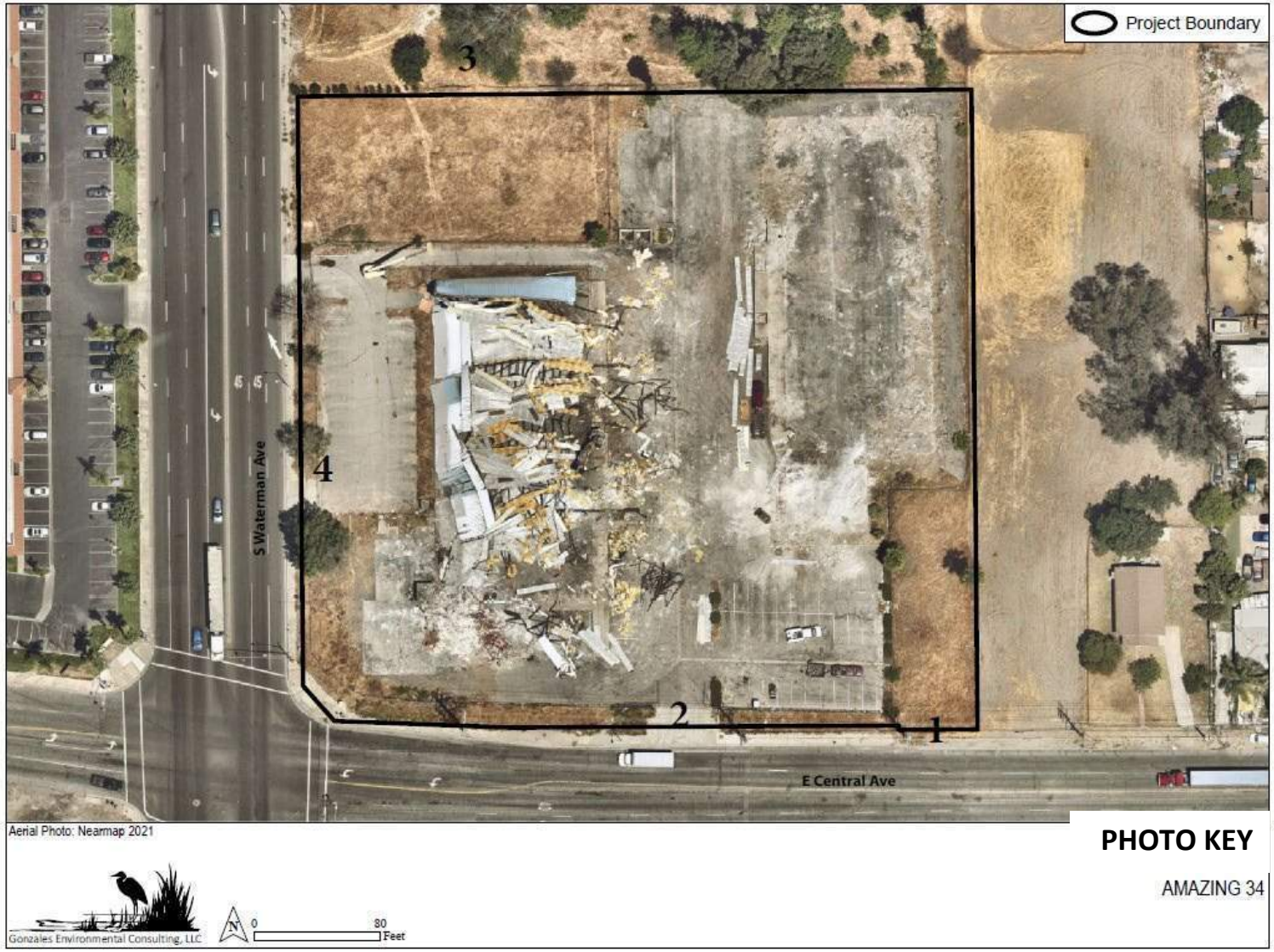
B. Persons contacted

- July 7, 2021 California Department of Fish and Wildlife, Region 6 Bishop office was contacted regarding potential sensitive species in the area. We were directed to use the CNDDB species list. The species list is Table 4.1 on page 14.
- July 7, 2021 U.S. Fish and Wildlife Service, Carlsbad Field Office was contacted regarding potential sensitive species in the area. The species list is on page 12, and the letter is attached to this document.

XI. LIST OF TABLES

XII. LIST OF FIGURES

XIII. LIST OF SITE PHOTOS


Project Boundary
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Aerial Photo: Nearmap 2021
Gonzales Environmental Consulting, LLC
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PHOTO KEY
AMAZING 34

PHOTO 1
VIEW WEST

PHOTO 2
VIEW EAST

PHOTO 3
VIEW SOUTH

PHOTO 4
VIEW NORTH

XIV. APPENDICES

A. USFWS LETTER

XV. CERTIFICATION

CERTIFICATION*: "I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief. Field work conducted for this assessment was performed by me or under my direct supervision. I certify that I have not signed a non-disclosure or consultant confidentiality agreement with the project applicant or applicant's representative and that I have no financial interest in the project."*

DATE: July 15, 2021 SIGNED:

1) Teresa Gonzales

1) Fieldwork Performed By:

Teresa Gonzales

Check here _____ If Adding any additional Names/Signatures, below or on other side of page.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
Phone: (760) 431-9440 Fax: (760) 431-5901
http://www.fws.gov/carlsbad/

In Reply Refer To: July 07, 2021
Consultation Code: 08ECAR00-2021-SLI-1237
Event Code: 08ECAR00-2021-E-02778
Project Name: APN 260-021-34, 260-021-44 and 260-021-47 (Amazing 34) Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, and proposed species, designated critical habitat, and candidate species that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (http://www.fws.gov/windenergy/) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm; http://www.towerkill.com; and http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
(760) 431-9440

Project Summary

Consultation Code: 08ECAR00-2021-SLI-1237
Event Code: 08ECAR00-2021-E-02778
Project Name: APN 260-021-34, 260-021-44 and 260-021-47 (Amazing 34) Project
Project Type: DEVELOPMENT
Project Description: The proposed project consists of the development of an existing warehouse property and structures of which will be demolished and reconstructed with a new 81,747 square foot tilt-up warehouse located in the City of San Bernardino of San Bernardino County, California.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@34.08658135,-117.27819643127829,14z

Counties: San Bernardino County, California

Endangered Species Act Species

There is a total of 10 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
San Bernardino Merriam's Kangaroo Rat *Dipodomys merriami parvus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/2060	Endangered
Stephens' Kangaroo Rat *Dipodomys stephensi (incl. D. cascus)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3495	Endangered

Birds

NAME	STATUS
Coastal California Gnatcatcher *Polioptila californica californica* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/8178	Threatened
Least Bell's Vireo *Vireo bellii pusillus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/5945	Endangered
Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. The location of the critical habitat is not available. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered

Fishes

NAME	STATUS
Santa Ana Sucker *Catostomus santaanae*	Threatened

Population: 3 CA river basins
There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/3785

Flowering Plants

NAME	STATUS
Gambel's Watercress *Rorippa gambellii*	Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4201

San Diego Ambrosia *Ambrosia pumila* — Endangered

There is **final** critical habitat for this species. The location of the critical habitat is not available.
Species profile: https://ecos.fws.gov/ecp/species/8287

Santa Ana River Woolly-star *Eriastrum densifolium ssp. sanctorum* — Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/6575

Slender-horned Spineflower *Dodecahema leptoceras* — Endangered

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/4007

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

Appendix – G

Supplemental Bio Letter

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

October 31, 2023
(2023-236)

Mr. Ruby Antebi
SVP of Sales
Orly Corp, Maison Division
15 West 34th Street
New York, NY 10001

Subject: **Biological Constraints and Response to Comment Letter - Amazing 34 Distribution Center Project in the City of San Bernardino, San Bernardino County, California**

Dear Mr. Antebi:

ECORP Consulting, Inc. (ECORP) has conducted a review of the existing materials related to proposed approvals and entitlements for the Amazing 34 Distribution Center Project (Project) in the City of San Bernardino (City), San Bernardino County, California. The 3.8-acre site is comprised of 3 parcels in the south portion of the City and located at the northeast corner of Waterman Avenue and Central Avenue. A General Biological Resource Assessment and Habitat Assessment was prepared by Gonzales Environmental Consulting, LLC on July 15, 2021 (2021 Biological Report) for the Project in support of an Initial Study/Mitigated Negative Declaration (IS/MND) under the California Environmental Quality Act (CEQA), concluding that the Project would not have a significant impact on sensitive species or habitat (it is a highly developed area). See Exhibits 1, 2 and 3 below for location and aerial photography of the Project site.[1]

The 2021 Biological Report stated that the survey results for sensitive species was good for one year. For this reason, an updated database search and field survey were completed in order to update the biological information for the Project.

EXISTING BIOLOGICAL REPORT

Below is a summary of the results of the existing biological reporting for the Project. This includes the 2021 Biological Report as well as the biological resources section of the IS/MND for the Project.

According to the 2021 Biological Report, the literature review for the Project and field surveys were conducted in March, April and June 2021. The site was found to consist of disturbed habitat that had

[1] The aerials showing the Project site conditions do not reflect the subsequent building demolition work completed April through June 2021 in response to emergency orders from the San Bernardino County Fire Protection District. This included the removal of the associated asphalt parking lot. The existing areas consist of graded dirt.

been previously impacted by human activity (grading, development). A total of seven plant species, including three native species, and four animal species were recorded as being present on the Project site. No sensitive, threatened or endangered species were identified during the survey on the proposed Project site.

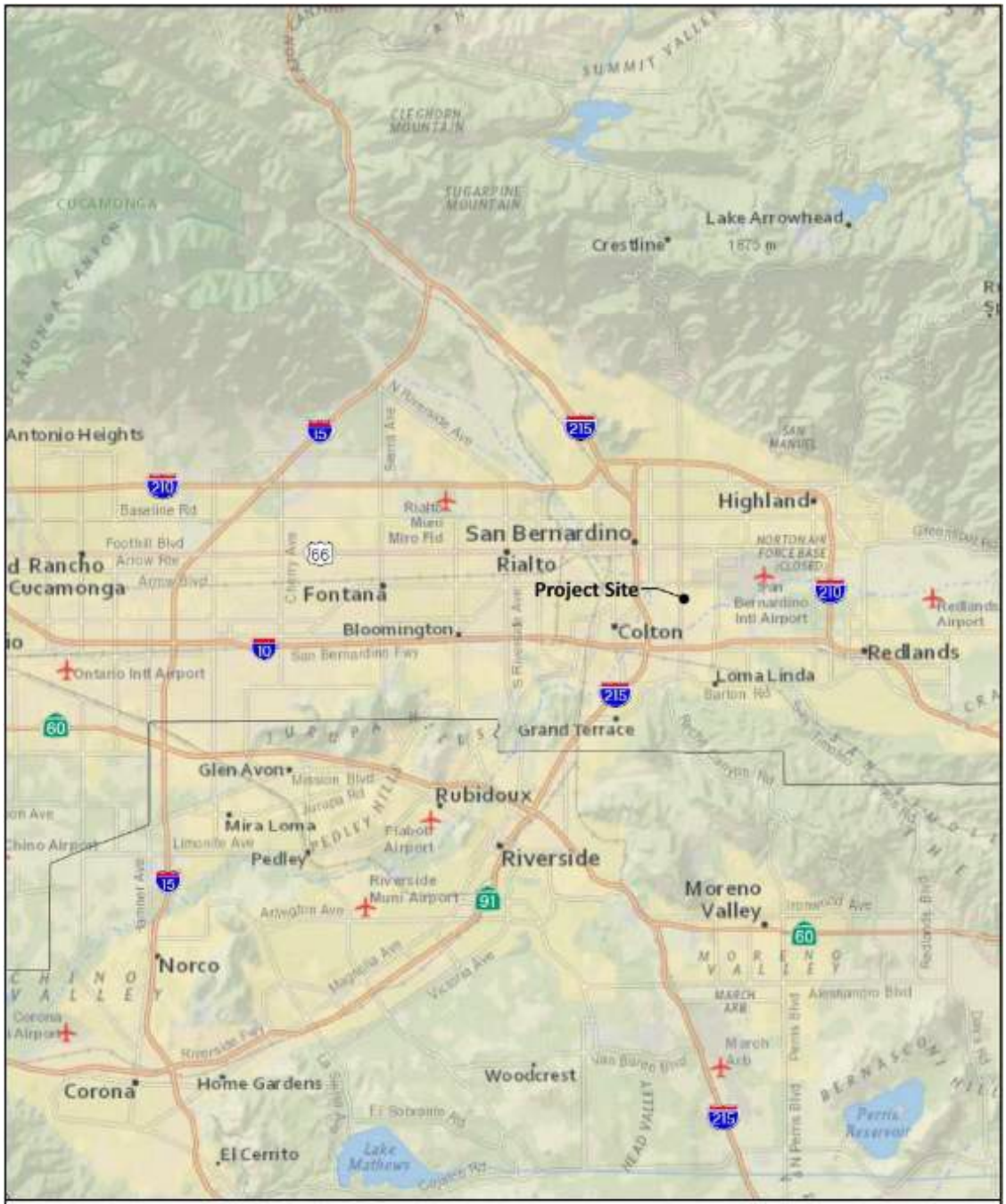

Exhibit 1: Regional Location
Amazing 34 Distribution center
City of San Bernardino

adkan ENGINEERS

Exhibit 2: Local Vicinity Map
Amazing 34 Distribution Center
City of San Bernardino

adkan ENGINEERS

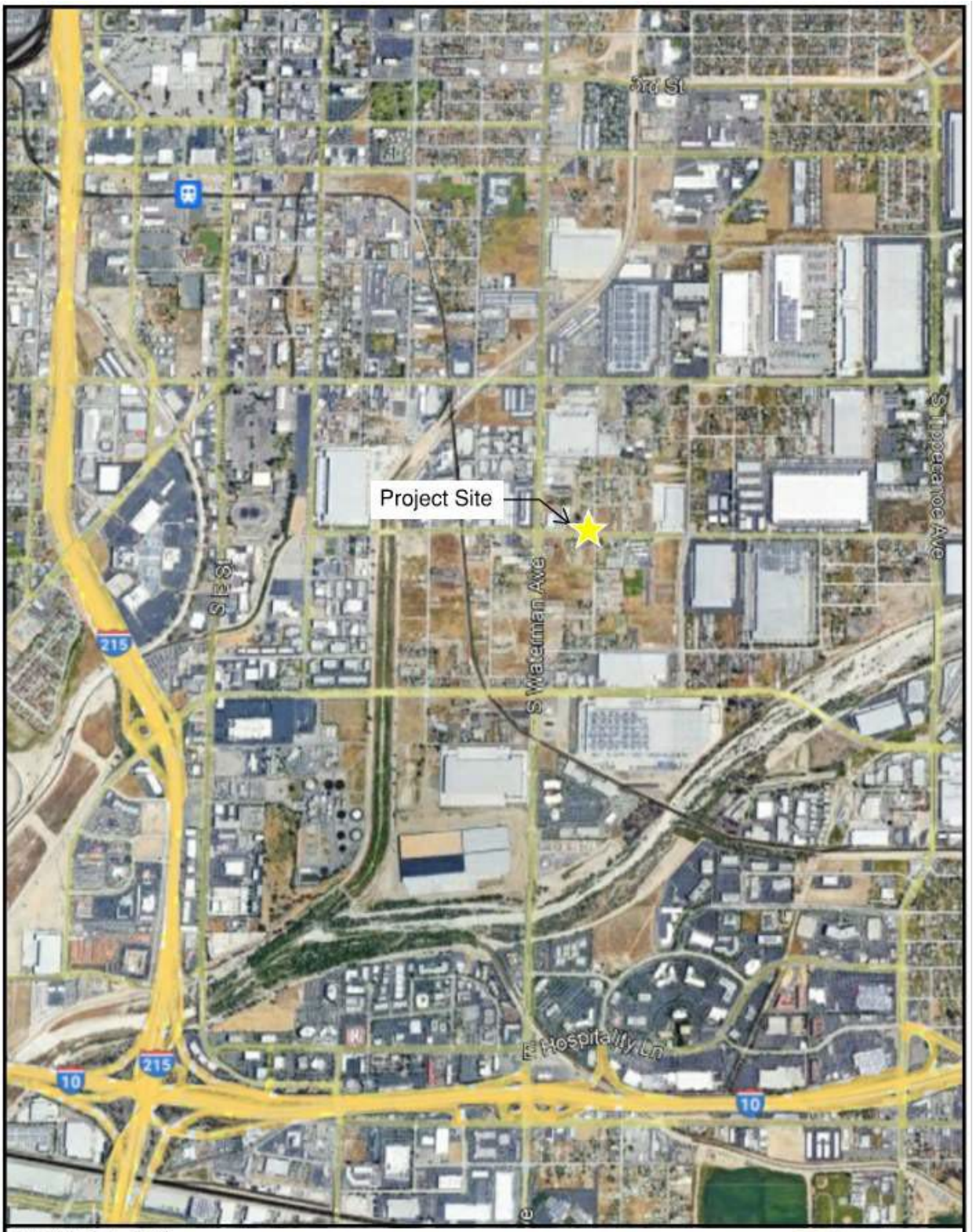

Exhibit 3: Aerial View
Amazing 34 Distribution Center
City of San Bernardino

adkan ENGINEERS

During the reporting phase, analysis of the potential to occur for 24 sensitive plant and 64 wildlife species was conducted. The 2021 Biological Report determined that there would be no direct, indirect, or cumulative impacts to sensitive, threatened or endangered species because the majority of the Project Area is previously developed and disturbed by antropogenic activities and the disturbed vegetation on the Project Site limits its value to native plant and animal species. However, the 2021 Biological Report did identify a potential impact to nesting bird species (including burrowing owl) within and adjacent to the property. Although sensitive avian species were not identified on the Project Site during the survey, these species are known from habitats in the area and could inhabit the Project Site prior to ground-disturbing activities. The 2021 Biological Report also included an analysis of wildlife corridors through the Project site and concluded that, although the site is suitable for local wildlife movement on a small scale, it is not part of an important regional wildlife corridor. No streams or other resources jurisdictional as water features to federal or state agencies were found on the property.

The 2021 Biological Report recommended several mitigation measures. Recommendations included migratory bird nesting surveys, burrowing owl surveys, and construction Best Management Practices with regard to exotic plant species, maintenance and refueling of construction vehicles, and prevention of sedimentation and runoff.

UPDATED BIOLOGICAL SURVEY

In preparation for field work, ECORP conducted an updated literature review of the property in October 2023 using the California Natural Diversity Data Base, California Native Plant Society's online inventory of Rare and Endangered Plants, United States Fish and Wildlife Services (USFWS) Information for Planning and Consultation (IPAC) database, eBird, iNaturalist, Natural Resources Conservation Service soils mapping, recent aerial photography, the National Wetlands Inventory and the National Hydrology Database. Using the results of the database search, along with experience with the local flora and fauna, ECORP biologists developed a profile of the plants, animals and habitats expected to occur at the property.

On October 17, 2023, an ECORP biologist with experience with the local flora and fauna conducted a site visit of the Amazing 34 property and used the literature review results to check existing conditions against those reported in the 2021 Biological Report. The site visit entailed walking the entire site, recording plant and animal species present, recording vegetation communities and taking photographs. This survey was conducted during the latter part of the fall avian migratory season, when many summer resident species have completed breeding activities and fall/winter species are arriving or have already arrived. The survey was conducted over a period of one hour.

The Project Site was observed to support 21 different plant species and six animal species, all of which are common species found in vacant, disturbed lots within heavily urbanized environments of San Bernardino. The land cover was found to be dominated exclusively by developed and disturbed habitats that are commonly associated with heavily developed infill parcels in an urbanized environment. Developed portions of the property included paved surface streets and curbs that were

formerly associated with the previous development, along with landscaped plant species. Disturbed habitat was found within portions of the property, wherever pavement was not present. *Disturbed* is a general category used for areas that have experienced substantial human activity such as grading or other forms of development, and are dominated by either unvegetated areas or weedy vegetation. Disturbed habitat areas contain little to no naturally-occurring native vegetation. Surrounding land uses include various retail stores, restaurants, a smog check facility and truck driving school to the west; single-family residential uses to the east; single-family residential uses and A&B Trucking school to the south; and apartments to the north.

Plant species observed include mostly non-native grasses and forbs. Grasses found included wild oats (*Avena barbata*), ripgut grass (*Bromus diandrus*), Johnson grass (*Sorghum halipense*) and Kentucky bluegrass (*Poa pratensis*). Forbs observed included horseweed (*Erigeron canadensis*), lambsquarters (*Chenopodium album*), tree tobacco (*Nicotiana glauca*), Russian thistle (*Salsola tragus*) and puncturevine (*Tribulus terrestris*). Landscaped plants were also present such as Indian hawthorne (*Rhaphiolepis indica*) and eucalyptus (*Eucalyptus* sp.). There were western sycamores (*Platanus racemosa*) located along Waterman Avenue where they had been planted and irrigated. Most of the sycamores showed signs of severe drought stress, indicating that they were no longer being irrigated. There were also some native plant species located along Central Avenue such as California encelia (*Encelia californica*) and bush mallow (*Malacothamnus fasciculatus*). These plants appeared to be the result of hydroseeding conducted for the purpose of erosion control on slopes directly adjacent to the street. There was also a small individual of mule fat (*Baccharis salicifolia*) present on one of the graded lots. Mule fat can be associated with stream habitats, but also occurs within upland areas. Since there are no stream habitats present, the mule fat observed was occurring within an upland and probably originated from airborne seed. Other plant species present included pecan trees (*Carya* sp.) and citrus trees (*Citrus* sp.), located along the northern site boundary.

The six animal species observed on the Project site included house sparrow (*Passer domesticus*), northern mockingbird (*Mimus polyglottos*), American crow (*Corvus brachyrhynchos*), common raven (*Corvus corax*), yellow-rumped warbler (*Setophaga coronata*) and Botta's pocket gopher (*Thomomys bottae*). These species are all commonly found in October within urban environments that have some vegetation cover and natural ground surface. Ravens and crows are species which are not specific in their habitat preferences but are often found flying over many types of habitats. Both house sparrows and northern mockingbirds are well-adapted to developed areas and can nest within urban trees and next to residential developments. Yellow-rumped warblers are a common migrant and winter visitor to the area that does not nest within the coastal lowland. Other bird species expected to be present include house finch (*Haemorhous mexicanus*), which could nest either in vegetation or on buildings just outside of the site boundaries. Botta's pocket gopher is a common garden rodent that occurs within both urban and natural environments, and is not considered to be sensitive under CEQA.

No drainageways or other potential Waters of the U.S. or Waters of the State, or waters potentially under state jurisdiction, were present on the Project site. The 2023 Site visit confirmed the 2021 Biological Report's conclusion that the Site also does not function as a wildlife corridor, with the exception of birds that may fly over the Site.

After carefully reviewing the 2021 Biological Report, ECORP noticed two notable typographic errors within the table that analyzes potential for occurrence of species, specifically within the mammal and insect tables (Tables 7.6 and 7.7, respectively). Within Table 7.6 (San Bernardino South Sensitive Mammal Species) the table begins with a row with columns filled out for both habitat and potential for occurrence with no species designated for these two columns. Comparing the list of mammals to the ECORP database search results for this Project site, there are no mammal species missing so we consider this to be a typographic error. Within Table 7.7 (San Bernardino South Sensitive Insect Species), under Delhi Sands Flower-Loving Fly (*Rhaphiomidas terminatus abdominalis*), the potential for occurrence reads "There is appropriate habitat on the project site. There is low potential for this species to occur on the project site." Both the 2021 Biological Report and ECORP's updated search results indicate that there are no suitable soils (Delhi sands) present on the Project Site and the Project Site is outside the federal Critical Habitat for the species; therefore, there is no potential for the fly to occur on the Site. Critical Habitat areas that have been mapped by the USFWS constitute all known and potential habitat for the species. Because the 2021 Biological Report contains no further analysis for the Delhi sands flower-loving fly, and because habitat is absent from the Project site, we consider this to be a typographic error.

Adverse direct and indirect impacts could result from the Project, but due to the absence of special-status species on the Project site, these impacts would be less than significant for most species. The exception is nesting bird species, which are protected under the Migratory Bird Treaty Act and California Fish and Game Code. Cumulative impacts are not anticipated from the Project, since its existing value to wildlife is not expected to be altered significantly by development.

Based on the data collected during the field visit, and with the two typographical corrections noted above, the conclusions of the 2021 Biological Report remain valid. The Project Site consists of disturbed and developed habitat areas exclusively, and no potential exists for sensitive plant or animal species to occur. However, avian species may move onto the Site prior to Project construction. The only mitigation measures recommended are to conduct a pre-construction survey for nesting bird species. Although burrowing owl mitigation was recommended within the previous report, our opinion is that this species is not expected to be present due to the lack of potential burrowing substrate observed and the lack of California ground squirrel (*Otospermophilus beecheyi*) burrows. California ground squirrel burrows are of proper size and shape to be used by owls and they are a common associate species, and owls will use their abandoned burrows. The only burrowing rodent observed at the site was Botta's pocket gopher, which does not create burrows that are suitable for use by burrowing owls. Nevertheless, we recommend keeping the burrowing owl mitigation measure since burrowing owls can be found within urban infill parcels. We agree with

other recommendations made in the previous report with regard to Best Management Practices to avoid releasing pollutants during construction activities.

CONCLUSION

With the biological reports and IS/MND prepared for the Project, the requirements for biological analysis under CEQA for the Project have been met to the standard necessary to analyze the Project impacts and make a findings of significance for the Project. The updated biological report demonstrates that the previous findings were consistent with current conditions at the Project site. Thank you for the opportunity to submit this letter report. If you have any questions regarding this proposal, please call me at (909) 307-0046.

Sincerely,
ECORP Consulting, Inc.

Scott Taylor
Senior Biological Program Manager

Appendix – F

Noise Report

October 6, 2023

Michael Brendecke
Adkan Engineers
6879 Airport Drive
Riverside, CA 92504

Subject: **City of San Bernardino – Proposed Amazing 34 Warehouse Project Noise Technical Memorandum.**

Dear Mr. Brendecke:

Vista Environmental has conducted an analysis to evaluate the noise impacts created by the proposed Amazing 34 Warehouse project (proposed Project).

Project Location and Description

The project site is located in the City of San Bernardino (City). The 3.84 gross acre project site consists of three parcels (APN's: 0280-021-44, 0280-021-47, and 0280-021-34). The project site previously had two warehouse buildings located onsite but after a fire caused by trespassers destroyed one of the buildings, the San Bernardino County Fire Protection District ordered the demolition of the building. The demolition permit issued by the City of San Bernardino also covered the second building because of hazardous conditions caused by trespassers. The demolition work for both buildings was completed April through June 2021 and included the removal of the associated asphalt parking lot.

The project site is bounded by vacant land and multi-family residential uses to the north, vacant land and single-family residential uses to the east, Central Avenue, vacant land and single-family residential uses to the south, and Waterman Avenue and commercial retail uses to the west.

The proposed project would consist of development of an 89,475 square foot warehouse with 16 truck loading docks that would be located on the north side of the warehouse. The proposed project would also include parking lots on the west, north and east sides of the project site with a total of 94 parking spaces.

Nearby Sensitive Receptors

The nearest sensitive receptor to the project site is a single-family home located as near as 85 feet to the east of the project site. There are also multi-family homes located as near as 115 feet to the north of the project site and a single-family home located as near as 135 feet to the south of the project site. The nearest school to the project site is the Norton Science and Language Academy that is located as near as 500 feet to the southeast of the project site.

City of San Bernardino Noise Regulations

The City of San Bernardino General Plan and Municipal Code establishes the following applicable policies related to noise and vibration.

City of San Bernardino General Plan

The following applicable goals and policies to the proposed industrial project are from the Noise Element of the General Plan.

Goal 14.1: Ensure that residents are protected from excessive noise through careful land planning.

Policies

14.1.4 Prohibit the development of new or expansion of existing industrial, commercial, or other uses that generate noise impacts on housing, schools, health care facilities or other sensitive uses above a Ldn of 65 dB(A). (LU-1)

Goal 14.2: Encourage the reduction of noise from transportation-related noise sources such as motor vehicles, aircraft operations, and railroad movements.

Policies

14.2.3 Require that development that increases the ambient noise level adjacent to noise-sensitive land uses provide appropriate mitigation measures. (LU-1)

14.2.10 Provide for the development of alternative transportation modes such as bicycle paths and pedestrian walkways to minimize the number of automobile trips. (LU-1)

14.2.12 Require that commercial and industrial uses implement transportation demand management programs consistent with the Air Quality Management Plan that provide incentives for carpooling, van pools, and the use of public transit to reduce traffic and associated noise levels in the City. (LU-1)

14.2.17 Ensure that new development is compatible with the noise compatibility criteria and noise contours as defined in the Comprehensive Land Use Plan for the SBIA and depicted in Figure LU-4 (see Figure 3 above).

Goal 14.3: Protect residents from the negative effects of "spill over" or nuisance noise.

Policies

14.3.2 Require that construction activities employ feasible and practical techniques that minimize the noise impacts on adjacent uses. (LU-1)

14.3.6 Ensure that buildings are constructed soundly to prevent adverse noise transmission between differing uses located in the same structure and individual residences in multifamily buildings. (LU-1)

City of San Bernardino Municipal Code

The *San Bernardino Municipal Code*, revised October 2021 establishes the following applicable standards related to noise.

Title 8 Health and Safety

8.54.010 Purpose and Intent

A. It is the purpose and intent of these regulations to establish community-wide noise standards. It is further the purpose of these regulations to recognize that the existence of excessive noise within the City is a condition which is detrimental to the health, safety, welfare, and quality of life of the citizens and shall be regulated in the public interest.

8.54.020 Prohibited Acts

It shall be unlawful for any person to engage in the following activities:

H. The unnecessary or excessive blowing of whistles, sounding of horns, ringing of bells or use of signaling devices by operators of railroad locomotives, motor trucks and other transportation equipment;

I. The creation of loud and excessive noise in connection with the loading or unloading of motor trucks and other vehicles;

L. The operation or use between the hours of 10:00 p.m. and 8:00 a.m. of any pile driver, steam shovel, pneumatic hammers, derrick, steam or electric hoist, power driven saw, or any other tool or apparatus, the use of which is attended by loud and excessive noise, except with the approval of the City

8.54.050 Controlled Hours of Operation

It shall be unlawful for any person to engage in the following activities other than between the hours of 8:00 a.m. and 8:00 p.m. in residential zones and other than between the hours of 7:00 a.m. and 8:00 p.m. in all other zones:

A. Load or unload any vehicle, or operate or permit the use of dollies, carts, forklifts, or other wheeled equipment that causes any impulsive sound, raucous, or unnecessary noise within one thousand (1,000) feet of a residence.

8.54.060 Exemptions

The following activities and noise sources shall be exempt from the provisions of this chapter:

B. Such noises as are an accompaniment and effect of a lawful business, commercial or industrial enterprise carried on in an area zoned for that purpose, except where there is evidence that such noise is a nuisance and that such a nuisance is a result of the employment of unnecessary and injurious methods of operation.

H. Construction, operation, maintenance, and repairs of equipment, apparatus, or facilities of park and recreation departments, public work projects, or essential public services and facilities, including, but not limited to, trash collection and those of public utilities subject to the regulatory jurisdiction of the California Public Utilities Commission.

I. Construction, repair, or excavation work performed pursuant to a valid written agreement with the City, or any of its political subdivisions, which provides for noise mitigation measures.

8.54.070 Disturbance from Construction Activity

No person shall be engaged or employed, or cause any other person to be engaged or employed, in any work of construction, erection, alteration, repair, addition, movement, demolition, or improvement to any building or structure except within the hours of 7:00 a.m. and 8:00 p.m.

Chapter 19.20 Property Development Standards

19.20.010 Purpose

These standards shall ensure that new or modified uses and development will produce an urban environment of stable, desirable character which is harmonious with the existing and future development, consistent with the General Plan.

19.20.030 General Standards.

No permit shall be approved unless it conforms to all of the following standards set forth in this Chapter:

15. Noise

No loudspeaker, bells, gongs, buzzers, mechanical equipment or other sounds, attention-attracting, or communication device associated with any use shall be discernible beyond any boundary line of the parcel, except fire protection devices, burglar alarms and church bells. The following provisions shall apply:

A. In residential areas, no exterior noise level shall exceed 65 dBA and no interior noise level shall exceed 45 dBA.

Existing Noise Conditions

In order to determine the existing noise levels, two short-term (15 minute) ambient noise measurements were taken on the project site between 12:11 p.m. and 12:47 p.m. on Thursday, September 21, 2023. The field survey noted that noise within the proposed project area is generally characterized by vehicles traveling on Waterman Avenue and Central Avenue.

The noise measurements were taken using a Larson-Davis Model 831 Type 1 precision sound level meter programmed in "slow" mode to record noise levels in "A" weighted form as well as the frequency spectrum of the noise broken down into 1/3 octaves. The sound level meter and microphone were mounted on a tripod five feet above the ground and were equipped with a windscreen during all measurements. The sound level meter was calibrated before and after the monitoring using a Larson-Davis calibrator, Model CAL 200. The results of the noise level measurements are presented in Table A and the noise monitoring data printouts are attached to this Memo.

Table A – Existing (Ambient) Noise Measurement Results

Site No.	Description	Primary Noise Sources	Start Time of Measurement	Measured Noise Level	
				dBA Leq	dBA Lmax
1	Located on the southeastern most paved parking space on the project site, approximately 50 feet north of Central Avenue centerline.	Vehicles on Central Avenue	12:11 p.m.	61.8	76.2
2	Located near the northwest corner of the project site, approximately 55 feet east of Waterman Avenues centerline.	Vehicles on Waterman Avenue	12:32 p.m.	68.9	82.4

Notes: Noise measurements taken with a Larson-Davis Model 831 Type 1 precision sound level meter on Thursday, September 21, 2023.

Construction Noise

Construction Noise Modeling

The noise impacts from construction of the proposed project have been analyzed through use of the FHWA's Roadway Construction Noise Model (RCNM). The FHWA compiled noise measurement data regarding the noise generating characteristics of several different types of construction equipment used during the Central Artery/Tunnel project in Boston. Table B below provides a list of the construction equipment anticipated to be used for each phase of construction as detailed in the *Air Quality and Greenhouse Gas Emissions Impact Analysis Amazing 34 Warehouse Project* (Air Quality Analysis), prepared by Vista Environmental, September 15, 2021.

Table B – Construction Equipment Noise Emissions and Usage Factors

Equipment Description	Number of Equipment	Acoustical Use Factor[1] (percent)	Spec 721.560 Lmax at 50 feet[2] (dBA, slow[3])	Actual Measured Lmax at 50 feet[4] (dBA, slow[3])
Demolition				
Concrete/Industrial Saw	1	40	85	82
Excavators	3	40	85	81
Rubber Tired Dozers	2	40	85	82
Site Preparation				
Crawler Tractor	4	40	84	N/A
Rubber Tired Dozer	3	40	85	82
Grading				
Crawler Tractor	3	40	84	N/A
Excavator	1	40	85	81
Grader	1	40	85	83
Rubber Tired Dozer	1	40	85	82
Building Construction				
Crane	1	16	85	81
Forklift (Gradall)	3	40	85	83
Generator	1	50	82	81
Tractor, Loader or Backhoe	3	40	84	N/A
Welder	1	40	73	74
Paving				
Cement & Mortar Mixer	2	50	80	80
Paver	1	50	85	77
Paving Equipment	2	50	85	77
Roller	2	20	85	80
Tractor, Loader or Backhoe	1	40	84	N/A
Architectural Coating				
Air Compressor	1	40	80	78

Notes:
[1] Acoustical use factor is the percentage of time each piece of equipment is operational during a typical workday.
[2] Spec 721.560 is the equipment noise level utilized by the RCNM program.
[3] The "slow" response averages sound levels over 1-second increments. A "fast" response averages sound levels over 0.125-second increments.
[4] Actual Measured is the average noise level measured of each piece of equipment during the Central Artery/Tunnel project in Boston, Massachusetts primarily during the 1990s.
Source: Federal Highway Administration, 2006.

Table B also shows the associated measured noise emissions for each piece of equipment from the RCNM model and measured percentage of typical equipment use per day. Construction noise impacts to the nearby sensitive receptors have been calculated according to the equipment noise levels and usage factors listed in Table B and through use of the RCNM. For each phase of construction, all construction equipment was analyzed based on being placed in the middle of the project site, which is based on the analysis methodology detailed in FTA Manual for a General Assessment. However, in order to provide a conservative analysis, all equipment was analyzed, instead of just the two nosiest pieces of equipment as detailed in the FTA Manual.

Construction Noise Impacts

The construction activities for the proposed project are anticipated to include demolition of the foundations and parking lots, site preparation and grading of the 3.84 gross acre project site, building construction of the proposed warehouse building, paving of the onsite driveways and parking areas, sidewalks and hardscapes, and application of architectural coatings.

Section 8.54.060(I) of the Municipal Code exempts construction noise from the City noise standards. Section 8.54.070 of the Municipal Code restricts construction activities from occurring between 8:00 p.m. and 7:00 a.m. However, the City construction noise standards do not provide any limits to the noise levels that may be created from construction activities during the allowable hours of construction and even with adherence to the City standards, the resultant construction noise levels may result in a significant substantial temporary noise increase to the nearby residents.

In order to determine if the proposed construction activities would create a significant substantial temporary noise increase, the National Occupational Safety and Health Administration (OSHA) provides a construction noise exposure standard of 85 dB[1], which has been utilized in this analysis.

Construction noise impacts to the nearby homes have been calculated through use of the RCNM and the parameters and assumptions are detailed above. The results are shown below in Table C and the RCNM printouts are attached to this Memo.

Table C – Construction Noise Levels at the Nearby Homes

Construction Phase	Construction Noise Level (dBA Leq) at:		
	Single-Family Home to East[1]	Multi-Family Homes to North[2]	Single-Family Home to Southeast[3]
Demolition	71	70	70
Site Preparation	71	70	70
Grading	70	70	69
Building Construction	72	71	70
Paving	69	68	68
Painting	58	58	57
OSHA Construction Noise Thresholds	**85**	**85**	**85**
Exceed Thresholds?	**No**	**No**	**No**

[1] The single-family home to east is located as near as 300 feet from the center of the project site.
[2] The multi-family homes to north is located as near as 320 feet from the center of the project site.
[3] The single-family home to southeast is located as near as 340 feet from the center of the project site.
Source: RCNM, Federal Highway Administration, 2006; https://www.osha.gov/noise/construction

[1] Obtained from: https://www.osha.gov/noise/construction

Table C shows that greatest construction noise impacts would occur during the building construction phase, with a noise level as high as 72 dBA Leq at the nearest home to the east, 71 dBA Leq at the nearest homes to the north, and 70 dBA Leq at the nearest home to the southeast. The calculated construction noise levels shown in Table E are within the OSHA construction noise standard of 85 dBA for the nearby homes. Therefore, through adherence to the limitation of allowable construction times provided in Section 8.54.070 of the Municipal Code, construction-related noise levels would not exceed any standards established in the General Plan or Noise Ordinance nor would construction activities create a substantial temporary increase in ambient noise levels from construction of the proposed project. Impacts would be less than significant.

Operational Noise

The proposed project would consist of the development of the proposed warehouse. Potential noise impacts would be from project-generated vehicular traffic on the nearby roadways and from onsite activities, which have been analyzed separately below.

Roadway Vehicular Noise

Vehicle noise is a combination of the noise produced by the engine, exhaust and tires. The level of traffic noise depends on three primary factors (1) the volume of traffic, (2) the speed of traffic, and (3) the number of trucks in the flow of traffic. The proposed project does not propose any uses that would require a substantial number of truck trips and the proposed project would not alter the speed limit on any existing roadway so the proposed project's potential offsite noise impacts have been focused on the noise impacts associated with the change of volume of traffic that would occur with development of the proposed project.

General Plan Policy 14.2.3 requires that new development that increases the ambient noise level adjacent to noise-sensitive land uses to provide appropriate mitigation measures. However neither the General Plan nor the CEQA Guidelines define what constitutes a "substantial permanent increase to ambient noise levels", as such, this impact analysis has utilized guidance from Caltrans that details a 12 dB increase in roadway noise would create a substantial increase in noise and a 3 dBA increase in noise is generally the point at which the human ear will perceive a difference in noise level.[2]

The Air Quality Analysis (Vista Environmental, 2021), found that the proposed project would generate 74 daily trips. The City of San Bernardino General Plan, adopted November 1, 2005, found that in the year 2030, between I-10 and Highland Ave would have 26,590 daily trips. As such, operation of the proposed project would generate an increase of up to 0.28 percent onto Waterman Avenue, which is nowhere near the doubling of traffic that is required to increase the noise level by 3 dBA CNEL, which is the threshold or perception in an increase of traffic noise. Therefore, operational roadway noise impacts from the proposed project would be less than significant.

Onsite Noise Impacts

The operation of the proposed project may create an increase in onsite noise levels from truck operations, including truck loading/unloading activities, rooftop mechanical equipment, forklift activities, and automobile parking lot activities.

[2] Obtained from: https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/env/traffic-noise-protocol-april-2020-a11y.pdf

Section 19.20.030(15) of the Municipal Code limits the noise created from on the project site to 65 dBA at the nearby residential areas. In order to determine the noise impacts from the operation of rooftop mechanical equipment, automobile parking lots, forklifts, and truck loading/unloading activities, reference noise measurements were taken of each noise source and the reference noise measurements output files are attached to this Memo. The noise levels at the nearby homes were calculated based on standard geometric spreading of noise, which provides an attenuation rate of 6 dB per doubling the distance between source and receptor. The operational noise levels were calculated at the nearby homes and the results are shown in Table D.

Table D – Operational Noise Levels at the Nearby Homes

	Home to East		Homes to North		Home to Southeast	
Noise Source	Source to Home (feet)	Noise Level (dBA Leq)	Source to Home (feet)	Noise Level (dBA Leq)	Source to Home (feet)	Noise Level (dBA Leq)
Rooftop Equipment[1]	140	43.7	275	37.8	170	42.0
Auto Parking Lot[2]	80	39.0	115	35.9	265	28.6
Onsite Truck Operations[3]	100	43.3	135	40.7	135	40.7
Forklift[4]	250	46.4	135	51.8	450	41.3
Combined Noise Level		**49.9**		**52.4**		**46.2**
City Residential Exterior Noise Standard		**65**		**65**		**65**
Exceed City Noise Standard?		**No**		**No**		**No**

Notes:
[1] Rooftop equipment is based on a reference noise measurement of 66.6 dBA at 10 feet.
[2] Parking lot is based on a reference noise measurement of 63.1 dBA at 5 feet.
[3] Onsite truck operations is based on a reference noise measurement of 63.3 dBA at 10 feet.
[4] Forklift activities is based on a reference noise measurement of 74.4 dBA at 10 feet.
Source: Reference noise measurement printouts are attached to this Memo.

Table D shows that the proposed project's worst-case operational noise from the simultaneous operation of all noise sources on the project site would create a noise level as high as 52.4 dBA at the nearest homes to the north. The worst-case operational noise levels are within the City's residential exterior noise standard of 65 dBA. Since homes typically provide 20 dB or more of exterior to interior noise reduction, the operational noise levels would also be below the City's residential interior noise standard of 45 dBA. Therefore, the onsite operational noise impacts would be less than significant.

Please let me know if you have any questions or need additional information with regard to the above analysis. I can be reached at (949) 510-5355, or email me at greg@vistalb.com.

Sincerely,

Greg Tonkovich, INCE
Senior Analyst
Vista Environmental
949 510 5355

Encl.: Noise Measurement Printouts
RCNM Model Construction Noise Calculation Printouts
Operational Reference Noise Measurements Printouts