PLANNING COMMISSION
Regular Meeting

Agenda

Thursday, July 22, 2021 at 7:00 PM
City Hall Council Chamber – 14177 Frederick Street

CALL TO ORDER

ROLL CALL

PLEDGE OF ALLEGIANCE

APPROVAL OF AGENDA

PUBLIC COMMENTS PROCEDURE

Any person wishing to address the Commission on any matter, either under the Public Comments section of the Agenda or scheduled items or public hearings, must fill out a "Request to Speak" form available at the door. The completed form must be submitted to the Secretary prior to the Agenda item being called by the Chairperson. In speaking to the Commission, members of the public may be limited to three minutes per person, except for the applicant for entitlement. The Commission may establish an overall time limit for comments on a particular Agenda item. Members of the public must direct their questions to the Chairperson of the Commission and not to other members of the Commission, the applicant, the Staff, or the audience.

PUBLIC COMMENTS

CONSENT CALENDAR

All matters listed under Consent Calendar are considered to be routine and all will be enacted by one roll call vote. There will be no discussion of these items unless Members of the Planning Commission request specific items be removed from the Consent Calendar for separate action.

Upon request, this agenda will be made available in appropriate alternative formats to persons with disabilities, in compliance with the Americans with Disabilities Act of 1990. Any person with a disability who requires a modification or accommodation in order to participate in a meeting should direct such request to the ADA Coordinator, at 951.413.3120 at least 72 hours before the meeting. The 72-hour notification will enable the City to make reasonable arrangements to ensure accessibility to this meeting.

NON-PUBLIC HEARING ITEMS

No items for discussion.

PUBLIC HEARING ITEMS

1.	Case:	PEN20-0141 – Plot Plan PEN20-0142 – Conditional Use Permit
	Applicant:	Nancy Kaskas of Go Fresh, LLC
	Property Owner	HI Speed, LLC
	Representative	Alex Irshaid of RamCam
	Location:	Southeast corner of Sunnymead Blvd. and Graham St.
	Case Planner:	Gabriel Diaz
	Council District:	1
	Proposal	A Plot Plan for a 8,624 square foot multi-tenant retail building with a 999 square foot hydrogen equipment room, fueling stations with canopy, and a 2,485 square foot carwash building with 17 vacuum stations and Conditional Use Permit for the gasoline, propane, and hydrogen fuel service station use, accessory convenience store use (5,006 sq.ft. of the multi-tenant retail building), and carwash with vacuum stations uses.
2.	Case:	PEN21-0086 Conditional Use Permit
	Applicant:	InSite Development Services, LLC.
	Property Owner	MCA Stoneridge, LLC
	Representative	Ryan Solum
	Location:	Stoneridge Town Center (488-400-008)
	Case Planner:	Julia Descoteaux
	Council District:	3

Proposal	Conditional Use Permit for an approximately 2,348 square foot fast food drive-through restaurant located in the existing Stoneridge Town Center.

OTHER COMMISSION BUSINESS

No items for discussion.

STAFF COMMENTS

PLANNING COMMISSIONER COMMENTS

ADJOURNMENT

To the next Planning Commission Regular Meeting, August 12, 2021 at 7:00 P.M., City of Moreno Valley, City Hall Council Chamber, 14177 Frederick Street, Moreno Valley, CA 92553.

PLANNING COMMISSION

STAFF REPORT

Meeting Date: July 22, 2021

PEN20-0141 PLOT PLAN & PEN20-0142 CONDITIONAL USE PERMIT

Case:	PEN20-0141 – Plot Plan PEN20-0142 – Conditional Use Permit
Applicant:	Nancy Kaskas of Go Fresh, LLC
Property Owner	HI Speed, LLC
Representative	Alex Irshaid of RamCam
Location:	Southeast corner of Sunnymead Blvd. and Graham St.
Case Planner:	Gabriel Diaz
Council District:	1
Proposal	A Plot Plan for a 8,624 square foot multi-tenant retail building with a 999 square foot hydrogen equipment room, fueling stations with canopy, and a 2,485 square foot carwash building with 17 vacuum stations and Conditional Use Permit for the gasoline, propane, and hydrogen fuel service station use, accessory convenience store use (5,006 sq.ft. of the multi-tenant retail building), and carwash with vacuum stations uses.

SUMMARY

The applicant, Go Fresh, LLC, is seeking approval of a Plot Plan for a 8,624 square foot multi-tenant retail building with a 999 square foot hydrogen equipment room, and a 2,485 square foot carwash building with 17 vacuum stations. The applicant also

requests a Conditional Use Permit as required for the gasoline, propane, and hydrogen fuel service station use, accessory convenience store use (5,006 sq.ft. of the multi-tenant retail building), and carwash with vacuum stations uses. The property is a 2.1 acre parcel located at the southeast corner of Sunnymead Boulevard and Graham Street, within the Village Specific Plan Community Commercial (CC) zone.

PROJECT DESCRIPTION

Project

The Project will include a Plot Plan for overall site development and a Conditional Use Permit for the auto service station with related accessory uses.

Plot Plan

The Plot Plan includes a 8,624 square foot multi-tenant retail building, fueling stations and canopy, a 999 square foot hydrogen equipment room, and a 2,485 square foot carwash building with 17 vacuum stations.

Site

The Project Site is comprised of one rectangular parcel (Assessor's Parcel Number 292-100-012) totaling 2.1 acres, located at the southeast corner of Sunnymead Boulevard and Graham Street. The Project Site's topography has a gentle downward slope from north to south. The Project Site has no natural features such as rock outcroppings, water features or prior structures that might limit the developable area of the Project Site. The Project Site has been cleared routinely for weed abatement. Public sidewalks along both the Sunnymead Boulevard and Graham Street frontages are in place. A bus stop and established street trees are present along Iris Avenue.

The Project Site is within The Village Specific Plan 204 Community Commercial (SP204CC) zoning designation. The General Plan land use designation for the Project Site is Commercial (C).

Surrounding Area

The surrounding area includes existing single family homes to the west across Graham Street zoned Residential 5 (R5), an existing commercial center to the east zoned Village Specific Plan 204 Community Commercial (SP204CC), vacant land to the south zoned Village Specific Plan 204 Community Commercial (SP204CC), an existing Auto Zone auto parts building, an inline commercial building and a carwash building to the north across Alessandro zoned Village Specific Plan 204 Community Commercial (SP204CC).

Access/Parking

There are two main access driveways to the project site. One driveway will provide access from Sunnymead Boulevard into the project with right-in, right-out access. A second driveway along Graham Street allows for full access.

As proposed, the Project meets the Municipal Code requirements for parking. A total of 48 parking spaces are required for the gas station, convenience store, retail, and carwash uses. In addition, the carwash will be providing 17 vacuum parking stations. The Project as designed satisfies, all parking requirements of the City's Municipal Code including ADA accessible parking and parking considerations for fuel efficient vehicles.

The driveways and interior drive aisles within the site have been reviewed and found to be adequate for truck maneuvering and turnaround for delivery trucks and trash pick-up. In addition, the Project Site has been found acceptable by the Fire Prevention Bureau for fire truck access.

Design/Landscaping

The Project's structures, parking and access infrastructure, as designed and conditioned, conform to all development standards of the Village Specific Plan 204 Community Commercial (SP204CC) and the design guidelines for a commercial uses as required by the City's Municipal Code.

Furthermore, the Project has been designed to meet required landscaped standards and landscaping objectives as set forth in the City's Municipal Code. The landscape elements of the Project include the landscape setback areas along Sunnymead Boulevard and Graham Street, parking lot landscape, street trees and landscape treatments around the perimeter of the site and within the bio-retention basin.

Conditional Use Permit

The City's Municipal Code allows for with auto service station with accessory uses including a convenience store and car wash in the in the Community Commercial zone with approval of a Conditional Use Permit when located within 300 feet of existing residences or a residential zoning district.

The applicant proposes to develop an auto service station with an approximately 5,006 square foot convenience store, and a 2,485 square foot carwash with 17 vacuum parking stations. The fueling station includes a canopy with 10 fuel pump islands. The fueling station will also dispense hydrogen fuel. In addition, the auto service station will include an electric vehicle charging station and a propane station. The auto service station and convenience store hours will be 24 hours a day 7 days a week. The retail store hours will be 6:00 a.m. to 12:00 a.m. 7 days a week. The propane sales hours will be 6:00 a.m. to 10 p.m. 7 days a week. The car wash hours will be 6:00 a.m. to 10:00 p.m. seven days a week.

A Conditional Use Permit allows the City to impose special development requirements to ensure that certain uses will not be detrimental to the Project's surroundings.

Conditional uses may be appropriate at one location but not at another because of the potential for impacts on surrounding properties. The following summarizes the Project's design elements that will minimize impacts on residential uses.

1. There are no onsite Alcohol Sales.
2. A 15-foot wide landscape setback on Graham Street provided between Project Site and the nearest single family residences to the west.
3. The trash enclosure for the Project is located in the interior of the site away from all residential uses. The trash enclosure would be fully screened and include a covered roof.

The Conditional Use Permit has been evaluated particularly against General Plan Objective 2.4, which calls for commercial areas within the City to be conveniently located, efficient, attractive, and to have safe and easy pedestrian and vehicular circulation in order to serve the retail and service commercial needs of Moreno Valley residents and businesses. Staff has confirmed the proposed project meets this goal and does not conflict with other goals, objectives, policies, or programs set forth in the General Plan.

The proposed building is rectangular in shape, single story, and has a contemporary modern style that includes a flat roof design with tower elements as the building's main entrances. The architectural design of the convenience store building strives to achieve an attractive and appealing structure that will be visible at a prominent street corner, Sunnymead Boulevard and Graham Street. Exterior finishes proposed include brick and stone veneer treatments, metal awnings, and stucco wall finishes with a blend of khaki and nut brown as the primary colors.

The gasoline station canopy and carwash building are complementary to the main convenience store building, using flat roofs, and incorporating the same brick and veneer and stucco colors of the main building.

Staff has found the proposed Project would add economic vitality and architectural character along this portion of Sunnymead Boulevard and Graham Street. The applicant has worked closely with staff in achieving an enhanced design of the Project.

The Project is found to be consistent with the objectives, goals and policies outlined in the City's General Plan and Municipal Code, and would be compatible with the existing and planned land uses in the Project area. The Project is recommended for approval.

REVIEW PROCESS

In accordance with the Municipal Code, the Project was reviewed by the Project Review Staff Committee (PRSC) in September 2020. All staff comments generated throughout the multiple plan reviews for the Project have been addressed and are reflected in the final Project plans, Preliminary Water Quality Management Plan, and conditions of approval included as an exhibit to the recommended Resolution for the Project.

ENVIRONMENTAL

An Initial Study was prepared by ECORP Consulting, Inc. in compliance with the California Environmental Quality Act (CEQA) Guidelines. The Initial Study examined the potential of the proposed Project to have any significant impacts on the environment. The Initial Study (IS/MND) provides information in support of the finding that a Mitigated Negative Declaration serves as appropriate CEQA documentation for the proposed Project in that the proposed Project, with the implementation of mitigation measures identified, will not have a significant effect on the environment. Technical studies prepared in support of the IS/MND include the following: Air Quality and Greenhouse Gas Assessment, Gasoline Vapor Health Risk, Fuel Consumption, Noise Impact Assessment, Biological Resources Assessment, Cultural Resources Assessment, Traffic Impact Study, Water Quality Management Plan, and Geotechnical Engineering Investigation. The electronic files for the IS/MND with appendices are attached to this report. Anyone wishing to view the documents can also do so at City Hall.

The public comment period for Notice of Availability for the Initial Study/Mitigated Negative Declaration began on July 2, 2021, and will end on July 22, 2021, which satisfies the required 20-day review period. As of the preparation of this report, no comments have been received. Should comments regarding the Project be received prior to the Planning Commission they will be provided at the public hearing.

Mitigation measures are recommended for the proposed Project in the following areas: Cultural/Tribal Cultural Resources, and Transportation, and are incorporated into the Mitigation Monitoring and Report Program. The measures for cultural resources have been included to address input from the tribal agencies. The measures are intended to ensure that potential resources that might be discovered are protected. However, these measures are not required to address a known significant impact.

Based on the Initial Study, with mitigation, the Project will not cause substantial impacts or environmental damage.

NOTIFICATION

Public notice was sent to all property owners of record within 600’ feet of the Project. The public hearing notice for this Project was also posted on the project site and published in the local newspaper.

As of the date of report preparation, staff has received no phone calls or correspondence in response to the noticing for this Project.

REVIEW AGENCY COMMENTS

The Project’s application materials were circulated for review by all appropriate City departments and divisions, as well as applicable outside agencies/entities. Throughout the plan review process, comments and proposed conditions of approval regarding the Project were provided in writing to the applicant. Where applicable, conditions of approval have been included in the recommended Resolution to address concerns from the responding agencies.

STAFF RECOMMENDATION

Staff recommends that the Planning Commission:

A. **APPROVE** Resolution No. 2021-30, and thereby:

  1. **CERTIFY** the Initial Study/Mitigated Negative Declaration prepared for Plot Plan PEN20-0141 and Conditional Use Permit PEN20-0142 on file with the Community Development Department, incorporated herein by this reference, completed in compliance with the California Environmental Quality Act and CEQA Guidelines, and that the Planning Commission reviewed and considered the information contained in the Initial Study/ Mitigated Negative Declaration, and that the document reflects the City's independent judgment and analysis; attached hereto as Exhibit A; and

  2. **ADOPT** the Mitigation Monitoring and Reporting Program prepared for the Project, Plot Plan PEN20-0141 and Conditional Use Permit PEN20-0142 pursuant to the California Environmental Quality Act (CEQA) Guidelines, and included as Exhibit A.

B. **APPROVE** Resolution No. 2021-31 and thereby:

  1. **APPROVE** PEN20-0141 Plot Plan based on the findings contained in this resolution, and as shown on the attachment included as Exhibit A.

C. **APPROVE** Resolution No. 2021-32, and thereby:

  1. **APPROVE** PEN20-0142 Conditional Use Permit based on the findings contained in this resolution, and as shown on the attachment included as Exhibit A.

Prepared by:
Gabriel Diaz
Associate Planner

Approved by:
Patty Nevins
Planning Official

ATTACHMENTS

1. Resolution 2021-30_MND
2. Exhibit A - Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program
3. Exhibit B - Notice of Intent to Adopt a Mitigated Negative Declaration/Newspaper Notice

4. Resolution 2021-31_Plot Plan
5. Exhibit A - Conditions of Approval
6. Resolution 2021-32_CUP
7. Exhibit A - Conditions of Approval
8. Aerial Map
9. Location Map
10. Zoning Map
11. Site Plan
12. Colored Elevations
13. 3D Renderings
14. Preliminary grading plan Sheet 1
15. Preliminary grading plan Sheet 2
16. Preliminary Landscape Plan
17. Material Color Board 1
18. Material Color Board 2

RESOLUTION NUMBER 2021-30

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, ADOPTING A MITIGATED NEGATIVE DECLARATION AND MITIGATION MONITORING AND REPORTING PROGRAM FOR A 8,624 SQUARE FOOT MULTI-TENANT RETAIL BUILDING WITH A 999 SQUARE FOOT HYDROGEN EQUIPMENT ROOM, A 2,485 SQUARE FOOT CARWASH BUILDING WITH 17 VACUUM STATIONS, AND SERVICE STATION WITH GASOLINE, PROPANE, AND HYDROGEN FUEL SERVICE AND CONVENIENCE STORE (5,006 SQ.FT. OF THE MULTI-TENANT RETAIL BUILDING) PROJECT LOCATED AT THE SOUTHEAST CORNER OF SUNNYMEAD BOULEVARD AND GRAHAM STREET (APN: 292-100-012)

WHEREAS, the City of Moreno Valley ("City") is a general law city and a municipal corporation of the State of California, and the lead agency for the preparation and consideration of environmental documents for local projects that are subject to requirements of the California Environmental Quality Act (CEQA[1]) and CEQA Guidelines[2]; and

WHEREAS, Go Fresh, LLC, ("Developer") is seeking approval of 1) Plot Plan (PEN20-0141) for a 8,624 square foot multi-tenant retail building with a 999 square foot hydrogen equipment room, and a 2,485 square foot carwash building with 17 vacuum stations; 2) a Conditional Use Permit (PEN20-0142) for a gasoline, propane, and hydrogen fuel service station use, accessory convenience store (5,006 sq.ft. of the multi-tenant retail building), and carwash with vacuum stations uses, located at the southeast corner of Sunnymead Boulevard and Graham Street; and

WHEREAS, Planning Division Staff completed an environmental assessment for the proposed Project, and, based on the assessment, decided to prepare an Initial Study ("IS") and a Mitigated Negative Declaration ("MND") in accordance with Section 6 (ND Procedures) of the City's Rules and Procedures for the Implementation of the California Environmental Quality Act and the requirements of the CEQA Guidelines Sections 15070 – 15075; and

WHEREAS, a Notice of Intent to Adopt a Mitigated Negative Declaration was duly noticed and circulated for public review for a period of 20 days commencing on July 2, 2021, through July 22, 2021; and

WHEREAS, in conformance with CEQA and the CEQA Guidelines, a Mitigation Monitoring and Reporting Program ("MMRP") that includes a program for reporting on and monitoring Project mitigation measures was prepared for the proposed Project and circulated with the Mitigated Negative Declaration; and

[1] Public Resources Code §§ 21000-21177
[2] 14 California Code of Regulations §§15000-15387

WHEREAS, on July 22, 2021, a hearing was conducted by the Planning Commission to approve the Mitigated Negative Declaration and the Mitigation Monitoring and Reporting Program and approve the proposed Project; and

WHEREAS, at the conclusion of the public hearing, in the exercise of its own independent judgment, the Planning Commission determined that the Mitigated Negative Declaration and the Mitigation Monitoring and Reporting Program would reduce the environmental impacts of the Project to levels of insignificance and that there is no substantial evidence supporting a fair argument that the Project will have a significant effect on the environment.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

Section 1. **Recitals and Exhibits**

That the foregoing Recitals and attached exhibits are true and correct and are hereby incorporated by this reference.

Section 2. **Evidence**

That the Planning Commission has considered all of the evidence submitted into the Administrative Record for the Mitigated Negative Declaration and Mitigation Monitoring Plan, including, but not limited to, the following:

(a) Mitigated Negative Declaration inclusive of the Mitigation Monitoring and Reporting Program prepared for the proposed Project, attached hereto as Exhibit A;
(b) Notice of Intent to Adopt a Mitigated Negative Declaration/Newspaper Notice, attached hereto as Exhibit B;
(c) Staff Report prepared for the Planning Commission's consideration and all documents, records and references related thereto, and Staff's presentation at the public hearing; and
(d) Testimony, comments and correspondence from all persons that were provided at, or prior to, the public hearing.

Section 3. **Findings**

That based on the content of the foregoing Recitals and the Evidence contained in the Administrative Record as set forth above, the Planning Commission makes the following findings:

(a) That the City has independently reviewed, analyzed, and considered the Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program, and the entirety of the Administrative record, including without limitation, the Initial Study and comments received;
(b) That the proposed mitigation measures will reduce all environmental impacts of the proposed Project to levels of insignificance and there is no

substantial evidence supporting a fair argument that the Project will have a significant effect on the environment;

(c) That the Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program have been completed in compliance with CEQA and the CEQA Guidelines consistent the City's Rules and Procedures for the Implementation of the California Environmental Quality Act.

(d) That the Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program reflect the independent judgment and analysis of the City as lead agency for the proposed Project; and

(e) That the Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program are adequate to serve as the required CEQA environmental documentation for the proposed Project.

Section 4. **Adoption**

That based on the foregoing Recitals, Evidence contained in the Administrative Record and Findings, as set forth herein, the Planning Commission hereby adopts the Mitigated Negative Declaration/Initial Study and Mitigation Monitoring and Reporting Program attached hereto as Exhibit A.

Section 5. **Repeal of Conflicting Provisions**

That all the provisions as heretofore adopted by the Planning Commission that are in conflict with the provisions of this Resolution are hereby repealed.

Section 6. **Severability**

That the Planning Commission declares that, should any provision, section, paragraph, sentence or word of this Resolution be rendered or declared invalid by any final court action in a court of competent jurisdiction or by reason of any preemptive legislation, the remaining provisions, sections, paragraphs, sentences or words of this Resolution as hereby adopted shall remain in full force and effect.

Section 7. **Effective Date**

That this Resolution shall take effect immediately upon the date of adoption.

Section 8. **Certification**

That the Secretary of the Planning Commission shall certify to the passage of this Resolution.

PASSED AND ADOPTED THIS 22nd day of July, 2021.

CITY OF MORENO VALLEY
PLANNING COMMISSION

Patricia Korzec, Chairperson

ATTEST:

Patty Nevins,
Planning Official

APPROVED AS TO FORM:

Steven B. Quintanilla,
Interim City Attorney

Exhibits:
Exhibit A: Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program
Exhibit B: Notice of Intent to Adopt a Mitigated Negative Declaration/Newspaper Notice

Exhibit A

MITIGATED NEGATIVE DECLARATION

Exhibit B

NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION/NEWSPAPER NOTICE

MORENO VALLEY
WHERE DREAMS SOAR

CITY OF
MORENO VALLEY

MITIGATED NEGATIVE DECLARATION / INITIAL STUDY / MITIGATION MONITORING AND REPORTING PROGRAM FOR GO FRESH GAS STATION PROJECT

GO FRESH GAS STATION PROJECT
PEN20-0141 - Plot Plan
PEN20-0142 - Conditional Use Permit

July 2, 2021

Lead Agency
CITY OF MORENO VALLEY
14177 Frederick Street
Moreno Valley, CA 92552

Prepared By
ECORP Consulting, Inc.
215 N. Fifth Street
Redlands, CA 92374
909-307-0046

MORENO VALLEY
WHERE DREAMS SOAR

MITIGATED NEGATIVE DECLARATION [GO FRESH GAS STATION]

Project Description:

Applicant is requesting approval of a Conditional Use Permit to construct and operate an automobile gas station consisting of a 5,006 square foot convenience store, retail store, fuel canopy including regular and hydrogen fueling, hydrogen equipment room, and a 2,485 square foot automated carwash.

Project Location:

Southeast corner of the intersection of Sunnymead Boulevard and Graham Street on Assessor's Parcel Number (APN) 292-100-012.

Findings:

It is hereby determined that, based on the information contained in the attached Initial Study and with the implementation of mitigation measures, the project would not have a significant adverse effect on the environment.

Mitigation Measures:

No.	Mitigation Measure
CUL-1	Monitoring for cultural resources during construction
CUL-2	Tribal monitoring for tribal cultural resources during construction
CUL-3	Procedures for disposition of Tribal cultural resources
CUL-4	Verification of notes for halting work on Grading Plans
CUL-5	Evaluation of uncovered historic/cultural resources
CUL-6	Halt work in the event of the discovery of human remains
CUL-7	Procedures for discovery of human remains
TRANS-1	Fair share cost contribution for traffic impacts

Attachments:

1. Location Map
2. Initial Study
3. Mitigation Monitoring and Reporting Program

Location: N:\2020\2020-078 Go Fresh Gas Station Moreno Valley\MAPS\Location_Vicinity\GoFresh_Location.mxd (TR)-trotellini 7/22/2020

Map Date: 7/22/2020

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Project Location

2020-078 Go Fresh Gas Station Moreno Valley

CITY OF
MORENO VALLEY

INITIAL STUDY FOR
GO FRESH GAS STATION PROJECT
GO FRESH GAS STATION PROJECT

PEN20-0141 - Plot Plan
PEN20-0142 - Conditional Use Permit

June 28, 2021

Lead Agency
CITY OF MORENO VALLEY
14177 Frederick Street
Moreno Valley, CA 92552

Prepared By
ECORP Consulting, Inc.
215 N. Fifth Street
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909-307-0046

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MORENO VALLEY
WHERE DREAMS SOAR

INITIAL STUDY (IS) FOR GO FRESH GAS STATION PROJECT

BACKGROUND INFORMATION AND PROJECT DESCRIPTION:

1. **Project Case Number(s):** PEN20-0141 - Plot Plan, PEN20-0142 - Conditional Use Permit
2. **Project Title:** Go Fresh Gas Station Project
3. **Public Comment Period:** July 2, 2021 – July 22, 2021
4. **Lead Agency:** City of Moreno Valley
   Gabriel Diaz, Associate Planner
   Community Development Department
   Planning Division
   14177 Frederick Street
   Moreno Valley, CA 92552
   (951) 413-3226
   gabrield@moval.org
5. **Prepared By:** Alfredo Aguirre, AICP
   Senior Environmental Planner
   ECORP Consulting, Inc.
   215 N. Fifth Street
   Redlands, CA 92374
   909-307-0046
   aaguirre@ecorpconsulting.com
6. **Project Sponsor:**

   Applicant/Developer
   Mohammad Kaskas
   Go Fresh, LLC.
   3401 Long Beach Boulevard
   Long Beach, CA 92807
   310-948-2236
   unitedllc2@gmail.com

   Property Owner
   Same as Applicant/Developer
7. **Project Location:**

The project site is located on an approximately two-acre parcel located on the southeast corner of the intersection of Sunnymead Boulevard and Graham Street in the City of Moreno Valley (Figures 1 and 2). The project site is composed of one parcel (APN 292-100-012). The project site is within the U.S. Geological Survey (USGS) 7.5-minute Riverside East topographic quadrangle.

Location: N:\2020\2020-078 Go Fresh Gas Station Moreno Valley\MAPS\Location_Vicinity\GoFresh_Vicinity.mxd (TR)-trotellini 7/22/2020

Map Date: 7/22/2020
Sources:

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 1. Project Vicinity

2020-78 Go Fresh Gas Station Moreno Valley

Attachment: Exhibit A - Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program [Revision 1] (4469 : PEN20-0141 Plot

Location: N:\2020\2020-078 Go Fresh Gas Station Moreno Valley\MAPS\Location_Vicinity\GoFresh_Location.mxd (TR)-trotellini 7/22/2020

Map Date: 7/22/2020

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 2. Project Location

2020-078 Go Fresh Gas Station Moreno Valley

9. **General Plan Designation:** Commercial

The primary purpose of areas designated Commercial is to provide property for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services. The zoning regulations shall identify the particular uses permitted on each parcel of land, which could include compatible noncommercial uses. Commercial development intensity should not exceed a Floor Area Ratio of 1.00 and the average floor area ratio should be significantly less.

10. **Specific Plan Name and Designation:** SP 204 – The Village, CC – Community Commercial

Community Commercial zones occur at each end of the Boulevard commercial district. The size and scope of the Community Commercial areas of the Village require vehicular movement of the users. The primary focus of the Community Commercial land use designation is to provide for the general shopping and service needs of freeway travelers, area residents, and workers by providing a variety of travel related and local business services including motels, gas stations, fast food and sit-down restaurants, general retail, and personal uses.

11. **Existing Zoning:** SP 204 CC

The primary purpose of the Community Commercial (CC) district is to provide for the general shopping needs of area residents and workers with a variety of business, retail, personal, and related or similar services.

The Proposed Project would develop a gas station consisting of a convenience store, retail store, fuel canopy including regular and hydrogen fueling, hydrogen equipment room, and automated carwash. The Project would be required to obtain a Conditional Use Permit (CUP) under City Municipal Code Section 9.02.020 *Permitted Uses*. With the required CUP, the Project would be compatible use with the project site's General Plan land use designation of commercial and zoning designation of SP 204 CC.

12. **Surrounding Land Uses and Setting:**

	Land Use	General Plan	Zoning
Project Site	**Undeveloped**	**Commercial**	**SP 204 CC**
North	Commercial	Commercial	SP 204 CC
South	Undeveloped	Commercial	SP 204 CC
East	Commercial	Commercial	SP 204 CC
West	Residential	Residential: Max. 5 du/ac	R5

13. **Description of the Site and Project:**

<u>Environmental Setting</u>

The project site is located at the southeast corner of Sunnymead Boulevard and Graham Street on an approximately two-acre undeveloped parcel. The project is relatively flat, with an elevation of approximately 1,635 feet above mean sea level. The project site is disturbed with evidence of past disking and/or grading. The project site contains low growing vegetation mainly composed of non-native weeds and grasses. A row of eucalyptus trees on an adjacent property abuts the eastern project boundary, separating the project site from a commercial shopping center to the east.

Project Description

The Go Fresh Gas Station Project (Proposed Project) would develop an automobile gas station consisting of a convenience store, retail store, fuel canopy including regular and hydrogen fueling, hydrogen equipment room, and automated carwash. The Proposed Project's site plan is shown in Figure 3.

The convenience and retail store would be composed of one building. The convenience store would measure 5,006 square feet (sq. ft.) and the retail store would measure 3,630 sq. ft. The convenience and retail store building would consist of a wood framed building with stucco walls on a concrete slab on grade foundation. The fuel canopy would measure 6,624 sq. ft. and have ten fuel dispensing pumps. Two of the ten fuel pumps would dispense hydrogen fuel. Four underground fuel storage tanks and a 999 sq. ft. hydrogen equipment room would be installed. An aboveground propane dispensing tank would also be installed. An air and water dispensing machine would be provided near the fuel canopy. The car wash would measure 2,485 sq. ft. and have 17 parking spaces with vacuums for customers.

Proposed site improvements would also include the installation of driveways, parking, landscaping, stormwater drainage system, water and sewer connections, and lighting. Site access would be provided via two driveways, one on Sunnymead Boulevard and one on Graham Street. The Sunnymead Boulevard driveway would be right-in and right-out access only. The Graham Street driveways would be a full access driveway. The Proposed Project would provide a total of 48 parking spaces, including 44 standard parking spaces and 4 Americans with Disabilities Act (ADA) compliant parking spaces. Two electric vehicle charging stations would be provided, including one that is ADA/van accessible. Eleven bicycle parking spaces would also be provided. A total landscape area of 21,031 sq. ft. would be provided. Stormwater originating at the project site would be conveyed via surface flows to ribbon gutters which would direct stormwater to bio-swales (biotreatment) located within the landscape areas of the project site prior to discharging onto the existing storm drain system within Graham Street. The Proposed Project would connect to existing water and sewer infrastructure within adjacent streets.

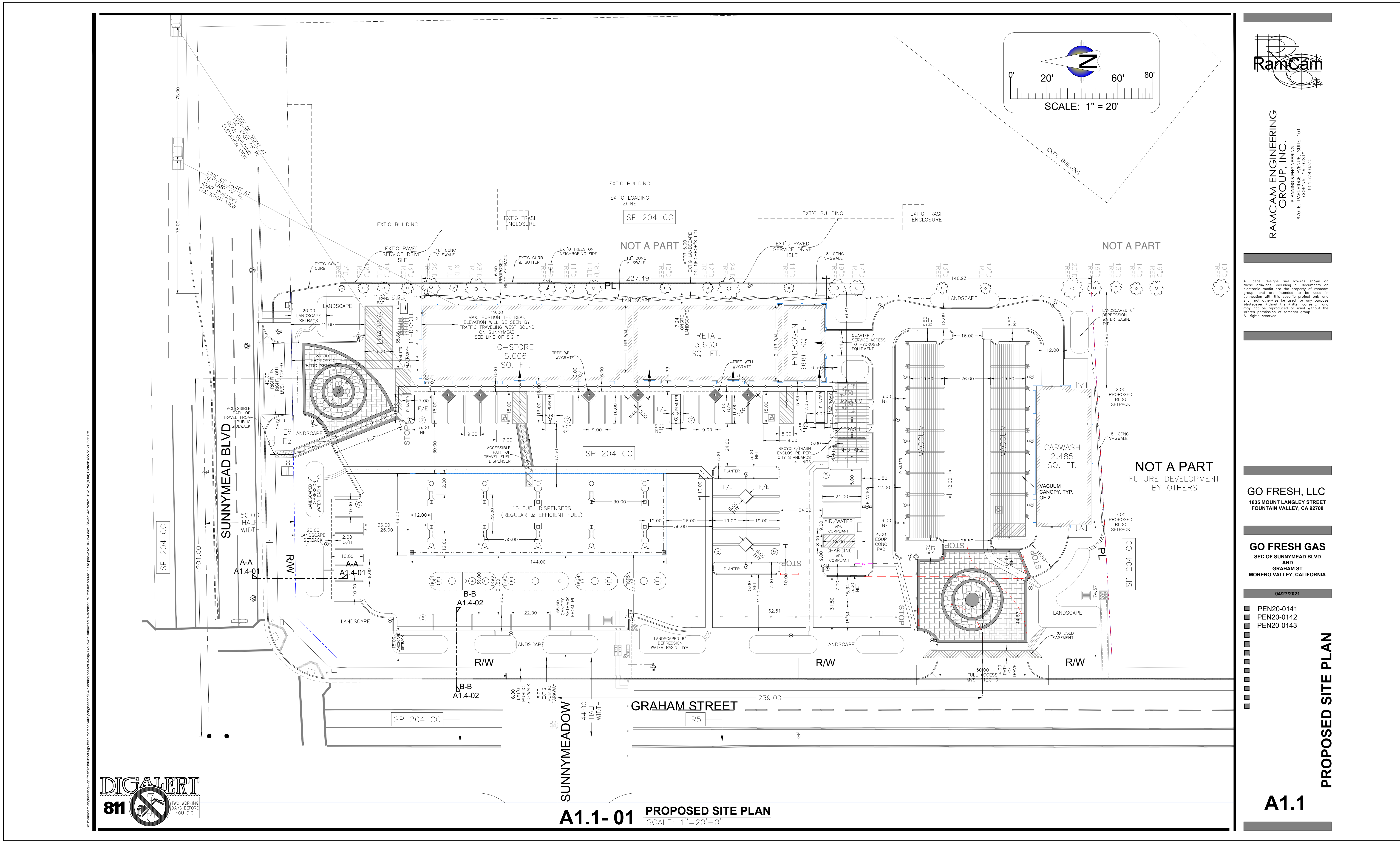

Figure 3. Site Plan
2020-078 Go Fresh Gas Station Moreno Valley

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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

Note: Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts to tribal cultural resources, and reduce the potential for delay and conflict in the environmental review process. (See Public Resources Code section 21080.3.2.) Information may also be available from the California Native American Heritage Commission's Sacred Lands File per Public Resources Code section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that Public Resources Code section 21082.3(c) contains provisions specific to confidentiality.

Consultation is being conducted by the City of Moreno Valley.

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

Santa Ana Regional Water Quality Control Board (NPDES Permit)

Riverside County Airport Land Use Commission Approval (Consistency review and approval with 2014 March Air Reserve Base/Inland Port Airport Land Use Compatibility Plan)

16. **Other Technical Studies Referenced in this Initial Study:**

a. Phase I Cultural Resources Survey for the Go Fresh Gas Station Project (Brian F. Smith and Associates, Inc. 2019)

b. Biological Report, Go Fresh LLC Biological Survey and Protocol Survey for Burrowing Owl, Phase I & II Surveys APN 479-070-051-1, Moreno Valley, California (Pacific Southwest Biological Services Inc. 2019)

c. Geotechnical Engineering Investigation Go Fresh Gas Station Sunnymead Boulevard & Graham Street Moreno Valley, California (SALEM Engineering Group, Inc. 2019)

d. Vehicle Miles Travelled Screening & Focused Traffic Impact Study Go Fresh Gas Station at SEC of Sunnymead Blvd and Graham St Moreno Valley (K2 Traffic Engineering, Inc. 2020)

17. **Acronyms:**

ADA -	Americans with Disabilities Act
ALUC -	Airport Land Use Commission
ALUCP -	Airport Land Use Compatibility Plan
AQMP -	Air Quality Management Plan
CEQA -	California Environmental Quality Act
CIWMD -	California Integrated Waste Management District
CMP -	Congestion Management Plan
DTSC -	Department of Toxic Substance Control
DWR -	Department of Water Resources
EIR -	Environmental Impact Report
EMWD -	Eastern Municipal Water District
EOP -	Emergency Operations Plan

FEMA -	Federal Emergency Management Agency
FMMP -	Farmland Mapping and Monitoring Program
GIS -	Geographic Information System
GHG -	Greenhouse Gas
GP -	General Plan
HCM	Highway Capacity Manual
HOA -	Home Owners' Association
IS -	Initial Study
LHMP -	Local Hazard Mitigation Plan
LOS -	Level of Service
LST -	Localized Significance Threshold
MARB -	March Air Reserve Base
MARB/IPA-	March Air Reserve Base/Inland Port Airport
MSHCP -	Multiple Species Habitat Conservation Plan
MVFP -	Moreno Valley Fire Department
MVPD -	Moreno Valley Police Department
MVUSD -	Moreno Valley Unified School District
MWD -	Metropolitan Water District
NCCP -	Natural Communities Conservation Plan
NPDES -	National Pollutant Discharge Elimination System
OEM -	Office of Emergency Services
OPR -	Office of Planning & Research, State
PEIR -	Program Environmental Impact Report
PW -	Public Works
RCEH -	Riverside County Environmental Health
RCFCWCD -	Riverside County Flood Control & Water Conservation District
RCP -	Regional Comprehensive Plan
RCTC -	Riverside County Transportation Commission
RCWMD -	Riverside County Waste Management District
RTA -	Riverside Transit Agency
RTIP -	Regional Transportation Improvement Plan
RTP -	Regional Transportation Plan
SAWPA -	Santa Ana Watershed Project Authority
SCAG -	Southern California Association of Governments
SCAQMD -	South Coast Air Quality Management District
SCE -	Southern California Edison
SCH -	State Clearinghouse
SKRHCP -	Stephens' Kangaroo Rat Habitat Conservation Plan
SWPPP -	Storm Water Pollution Prevention Plan
SWRCB -	State Water Resources Control Board
USFWS -	United States Fish and Wildlife
USGS -	United States Geologic Survey
VMT -	Vehicle Miles Traveled
VVUSD -	Valley Verde Unified School District
WQMP -	Water Quality Management Plan
WRCOG -	Western Riverside Council of Government

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

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

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

DETERMINATION (To be completed by the Lead Agency):

On the basis of this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Gabriel Diaz   7/1/21
Signature   Date

Gabriel Diaz   City of Moreno Valley
Printed Name   For

EVALUATION OF ENVIRONMENTAL IMPACTS:

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

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

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

4) Less Than Significant with Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less than Significant Impact." The Lead Agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, "Earlier Analyses," may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or another 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.

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

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g. general plans, zoning ordinances). Reference to a previously prepared or outside document should, where

appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources. A source list should be attached, and other sources used, or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) the significance criteria or threshold, if any, used to evaluate each question; and

   b) the mitigation measure identified, if any, to reduce the impact to less than significance.

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS – Except as provided in Public Resources Code §21099 – Modernization of Transportation Analysis for Transit-Oriented Infill Projects – **Would the project:**				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐

Response:

The major scenic resources within the Moreno Valley study area are visible from State Route 60, the major transportation route in the area. Upon entering the Moreno Valley from the west, the dominant view is of the Box Springs Mountains to the immediate north and the Mount Russell foothills to the south.

The project site is located at the southeast corner of Sunnymead Boulevard and Graham Street. Scenic vistas in the project region include Box Springs Mountains, Mount Russell foothills, and the Badlands to the north. The project site is located approximately 1.5 miles southeast of the Box Springs Mountains. The Proposed Project would be located within an urbanized setting adjacent to commercial and residential land uses. The Proposed Project would not introduce structures that would adversely affect scenic vistas of Box Springs Mountains, Mount Russell foothills, and the Badlands. Impacts would be less than significant.

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

Response:

The Proposed Project is not located within a state scenic highway (Caltrans 2020). State Route 60 (SR-60) is located approximately 800 feet north of the project site. SR-60 is classified as a Scenic Corridor by Moreno Valley's General Plan. However, various urban uses are located between the site and SR-60, including commercial and residential buildings that impede views of the site. The project site is vacant with minimal ruderal vegetative cover. There are no structures or rock outcroppings on the project site. The project site contains ornamental vegetation along its northern and eastern edge. No impact to scenic resources within a state scenic highway would occur.

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

Response:

The Proposed Project would develop an automobile gas station consisting of a convenience store, retail store, fuel canopy including regular and hydrogen fueling, hydrogen equipment room, and automated carwash. The project site has a General Plan land use designation of Commercial and a zoning designation of SP 204 CC. The primary purpose of the Community Commercial (CC) district is to provide for the general shopping needs of area residents and workers with a variety of business, retail, personal, and related or similar services. The Proposed Project would develop a gas station which would be compatible use with the project site's General Plan land use designation of commercial and zoning designation of SP 204 CC. The Proposed Project would develop facilities that, with the required CUP, would be consistent and compatible with the existing commercial land uses located adjacent to the project site. As such, the Proposed Project is not expected to substantially degrade the existing visual character or quality of public views of the project site or its surroundings. No impact would occur.

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

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Response:

The Proposed Project would include light fixtures for parking areas within the project site. These light fixtures would provide increased visibility to driveways. Light fixtures would be shielded and directed downward to avoid spillover effects to surrounding properties, and lighting will comply with Municipal Code requirements. The exterior finishes of proposed structures would have low glare properties. Impacts would be less than significant.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
   - Chapter 2 – Community Development Element – Section 2.3 – Community Design
   - Chapter 7 – Conservation Element – Section 7.8 – Scenic Resources
     - Figure 7-2 – Major Scenic Resources
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
   - Section 5.11 – Aesthetics
     - Figure 5.11-1 – Major Scenic Resources
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
   - Section 9.10.110 – Light and Glare of the Moreno Valley Municipal Code
   - Chapter 9.16 – Design Guidelines
   - Section 9.17.030 G – Heritage Trees
4. Caltrans 2020 - Scenic Highways. Available at https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways. Accessed on June 17, 2020.

II. AGRICULTURE AND FOREST RESOURCES – In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest protocols adopted by the California Air Resources Board.
Would the project:

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

Response:

The Proposed Project is not located on farmland or within the vicinity of any farmland uses (City of Moreno Valley 2019). The California Mapping and Monitoring Program, Important Farmland Map for Riverside County does not list the soils on the project site as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) (DOC 2017). Therefore, the Proposed Project would not convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) to non-agricultural use. No impact would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒

Response:

The project site is zoned for Community Commercial (SP 204 CC) and is not located in an agricultural use zone. According to the California Department of Conservation Williamson Act Parcels Map for Riverside County, the project site is not subject to a Williamson Act Contract (DOC 2016). Therefore, the

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Proposed Project would not result in a conflict with an agricultural use zoning designation or a Williamson Act contract. No impact would occur.				
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))?	☐	☐	☐	☒
Response: The project site is zoned for Community Commercial (SP 204 CC) and not zoned for forest land. The project site is currently undeveloped and does not contain forestland or timberland. Surrounding areas are developed with commercial and residential land uses. No impact would occur.				
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
Response: Please see the response to question c), above. No impact would occur.				
e) Involve other changes in the existing environment which, due to their location or nature, could result in the conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒
Response: The project site and the surrounding properties are not currently used for agriculture. The Proposed Project would not result in the conversion of forest land to non-forest use. No impact would occur.				
Sources: 1. Moreno Valley General Plan, adopted July 11, 2006 • Chapter 7 – Conservation Element – Section 7.7 – Agricultural Resources 2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006 • Section 5.8 – Agricultural Resources - Figure 5.8-1 – Important Farmlands 3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code 4. Moreno Valley Land Use Map, 2019 5. California Department of Conservation, Riverside County Williamson Act FY 2015-2016 Sheet 1 of 3, Map, 2016. 6. California Department of Conservation, Riverside County Important Farmland 2016, Sheet 1 of 3, Map published July 2017.				
III. AIR QUALITY – Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations. **Would the project:**				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
Response: The project area is located in the City of Moreno Valley, Riverside County. The California Air Resource Board (CARB) has divided California into regional air basins according to topographic features. Moreno Valley lies in a region identified as the South Coast Air Basin (SoCAB). The local air quality agency affecting the SoCAB is the South Coast Air Quality Management District (SCAQMD), which is charged				

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

with the responsibility of implementing air quality programs and ensuring that national and state ambient air quality standards are not exceeded and that air quality conditions are maintained in the SoCAB. In an attempt to achieve national and state ambient air quality standards and maintain air quality, the air district has completed several air quality attainment plans and reports, which together constitute the State Implementation Plan (SIP) for the portion of the SoCAB encompassing the Proposed Project. The SCAQMD has also adopted various rules and regulations for the control of stationary and area sources of emissions.

Both the U.S. Environmental Protection Agency (USEPA) and the CARB have established ambient air quality standards for common pollutants. These ambient air quality standards are levels of contaminants representing safe levels that avoid specific adverse health effects associated with each pollutant. The ambient air quality standards cover what are called “criteria” pollutants because the health and other effects of each pollutant are described in criteria documents. The six criteria pollutants are ozone (O_3) (O_3 precursor emissions include nitrogen oxide (NO_x) and reactive organic gases (ROG)), carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and lead. Areas that meet ambient air quality standards are classified as attainment areas, while areas that do not meet these standards are classified as nonattainment areas. The Riverside County portion of the SoCAB region is designated as a nonattainment area for the federal O_3 and fine particulate matter ($PM_{2.5}$) and is also a nonattainment area for the state standards for O_3, coarse particulate matter (PM_{10}), and $PM_{2.5}$.

The SCAQMD is required, pursuant to the federal Clean Air Act (CAA), to reduce emissions of criteria pollutants for which the SoCAB is in nonattainment. In order to reduce such emissions, the SCAQMD drafted the 2016 Air Quality Management Plan (AQMP). The 2016 AQMP establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving state (California) and national air quality standards. The 2016 AQMP is a regional and multi-agency effort including the SCAQMD, CARB, the Southern California Association of Governments (SCAG), and the USEPA. The plan’s pollutant control strategies are based on the latest scientific and technical information and planning assumptions, including SCAG’s 2016 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS), updated emission inventory methodologies for various source categories, and SCAG’s latest growth forecasts. (SCAG’s latest growth forecasts were defined in consultation with local governments and with reference to local general plans.) The Proposed Project is subject to the SCAQMD’s AQMP.

According to the SCAQMD, in order to determine consistency with SCAQMD’s air quality planning two main criteria must be addressed.

Criterion 1:

With respect to the first criterion, SCAQMD methodologies require that an air quality analysis for a project include forecasts of project emissions in relation to contributing to air quality violations and delay of attainment.

a) Would the project result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new air quality violations?

As shown in Tables III-1, III-2, and III-3, the Proposed Project would result in emissions that would be below the SCAQMD regional and localized thresholds during both construction and operations. Therefore, the Proposed Project would not result in an increase in the frequency or severity of existing air quality violations and would not have the potential to cause or affect a violation of the ambient air quality standards.

b) Would the project delay timely attainment of air quality standards or the interim emissions reductions specified in the AQMP?

As shown in Tables III-1 and III-3, the Proposed Project would be below the SCAQMD regional thresholds for construction and operations. Since the Proposed Project would result in less than significant regional emission impacts, it would not delay the timely attainment of air quality standards or AQMP emissions reductions.

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Criterion 2:

With respect to the second criterion for determining consistency with SCAQMD and SCAG air quality policies, it is important to recognize that air quality planning within the SoCAB focuses on attainment of ambient air quality standards at the earliest feasible date. Projections for achieving air quality goals are based on assumptions regarding population, housing, and growth trends. Thus, the SCAQMD's second criterion for determining Project consistency focuses on whether or not the proposed Project exceeds the assumptions utilized in preparing the forecasts presented its air quality planning documents. Determining whether or not a project exceeds the assumptions reflected in the 2016 AQMP involves the evaluation of the three criteria outlined below. The following discussion provides an analysis of each of these criteria.

a) Would the project be consistent with the population, housing, and employment growth projections utilized in the preparation of the 2016 AQMP?

A project is consistent with regional air quality planning efforts in part if it is consistent with the population, housing, and employment assumptions that were used in the development of the SCAQMD air quality plans. Generally, three sources of data form the basis for the projections of air pollutant emissions in Moreno Valley. Specifically, SCAG's Growth Management Chapter of the Regional Comprehensive Plan and Guide (RCPG) provides regional population forecasts for the region and SCAG's 2016 RTP/SCS provides socioeconomic forecast projections of regional population growth. The City of Moreno Valley General Plan is referenced by SCAG in order to assist forecasting future growth in Moreno Valley.

The Proposed project site has a General Plan land use designation of "Commercial". The Commercial land use designation is intended for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services. The Project is proposing an automobile gas station consisting of a convenience store, retail store, fuel canopy, and automated carwash along with various other improvements such as installation of driveways and sewer connections. The Project is not proposing to amend the City General Plan and is consistent with all land use designations applied to the site. Additionally, the Proposed Project is considered 'infill development' as it proposes to develop a property in a rapidly urbanizing area surrounded by predominately urban residential uses. As a result of proposing a mix of commercial land uses in an area devoid of such uses and surrounded heavily by residences, the Proposed Project can be identified for its "location efficiency". Location efficiency describes the location of the Proposed Project relative to the type of urban landscape its proposed to fit within. In general, compared to the statewide average, a project with location efficiency can realize automotive vehicle mile trip (VMT) reductions between 10 and 65 percent (CAPCOA 2017). The Proposed Project would locate complementary commercial land uses in close to proximity to existing offsite residential uses, thereby providing commercial and work options to the existing, nearby residents currently living near the site. The location efficiency of the project site would result in synergistic benefits that would reduce vehicle trips and VMT compared to the statewide average and would result in corresponding reductions in transportation-related emissions, a primary goal of the 2016 AQMP. Thus, the Proposed Project is consistent with the City of Moreno Valley General Plan and is therefore consistent with the types, intensity, and patterns of land use envisioned for the site vicinity in the 2016 RTP/SCS and RCPG. As a result, the Proposed Project would not conflict with the land use assumptions or exceed the population or job growth projections used by SCAQMD to develop the 2016 AQMP. The City's population, housing, and employment forecasts, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the City; and these are used by SCAG in all phases of implementation and review. Additionally, as the SCAQMD has incorporated these same projections into their air quality planning efforts, it can be concluded that the Proposed Project would be consistent with the projections. (SCAG's latest growth forecasts were defined in consultation with local governments and with reference to local general plans.) Therefore, the Proposed Project would be considered consistent with the population, housing, and employment growth projections utilized in the preparation of SCAQMD's air quality plans.

b) Would the project implement all feasible air quality mitigation measures?

In order to further reduce emissions, the Proposed Project would be required to comply with emission reduction measures promulgated by the SCAQMD, such as SCAQMD Rules 402, 403, 1113, and 1401.

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

SCAQMD Rule 402 prohibits the discharge, from any source whatsoever, in such quantities of air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or that endanger the comfort, repose, health, or safety of any such persons or the public, or that cause, or have a natural tendency to cause, injury or damage to business or property. SCAQMD Rule 403 requires fugitive dust sources to implement Best Available Control Measures for all sources, and all forms of visible PM are prohibited from crossing any property line. SCAQMD Rule 403 is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust. SCAQMD Rule 1113 requires manufacturers, distributors, and end-users of architectural and industrial maintenance coatings to reduce ROG emissions from the use of these coatings, primarily by placing limits on the ROG content of various coating categories. Rule 1401 requires new source review of any new, relocated, or modified permit units that emit toxic air contaminants (TACs), including gasoline stations. The rule establishes allowable risks for permit units requiring air quality permits. As such, the Proposed Project meets this consistency criterion.

c) Would the project be consistent with the land use planning strategies set forth by SCAQMD air quality planning efforts?

The AQMP contains air pollutant reduction strategies based on SCAG's latest growth forecasts, and SCAG's growth forecasts were defined in consultation with local governments and with reference to local general plans. The Proposed Project is consistent with the land use designation and development density presented in the City's General Plan and therefore, would not exceed the population or job growth projections used by the SCAQMD to develop the AQMP.

In conclusion, the determination of AQMP consistency is primarily concerned with the long-term influence of a project on air quality. The Proposed Project would not result in a long-term impact on the region's ability to meet state and federal air quality standards. The Proposed Project's long-term influence would also be consistent with the goals and policies of the SCAQMD's 2016 AQMP.

The Proposed Project would be consistent with the emission-reduction goals of the 2016 AQMP. No impact would occur.

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

Response:

By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's individual emissions exceed its identified significance thresholds, the project would be cumulatively considerable. Projects that do not exceed significance thresholds would not be considered cumulative considerable.

A portion of the Proposed Project's air quality impacts are attributable to construction activities. The majority of the long-term air quality impacts would be due to the operation of motor vehicles traveling to and from the site as well as fueling activities on the Project site. For purposes of impact assessment, air quality impacts have been separated into construction impacts and operational impacts.

Regional Construction Emission Impacts

Construction-generated emissions are temporary and short-term but have the potential to represent a significant air quality impact. Three basic sources of short-term emissions will be generated through construction of the Proposed Project: operation of the construction vehicles (i.e., excavators, trenchers, dump trucks), the creation of fugitive dust during clearing and grading, and the use of asphalt or other oil-based substances during paving activities. Construction activities such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils would generate exhaust emissions and fugitive PM emissions that affect local air quality at various times during construction. Effects would be variable depending on the weather, soil conditions, the amount of activity taking place,

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and the nature of dust control efforts. The dry climate of the area during the summer months creates a high potential for dust generation. Construction activities would be subject to SCAQMD Rule 403, which requires taking reasonable precautions to prevent the emissions of fugitive dust, such as using water or chemicals, where possible, for control of dust during the clearing of land and other construction activities.

Construction-generated emissions associated with the Proposed Project were calculated using the CARB-approved California Emissions Estimator Model (CalEEMod) version 2016.3.2 computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. See Appendix A for more information regarding the construction assumptions, including construction equipment and duration, used in this analysis.

Predicted maximum daily construction-generated emissions for the Proposed Project are summarized in Table III-1. Construction-generated emissions are short-term and of temporary duration, lasting only as long as construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the SCAQMD's thresholds of significance.

Table III-1. Construction-Related Emissions (Regional Significance Analysis)

Construction Year	Pollutant (pounds per day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Year 2021	4.24	42.28	29.23	0.10	5.00	2.69
Year 2022	3.91	25.84	28.86	0.04	1.60	1.29
SCAQMD Regional Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Exceeds SCAQMD Regional Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Sources: CalEEMod version 2016.3.2. Refer to Appendix A for Model Data Outputs.
Notes: Emission reduction/credits for construction emissions are applied based on the required implementation of SCAQMD Rule 403. The specific Rule 403 measures applied in CalEEMod include the following: sweeping/cleaning adjacent roadway access areas daily; washing equipment tires before leaving the construction site; water exposed surfaces three times daily; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the SCAQMD CEQA Handbook (Tables XI-A through XI-E) were applied.

As shown in Table III-1, emissions generated during Proposed Project construction would not exceed the SCAQMD's regional thresholds of significance. Therefore, criteria pollutant emissions generated during Project construction would not result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard. A less than significant impact would occur as a result of construction of the Proposed Project.

Construction Localized Significance Threshold

The nearest sensitive receptors to the project site are residences located to the south and west. The closest residences are located approximately 90 feet to the west of the project site across Graham Street. In order to identify localized, air toxic-related impacts to sensitive receptors, the SCAQMD recommends addressing Localized Significance Thresholds (LSTs) for construction. LSTs were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the Final Localized Significance Threshold Methodology (dated June 2003 [revised 2008b]) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with Project-specific level proposed projects. Additionally, mass rate look-up tables by SCAQMD-demarcated source receptor areas (SRAs) are used by agencies to determine whether or not a project may generate

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

significant adverse localized air quality impacts. SCAQMD SRAs are categorized based on existing ambient pollutant concentrations and meteorological conditions. The SCAQMD divides the SoCAB into 38 SRAs to forecast and report air quality.

For this Proposed Project, the appropriate SRA for the localized significance thresholds is SRA 24 (Perris Valley). LSTs apply to CO, NO_x, PM_{10}, and $PM_{2.5}$. The Proposed Project would disturb ±2.18 acres during construction. The SCAQMD has produced lookup tables for projects that disturb less than or equal to five acres daily. The SCAQMD has also issued guidance on applying the CalEEMod emissions software to LSTs for projects greater than five acres. The CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily soil disturbance activity possible for each piece of equipment.

LST thresholds are provided for distances to sensitive receptors of 25, 50, 100, 200, and 500 meters. The nearest sensitive receptors to the project site are the residences to the south and west, with the closest approximately 90 feet distant (27 meters). Therefore, LSTs for receptors located at 25 meters were utilized in this analysis. The SCAQMD's methodology clearly states that "offsite mobile emissions from a project should not be included in the emissions compared to LSTs." Therefore, for purposes of the construction LST analysis, only emissions included in the CalEEMod "onsite" emissions outputs were considered. Table III-2 presents the results of localized emissions.

Table III-2. Construction-Related Emissions (Localized Significance Analysis)

Construction Activity 2021	Pollutant (pounds per day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Site Preparation	18.28	10.74	1.46	0.73
Grading	20.21	9.76	3.88	2.36
Building Construction, Paving, & Painting 2021	28.18	28.14	1.48	1.40
Building Construction, Paving, & Painting 2022	25.33	27.85	1.26	1.20
SCAQMD Regional Significance Threshold	*170*	*883*	*7*	*4*
Exceeds SCAQMD Regional Threshold?	**No**	**No**	**No**	**No**

Sources: CalEEMod version 2016.3.2. Refer to Appendix A for Model Data Outputs.
Notes: Emission reduction/credits for construction emissions are applied based on the required implementation of SCAQMD Rule 403. The specific Rule 403 measures applied in CalEEMod include the following: sweeping/cleaning adjacent roadway access areas daily; washing equipment tires before leaving the construction site; water exposed surfaces three times daily; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the SCAQMD CEQA Handbook (Tables XI-A through XI-E) were applied.

Table III-2 shows that the emissions of these pollutants on the peak day of construction would not result in significant concentrations of pollutants at nearby sensitive receptors. Therefore, significant impacts would not occur concerning LSTs during construction activities. LSTs were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative. The SCAQMD Environmental Justice Enhancement Initiative program seeks to ensure that everyone has the right to equal protection from air pollution. The Environmental Justice Program is divided into three categories, with the LST protocol promulgated under Category I: Further-Reduced Health Risk. Thus, the fact that onsite Project construction emissions would be generated at rates below the LSTs for NO_x, CO, PM_{10}, and $PM_{2.5}$ demonstrates that the Proposed Project would likely not adversely impact the neighboring sensitive receptors in the vicinity of the Proposed Project. Therefore, a less than significant impact would occur as a result of the Proposed Project. No mitigation is required.

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Regional Operational Emission Impacts

Implementation of the Proposed Project would result in long-term operational emissions of criteria air pollutants such as PM_{10}, $PM_{2.5}$, CO, and SO_2 as well as ozone precursors such as ROG and NO_X. Project-generated increases in emissions would be predominantly associated with motor vehicle use. Operational air pollutant emissions were based on the project site plans and the estimated traffic trip generation rates from K2 Traffic Engineering, Inc. (2020).

Long-term operational emissions attributable to the Proposed Project are identified in Table III-3 and compared to the regional operational significance thresholds promulgated by the SCAQMD.

Table III-3. Operational-Related Emissions (Regional Significance Analysis)

Construction Year	Pollutant (pounds per day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Summer Emissions						
Area	12.93	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.08	0.07	0.00	0.00	0.00
Mobile	1.93	11.36	11.89	0.05	3.00	0.82
Total:	14.86	11.44	11.96	0.05	3.00	0.82
SCAQMD Regional Significance Threshold	55	55	550	150	150	55
Exceeds SCAQMD Regional Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Winter Emissions						
Area	12.93	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.08	0.07	0.00	0.00	0.00
Mobile	1.57	11.13	11.44	0.04	3.00	0.82
Total:	14.50	11.21	11.51	0.04	3.00	0.82
SCAQMD Regional Significance Threshold	55	55	550	150	150	55
Exceeds SCAQMD Regional Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Sources: CalEEMod version 2016.3.2. Refer to Appendix A for Model Data Outputs.
Notes: Emissions projections account for a trip generation rate and fleet mix identified by K2 Traffic Engineering, Inc. (2020). Specifically, K2 Traffic Engineering, Inc. estimates the Project generation of 1,464 average vehicle trips daily. The traffic fleet mix defaults contained in the CalEEMod model are based on the average fleet mix of Riverside County.
Area source emissions for the gasoline station include ROG released from consumer products as well as gasoline vapor during dispensing activities. Gasoline vapor emissions are calculated based on an emission factor of 1.27 pounds of ROG per 1,000 gallons of gasoline dispensed (CAPCOA 1997) and the prediction of 3,600,000 gallons of gasoline dispensed annually as provided by the Project applicant [(3,600,000/1,000) x 1.27 = 4,572 pounds annually. 4,572/365) = 12.52 pounds daily].

As shown in Table III-3, the Proposed Project's emissions would not exceed any SCAQMD thresholds for any criteria air pollutants during operation.

The SoCAB is listed as a nonattainment area for federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for O_3, PM_{10}, and $PM_{2.5}$. O_3 is a health threat to persons who already suffer from respiratory diseases and can cause severe ear, nose and throat irritation and increases susceptibility to respiratory infections. Particulate matter can adversely affect the human respiratory system. As shown in Table III-3, the proposed Project would result in increased emissions of the O_3 precursor pollutants ROG and NO_x, PM_{10}, and $PM_{2.5}$, however, the correlation between a project's emissions and increases in nonattainment days, or frequency or severity of related illnesses, cannot be

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

accurately quantified. The overall strategy for reducing air pollution and related health effects in the SCAQMD is contained in the SCAQMD 2016 AQMP. The AQMP provides control measures that reduce emissions to attain federal ambient air quality standards by their applicable deadlines such as the application of available cleaner technologies, best management practices, incentive programs, as well as development and implementation of zero and near-zero technologies and control methods. The CEQA thresholds of significance established by the SCAQMD are designed to meet the objectives of the AQMP and in doing so achieve attainment status with state and federal standards. As noted above, the Proposed Project would increase the emission of these pollutants, but would not exceed the thresholds of significance established by the SCAQMD for purposes of reducing air pollution and its deleterious health effects. A less than significant impact would occur as a result of operation of the proposed Project. No mitigation is required.

Operational Localized Significance Threshold

According to the SCAQMD localized significance threshold methodology, LSTs would apply to the operational phase of a proposed project only if the project includes stationary sources (e.g., smokestacks) or attracts heavy-duty trucks that may spend long periods queuing and idling at the site (e.g., warehouse or transfer facilities). The Proposed Project does not include such uses. While the Proposed Project does propose gasoline dispensers, a source of the TAC, benzene, the SCAQMD LST protocol does not address this pollutant. Therefore, in the case of the Proposed Project, the operational phase LST protocol does not need to be applied. Therefore, significant impacts would not occur concerning LSTs during operational activities. A discussion of Project benzene emissions is provided below.

c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐

Response:

Sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest sensitive receptors to the project site are residences located 90 feet to the west.

Construction-Generated Air Contaminants

Construction-related activities would result in temporary, short-term Proposed Project-generated emissions of diesel particulate matter (DPM), ROG, NO_x, CO, and PM_{10} from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., clearing, grading); soil hauling truck traffic; paving; and other miscellaneous activities. However, as shown in Table III-1 and Table III-3 the Proposed Project would not exceed SCAQMD emission thresholds. The portion of the SoCAB which encompasses the project area is designated as a nonattainment area for federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for O_3, PM_{10}, and $PM_{2.5}$. Thus, existing these levels in the SoCAB are at unhealthy levels during certain periods.

The health effects associated with O_3 are generally associated with reduced lung function. Because the Proposed Project would not involve construction activities that would result in O_3 precursor emissions (ROG or NO_3) in excess of the SCAQMD thresholds, the Proposed Project is not anticipated to substantially contribute to regional O_3 concentrations and the associated health impacts.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. The Project would not involve construction activities that would result in CO emissions in excess of the SCAQMD thresholds. Thus, the Proposed Project's CO emissions would not contribute to the health effects associated with this pollutant.

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Particulate matter (PM_{10} and $PM_{2.5}$) contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing. For construction activity, DPM is the primary TAC of concern. Particulate exhaust emissions from diesel-fueled engines (i.e., DPM) were identified as a TAC by the CARB in 1998. The potential cancer risk from the inhalation of DPM, as discussed below, outweighs the potential for all other health impacts (i.e., non-cancer chronic risk, short-term acute risk) and health impacts from other TACs. Based on the emission modeling conducted, the maximum onsite construction-related daily emissions of exhaust $PM_{2.5}$, considered a surrogate for DPM, would be 1.41 pounds/day during 2021 construction activities and 1.20 pounds/day during 2022 construction activities (see Appendix A). ($PM_{2.5}$ exhaust is considered a surrogate for DPM because more than 90 percent of DPM is less than 1 microgram in diameter and therefore is a subset of particulate matter under 2.5 microns in diameter (i.e., $PM_{2.5}$). Most $PM_{2.5}$ derives from combustion, such as use of gasoline and diesel fuels by motor vehicles.) As with O_3 and CO, the Proposed Project would not generate emissions of PM_{10} or $PM_{2.5}$ that would exceed the SCAQMD's thresholds. Additionally, the Proposed Project would be required to comply with SCAQMD Rule 403, which limits the amount of fugitive dust generated during construction. Accordingly, the Proposed Project's PM_{10} and $PM_{2.5}$ emissions are not expected to cause any increase in related regional health effects for these pollutants.

In summary, construction-related TAC emissions would not expose sensitive receptors to substantial amounts of air toxics. Thus, the Proposed Project would not result in a potentially significant contribution to regional or localized concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants.

Furthermore, the Proposed Project has been evaluated against the SCAQMD's LSTs for construction. LSTs were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative and can be used to assist lead agencies in analyzing localized impacts associated with Project-specific level of proposed projects. The SCAQMD Environmental Justice Enhancement Initiative program seeks to ensure that everyone has the right to equal protection from air pollution. The Environmental Justice Program is divided into three categories, with the LST protocol promulgated under Category I: Further-Reduced Health Risk. As shown in Table III-3, the emissions of pollutants on the peak day of construction would not result in significant concentrations of pollutants at nearby sensitive receptors. Thus, the fact that onsite Project construction emissions would be generated at rates below the LSTs for NO_x, CO, PM_{10}, and $PM_{2.5}$ demonstrates that the Proposed Project would likely not adversely impact nearby sensitive receptors.

Operational-Generated Air Contaminants

Cancer Risk

Operation of the Proposed Project would result in the development of sources of air toxins. Specifically, the Proposed Project would be a source of gasoline vapors such as benzene, methyl tertiary-butyl ether, toluene, and xylene. CARB identifies benzene as a TAC and is the primary TAC of concern associated with gas stations. Benzene is highly carcinogenic and occurs throughout California. According to the California Air Pollution Control Officers Association (CAPCOA), benzene is the most important substance driving cancer risk, while xylene, another air toxic associated with gasoline stations, is the only substance which is associated with acute adverse health effects (CAPCOA 1997). According to CAPCOA, not until the benzene emissions are three orders of magnitude above the rate of an increase of 10 per million cancer risk, do the emissions of xylene begin to cause acute adverse health effects. According to SCAQMD's 2015 Risk Assessment Procedures for Rules 1401, 1401.1, & 212, benzene is the TAC which drives potential health risk, accounting for 87 percent of cancer risk from gasoline vapors. Benzene also has non-cancer health effects. Furthermore, a review of SCAQMD's 2015 Risk Assessment Procedures for Rules 1401, 1401.1, & 212 shows that benzene constitutes more than three to four times the weight of gasoline than ethylbenzene and naphthalene, respectively. The majority of benzene emitted in California comes from motor vehicles, including evaporative leakage and unburned fuel exhaust.

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Gasoline vapors, including benzene, are released during the filling of stationary underground storage tanks and during the transfer from those underground tanks to individual vehicles. As the Proposed Project is proposing to dispense gasoline, the cancer risk at nearby land uses was calculated using the SCAQMD Risk Tool (Appendix B). The Risk Tool is used by the SCAQMD and CAPCOA to calculate the cancer risk per 10 million people based on SRA, location of the storage tanks, annual throughput, and distance to nearby receptors.

The proposed underground storage tanks and fueling canopy will be located approximately 130 feet (39 meters) and from the nearest residence and approximately 193 feet (58 meters) from the nearest commercial land use. As previously mentioned, the project site is located in Perris Valley SRA and is anticipating an annual throughput of 3.6 million gallons per year. Based on this information it is calculated, using the SCAQMD Risk Tool, that the cancer risk for the Proposed Project is 8.17 per one million for the nearby residential land uses and 0.33 per one million for the commercial land use. Both of these values are under the SCAQMD threshold of 10 per 1 million.

Additionally, the SCAQMD has stringent requirements for the control of gasoline vapor emissions from gasoline-dispensing facilities. SCAQMD Rule 461, Gasoline Transfer and Dispensing, seeks to limit emissions of organic compounds from gasoline dispensing facilities. Rule 461 prohibits the transfer or allowance of the transfer of gasoline into stationary tanks at a gasoline dispensing facility unless a CARB-certified Phase I vapor recovery system is used, and further prohibits the transfer or allowance of the transfer of gasoline from stationary tanks into motor vehicle fuel tanks at a gasoline dispensing facility unless a CARB-certified Phase II vapor recovery system is used during each transfer. Vapor recovery systems collect gasoline vapors that would otherwise escape into the air during bulk fuel delivery (Phase I) or fuel storage and vehicle refueling (Phase II). Phase I vapor recovery system components include the couplers that connect tanker trucks to the underground tanks, spill containment drain valves, overfill prevention devices, and vent pressure/vacuum valves. Phase II vapor recovery system components include gasoline dispensers, nozzles, piping, break away hoses, face plates, vapor processors, and system monitors. Rule 461 also requires fuel storage tanks to be equipped with a permanent submerged fill pipe tank that prevents the escape of gasoline vapors. In addition, all gasoline must be stored underground with valves installed on the tank vent pipes to further control gasoline emissions.
Gasoline dispensing facilities are also regulated by SCAQMD Rule 1401, *New Source Review of Toxic Air Contaminants*, which provides for the review of TAC emissions in order to evaluate potential public exposure and health risk, to mitigate potentially significant health risks resulting from these exposures, and to provide net health risk benefits by improving the level of control when existing sources are modified or replaced. Pursuant to SCAQMD Rule 1401, stationary sources having the potential to emit TACs, including gas stations, are required to obtain permits from the SCAQMD. Permits may be granted to these operations provided they are operated in accordance with applicable SCAQMD rules and regulations. The SCAQMD's permitting procedures require substantial control of emissions, and permits are not issued unless TAC risk screening or TAC risk assessment can show that risks are not significant. The SCAQMD may impose limits on annual throughput to ensure risks are within acceptable limits. (In addition, California has statewide limits on the benzene content in gasoline, which greatly reduces the toxic potential of gasoline emissions.)

Naturally Occurring Asbestos

Another potential air quality issue associated with construction-related activities is the airborne entrainment of asbestos due to the disturbance of naturally-occurring asbestos-containing soils. The proposed Project is not located within an area designated by the State of California as likely to contain naturally-occurring asbestos (Department of Conservation [DOC] 2000). As a result, construction-related activities would not be anticipated to result in increased exposure of sensitive land uses to asbestos

Carbon Monoxide Hot Spots

It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when idling at intersections. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Under certain meteorological conditions, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Given the high traffic volume potential,

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

areas of high CO concentrations, or “hot spots,” are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. However, transport of this criteria pollutant is extremely limited, and CO disperses rapidly with distance from the source under normal meteorological conditions. Furthermore, vehicle emissions standards have become increasingly more stringent in the last 20 years. In 1993, the SoCAB was designated nonattainment under the CAAQS and NAAQS for CO. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the SoCAB is now designated as attainment. Detailed modeling of Project-specific CO “hot spots” is not necessary and thus this potential impact is addressed qualitatively.

A CO “hot spot” would occur if an exceedance of the state one-hour standard of 20 parts per million (ppm) or the eight-hour standard of 9 ppm were to occur. The analysis prepared for CO attainment in the SCAQMD’s *1992 Federal Attainment Plan for Carbon Monoxide* in Los Angeles County and a Modeling and Attainment Demonstration prepared by the SCAQMD as part of the 2003 AQMP can be used to demonstrate the potential for CO exceedances of these standards. The SCAQMD conducted a CO hot spot analysis as part of the 1992 CO Federal Attainment Plan at four busy intersections in Los Angeles County during the peak morning and afternoon time periods. The intersections evaluated included Long Beach Boulevard and Imperial Highway (Lynwood), Wilshire Boulevard and Veteran Avenue (Westwood), Sunset Boulevard and Highland Avenue (Hollywood), and La Cienega Boulevard and Century Boulevard (Inglewood). The busiest intersection evaluated was at Wilshire Boulevard and Veteran Avenue, which has a traffic volume of approximately 100,000 vehicles per day. Despite this level of traffic, the CO analysis concluded that there was no violation of CO standards (SCAQMD 1992). To establish a more accurate record of baseline CO concentrations affecting the SoCAB, a CO “hot spot” analysis was conducted in 2003 at the same four busy intersections in Los Angeles at the peak morning and afternoon time periods. This “hot spot” analysis did not predict any violation of CO standards. The highest one-hour concentration was measured at 4.6 ppm at Wilshire Boulevard and Veteran Avenue and the highest eight-hour concentration was measured at 8.4 ppm at Long Beach Boulevard and Imperial Highway.

Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD) concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact.

The greatest average daily trips instigated by the Proposed Project is predicted to be 1,464. This projected amount of traffic is lower than the highest daily traffic volumes at Wilshire Boulevard and Veteran Avenue of 100,000 vehicles per day.

As such, Project-related traffic volumes are less than the traffic volumes identified in the 2003 AQMP. The Project considered herein would not produce the volume of traffic required to generate a CO “hot spot” either in the context of the 2003 Los Angeles hot spot study or based on representative BAAQMD CO threshold considerations. Therefore, CO “hot spots” are not an environmental impact of concern for the Proposed Project. Localized air quality impacts related to mobile source emissions would not be a concern.

The impact is less than significant. No mitigation is required.

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

Response:

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).
With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

According to the SCAQMD, land uses commonly considered to be potential sources of obnoxious odorous emissions include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The Proposed Project does not include any uses identified by the SCAQMD as being associated with odors. Additionally, the Project is required to comply with SCAQMD Rule 461, which would reduce the source of unpleasant odors during gasoline transfer and dispensing. Therefore, a less than significant impact would occur.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
   - Chapter 5 – Circulation Element
   - Chapter 6 – Safety Element – Section 6.6 – Air Quality
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
   - Section 5.3 – Air Quality
     - Figure 5.3-1 – South Coast Air Basin
   - Appendix C – Air Quality Analysis, P&D Consultants, July 2003
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
   - Section 9.10.050 – Air Quality of the Moreno Valley Municipal Code
   - Section 9.10.150 – Odors of the Moreno Valley Municipal Code
   - Section 9.10.170 – Vibration of the Moreno Valley Municipal Code
4. Moreno Valley Municipal Code Section 12.50.040 – Limitations on Engine Idling
5. CAPCOA. 1997. Gasoline Service Station Industrywide Risk Assessment Guidelines.
   - 2017. California Emissions Estimator Model (CalEEMod), version 2016.3.2.
6. SCAQMD. 2017. Multiple Air Toxics Exposure Study V (MATES V).
   - 2015a. 2015 Risk Assessment Procedures for Rules 1401, 1401.1, & 212.
   - 2015b. Multiple Air Toxics Exposure Study IV (MATES IV).
   - 2009. Localized Significance Threshold Appendix C – Mass Rate LST Look-Up Tables. Revised October 21, 2009. http://www.aqmd.gov/ceqa/handbook/LST/LST.html.
   - 2008a. Multiple Air Toxics Exposure Study III (MATES III).
   - 2008b. Final Localized Significance Threshold Methodology (dated June 2003 [revised 2008]).
   - 2003. Air Quality Management Plan.
   - 1993. CEQA Air Quality Handbook.

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
• 1992. 1992 Federal Attainment Plan for Carbon Monoxide.				
IV. BIOLOGICAL RESOURCES – Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒

Response:

A biological assessment including protocol surveys for burrowing owl (Phase I & II Surveys) was completed for the Proposed Project by Pacific Southwest Biological Services Inc. (PSBS) in 2019 (PSBS 2019). The results of this assessments are summarized below.

Special Status Plants

No special-status plant species were detected within the project site. The project site is entirely disturbed and dominated by non-native annuals, such as slender wild oat (*Avena barbata*) and pigweed (*Amaranthus albus*). The project site is also regularly disked. No impacts to special-status plant species are anticipated.

Special Status Wildlife

The project site is entirely disturbed and is regularly disked; therefore, the habitat quality for wildlife is low. During the field survey conducted as part of the biological assessment twelve species of animals were detected on the project site, including a reptile, nine avian species, and two mammals. No special-status species wildlife species were observed.

Burrowing Owl

The project site is within a Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) burrowing owl survey area. Protocol surveys for burrowing owl were completed at the project site in 2019 (PSBS 2019). No burrows, burrowing owls, or burrowing owl sign were observed on the project site (PSBS 2019). The project site was determined to provide unsuitable burrowing owl habitat due to the absence of active ground squirrel burrows, berms, and proximity to developed commercial land uses. Furthermore, the project site is disked regularly. No impact would occur.

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

Response:

As previously discussed, the project site is entirely disturbed and dominated by non-native annuals. There is no riparian habitat or other sensitive natural community present on the project site. No impact would occur.

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?	☐	☐	☐	☒

Response:

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
There are no wetlands on the project site. No impact would occur.				
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with an established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒
Response: The project site is disturbed and isolated by the surrounding residential and commercial uses and by the presence of canine and feline pets. The project site provides no corridor function due to the presence of the surrounding development with major highways and arterial roadways. No impact would occur.				
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
Response: There are no applicable local ordinances related to biological resources; therefore, the Proposed Project would be consistent with local ordinances. No impact would occur.				
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or another approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

Response:

The project site is within the Western Riverside County MSHCP Plan Area and must comply with applicable sections of the MSHCP as well as pay the applicable MSHCP Development Mitigation Fee. The project site is not within criteria cell groups of the MSHCP.

MSHCP Section 6.1.2 Riparian/Riverine Resources

The project site does not support riverine resources as defined by the MSHCP.

MSHCP Section 6.1.4 Urban/Wildlife Interface Guidelines

The project site is disturbed and isolated by the surrounding residential and commercial uses and by the presence of canine and feline pets. The project site provides no corridor function due to the presence of the surrounding development with major highways and arterial roadways.

MSHCP Section 6.3.2 Additional Survey Needs and Procedures

As discussed in the response to question a), the project site is within a MSHCP burrowing owl survey area. No burrows, burrowing owls, or burrowing owl sign were observed on the project site (PSBS 2019). The project site was determined to provide unsuitable burrowing owl habitat due to the absence of active ground squirrel burrows, berms, and proximity to developed commercial land uses. No impact would occur.

Stephens' Kangaroo Rat Habitat Conservation Plan

The project site is within the Stephens' Kangaroo Rat Habitat Conservation Plan boundary. With payment of the Stephens' Kangaroo Rat Habitat Conservation Plan Development Mitigation Fee, the Proposed Project would be consistent with the Stephens' Kangaroo Rat Habitat Conservation Plan. No impact would occur.

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
   - Chapter 7 – Conservation Element – Section 7.1 – Biological Resources
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
   - Section 5.9 – Biological Resources
     - Figure 5.9-1 – Planning Area Biological Geographic Sections
     - Figure 5.9-2 – Planning Area Vegetation Community
     - Figure 5.9-3 – Project Site Location within the MSHCP Area
     - Figure 5.9-4 – Reche Canyon/Badlands Area Plan
   - Appendix E – Biological Resources Study, Appendix E
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
   - Section 9.17.030 G – Heritage Trees
4. Moreno Valley Municipal Code Chapter 8.60 – Threatened and Endangered Species
5. Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), http://www.wrc-rca.org/about-rca/multiple-species-habitat-conservation-plan/
6. Stephens' Kangaroo Rat Habitat Conservation Plan (SKRHCP), Governing Documents | RCHCA, CA

V. CULTURAL RESOURCES – Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☒	☐	☐

Response:

A Phase I Cultural Resources Survey was completed for the Proposed Project in 2019 by Brian F. Smith and Associates, Inc. (BFSA) (BFSA 2019). A cultural resources records search was completed at the Eastern Information Center (EIC) at the University of California at Riverside (UCR) on December 2, 2019 to identify any previously recorded cultural resources or previous archaeological studies within a one-mile radius of the project site. The EIC records search results indicated that six cultural resources and 40 cultural resource studies are recorded within a one-mile radius of the project site. One study covers the project site (McCarthy 1987). A Sacred Lands Files (SLF) search from the Native American Heritage Commission (NAHC) was also requested, which indicated that no recorded Native American sacred sites or locations of religious or ceremonial importance are present within the vicinity of the project site.

A cultural resources survey of the project site was conducted on November 21, 2019. Survey conditions were generally good and ground visibility was good to excellent as much of the project site has been disturbed by historic agricultural uses, vegetation clearing, disking, grading, and development of the surrounding area. No prehistoric or historic cultural resources were identified during the survey and the records search results suggest a low potential for resources to be present in the project area (BFSA 2019).

The archaeological sensitivity of the project site is believed to be low; however, there always remains a possibility that unrecorded cultural resources are present beneath the ground surface, and that such resources may be exposed during project construction. If previously unrecorded historical resources are encountered during construction that could potentially be affected, implementation of Mitigation Measures **CUL-1** through **CUL-6** would reduce impacts to less than significant.

Mitigation Measure:

CUL-1: Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), including Agua Caliente Band of Cahuilla Indians, San Manuel Band of Mission Indians, and Soboba Band of Luiseño Indians, the contractor, and the City, shall develop a Cultural Resources

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:

a. Project grading and development scheduling;

b. The Project archeologist and the Consulting Tribes(s) as defined in CUL-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;

c. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

CUL-2: Prior to the issuance of a grading permit, the Developer shall secure agreements with the Agua Caliente Band of Cahuilla Indians, San Manuel Band of Mission Indians, and Soboba Band of Luiseño Indians for tribal monitoring. The Developer is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2.

CUL-3: In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:

a. One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department:

i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.

ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CUL-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CUL-1.

CUL-4: The City shall verify that the following note is included on the Grading Plan:

"If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."

CUL-5: If potential historic or cultural resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person meeting the Secretary of the Interior's standards (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all Consulting Native American Tribes as defined in CUL-1 before any further work commences in the affected area.

CUL-6: If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 24 hours of the published finding to be given a reasonable opportunity to identify the "most likely descendant". The "most likely descendant" shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐

Response:

No archaeological resources have been previously recorded on the project site and none were recorded during the field survey (BFSA 2019). However, there remains the possibility that unrecorded cultural resources could be present beneath the ground surface and, if present, may be exposed during project construction. With the implementation of Mitigation Measures **CUL-1** through **CUL-5** impacts to archaeological resources would be less than significant.

c) Disturb any human remains, including those interred outside of formally dedicated cemeteries?	☐	☒	☐	☐

Response:

Based on the records search from EIC, no formal cemeteries are located in or near the project site and no human remains have been reported in the project vicinity. Most Native American human remains are found in prehistoric archaeological sites. No prehistoric archaeological sites have been recorded within the project site. Therefore, the Proposed Project has little potential to disturb human remains. If potential human remains are encountered during construction the Proposed Project would comply with CEQA Guidelines Section 15064.5(e) and Assembly Bill 2641 with the implementation of Mitigation Measure **CUL-7**. With the implementation of Mitigation Measure **CUL-7** impacts would be less than significant.

Mitigation Measure:

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

CUL-7: If human remains of any kind are found during construction, the requirements of CEQA Guidelines § 15064.5(e) and AB 2641 shall be followed. According to these requirements, all construction activities must cease immediately and the Riverside County Coroner and a qualified archaeologist must be notified. The Coroner will examine the remains and determine the next appropriate action based on his or her findings. If the coroner determines the remains to be of Native American origin, he or she will notify the NAHC. The NAHC will then identify the most likely descendants (MLD) to be consulted regarding treatment and/or reburial of the remains. If an MLD cannot be identified, or the MLD fails to make a recommendation regarding the treatment of the remains within 48 hours after gaining access to the remains, the property owner shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
   - Chapter 7 – Conservation Element – Section 7.2 – Cultural and Historical Resources
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
   - Section 5.10 – Cultural Resources
     - Figure 5.10-1 – Locations of Listed Historic Resource Inventory Structures
     - Figure 5.10-2 – Location of Prehistoric Sites
     - Figure 5.10-3 – Paleontological Resource Sensitive Areas
   - Appendix F – Cultural Resources Analysis, Study of Historical and Archaeological Resources for the Revised General Plan, City of Moreno Valley, Archaeological Associates, August 2003.
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
4. Moreno Valley Municipal Code Title 7 – Cultural Preservation
5. Cultural Resources Inventory for the City of Moreno Valley, Riverside County, California, prepared by Daniel F. McCarthy, Archaeological Research Unit, University of California, Riverside, October 1987 (*This document cannot be provided to the public due to the inclusion of confidential information pursuant to Government Code Section 6254.10.*)

VI. ENERGY – Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐

Response:

Electricity/Natural Gas Services

Southern California Edison provides electrical services to the project site through state-regulated public utility contracts. Southern California Edison, the largest subsidiary of Edison International, is the primary electricity supply company for much of Southern California. It provides 14 million people with electricity across a service territory of approximately 50,000 square miles. The Southern California Gas Company provides natural gas services to the project area. Southern California Gas services approximately 21.6 million customers, spanning roughly 20,000 square miles of California.

Energy Consumption

Electricity use is measured in kilowatt-hours (kWh), and natural gas use is measured in therms. Vehicle fuel use is typically measured in gallons (e.g. of gasoline or diesel fuel), although energy use for electric vehicles is measured in kWh.

The electricity consumption associated with all non-residential uses in Riverside County from 2015 to 2019 is shown in Table VI-1. As indicated, the demand has remained constant since 2015.

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Table VI-1. Non-Residential Electricity Consumption in Riverside County 2015-2019	
Year	Non-Residential Electricity Consumption (kilowatt hours)
2019	8,183,222,878
2018	8,244,617,159
2017	8,234,637,414
2016	8,249,057,479
2015	8,187,145,456

Sources: CEC 2020

The natural gas consumption associated with all non-residential uses in Riverside County from 2015 to 2019 is shown in Table VI-2. As indicated, the demand has increased since 2015.

Table VI-2. Non-Residential Natural Gas Consumption in Riverside County 2015-2019	
Year	Non-Residential Natural Gas Consumption (therms)
2019	148,215,491
2018	139,190,918
2017	139,166,211
2016	143,274,204
2015	128,307,248

Sources: CEC 2020

Automotive fuel consumption in Riverside County from 2016 to 2020 is shown in Table VI-3. Fuel consumption has slightly decreased between 2016 and 2020.

Table VI-3. Automotive Fuel Consumption in Riverside County 2016-2020	
Year	Automotive Fuel Consumption (gallons)
2020	995,753,176
2019	1,004,639,936
2018	1,013,901,868
2017	1,022,096,262
2016	1,050,081,403

Sources: CARB 2017

The impact analysis focuses on the four sources of energy that are relevant to the Proposed Project: electricity, natural gas, the equipment-fuel necessary for Project construction, and the automotive fuel necessary for Project operations. Addressing energy impacts requires an agency to make a determination as to what constitutes a significant impact. There are no established thresholds of significance, statewide or locally, for what constitutes a wasteful, inefficient, and unnecessary consumption of energy for a proposed land use project. For the purpose of this analysis, the amount of electricity and natural gas estimated to be consumed by the Proposed Project is quantified and compared to that consumed by non-residential land uses in Riverside County. Similarly, the amount of fuel necessary for Project construction and operations is calculated and compared to that consumed in Riverside County.

The analysis of electricity gas usage is based on California Emissions Estimator Model (CalEEMod) modeling conducted by ECORP Consulting (see Appendix A), which quantifies energy use for Project operations. The amount of operational automotive fuel use was estimated using the CARB's EMFAC2017 computer program, which provides projections for typical daily fuel usage in Riverside County. The amount of total construction-related fuel use was estimated using ratios provided in the Climate Registry's General Reporting Protocol for the Voluntary Reporting Program, Version 2.1. Energy consumption associated with the proposed Project is summarized in Table VI-4.

Table VI-4. Proposed Project Energy and Fuel Consumption		
Energy Type	Annual Energy Consumption	Percentage Increase Countywide

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Electricity Consumption[1]	205,637 kilowatt-hours	0.0025 percent
Natural Gas[1]	3,219 therms	0.0021 percent
Project Construction 2021[2] Project Construction 2022[2]	46,700 gallons 2,660 gallons	0.0046 percent 0.0002 percent
Project Operations[3]	190,580 gallons	0.0191 percent

Source: [1]ECORP 2020; [2]Climate Registry 2016; [3]EMFAC2017 (CARB 2017)
Notes: The Project increases in electricity and natural gas consumption are compared with all of the non-residential buildings in Riverside County in 2019, the latest data available. The Project increases in automotive fuel consumption are compared with the countywide fuel consumption in 2020.

As shown in Table VI-4, the increase in electricity usage as a result of the Proposed Project would constitute an approximate 0.0022 percent increase in the typical annual electricity consumption attributable to non-residential uses in Riverside County. Project increases in natural gas usage across Riverside County would also be negligible. The Project would adhere to all federal, state, and local requirements for energy efficiency, including the Title 24 standards. The Project would be required to comply with Title 24 building energy efficiency standards, which establish minimum efficiency standards related to various building features, including appliances, water and space heating and cooling equipment, building insulation and roofing, and lighting. Implementation of the Title 24 standards significantly reduces energy usage.

As further indicated in Table VI-4, the Proposed Project's gasoline fuel consumption during the one-time construction period is estimated to be 46,700 gallons of fuel during 2021 construction and 2,660 gallons of fuel during 2022 construction, which would increase the annual countywide gasoline fuel use in the county by 0.0046 percent and 0.0002 percent respectively. As such, Project construction would have a nominal effect on local and regional energy supplies. No unusual Project characteristics would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in the region or the state. Construction contractors would purchase their own gasoline and diesel fuel from local suppliers and would judiciously use fuel supplies to minimize costs due to waste and subsequently maximize profits. Additionally, construction equipment fleet turnover and increasingly stringent state and federal regulations on engine efficiency combined with state regulations limiting engine idling times and requiring recycling of construction debris, would further reduce the amount of transportation fuel demand during Project construction. For these reasons, it is expected that construction fuel consumption associated with the Proposed Project would not be any more inefficient, wasteful, or unnecessary than other similar development projects of this nature.

As indicated in Table VI-4, Project operation is estimated to consume approximately 190,580 gallons of automotive fuel per year, which would increase the annual countywide automotive fuel consumption by 0.0191 percent. The amount of operational fuel use was estimated using CARB's EMFAC2017 computer program, which provides projections for typical daily fuel usage in Riverside County. This analysis conservatively assumes that all of the automobile trips projected to arrive at the Proposed Project during operations would be new to Riverside County. Further, a liberal approach was taken for vehicle trip estimation to ensure potential impacts due to operational gasoline usage were adequately accounted. The Project would not result in excessive long-term operational automotive fuel consumption. Fuel consumption associated with vehicle trips generated by the Proposed Project would not be considered inefficient, wasteful, or unnecessary in comparison to other similar developments in the region. Furthermore, the Proposed Project would not conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

For these reasons, this impact would be less than significant.

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

Response:

The Project would be designed in a manner that is consistent with relevant energy conservation plans designed to encourage development that results in the efficient use of energy resources. Relevant energy conservation plans specific to Moreno Valley include the City's Energy Efficiency and Climate Action Strategy and General Plan, specifically General Plan Policies 2.2.15, 2.10.4, 6.7.6, and 7.5.1 – 7.5.5. An

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

overarching goal of these policy documents is to encourage energy conservation activities and programs throughout the City. The Project would not conflict or obstruct any local or state plans for renewable energy or energy efficiency. Thus, the Project would have no impact.

Sources:

1. [CARB] California Air Resources Board. 2017. EMFAC2017 Web Database Emissions Inventory. https://www.arb.ca.gov/emfac/2017/
2. Climate Registry. 2016. General Reporting Protocol for the Voluntary Reporting Program version 2.1. January 2016. http://www.theclimateregistry.org/wp-content/uploads/2014/11/General-Reporting-Protocol-Version-2.1.pdf
3. [CEC] California Energy Commission.2019. California Energy Consumption Database. http://www.ecdms.energy.ca.gov/Default.aspx.
4. K2 Traffic Engineering Inc. 2020. Go Fresh Gas Station Vehicle Miles Travelled Screening & Focused Traffic Impact Study.

VII. GEOLOGY AND SOILS – Would the project:

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

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to https://www.conservation.ca.gov/cgs/Documents/SP_042.pdf	☐	☐	☒	☐

Response:

The project site is located within the Peninsular Range Geomorphic Province, an area characterized by active northeast trending strike slip faults, including the San Jacinto to the northwest, and the Elsinore to the southwest. The nearest faults to the project site are associated with the San Jacinto Fault system located approximately 4.6 miles from the project site. There are no known active fault traces in the project vicinity. The project area is not within an Alquist-Priolo Earthquake Fault (Special Studies) Zone. No active faults with the potential for surface fault rupture are known to pass directly beneath the site. Therefore, the potential for surface rupture due to faulting occurring beneath the site during the design life of the proposed development is considered low (SALEM 2019). Impacts would be less than significant.

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
ii) Strong seismic ground shaking?	☐	☐	☒	☐

Response:

Just like most of southern California, in the event of an earthquake strong ground shaking is expected to occur on the project site. The Proposed Project would be required to comply with current building codes and design standards which would reduce the risk of loss, injury, or death resulting from strong ground-shaking to a less than significant level.

Issue	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐

Response:

Liquefaction is a phenomenon where water-saturated granular soil loses shear strength during strong ground shaking produced by earthquakes. The loss of soil strength occurs when cyclic pore water pressure increases below the groundwater surface. Potential hazards due to liquefaction include the loss of bearing strength beneath structures, possibly causing foundation failure and/or significant settlements.

The geotechnical investigation completed for the Proposed Project encountered predominately loose to

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
very dense silty sand soils within the depth of 50 feet and no groundwater was encountered (SALEM 2019). Low to very low cohesion strength is commonly associated with the sandy soil profile at the project site. A seismic hazard, which could cause damage to the proposed development during seismic shaking, is the post-liquefaction settlement of liquefied sands. The project site was evaluated for liquefaction potential. The liquefaction analysis indicated that the soils had a low potential for liquefaction under seismic conditions (SALEM 2019). Impacts would be less than significant.				
iv) Landslides?	☐	☐	☐	☒
Response: The project site is on a gently (<5%) sloping grade, over 0.25 mile from the nearest significant topographic change. As such, landslide/slope instability/rock fall issues pose a very low risk (SALEM 2019). No impact would occur.				
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
Response: Surface soils on the project site consist predominately of loose to very dense silty sand. Soil of this consistency have been shown to possess good resistance to wind and water erosion. The project site is essentially flat, minimizing the potential for water erosion (SALEM 2019). Furthermore, construction of the Proposed Project would be required to comply with the Construction General Permit, either through a waiver or through preparation and implementation of a Storm Water Pollution Prevention Plan (SWPPP). Best Management Practices (BMPs) are included as part of the SWPPP prepared for the Proposed Project and would be implemented to manage erosion and the loss of topsoil during construction-related activities. Post-construction the project site would be completely covered by buildings, pavement, or landscaping, minimizing long-term wind erosion potential. Impacts would be less than significant.				
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?	☐	☐	☒	☐
Response: As discussed in the responses to questions a) (i) through (iv) of this section, hazards associated with liquefaction and landslides are not expected. Lateral spreading is a phenomenon in which soils move laterally during seismic shaking and is often associated with liquefaction. The amount of movement depends on the soil strength, duration and intensity of seismic shaking, topography, and free face geometry. Due to the relatively flat site topography and low liquefaction potential, the likelihood of lateral spreading would be low (SALEM 2019). Based on the existence of loose to very dense silty sand, subsidence potential is considered minimal (SALEM 2019). Impacts would be less than significant.				
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?	☐	☐	☐	☒
Response: An expansion index test (ASTM 4829) was performed on the soils present on the project site, which conclude that the project site soils have a very low expansion potential (SALEM 2019). No impacts would occur.				
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste	☐	☐	☐	☒

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
water disposal systems where sewers are not available for the disposal of waste water?				

Response:

The Proposed Project does not include septic tanks or alternative wastewater disposal systems. The Proposed Project would be served by the regional sewer system operated by Eastern Municipal Water District. No impact would occur.

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

Response:

The project site is located in an area with a low potential for paleontological resources (City of Moreno Valley 2006a). Impacts would be less than significant.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
   - Chapter 6 – Safety Element – Section 6.5 – Geologic Hazards
     - Figure 6-3 – Geologic Faults & Liquefaction
   - Chapter 7 – Conservation Element – Section 7.4 -- Soils
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
   - Section 5.6 – Geology and Soils
     - Figure 5.6-1 – Geology
     - Figure 5.6-2 – Seismic Hazards
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
4. Moreno Valley Municipal Code Chapter 8.21 – Grading Regulations
5. Local Hazard Mitigation Plan, City of Moreno Valley Fire Department, adopted October 4, 2011, amended 2017, http://www.moval.org/city_hall/departments/fire/pdfs/haz-mit-plan.pdf
   - Chapter 4 – Earthquake
     - Figure 4-1 – Right-Lateral Strike -Slip Fault
     - Figure 4-1.1 – Moreno Valley Geologic Faults and Liquefaction 2016
     - Figure 4-1.2 – Moreno Valley Area Ground Shaking Map
   - Chapter 8 – Landslide
     - Figure 8-1 – Moreno Valley Slope Analysis 2016
6. Emergency Operations Plan, City of Moreno Valley, March 2009, http://www.moval.org/city_hall/departments/fire/pdfs/mv-eop-0309.pdf
   - Threat Assessment 1 – Major Earthquakes
     - Figure 9 – Types of Faults
     - Figure 10 – Earthquake Faults
     - Figure 11 – Comparison of Richter Magnitude and Modified Mercalli Intensity
     - Figure 12 – Magnitude 4.5 or Greater Earthquake Map
     - Figure 13 – Geologic Faults and Liquefaction
7. SALEM 2019 – Geotechnical Engineering Investigation Go Fresh Gas Station Sunnymead Boulevard & Graham Street Moreno Valley, California

VIII. GREENHOUSE GAS EMISSIONS – Would the project:

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

Response:

Greenhouse Gas (GHG) emissions are released as byproducts of fossil fuel combustion, waste disposal, energy use, land use changes, and other human activities. This release of gases, such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and chlorofluorocarbons, creates a blanket around the earth

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

that allows light to pass through but traps heat at the surface, preventing its escape into space. While this is a naturally occurring process known as the greenhouse effect, human activities have accelerated the generation of GHGs beyond natural levels. The overabundance of GHGs in the atmosphere has led to an unexpected warming of the earth and has the potential to severely impact the earth's climate system.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH_4 traps over 25 times more heat per molecule than CO_2, and N_2O absorbs 298 times more heat per molecule than CO_2. Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e). Expressing GHG emissions in carbon dioxide equivalents takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

The Appendix G thresholds for GHG emissions do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA. With respect to GHG emissions, the CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or other performance-based standards." (14 CCR 15064.4(b)). A lead agency may use a "model or methodology" to estimate GHG emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change." (14 CCR 15064.4(c)). Section 15064.4(b) provides that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment:

1. The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

In addition, Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7(c)). The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see CEQA Guidelines Section 15130(f)). As a note, the CEQA Guidelines were amended in response to Senate Bill 97. In particular, the CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction plan renders a cumulative impact insignificant.

Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of greenhouse gas emissions." Put another way, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

significant for GHG emissions if a project complies with adopted programs, plans, policies and/or other regulatory strategies to reduce GHG emissions.

The local air quality agency regulating the SoCAB is the SCAQMD, the regional air pollution control officer for the basin. To provide guidance to local lead agencies on determining significance for GHG emissions in CEQA documents, SCAQMD staff convened a GHG CEQA Significance Threshold Working Group. The Working Group was formed to assist the SCAQMD's efforts to develop a GHG significance threshold and is composed of a wide variety of stakeholders including the State Office of Planning and Research (OPR), CARB, the Attorney General's Office, a variety of city and county planning departments in the Basin, various utilities such as sanitation and power companies throughout the Basin, industry groups, and environmental and professional organizations. On October 8, 2008, the SCAQMD released the Draft AQMD Staff CEQA GHG Significance Thresholds. On September 28, 2010, SCAQMD Working Group Meeting #15 provided further guidance, including a numeric "bright-line" threshold of 3,000 metric tons of CO_2e annually and an efficiency-based threshold of 4.8 metric tons of CO_2e per service population (defined as the people that work, study, live, patronize and/or congregate on the project site) per year in 2020 and 3.0 metric tons of CO_2e per service population per year in 2035. The numeric bright line and efficiency-based thresholds were developed to be consistent with CEQA requirements for developing significance thresholds, are supported by substantial evidence, and provide guidance to CEQA practitioners and lead agencies with regard to determining whether GHG emissions from a proposed project are significant.

In *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal. 4th 2014, 213, 221, 227, following its review of various potential GHG thresholds proposed in an academic study [Crockett, *Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World* (July 2011), 4 Golden Gate U. Envtl. L. J. 203], the California Supreme Court identified the use of numeric bright-line thresholds as a potential pathway for compliance with CEQA GHG requirements. The study found numeric bright line thresholds designed to determine when small projects were so small as to not cause a cumulatively considerable impact on global climate change was consistent with CEQA. Specifically, Public Resources Code section 21003(f) provides it is a policy of the state that "[a]ll persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment." The Supreme Court-reviewed study noted, "[s]ubjecting the smallest projects to the full panoply of CEQA requirements, even though the public benefit would be minimal, would not be consistent with implementing the statute in the most efficient, expeditious manner. Nor would it be consistent with applying lead agencies' scarce resources toward mitigating actual significant climate change impacts." (Crockett, *Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World* (July 2011), 4 Golden Gate U. Envtl. L. J. 203, 221, 227.)

The significance of the Proposed Project's GHG emissions is evaluated consistent with CEQA Guidelines Section 15064.4(b)(2) by considering whether the Proposed Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. The City of Moreno Valley may set a project-specific threshold based on the context of each particular project, including using the SCAQMD Working Group expert recommendation. This standard is appropriate for this Project because it is in the same air quality basin that the experts analyzed. For the Proposed Project, the SCAQMD's 3,000 metric tons of CO_2e per year screening threshold is used as the significance threshold in addition to the qualitative thresholds of significance set forth below from Section VII of CEQA Guidelines Appendix G. The 3,000 metric tons of CO_2e per year screening threshold represents a 90 percent capture rate (i.e., this threshold captures projects that represent approximately 90 percent of GHG emissions from new sources). The 3,000 metric tons of CO_2e per year value is typically used in defining small projects within this air basin that are considered less than significant because it represents less than one percent of future 2050 statewide GHG emissions target and the lead agency can provide more efficient implementation of CEQA by focusing its scarce resources on the top 90 percent. This screening threshold is correlated to the 90 percent capture rate for industrial projects within the air basin. Land use projects above the 3,000 metric tons of CO_2e per year level would fall within the percentage of largest projects that are worth mitigating without wasting scarce financial, governmental, physical and social resources. (SCAQMD, Draft

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Guidance Document – Interim CEQA Greenhouse Gas Significance Threshold, at pp. 3-2 and 3-3; Crockett 2011). As noted in the academic study, the fact that small projects below a numeric bright line threshold are not subject to CEQA-based mitigation, does not mean such small projects do not help the state achieve its climate change goals because even small projects participate in or comply with non-CEQA-based GHG reduction programs, such constructing development in accordance with statewide GHG-reducing energy efficiency building standards, called Cal Green or Title 24 energy-efficiency building standards (Crockett 2011).

Further, while the Moreno Valley Energy Efficiency and Climate Action Strategy is not considered a qualified GHG reduction plan under CEQA Guidelines Section 15183.5 as a formal CEQA document was not prepared, it does provide a focused roadmap for advancing environmental sustainability and reducing GHG emissions in the City and thus will be considered. Initially though, the Proposed Project will be compared to the SCAQMD interim screening level numeric bright-line threshold of 3,000 metric tons of CO_2e annually.

Construction-Generated Greenhouse Gas Emissions

A potent source of GHG emissions associated with the Proposed Project would be combustion of fossil fuels during construction activities. The construction phase of the Proposed Project is temporary but would result in GHG emissions from the use of heavy construction equipment and construction-related vehicle trips.

Construction-related activities that would generate GHGs include worker commute trips, haul trucks carrying supplies and materials to and from the project site, and off-road construction equipment (e.g., dozers, loaders, excavators). Table VIII-1 illustrates the specific construction-generated GHG emissions that would result from construction of the Proposed Project.

Table VIII-1. Construction-Related Greenhous Gas Emissions

Emission Source	CO_2e (Metric Tons/ Year)
2021 Construction	474
2022 Construction	27
Total Emissions	**501**

Sources: CalEEMod version 2016.3.2. Refer to Attachment A for Model Data Outputs.
Notes: Emission estimates account for the cut of 150 cubic yards of soil and the fill of 5,147 cubic yards of soil.

As shown in Table VIII-1, Project construction would result in the generation of approximately 501 metric tons of CO_2e over the course of construction. Once construction is complete, the generation of these GHG emissions would cease. The amortized construction emissions are added to the annual average operational emissions consistent with SCAQMD recommendations.

Operational-Generated Greenhouse Gas Emissions

Operation of the Proposed Project would result in GHG emissions predominantly associated with motor vehicle use. Long-term operational GHG emissions attributable to the Proposed Project are identified in Table VIII-2.

Table VIII-2. Operational-Related Greenhous Gas Emissions

Emission Source	CO_2e (Metric Tons/ Year)
Construction Emissions (amortized over the 30-year life of the Project)	16
Area Source Emissions	0
Energy Source Emissions	83
Mobile Source Emissions	810
Solid Waste Emissions	20
Water Emissions	13
Total Emissions	**942**
SCAQMD Screening Threshold	*3,000*
Exceed SCAQMD Threshold?	**No**

Sources: CalEEMod version 2016.3.2. Refer to Appendix A for Model Data Outputs.

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

As shown in Table VIII-2, operational-generated emissions would not exceed the SCAQMD's interim screening level numeric bright-line threshold of 3,000 metric tons of CO_2e annually. SCAQMD thresholds were developed based on substantial evidence that such thresholds represent quantitative levels of GHG emissions, compliance with which means that the environmental impact of the GHG emissions will normally not be cumulatively considerable under CEQA. These thresholds were developed as part of the SCAQMD GHG CEQA Significance Threshold Working Group. The working group was formed to assist the SCAQMD's efforts to develop a GHG significance threshold and is composed of a wide variety of stakeholders including the state OPR, CARB, the Attorney General's Office, a variety of city and county planning departments in the SoCAB, various utilities such as sanitation and power companies throughout the basin, industry groups, and environmental and professional organizations. The Projects impact would be less than significant.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emission of greenhouse gases?	☐	☐	☒	☐

Response:

The Moreno Valley Energy Efficiency and Climate Action Strategy is a strategic planning document that identifies sources of GHG emissions within the City's boundaries, presents current and future emission estimates, identifies a GHG reduction target for future years, and presents strategies, policies and actions to reduce emissions form the energy, transportation, land use, water use, and waste sectors. The GHG reduction strategies in this Strategy builds on inventory results and key opportunities prioritized by the City staff and members of the public. The Climate Action Strategy consists of strategies that identify steps the City will take to support reductions in GHG emissions. The City will achieve these reductions in GHG emissions through a mix of voluntary programs and new strategic standards. All standards presented in the Energy Efficiency and Climate Action Strategy respond to the needs of development through achieving more efficient and sustainable use of resources.

Both the existing and the projected GHG inventories in the Energy Efficiency and Climate Action Strategy were derived based on the land use designations and associated designations defined in the City 2006 General Plan. The Proposed Project is consistent with the land use designation and development density presented in the 2006 General Plan. As previously stated, the project site is designated by the City's General Plan as Commercial. The Commercial land use designation is intended for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services. The Project is proposing an automobile gas station consisting of a convenience store, retail store, fuel canopy including regular and hydrogen fueling, hydrogen equipment room, and automated carwash along with various other improvements such as installation of driveways and sewer connections. The Project is not proposing to amend the City General Plan and is consistent with all land use designations applied to the site. Since the Proposed Project is consistent with the General Plan it is consistent with the types, intensity, and patterns of land use envisioned for the site vicinity in the General Plan, and as a result, the Proposed Project would not conflict with the land use assumptions or exceed the population or job growth projections used by the City to develop the Energy Efficiency and Climate Action Strategy.

Additionally, the Proposed Project is considered 'infill development' as it proposes to develop a property in a rapidly urbanizing area surrounded by predominately urban residential uses. As a result of proposing a mix of commercial land uses in an area devoid of such uses and surrounded heavily by residences, the Proposed Project can be identified for its "location efficiency". Location efficiency describes the location of the Proposed Project relative to the type of urban landscape its proposed to fit within. In general, compared to the statewide average, a project with location efficiency can realize automotive VMT reductions between 10 and 65 percent (CAPCOA 2017). The Project would locate complementary commercial land uses in close to proximity to existing offsite residential uses, thereby providing commercial and work options to the existing, nearby residents currently living near the site. The location efficiency of the project site would result in synergistic benefits that would reduce vehicle trips and VMT compared to the statewide average and would result in corresponding reductions in transportation-related GHG emissions.

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

The Proposed Project would not conflict with an adopted plan, policy, or regulation pertaining to GHGs. This impact is less than significant.

Sources:

1. CAPCOA. 2017. California Emissions Estimator Model (CalEEMod), version 2016.3.2.
2. CARB. 2018. 2017. California's 2017 Climate Change Scoping Plan. https://www.arb.ca.gov/cc/scopingplan/scoping_plan_2017.pdf.
   - 2014. First Update to the Climate Change Scoping Plan: Building on the Framework. May 2014. http://www.arb.ca.gov/cc/scopingplan/document/ updatedscopingplan2013.htm.
3. IPCC. 2014. Climate Change 2014 Synthesis Report: Approved Summary for Policymakers. http://www.ipcc.ch/.
   - 2013. Carbon and Other Biogeochemical Cycles. In: Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. http://www.climatechange2013.org/ images/report/WG1AR5_ALL_FINAL.pdf.
4. Crockett, Alexander G. 2011. Addressing the Significance of Greenhouse Gas Emissions Under CEQA: California's Search for Regulatory Certainty in an Uncertain World.
5. K2 Traffic Engineering Inc. 2020. Go Fresh Gas Station Vehicle Miles Travelled Screening & Focused Traffic Impact Study.
6. Moreno Valley, City of. 2012. Energy Efficiency and Climate Action Strategy.

IX. HAZARDS AND HAZARDOUS MATERIALS – Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐

Response:

The construction and operational phases of the Proposed Project include the transport, storage, and use of petroleum-based fuels, lubricants, pesticides, and other similar materials. The transport of hazardous materials by truck is regulated by federal safety standards under the jurisdiction of the U.S. Department of Transportation. Additionally, the implementation of BMPs stipulating proper storage of hazardous materials and vehicle refueling would be implemented during construction as part of the Storm Water Pollution Prevention Plan (SWPPP). Furthermore, a Leak Detection, Spill Contingency and Emergency Response Plan has been prepared for the Proposed Project. This plan addresses stormwater pollution prevention, hazardous waste management, and leak detection and fuel system spill prevention. All transport, handling, use, and disposal of substances such as petroleum products paints, and solvents related to the operation and maintenance of the Proposed Project would comply with all Federal, State, and local laws regulating management and use of hazardous materials. Therefore, the use of such material would not create a significant hazard to the public and impacts would be less than significant.

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

Response:

The Proposed Project would develop an automobile gas station consisting of a convenience store, retail store, fuel canopy including regular and hydrogen fueling, hydrogen equipment room, and automated carwash. During construction some hazardous materials, such as diesel fuel, would be used. A SWPPP, listing BMPs to prevent construction pollutants and products from violating any water quality standard or waste discharge requirements would be prepared for the proposed project. The potential risk associated with accidental discharge during use and storage of equipment-related hazardous materials would be low since the handling of such materials would be addressed through the implementation of BMPs.

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

The Proposer Project would include four underground fuel storage tanks, a hydrogen equipment room, and a propane tank. The underground fuel storage tanks to be installed would be a double-walled, fiberglass tank with sensors in the interstitial space to alert the presence of any leaks. The tanks would be installed underground, which minimizes the likeliness of vehicular accidents damaging the tank and resulting in a release. The hydrogen equipment room would measure 999 sq. ft. and include a compression skid composed of three hydrogen equipment enclosures (HEE). The three HEEs consist of a system controls module, pump module, and tank module. The HEEs have various safety elements to protect against the accidental release of hydrogen. For example, all exterior wall panels and roof panels of front enclosures are steel, lined with minimum 40-millimeter (mm) thick rockwool insulation. The liquid hydrogen (LH2) tank within the tank module would be an American Society of Mechanical Engineers (ASME) Certified LH2 Tank with 2-Hour intumescent fireproofing coating. The interstitial space of the LH2 tank would be insulated with 63 mm multilayer insulation consisting of several layers of glass fiber mesh or glasspaper as spacer and aluminum foil as reflector. The insulation is non-combustible and is heat resistant. These safety elements in addition to 24 hour 7 days a week monitoring using electronic as well as mechanical safety systems would allow safe operations of the hydrogen fueling system. Emergency stops would be available on the compression unit, on both dispensers, and a remote emergency stop would be located either between the convenience store and dispensers or between the dispensers and the compression skid. Furthermore, a Leak Detection, Spill Contingency and Emergency Response Plan has been prepared for the Proposed Project. This plan addresses storm water pollution prevention, hazardous waste management, and leak detection and fuel system spill prevention. The Proposed Project will also be required to comply with the safety requirements of the Moreno Valley Fire Department, the Moreno Valley Municipal Code, and the California Health and Safety Code.

The Proposed Project would be subject to routine inspection by federal, state, and local regulatory agencies with jurisdiction over fuel-dispensing facilities. Hazardous materials regulations, which are codified in Titles 8, 22, and 26 of the CCR, and their enabling legislation set forth in Chapter 6.95 of the California Health and Safety Code, were established at the state level to ensure compliance with federal regulations and to reduce the risk to human health and the environment from the routine use of hazardous substances. Protection against accidental spills and releases provided by this legislation includes physical and mechanical controls of fueling operations, including automatic shutoff valves; requirements that fueling operations are contained on impervious surface areas; oil/water separators or physical barriers in catch basins or storm drains; vapor emissions controls; leak detection systems; and regular testing and inspection (California Health and Safety Code [CHSC] 2014).

The Proposed Project would not create a significant hazard to the public. Impacts would be less than significant.

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

Response:

There are no schools within one-quarter mile of the project site. The closest schools to the project site include Sunnymeadows Elementary School located approximately 0.3 mile to the southwest of the project site. Sunnymead Middle School and Rainbow Springs Preschool located approximately 0.29 mile to the southeast of the project site. No impact would occur.

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?	☐	☐	☐	☒

Response:

A search of the Department of Toxic Substances Control's (DTSC) Hazardous Waste and Substances Site List (Cortese List) and EnviroStor online database and the State Water Resources Control Board

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
(SWRCB) GeoTracker online database was conducted for the project site (DTSC 2020a and 2020b; SWRCB 2020). The searches revealed no known hazardous materials on the project site or immediate vicinity. No impact would occur.				
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?	☐	☐	☐	☒
Response: A joint civilian and military airport (March Air Reserve Base) is located at the southwestern boundary of the City approximately 2.5 miles southwest of the project site. The project site is not located within an aircraft hazard zone (City of Moreno Valley 2006a). The project site is located within Airport Compatibility Zone E of the March Air Reserve Base/Inland Port Airport Influence Area. Compatibility Zone E does not place restrictions on the density or types of uses allowed. Hazards to flight are prohibited. Hazards to flight include physical (e.g., tall objects), visual, and electronic forms of interference with the safety of aircraft operations. Land use development that may cause the attraction of birds to increase is also prohibited. Man-made features must be designed to avoid heightened attraction of birds (Riverside County ALUC 2014). The Proposed Project would develop an automobile gas station, which would not be a hazard to flight. No impact would occur.				
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
Response: The Proposed Project would not have any direct effect on an adopted emergency response plan or emergency evacuation plan. The City's project review process includes reviews by the City's fire and police departments for consideration of emergency access requirements. The Proposed Project's design would meet City standards for required emergency vehicle access and emergency egress of residents. Established City procedures including plan check, permit issuance, and construction inspection would ensure implementation of the Proposed Project is consistent with the approved design. No impact would occur.				
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒
Response: The project site is located in an urban developed area of the City and is not within a wildland fire risk area as identified in the City of Moreno Valley General Plan Final EIR (City of Moreno Valley 2006a). No impact would occur.				

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
   - Chapter 6 – Safety Element – Section 6.2.8 – Wildland Urban Interface
   - Chapter 6 – Safety Element – Section 6.9 – Hazardous Materials
   - Chapter 6 – Safety Element – Section 6.10 – Air Crash Hazards
     - Figure 6-5 – Air Crash Hazards
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
   - Section 5.5 – Hazards and Hazardous Materials
     - Figure 5.5-1 – Hazardous Materials Sites
     - Figure 5.5-2 – Floodplains and High Fire Hazard Areas
     - Figure 5.5-3 – City Areas Affected by Aircraft Hazard Zones

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
4. March Air Reserve Base (MARB)/March Inland Port (MIP) Airport Land Use Compatibility Plan (ALUCP) on November 13, 2014, (http://www.rcaluc.org/Portals/13/17%20-%20Vol.%201%20March%20Air%20Reserve%20Base%20Final.pdf?ver=2016-08-15-145812-700)
5. Local Hazard Mitigation Plan, City of Moreno Valley Fire Department, adopted October 4, 2011, amended 2017, http://www.moval.org/city_hall/departments/fire/pdfs/haz-mit-plan.pdf
   - Chapter 5 – Wildland and Urban Fires
     - Figure 5-2 – Moreno Valley High Fire Area Map 2016
   - Chapter 12 – Dam Failure/Inundation
     - Figure 12-2 Moreno Valley Evacuation Routes Map 2015
   - Chapter 13 – Pipeline
     - Figure 13-1 – Moreno Valley Pipeline Map 2016
   - Chapter 14 – Transportation
     - Figure 14-1.1 – Moreno Valley Air Crash Hazard Area Map 2016
   - Chapter 16 – Hazardous Materials Accident
     - Moreno Valley Hazardous Materials Site Locations Map 2016
6. Emergency Operations Plan, City of Moreno Valley, March 2009, http://www.moval.org/city_hall/departments/fire/pdfs/mv-eop-0309.pdf
   - Hazard Mitigation and Hazard Analysis
   - Threat Assessment 2 – Hazardous Materials
   - Threat Assessment 3 – Wildfire
   - Threat Assessment 6 – Transportation Emergencies
     - Figure 17 – Air Crash Hazards
7. DTSC's Hazardous Waste and Substances Site List – Site Cleanup (Cortese List). Available at https://dtsc.ca.gov/dtscs-cortese-list/. Accessed on June 18, 2020.
8. DTSC's EnviroStor. Available at https://www.envirostor.dtsc.ca.gov/public/. Accessed on June 18, 2020.
9. SWRCB's GeoTracker. Available at https://geotracker.waterboards.ca.gov/. Accessed on June 18, 2020.

X. HYDROLOGY AND WATER QUALITY – Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐

Response:

During construction of the Proposed Project water quality impacts could occur without proper controls. Soils loosened during grading, as well as spills of fluids or fuels from vehicles and equipment, if mobilized or transported offsite in overland flow, have the potential to degrade water quality. Because the area of disturbance affected by construction of the Proposed Project exceeds one acre, the Proposed Project would be subject to the requirements of the statewide National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (General Permit; Order 2009-0009-DWQ). Construction activity subject to this permit includes clearing, grading, and disturbances to the ground such as stockpiling or excavation. During construction, to comply with the General Permit the applicant would be required to implement a SWPPP, which would include BMPs to prevent construction pollutants and products from violating any water quality standards or any waste discharge requirements. Impacts to surface or ground water quality during construction would be less than significant.

During operations the Proposed Project would include a stormwater drainage system. Stormwater originating at the project site would be conveyed via surface flows to ribbon gutters which would direct stormwater to bio-swales located within the landscape areas of the project site. The bio-swales would treat stormwater onsite prior to discharging to the existing storm drain system within Graham Street. Impacts to surface or ground water quality during project operation would be less than significant.

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐

Response:

The Proposed Project would include both pervious (open space, drainage easement, and landscape areas) and impervious (hardscapes, building footprints) surfaces. The Proposed Project's stormwater management system would convey stormwater originating at the project site via surface flows to ribbon gutters which would direct stormwater to bio-swales (biotreatment) located within the landscape areas of the project site to treat stormwater runoff prior to discharging to the existing storm drain system within Graham Street. The bio-swales would allow some stormwater to infiltrate on-site. Impacts would be less than significant.

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:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Result in substantial erosion or siltation on- or off-site?	☐	☐	☒	☐

Response:

The Proposed Project would require grading of the project site which would result in localized changes in discharge patterns, which could result in erosion and/or siltation. Erosion and/or siltation during construction would be minimized by implementation of BMPs included in the Proposed Project's SWPPP. Furthermore, the Proposed Project grading plan and stormwater management system has been designed by a registered civil engineer to meet City development standards and safely collect and convey runoff to on-site bio-swales. The stormwater management system has been designed to reduce the erosion potential. Impacts would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?	☐	☐	☒	☐

Response:

The Proposed Project would include both pervious (open space, drainage easement, and landscape areas) and impervious (hardscapes, building footprints) surfaces. Impervious surfaces would increase with implementation of the Proposed Project compared to existing conditions of the project site, which has the potential to increase the rate of surface runoff. The Proposed Project's bio-swales are designed to treat the quality and reduce the velocity of stormwater runoff that is discharged from the project site onto the existing storm drain system within Graham Street. As such, the potential for flooding on- or offsite is reduced. Impacts would be less than significant.

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

Response:

As previously discussed, during construction a SWPPP would be implemented. The SWPPP would include BMPs to prevent construction pollutants and products from violating any water quality standards or any waste discharge requirements. During project operations stormwater runoff would be managed by the Proposed Project's stormwater system, which was designed by a registered civil engineer to ensure that the system's components are sized to treat the runoff volumes that are anticipated for the post-development condition. The system has also been designed to treat polluted runoff that is typical for commercial development. Impacts would be less than significant.

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
iv) Impede or redirect flood flows?	☐	☐	☐	☒

Response:

There are no streams or waterways on or near the project site. The project site is not within a flood zone as identified by the Federal Emergency Management Agency (FEMA) (FEMA 2020). No impact would occur.

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

Response:

The project site is not located within a known flood hazard (FEMA 2020; City of Moreno Valley 2006). Additionally, the project site is located approximately 42 miles northeast of the Pacific Ocean and approximately 6 miles northwest of the Perris Reservoir. Due to the distance to the Pacific Ocean and Perris Reservoir, the project site would not be subject to inundation from seiches or tsunamis. No impact would occur.

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

Response:

The Proposed Project would comply with the City of Moreno Valley Municipal Code (8.21.170) general requirements for the statewide National Pollutant Discharge Elimination System (NPDES) stormwater permit for construction activity (Order 98-08 DWQ), and as such would prepare a SWPPP. The Project would not include the installation or use of groundwater wells; therefore, the Proposed Project would not interfere with any groundwater management or recharge plan. No impact would occur.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
   - Chapter 6 – Safety Element – Section 6.7 – Water Quality
     - Figure 6-4 – Flood Hazards
   - Chapter 7 – Conservation Element – Section 7.5 – Water Resources
     - Figure 7-1 Water Purveyor Service Area Map
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
   - Section 5.5 – Hazards and Hazardous Materials
     - Figure 5.5-2 – Floodplains and High Fire Hazard Areas
   - Section 5.7 – Hydrology and Water Quality
     - Figure 5.7-1 – Storm Water Flows and Major Drainage Facilities
     - Figure 5.7-2 – Groundwater Basins
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
   - Section 9.10.080 – Liquid and Solid Waste
4. Moreno Valley Municipal Code Chapter 8.12 – Flood Damage Prevention
5. Moreno Valley Municipal Code Chapter 8.21 – Grading Regulations
6. Eastern Municipal Water District (EMWD) Groundwater Reliability Plus, http://gwrplus.org/
7. Eastern Municipal Water District (EMWD) 2015 Urban Water Management Plan

XI. LAND USE AND PLANNING – Would the project:

a) Physically divide an established community?	☐	☐	☐	☒

Response:

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
The project site is surrounded by commercial development to the north and east; undeveloped land to the south, with residential beyond; and residential to the west. Development of the project site would not divide an established community. No impact would occur.				
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?	☐	☐	☐	☒

Response:

The project site has a General Plan land use designation of Commercial and a zoning designation of The Village Specific Plan 204 Community Commercial (SP204CC). The primary focus of the Community Commercial land use designation is to provide for the general shopping and service needs of freeway travelers, area residents, and workers by providing a variety of travel related and local business services including motels, gas stations, fast food and sit-down restaurants, general retail, and personal uses. The Proposed Project would develop an automobile gas station consisting of a convenience store, retail store, fuel canopy, and automated carwash, which is a consistent use with the project site's land use designation. No impact would occur.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
   - Chapter 2 – Community Development Element – Section 2.1 – Land Use
     - Figure 2-1 – Neighboring Lands Uses
     - Figure 2-2 – Land Use Map
   - Chapter 8 – 2014 – 2021 Housing Element
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
   - Section 5.12 – Population and Housing
     - Attachments #1 - #10 – Housing Sites Inventory
     - Exhibits A1 – A11, C, D, and E – Maps of Housing Sites
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code

XII. MINERAL RESOURCES – Would the project:

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒

Response:

There are no know mineral resources on the project site or in the vicinity (City of Moreno Valley 2006a). No impact would occur.

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?	☐	☐	☐	☒

Response:

According to the Moreno Valley General Plan, the planning area does not have significant mineral resources; only one active sand and gravel quarry exists within the general plan area (Jack Rabbit Canyon Quarry) (City of Moreno Valley 2006b). The Proposed Project would not be located within or near a mineral resource recover site. No impact would occur.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
   - Chapter 7 – Conservation Element – Section 7.9 – Mineral Resources
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

- Section 5.14 – Mineral Resources

3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
   - Section 9.02.120 – Surface Mining Permits
4. Moreno Valley Municipal Code Section 8.21.020 A 7 – Permits Required
5. The Surface Mining and Reclamation Act of 1975 (SMARA, Public Resources Code, Sections 2710-2796), https://www.conservation.ca.gov/dmr/lawsandregulations

XIII. NOISE – Would the project result in:

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

Response:

Existing Ambient Noise Measurements

The project site can be characterized by flat and undeveloped land. It is surrounded by a mix of residential and commercial land uses. In order to quantify existing ambient noise levels in the project area, ECORP Consulting, Inc. conducted five short-term noise measurements on May 14, 2020. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the project site. The 10-minute measurements were taken between 10:13 a.m. and 11:26 a.m. Short-term (L_{eq}) measurements are considered representative of the noise levels throughout the daytime. L_{eq} is the equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night. The average noise levels and sources of noise measured at each location are listed in in Table XIII-1.

Table XIII-1. Existing (Baseline) Noise Measurements

Location Number	Location	L_{eq} dBA	L_{min} dBA	L_{max} dBA	Time
1	Corner of Sunnymeadows Boulevard and Graham Street (across the street from the project site)	65.9	45.6	87.8	10:13 a.m. – 10:23 a.m.
2	On the sidewalk along Graham Street (across the street from the project site)	66.8	44.9	84.8	10:32 a.m. – 10:42 a.m.
3	On the northwest corner of Valley Meadows Drive and Sunnymeadows Boulevard	56.3	46.8	71.2	10:47 a.m. – 10:47 a.m.
4	South of project site and adjacent to missionary wall and dirt lot.	59.7	45.4	75.2	11:00 a.m. – 11:10 a.m.
5	Northwest corner of cul-de-sac	50.1	41.9	61.7	11:16 a.m. – 11:26 a.m.

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

	along Gorham Street				

Notes: Measurements were taken by ECORP with a Larson Davis SoundExpert LxT precision sound level meter, which satisfies the American National Standards Institute for general environmental noise measurement instrumentation. Prior to the measurements, the SoundExpert LxT sound level meter was calibrated according to manufacturer specifications with a Larson Davis CAL200 Class I Calibrator. See Appendix D for noise measurement outputs.

As shown in Table XIII-1, the ambient recorded noise levels range from 50.1 to 66.8 dBA L_{eq} near the project site. The most common noise in the project vicinity is produced by automotive vehicles (e.g., cars, trucks, buses, motorcycles) traveling on Graham Street. Vehicular noise varies with the volume, speed and type of traffic. Slower traffic produces less noise than fast-moving traffic. Trucks typically generate more noise than cars. Infrequent or intermittent noise also is associated with vehicles, including sirens, vehicle alarms, slamming of doors, trains, garbage and construction vehicle activity and honking of horns. These noises add to urban noise and are regulated by a variety of agencies.

Existing roadway noise levels were calculated for the roadway segments in the project vicinity. This task was accomplished using the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) (see Appendix D) and traffic volumes from the Proposed Project's Traffic Impact Study (K2 Traffic Engineering, Inc. 2020). The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (energy rates) used in the FHWA model have been modified to reflect average vehicle noise rates identified for California by Caltrans. The Caltrans data shows that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels. The average daily noise levels along these roadway segments are presented in Table XIII-2.

Table XIII-2. Existing (Baseline) Traffic Noise Levels

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway
Frederick Street		
South of Sunnymead Boulevard	Residential	61.5
Graham Street		
Between Sunnymead Boulevard and Eucalyptus Avenue	Residential	55.4
South of Eucalyptus Avenue	Residential	54.6
Sunnymead Boulevard		
Between Frederick Street and Graham Street	Residential and Commercial	57.2
Eucalyptus Avenue		
East of Graham Street	Residential and Commercial	55.8
West of Graham Street	Residential	55.4

Sources: Traffic noise levels were calculated by ECORP using the FWHA roadway noise prediction model in conjunction with the trip generation rate identified by K2 Traffic Engineering, Inc. (2020). Refer to Appendix D for traffic noise modeling assumptions and results.
Note: A total of 4 intersections were analyzed in the Traffic Impact Study; however, only roadway segments that impact sensitive receptors were included for the purpose of this analysis.

As shown, the existing traffic-generated noise level on Project-vicinity roadways currently ranges from 54.6 to 61.5 dBA CNEL. CNEL is 24-hour average noise level with a 5 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. It should be noted that the modeled noise levels depicted in Table XIII-2 may differ from measured levels in Table XIII-1 because the measurements represent noise levels at different locations around the project site and are also reported in different noise metrics (e.g., noise measurements are the L_{eq} values and traffic noise levels are reported in CNEL).

Construction Noise Impacts

Construction noise associated with the Proposed Project would be temporary and would vary depending on the nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

area roadways. 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 earth movers, material handlers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four 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). During construction, exterior noise levels could negatively affect sensitive land uses in the vicinity of the construction site. The nearest noise sensitive land uses to the project site are residences located approximately 90 feet distant across Graham Street.

Chapter 11.80, *Noise Regulations*, of the City of Moreno Valley Municipal Code prohibits construction between the hours of 8:00 p.m. and 7:00 a.m. but does not promulgate a numeric threshold pertaining to the noise associated with construction. This is due to the fact that construction noise is temporary, short term, intermittent in nature, and would cease on completion of the Proposed Project. Furthermore, the City of Moreno Valley is a developing urban community and construction noise is generally accepted as a reality within the urban environment. Additionally, construction would occur through the project site and would not be concentrated at one point.

To estimate the worst-case onsite construction noise levels that may occur at the nearest noise-sensitive receptors in the Proposed Project vicinity, the construction equipment noise levels were calculated using the Roadway Noise Construction Model for the site preparation, grading, building construction, paving and painting and compared against the construction-related noise level threshold established in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998 by National Institute for Occupational Safety and Health (NIOSH). A division of the US Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. For the purposes of this analysis, the lowest, more conservative threshold of 85 dBA L_{eq} is used as an acceptable threshold for construction noise at the nearby existing and future planned sensitive receptors.

The anticipated short-term construction noise levels generated for the necessary equipment is presented in Table XIII-3**.** Consistent with FTA recommendations for calculating construction noise, construction noise was measured from the center of the project site (FTA 2018). As previously stated, the nearest noise sensitive land uses to the project site are residences located approximately 90 feet distant across Graham Street.

Table XIII-3. Onsite Construction Average (dBA) Noise Levels by Receptor Distance and Construction Equipment

Equipment	Estimated Exterior Construction Noise Level @ Closest Residence	Construction Noise Standard (dBA L_{eq})	Exceeds Standards?
Site Preparation			
Graders (1)	69.4	85	**No**
Tractors/Loaders/Backhoes (1)	68.4	85	**No**
Scrapers (1)	68.0	85	**No**
Combined Site Preparation Equipment	73.4	85	**No**
Grading			
Rubber Tired Dozers (1)	66.1	85	**No**
Tractors/Loaders/Backhoes (2)	68.4 (each)	85	**No**
Graders (1)	69.4	85	**No**

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Combined Grading Equipment	74.3	85	**No**
Building Construction, Paving & Painting			
Generator Sets (1)	66.0	85	**No**
Cranes (1)	61.0	85	**No**
Forklifts (2)	67.8 (each)	85	**No**
Tractors/Loaders/Backhoes (2)	68.4 (each)	85	**No**
Welders (3)	58.4 (each)	85	**No**
Cement and Mortar Mixers (1)	63.2	85	**No**
Pavers (1)	62.6	85	**No**
Rollers (1)	61.4	85	**No**
Air Compressors (1)	62.1	85	**No**
Combined Building Construction, Paving & Painting Equipment	76.1	85	**No**

Source: Construction noise levels were calculated by ECORP Consulting using the FHWA Roadway Noise Construction Model (FHWA 2006). Refer to Appendix D for Model Data Outputs.

Notes: Construction equipment used during construction derived from CalEEMod 2016.3.2. Building construction, paving and painting are assumed to occur simultaneously. Distance to the nearest noise-sensitive receptor was measured from the center of the project site (approximately 190 feet).

L_{eq} = The equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.

As shown, no cumulative or individual piece of construction equipment would exceed 85 dBA NIOSH construction noise standard at the nearby noise- sensitive receptors. A less than significant impact would occur, and no mitigation is necessary.

Operational Offsite Traffic Noise Impacts

Future traffic noise levels throughout the project vicinity (i.e., vicinity roadway segments that traverse noise sensitive residential land uses) were modeled based on the traffic volumes identified by K2 Traffic Engineering, Inc. (2020) to determine the noise levels along Project vicinity roadways. Table VIII-4 shows the calculated offsite roadway noise levels under existing traffic levels compared to future buildout of the Proposed Project. The calculated noise levels as a result of the Proposed Project at affected sensitive land uses are compared to the Federal Interagency Committee of Noise (FICON) thresholds of significance. The 2000 FICON findings provide guidance as to the significance of changes in ambient noise levels due to transportation noise sources. FICON recommendations are based on studies that relate aircraft and traffic noise levels to the percentage of persons highly annoyed by the noise. FICON's measure of substantial increase for transportation noise exposure is as follows:

- If the existing ambient noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.) are less than 60 dBA CNEL and the Proposed Project creates a readily perceptible 5 dBA CNEL or greater Project-related noise level increase and the resulting noise level would exceed acceptable exterior noise standards; or
- If the existing noise levels range from 60 to 65 dBA CNEL and the Proposed Project creates a barely perceptible 3 dBA CNEL or greater Project-related noise level increase and the resulting noise level would exceed acceptable exterior noise standards; or
- If the existing noise levels already exceed 65 dBA CNEL, and the Proposed Project creates a community noise level increase of greater than 1.5 dBA CNEL

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

Table XIII-4. Existing Plus Project Conditions - Predicted Traffic Noise Levels

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway		Noise Standard (dBA CNEL)	Exceed Standard AND result in Noise Levels Exceeding Acceptable Noise Standards
		Existing Conditions	Existing + Project Conditions		
Frederick Street					
South of Sunnymead Boulevard	Residential	61.5	61.6	>3	**No**
Graham Street					
Between Sunnymead Boulevard and Eucalyptus Avenue	Residential	55.4	55.8	>5	**No**
South of Eucalyptus Avenue	Residential	54.6	54.7	>5	**No**
Sunnymead Boulevard					
Between Frederick Street and Graham Street	Residential and Commercial	57.2	57.3	>5	**No**
Eucalyptus Avenue					
East of Graham Street	Residential and Commercial	55.8	55.8	>5	**No**
West of Graham Street	Residential	55.4	55.5	>5	**No**

Sources: Traffic noise levels were calculated by ECORP using the FWHA roadway noise prediction model in conjunction with the trip generation rate identified by K2 Traffic Engineering, Inc. (2020). Refer to Appendix D for traffic noise modeling assumptions and results.
Note: A total of 4 intersections were analyzed in the Traffic Impact Study; however, only roadway segments that impact sensitive receptors were included for the purpose of this analysis.

As shown in Table XIII-4, no roadway segments would generate an increase of noise beyond the significance standards. The Projects increase in traffic would result in a less than significant impact.

Operational Onsite Stationary Noise

The main stationary operational noise associated with the Proposed Project would be activities occurring on the project site, such as gas station operations and carwash activity including washing/drying components of the carwash and the use of vacuums. Onsite Project operations have been calculated using the SoundPLAN 3D noise model. The stationary onsite noise sources used in the SoundPLAN model can be found in Table XIII-5.

Table XIII-5. Summary of Onsite Stationary Sources

Stationary Sources	Noise Level (dBA L_{eq}) at the Source
Vacuum Turbines[1]	86.0
Dryer System[1]	75.0
Queuing Lane[2]	75.0
Each Individual (17) Vacuum Drop Point Source[2]	63.8
Gas Station Activity[2]	49.5

Sources: [1]AUTOVAC manufacture specification sheet. [2]ECORP Consulting Reference Measurements (previous measurements conducted by ECORP staff at actual sources).
Notes: Gas Station Activity reference noise measurement includes noise producing activities such as internal circulation, car doors opening and closing, car stereos, and people talking.

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

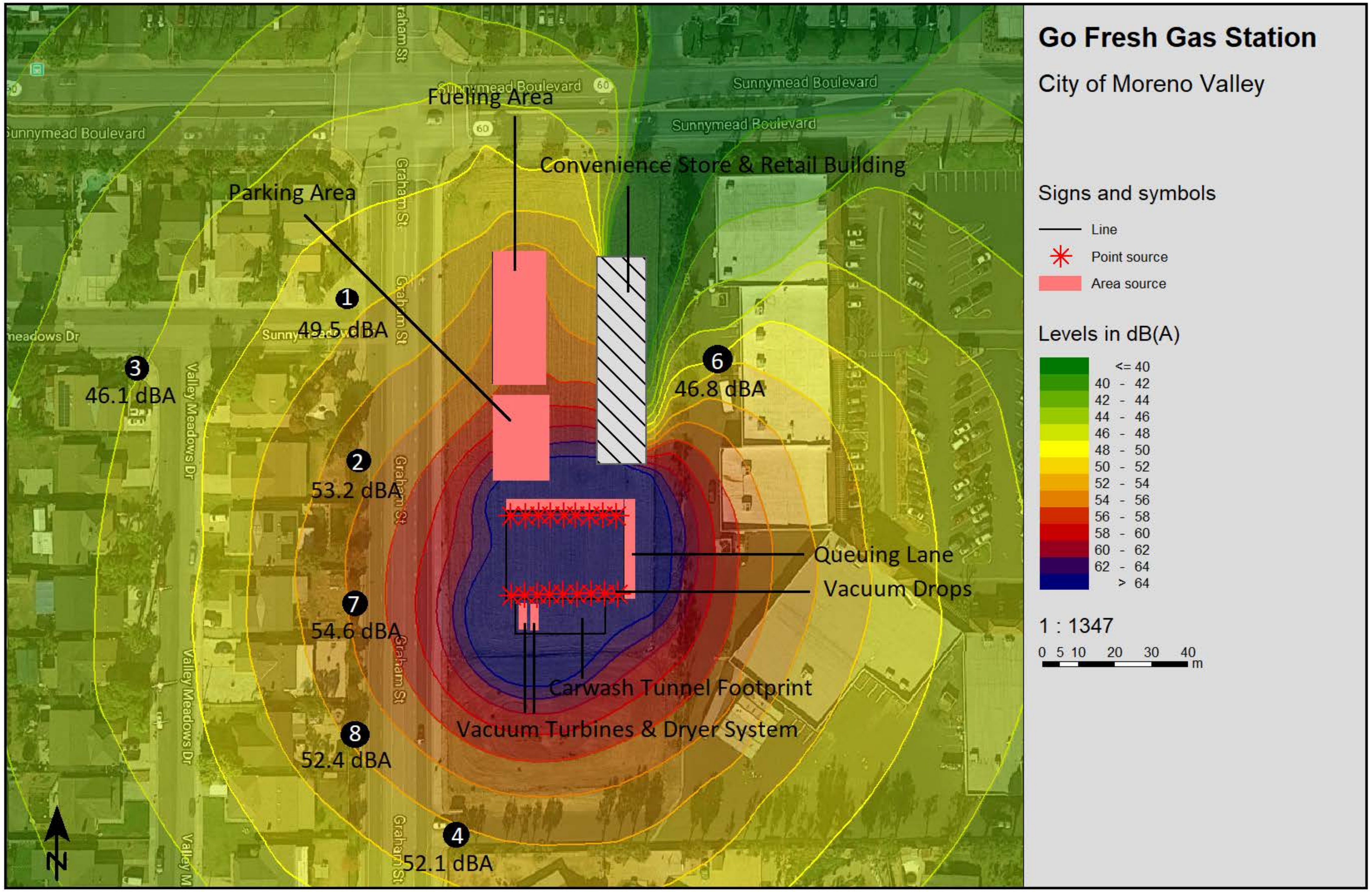
The results of this model can be found in Appendix D. Table XIII-6 shows the predicted Project noise levels at seven locations in the project vicinity. Four of the receptor locations are where baseline noise measurements (Locations 1-4) were taken by ECORP (see Table XIII-1) and three of the receptor locations are receptors near the project site. Additionally, a noise contour graphic (Figure 4) has been prepared to depict the predicted noise levels in the project vicinity from Project operations.

Table XIII-6. Modeled Operational Noise Levels

Receptor Location Number	Location	Modeled Operational Noise Attributable to Project (L_{eq} dBA)	City Noise Standards (dBA) (Day/Night)	Exceed Standard? (Day /Night)
1	Corner of Sunnymead Boulevard and Graham Street (across the street from the project site)	**49.5**	*60/55*	**No/No**
2	On the sidewalk along Graham Street (across the street from the project site)	**53.2**	*60/55*	**No/No**
3	On the northwest corner of Valley Meadows Drive and Sunnymead Boulevard	**46.1**	*60/55*	**No/No**
4	South of project site and adjacent to wall and residencest.	**52.1**	*60/55*	**No/No**
5	East of the project site adjacent to commercial building	**46.8**	*65/60*	**No/No**
6	West of the project site adjacent to residence	**54.6**	*60/55*	**No/No**
7	West of the project site adjacent to residence	**52.4**	*60/55*	**No/No**

Source: Stationary source noise levels were modeled by ECORP using SoundPLAN 3D noise model. Refer to Appendix D for noise modeling assumptions and results.

As shown in Table XIII-6, noise levels as a result of Project operations have the potential to range from 46.1 to 54.6 dBA L_{eq} as a result of full Project operations. These numbers fall below the daytime (8:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 8:00 a.m.) noise standards for residential and commercial land uses in the City's Municipal Code Section 11.80.030. It is noted that Project noise modeling represents a worst-case scenario in which all potential Project noise sources are being generated at full intensity at the same moment. It is very unlikely that noise levels on the project site would reach that of those predicted in Table XIII-6. Additionally, as noted by project applicant, the carwash will be in operations from 6:00 a.m. to 10:00 p.m. As such, noise levels during the hours when the carwash is not in operations will be substantially lower. Furthermore, the modeled operational noise levels were less than the baseline noise measurements identified in Table XIII-1. As such, noise as a result of Project operations could be mostly unperceivable due to the greater ambient noise levels. For the reasons described, this impact is less than significant.



Map Date: *7/24/2020*
Photo (or Base) Source: *SoundPLAN 5.0*

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 4. SoundPLAN Noise Modeling

2020-078 Go Fresh Gas Station Moreno Valley

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐

Response:

Construction-Generated Vibration

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the proposed Project would be primarily associated with short-term construction-related activities. Construction on the project site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. Vibration decreases rapidly with distance and it is acknowledged that construction activities would occur throughout the project site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with construction equipment are summarized in Table XIII-7.

Table XIII-7. Representative Vibration Source Levels for Construction Equipment

Equipment Type	Peak Particle Velocity at 25 Feet (inches per second)
Large Bulldozer	0.089
Sonic Pile Driver	0.170
Caisson Drilling	0.089
Loaded Trucks	0.076
Rock Breaker	0.089
Jackhammer	0.0.5
Small Bulldozer/Tractor	0.003

Sources: FTA 2018; Caltrans 2020.

The City of Moreno Valley does not regulate vibrations associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans' (2020) recommended standard of 0.2 inch per second peak particle velocity (PPV) with respect to the prevention of structural damage for older residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings.

It is acknowledged that construction activities would occur throughout the project site and would not be concentrated at the point closest to the nearest structure. The nearest structures of concern to the construction site is a commercial building located 35 feet to the east. Based on the vibration levels presented in Table XIII-7, ground vibration generated by heavy-duty equipment would not be anticipated to exceed approximately 0.170 inch per second PPV at 25 feet. Thus, the structure located at 35 feet would not be negatively affected. Predicted vibration levels at the nearest structures would not exceed recommended criteria. This impact is less than significant.

Operational-Generated Vibration

Project operations would not include the use of any stationary equipment that would result in excessive groundborne vibration levels. For this reason, no impact would occur.

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?	☐	☐	☐	☒

Response:

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

The project site is located approximately three miles south of the March Air Reserve Base. The project site is located outside the 60 dBA CNEL noise impact zone per the *Transportation-Related Noise* section of the Moreno Valley General Plan Final Program EIR. Implementation of the Proposed Project would not affect airport operations nor result in increased exposure of employees or those visiting the site to aircraft noise. For this reason, no impact would occur.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
   - Chapter 6 – Safety Element – Section 6.4 – Noise
     - Figure 6-2 – Buildout Noise Contours
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
   - Section 5.4 – Noise
     - Figure 5.4-1 – March Air Reserve Base Noise Impact Area
     - Figure 5.4-2 – Buildout Noise Contours – Alternative 1
     - Figure 5.4-3 -- Buildout Noise Contours – Alternative 2
     - Figure 5.4-4 -- Buildout Noise Contours – Alternative 3
   - Appendix D – Noise Analysis, Wieland Associates, Inc., June 2003.
3. Caltrans. 2020. Transportation- and Construction-Induced Vibration Guidance Manual.
4. 2006. Roadway Construction Noise Model
5. FTA. 2018. Transit Noise and Vibration Impact Assessment.
6. K2 Traffic Engineering Inc. 2020. Go Fresh Gas Station Vehicle Miles Travelled Screening & Focused Traffic Impact Study.

XIV. POPULATION AND HOUSING – Would the project:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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 road or other infrastructure)?	☐	☐	☒	☐

Response:

The Proposed Project would develop an automobile gas station consisting of a convenience store, retail store, fuel canopy including regular and hydrogen fueling, hydrogen equipment room, and automated carwash. The Proposed Project does not propose the construction of new housing that would directly or indirectly induce population growth in the area. The Proposed Project is not expected to generate a substantial permanent increase in employment opportunities in the area capable of inducing population growth. A less than significant impact would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒

Response:

Currently, there are no homes located on the project site. Therefore, the Proposed Project would not displace housing. No impact would occur.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
   - Chapter 2 – Community Development Element – Section 2.1 – Land Use
     - Figure 2-1 – Neighboring Lands Uses
     - Figure 2-2 – Land Use Map
   - Chapter 8 – 2014 – 2021 Housing Element
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
   - Section 5.12 – Population and Housing

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

- Attachments #1 - #10 – Housing Sites Inventory
- Exhibits A1 – A11, C, D, and E – Maps of Housing Sites

3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code

XV. PUBLIC SERVICES – Would the project:

a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Fire protection?	☐	☐	☒	☐

Response:

The Proposed Project would develop an automobile gas station consisting of a convenience store, retail store, fuel canopy including regular and hydrogen fueling, hydrogen equipment room, and automated carwash, which would add to the demand on fire protection services. However, the Proposed Project would be required to implement all applicable California Fire Code Standards. The Proposed Project's design and construction plans would be reviewed by City of Moreno Valley's Fire Prevention Bureau to ensure fire codes are met and that adequate fire protection services would be available to meet the Proposed Project's needs. The Applicant would pay the City of Moreno Valley's Development Impact Fees. The City imposes development impact fees on development projects to lessen the impact to public services, infrastructure and facilities. Impacts would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
ii) Police protection?	☐	☐	☒	☐

Response:

The Proposed Project would develop an automobile gas station on a currently undeveloped parcel. This development would result in an increase in demand for police protection services. The Applicant would pay the City of Moreno Valley's Development Impact Fees, which would cover the Proposed Project's fair share on public services. Impacts would be less than significant.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
iii) Schools?	☐	☐	☐	☒

Response:

The Proposed Project is not anticipated to induce population growth; therefore, it would not create additional demand for schools. No impact would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
iv) Parks?	☐	☐	☐	☒

Response:

The Proposed Project is not anticipated to induce population growth; therefore, it would not create additional demand for parks. No impact would occur.

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
v) Other public facilities?	☐	☐	☐	☒

Response:

The Proposed Project is not anticipated to induce population growth; therefore, it would not create additional demand for other public facilities, such as libraries. No impact would occur.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
   - Chapter 2 – Community Development Element – Section 2.5 – Schools
     - Figure 2-3 – School District Boundaries
   - Chapter 2 – Community Development Element – Section 2.6 – Library Services

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

- Chapter 2 – Community Development Element – Section 2.7 – Special Districts
- Chapter 2 – Community Development Element – Section 2.5 – Other City Facilities
- Chapter 4 – Parks, Recreation and Open Space Element – Section 4.3 – Parks and Recreation
  - Figure 4-2 – Future Parklands Acquisition Areas
  - Figure 4-3 – Master Plan of Trails
- Chapter 6 – Safety Element – Section 6.1 – Police Protection and Crime Preventions
- Chapter 6 – Safety Element – Section 6.2 – Fire and Emergency Services
  - Figure 6-1 – Fire Stations

2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
   - Section 5.13 – Public Services
     - Figure 5.13-1 – Location of Public Facilities
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code

XVI. RECREATION – Would the project:

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

Response:

The project site is located within a vacant undeveloped lot designated for commercial uses by the City of Moreno Valley General Plan. The Proposed Project would not involve residential uses and therefore is not anticipated to cause a substantial increase in the population of the project region. The Proposed Project includes an automobile gas station consisting of a convenience store, retail store, fuel canopy including regular and hydrogen fueling, hydrogen equipment room, and automated carwash, which is not anticipated to result in a significant increase in employment; therefore, no increase in demand or use of existing parks or recreational facilities would result from the implementation of the Proposed Project. No impact would occur.

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

Response:

The Proposed Project would not require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment. No impact would occur.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
   - Chapter 4 – Parks, Recreation and Open Space Element – Section 4.3 – Parks and Recreation
     - Figure 4-1 – Open Space
     - Figure 4-2 – Future Parklands Acquisition Areas
     - Figure 4-3 – Master Plan of Trails
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
   - Section 5.13 – Public Services
     - Figure 5.13-1 – Location of Public Facilities
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code

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

Response:

A Vehicle Miles Travelled Screening & Focused Traffic Impact Study was completed for the Proposed Project by K2 Traffic Engineering, Inc. (K2 Traffic Engineering, Inc. 2020).

Construction Impacts

The Proposed Project would generate short term construction related vehicle trips. Construction traffic would include crews and equipment traveling to and from the project site. The Proposed Project would be consistent with the land use and zoning designation of the project site. Additionally, traffic generated by construction of the Proposed Project would be temporary and would not conflict with the City of Moreno Valley's Circulation Element. Impacts would be less than significant.

Operational Impacts

The Proposed Project would develop an automobile gas station consisting of a convenience store, retail store, fuel canopy including regular and hydrogen fueling, hydrogen equipment room, and automated carwash, which is a consistent use with the project site's land use designation (SP 204 – The Village, CC – Community Commercial). The Proposed Project has a net trip generation of 38 inbound and 34 outbound trips in the AM peak hour, and 57 inbound and 55 outbound trips in the PM peak hour, and 1,464 daily trips, including pass-by considerations (K2 Traffic Engineering, Inc. 2020).

The Focused Traffic Impact Study evaluated the following study scenarios:

- Existing: Year 2020
- Existing: Year 2020 plus Project
- Pre-Project Conditions: Year 2025
- Post-Project Conditions: Year 2025 plus Project

The following intersections were included in the Focused Traffic Study:

1. Sunnymead Boulevard at Frederick Street
2. Sunnymead Boulevard at Graham Street
3. Sunnymead Boulevard at Heacock Street
4. Eucalyptus Avenue at Graham Street
5. Driveway "A" at Sunnymead Boulevard
6. Driveway "B" at Graham Street

Under existing conditions, all study intersections operate at LOS "C" or better. Under existing conditions plus project, all study intersections maintain an LOS of "C" or better. Under pre-project conditions (year 2025), all studied intersections will maintain an LOS of "D" or better. Under post-project conditions (year 2025 plus project), all studied intersections will maintain an LOS of "D" or better (K2 Traffic Engineering, Inc. 2020).

The City's LOS standards, as published in the City's General Plan, indicate that LOS D is acceptable for all study intersections. All study intersections remain operating at an acceptable LOS of D or better in each study scenario. Therefore, operational traffic impacts would be less than significant. No mitigation would be required.

The Focused Traffic Impact Study also examined four turn pockets at study intersections for the sufficiency of queuing capacity. These turn pockets include:

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

1. Sunnymead Boulevard at Frederick Street
2. Sunnymead Boulevard at Graham Street
3. Sunnymead Boulevard at Heacock Street
4. Eucalyptus Avenue at Graham Street

As pre-existing conditions, the following turn pockets have inadequate queue length:

1. Sunnymead Boulevard at Frederick Street: Northbound Right & Southbound Left
2. Sunnymead Boulevard at Graham Street: Westbound Left
3. Sunnymead Boulevard at Heacock Street: Eastbound, Westbound, Northbound and Southbound Left

Project trips are not expected to create any new location of inadequate queue length beyond those identified as pre-existing conditions. However, the Focused Traffic Impact Study recommends increasing queue length for the westbound left-turn pocket at Sunnymead Boulevard and Graham Street to provide at least 280 feet of storage length (K2 Traffic Engineering, Inc. 2020).

The Focused Traffic Impact Study also completed a fair share contribution analysis. Fair share contribution represents the percentage of construction cost that the Proposed Project is expected to contribute toward the recommended improvement to increase the storage length at the westbound left-turn pocket at Sunnymead Boulevard and Graham Street. The fair share contribution is calculated based on the sum of project trips in the PM peak hour at project opening year plus project as a percentage of total trips during the same period. The Focused Traffic Impact Study determined that the Proposed Project should contribute a fair share of 19 percent of the construction costs for the queue length extension.

With the implementation of Mitigation Measure **TRANS-1**, Proposed Project impacts to the westbound left-turn pocket on Sunnymead Boulevard at Graham Street would be less than significant.

The Proposed Project does not involve any uses that would increase population beyond what is considered in the General Plan and, therefore, would not affect City-wide plans for population growth at the project site. As such, the Proposed Project would be consistent with the City of Moreno Valley's General Plan Circulation Element. No impact would occur.

Sidewalks are present and in good conditions along Sunnymead Boulevard and Graham Street in the project vicinity. The intersection of Sunnymead Boulevard and Graham Street provides crosswalk at each approach with accessible ramps and pedestrian push buttons to activate pedestrian crossing phases. ADA compliant access ramp would be provided at each new driveway. Bike lanes are present and in good conditions along Sunnymead Boulevard and Graham Street. The project site is within 400 feet from existing bus stops of Route Number 19 operated by Riverside Transit Agency's (RTA) which runs along Sunnymead Boulevard. The Proposed Project would not affect this bus stop. No impacts would occur.

Mitigation Measure:

TRANS-1: The subject development shall contribute a fair share of 19 percent of the construction costs for the queue length extension of the westbound left-turn pocket on Sunnymead Boulevard at Graham Street to provide at least 280 feet of storage length.

b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☒

Response:

The Proposed Project would develop an automobile gas station consisting of a convenience store, retail store, fuel canopy including regular and hydrogen fueling, hydrogen equipment room, and automated carwash, which is a consistent use with the project site's land use designation (SP 204 – The Village, CC – Community Commercial). The Proposed Project is suitable for the Western Riverside Council of Governments (WRCOG) screening tool. The WRCOG screening output shows that the Proposed Project is located within a low VMT generating Traffic Analysis Zones (TAZ) and can be presumed to have less

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
than significant VMT impact. Complete VMT analysis and forecasting through regional model is, therefore, not required for the Proposed Project (K2 Traffic Engineering, Inc. 2020). The Proposed Project would not conflict with CEQA Guidelines section 15064.3, subdivision (b). No impact would occur.				
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒

Response:

The Proposed Project would provide a new driveway on Sunnymead Boulevard for right-in-right-out access. Another new driveway would be provided on Graham Street for two-way access. With a two-way-left-turn lane in the middle of Graham Street, site access is adequate and proper (K2 Traffic Engineering, Inc. 2020). The project site provides drive aisles of 24 feet wide for two way circulation. Adequate throat length is provided to ensure parking maneuvers contained on site without affecting traffic on public streets. On-site circulation appears efficient and safe without bottleneck (K2 Traffic Engineering, Inc. 2020). No impact would occur.

d) Result in inadequate emergency access?	☐	☐	☐	☒

Response:

The Proposed Project has been designed to meet City development standards. Furthermore, the Proposed Project plans would be submitted to the City for plan check and approval. The City's Fire Department has reviewed proposed project plans for emergency access and has conditioned the project to ensure emergency access is adequate at the project site. No impact would occur.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
   - Chapter 5 Circulation Element
     - Figure 9-1 – Circulation Plan
     - Figure 9-2 – LOS Standards
     - Figure 9-3 – Roadway Cross-Sections
     - Figure 9-4 – Bikeway Plan
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
   - Section 5.2 – Traffic/Circulation
     - Figure 5.2-1 – Circulation Plan
     - Figure 5.2-2 – General Plan Roadway Cross-Sections
     - Figure 5.2-3 – Year 2000 Number of Through Lanes
     - Figure 5.2-4 – Year 2000 Daily Volume/Capacity (V/C) Ratios
     - Figure 5.2-5 – Year 2000 Average Daily Traffic Volumes
     - Figure 5.2-6 – Proposed Circulation Plan
     - Figure 5.2-7 – LOS Standards
   - Appendix B – Traffic Analysis, City of Moreno Valley General Plan Traffic Study, Urban Crossroads, June 2004.
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
4. Moreno Valley Municipal Code Chapter 3.18 Special Gas Tax Street Improvement Fund
5. Moreno Valley Master Bike Plan, adopted January 2015
6. Riverside County Transportation Commission, Congestion Management Program, December 14, 2011
7. K2 Traffic Engineering, Inc. 2020 - Vehicle Miles Travelled Screening & Focused Traffic Impact Study Go Fresh Gas Station at SEC of Sunnymead Blvd and Graham St Moreno Valley. July 13, 2020.

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XVIII. TRIBAL CULTURAL RESOURCES – Would the project:				
a) Cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k), or	☐	☐	☐	☒

Response:

A Phase I Cultural Resources Survey was completed for the Proposed Project in 2019 by Brian F. Smith and Associates, Inc. (BFSA 2019). A cultural resources records search was completed at the EIC at the UCR on December 2, 2019 to identify any previously recorded cultural resources or previous archaeological studies within a one-mile radius of the project site. The EIC records search results indicated that six cultural resources and 40 cultural resource studies are recorded within a one-mile radius of the project site. One study covers the project site. A SLF search from the NAHC was also requested, which indicated that no recorded Native American sacred sites or locations of religious or ceremonial importance are present within the vicinity of the project site. A cultural resources survey of the project site was conducted on November 21, 2019. No prehistoric or historic cultural resources were identified during the survey and the records search results suggest a low potential for resources to be present in the project area (BFSA 2019). No impact would occur.

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

Response:

While there are no known tribal cultural resources (TCRs) in the project footprint, ground-disturbing activities have the potential to result in the discovery of, or inadvertent damage to, archaeological contexts and human remains, and this possibility cannot be eliminated. Consequently, there is a potential for significant impacts on TCRs. Implementation Mitigation **CUL-1** through **CUL-6** would reduce the potential impacts to less than significant.

Mitigation Measures **CUL-1** through **CUL-6** are listed under Section V. Cultural Resources of this Initial Study; however, they are repeated here for reference.

Mitigation Measures:

CUL-1: Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), including Agua Caliente Band of Cahuilla Indians, San Manuel Band of Mission Indians, and Soboba Band of Luiseño Indians, the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:

a. Project grading and development scheduling;

b. The Project archeologist and the Consulting Tribes(s) as defined in CUL-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;

c. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

CUL-2: Prior to the issuance of a grading permit, the Developer shall secure agreements with the Agua Caliente Band of Cahuilla Indians, San Manuel Band of Mission Indians, and Soboba Band of Luiseño Indians for tribal monitoring. The Developer is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2.

CUL-3: In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:

b. One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department:

i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.

ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CUL-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CUL-1.

CUL-4: The City shall verify that the following note is included on the Grading Plan:

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact

"If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."

CUL-5: If potential historic or cultural resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person meeting the Secretary of the Interior's standards (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all Consulting Native American Tribes as defined in CUL-1 before any further work commences in the affected area.

CUL-6: If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 24 hours of the published finding to be given a reasonable opportunity to identify the "most likely descendant". The "most likely descendant" shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
   - Chapter 7 – Conservation Element – Section 7.2 – Cultural and Historical Resources
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
   - Section 5.10 – Cultural Resources
     - Figure 5.10-1 – Locations of Listed Historic Resource Inventory Structures
     - Figure 5.10-2 – Location of Prehistoric Sites
     - Figure 5.10-3 – Paleontological Resource Sensitive Areas
   - Appendix F – Cultural Resources Analysis, Study of Historical and Archaeological Resources for the Revised General Plan, City of Moreno Valley, Archaeological Associates, August 2003.
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
4. Moreno Valley Municipal Code Title 7 – Cultural Preservation
5. Cultural Resources Inventory for the City of Moreno Valley, Riverside County, California, prepared by Daniel F. McCarthy, Archaeological Research Unit, University of California, Riverside, October 1987 (*<u>This document cannot be provided to the public due to the inclusion of confidential information pursuant to Government Code Section 6254.10.</u>*)

XIX. UTILITIES AND SERVICE SYSTEMS – Would the project:

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

Response:

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
The Proposed Project would develop an automobile gas station consisting of a convenience store, retail store, fuel canopy including regular and hydrogen fueling, hydrogen equipment room, and automated carwash. The Proposed Project would require connections to water, sewer, storm water drainage, electric, natural gas, and telecommunication utilities, which are located within adjacent roadways (Sunnymead Boulevard, Graham Street). The installation of utility connections would result in physical impacts on the project site and on adjacent roadway areas for connections; however, these impacts are considered to be part of the Proposed Project's construction phase and are evaluated throughout this Initial Study accordingly. Impacts would be less than significant.				
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☒	☐
Response: Potable water to the project site would be supplied by the Eastern Municipal Water District (EMWD). According to EMWD's 2015 Urban Water Management Plan, EMWD will have sufficient water supplies to meet expected demands from 2020 through 2040 under normal, historic single-dry and historic multiple-dry year conditions (EMWD 2016). EMWD forecasts for projected water demand are based on the adopted land use designations contained within the general plans that cover the geographic area within EMWD's service area, which include the project site. The Proposed Project would be consistent with the City of Moreno Valley's General Plan land use designation for the project site; therefore, the water demand associated with the Proposed Project was considered in the demand anticipated by EMWD's 2015 Urban Water Management Plan. As such, sufficient water supplies would be available to serve the Proposed Project. Impacts would be 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's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
Response: The Proposed Project would generate wastewater from restrooms, faucets, and the automated carwash. The Proposed Project would install a sewer line to connect the project site to existing sewer lines on adjacent streets. Wastewater service in the City of Moreno Valley is provided by the EMWD. All wastewater is collected and conveyed to the Moreno Valley Regional Water Reclamation Facility (MVRWRF) located in the southwestern portion of the City and has a capacity to treat 16 million gallons of wastewater per day (mgd) and a capacity to expand to 41 mgd. The utilization in the year 2002 was approximately 11 mgd (City of Moreno Valley 2006a). It is anticipated that the construction and operation of a convenience store, retail store, fuel canopy, and automated carwash would not generate wastewater volumes that would exceed the treatment capacity of (MVRWRF), which can treat up to 16 mgd of wastewater. Impacts would be less than significant.				

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☒	☐

Response:

The Proposed Project is consistent with the land use designation presented in the City of Moreno Valley General Plan. As such, the Proposed Project is within the growth contemplated by the General Plan. The operation of the convenience store, retail store, fuel canopy including regular and hydrogen fueling, hydrogen equipment room, and automated carwash is not anticipated to generate solid waste in excess of State or local standards or in excess of the capacity of local solid waste facilities. Furthermore, the Proposed Project would comply with all solid waste reduction goals. Impacts would be less than significant.

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

Response:

Waste generated by the Proposed Project would comply with all applicable federal, state, and local statutes and regulations related to solid waste. No impact would occur.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
    - Chapter 2 – Conservation Element – Section 2.4 – Utilities
    - Chapter 6 – Safety Element – Section 6.7 – Water Quality
    - Chapter 7 – Conservation Element – Section 7.3 – Solid Waste
    - Chapter 7 -- Conservation Element – Section 7.5—Water Resources
        - Figure 7-1 – Water Purveyor Service Area Map
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
    - Section 5.7 – Hydrology and Water Quality
        - Figure 5.7-1 – Strom Water Flows and Major Drainage Facilities
        - Figure 5.7-2 – Groundwater Basins
    - Section 5.13 – Public Services
        - Figure 5.13-1 – Locations of Public Facilities
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
4. Moreno Valley Municipal Code Chapter 8.10 Stormwater/Urban Runoff Management and Discharge Controls
5. Moreno Valley Municipal Code Section 8.21.170 National Pollutant Discharge Elimination System (*NPDES*).
6. Moreno Valley Municipal Code Chapter 8.80 – Recycling and Diversion of Construction and Demolition Waste

XX. WILDFIRE – If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, **would the project:**

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

Response:

The Proposed Project would not have any direct effect on an adopted emergency response plan or emergency evacuation plan. The City's project review process includes reviews by the City's fire and police departments for consideration of emergency access requirements. The Proposed Project's design would meet City standards for required emergency vehicle access and emergency egress of residents. Established City procedures including plan check, permit issuance, and construction inspection would ensure implementation of the Proposed Project is consistent with the approved design. No impact would occur.

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☐	☒

Response:

The project site is not within or near a state responsibility area (CAL FIRE 2020). The project site is not within a fire risk area as identified in the City of Moreno Valley General Plan Final EIR (City of Moreno Valley 2006a). The project site is an urban developed area and would not exacerbate the wildfire risk of the project occupants. No impact would occur.

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?	☐	☐	☐	☒

Response:

As previously described, the project site is not within or near a state responsibility area or a fire risk area as identified by the City of Moreno Valley (CAL FIRE 2020, City of Moreno Valley 2006a). The project site is located in an urban developed area served by existing infrastructure. 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?	☐	☐	☐	☒

Response:

The project site is located in a relatively flat area that is not subject to landslides or downstream flooding. No impact would occur.

Sources:

1. Moreno Valley General Plan, adopted July 11, 2006
   - Chapter 6 – Safety Element – Section 6.2- Fire and Emergency Services – 6.2.8—Wildland Urban Interface
2. Final Environmental Impact Report City of Moreno Valley General Plan, certified July 11, 2006
   - Section 5.5 – Hazards and Hazardous Materials
     - Figure 5.5-2 – Floodplains and High Fire Hazard Areas
3. Title 9 – Planning and Zoning of the Moreno Valley Municipal Code
4. Local Hazard Mitigation Plan, City of Moreno Valley Fire Department, adopted October 4, 2011, amended 2017, http://www.moval.org/city_hall/departments/fire/pdfs/haz-mit-plan.pdf
   - Chapter 5 – Wildland and Urban Fires
     - Figure 5-2 – Moreno Valley High Fire Area Map 2016
   - Chapter 8 – Landslide
     - Figure 8-1 – Moreno Valley Slope Analysis 2016
5. Emergency Operations Plan, City of Moreno Valley, March 2009, http://www.moval.org/city_hall/departments/fire/pdfs/mv-eop-0309.pdf
   - Threat Assessment 3 – Wildfire

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
XXI. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐

Response:

As discussed in Section IV. Biological Resources of this Initial Study, the project site is entirely disturbed and dominated by non-native annuals. There is no riparian habitat, wetland, or other sensitive natural community present on the project site. The project site is also regularly disked. No impacts to special-status plant and wildlife species are anticipated. Protocol surveys for burrowing owl were completed at the project site. No burrows, burrowing owls, or burrowing owl sign were observed on the project site. The project site was determined to provide unsuitable burrowing owl habitat due to the absence of active ground squirrel burrows, berms, and proximity to developed commercial land uses. No impacts to burrowing owls are expected.

As discussed in Section V. Cultural Resources of this Initial Study, no cultural have previously been recorded on the project site and none were recorded during the field survey completed for the Proposed Project. In general, the archaeological sensitivity of the project site is considered to be low. However, unknown buried cultural resources may be present below the ground surface which may be affected during ground disturbing construction activities. With the implementation of Mitigation Measures **CUL-1** through **CUL-7** impacts would be less than significant.

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

Response:

Cumulative impacts are defined as two or more individual (and potentially less than significant) project effects that, when considered together or in concert with other projects combine to result in a significant impact within an identified geographic area. In order for a project to contribute to cumulative impacts, it must result in some level of impact on a project specific level.

As discussed throughout this Initial Study, potentially significant impacts were identified for cultural resources, transportation, and tribal cultural resources. With Mitigation Measures **CUL-1** through **CUL-7** and **TRANS-1**, the Proposed Project's contribution to cumulative impacts would not be considerable. Furthermore, other foreseeable projects would be subject to CEQA and would undergo the same level of review as the Proposed Project and include mitigation measures to minimize potentially significant impacts.

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

Response:

ISSUES & SUPPORTING INFORMATION SOURCES:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
Potentially significant impacts identified in this Initial Study are concerning construction impacts to biological, cultural, and tribal resources, which would be mitigated to a less than significant level. No substantial adverse direct and indirect effects to human beings are anticipated.				

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Appendices

Appendix A – Air Quality and Greenhouse Gas Assessment
Appendix B – Gasoline Vapor Health Risk
Appendix C – Fuel Consumption
Appendix D – Noise Impact Assessment

Appendix A – Air Quality and Greenhouse Gas Assessment

Air Quality & Greenhouse Gas Assessment

Go Fresh Gas Station

Moreno Valley, California

Prepared For:

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February 2021

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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LIST OF ACRONYMS AND ABBREVIATIONS

°F	Degrees Fahrenheit
µg/m3	Micrograms per cubic meter; ppm = parts per million
2016 AQMP	2016 Air Quality Management Plan
2016 RTP/SCS	2016-2040 Regional Transportation Plan/ Sustainable Communities Strategy
AB	Assembly Bill
AERMOD	USEPA air toxic dispersion model
ATCM	Airborne toxics control measure
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency

LIST OF ACRONYMS AND ABBREVIATIONS

CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CC&Rs	Covenants, Codes, and Restrictions
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH_4	Methane
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DOC	Department of Conservation
DPM	Diesel particulate matter
EMFAC	EMission FACtor model
EO	Executive Order
GHG	Greenhouse gas
HRA	Health risk assessment
I-	Interstate
IPCC	Intergovernmental Panel on Climate Change
LOS	Level of service
LSTs	Localized significance threshold
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NO_2	Nitrogen dioxide
NOx	Nitric oxides
NSR	New Source Review
O_3	Ozone
OEHHA	California Office of Environmental Health Hazard Assessment's
OPR	Office of Planning and Research
PM_{10}	Coarse particulate matter
$PM_{2.5}$	Fine particulate matter
ppb	Parts per billion
ppm	Parts per million
Project	Go Fresh Gas Station Project
RCPG	Regional Comprehensive Plan and Guide
RECLAIM	Regional Clean Air Incentives Market
REL	Reference Exposure Level
ROGs	Reactive organic gases
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
sf	Square-foot
SIP	State Implementation Plan
SCAQMD	South Coast Air Quality Management District
SO_2	Sulfur dioxide
SoCAB	South Coast Air Basin

LIST OF ACRONYMS AND ABBREVIATIONS

SO_x	Sulfur oxides
SRA	Source receptor area
SSAB	Salton Sea Air Basin
Strategy	Mobile Source Strategy
TACs	Toxic air contaminants
USEPA	U.S. Environmental Protection Agency
VOCs	Volatile organic compounds

1.0 INTRODUCTION

This report documents the results of an Emissions Impact Assessment completed for the Go Fresh Gas Station Project (Project), which includes the construction of an automobile gas station, a convenience store, a retail store, a fuel canopy, and a carwash on an approximately two-acre parcel located in Moreno Valley, California. This assessment was prepared using methodologies and assumptions recommended in the rules and regulations of the South Coast Air Quality Management District (SCAQMD). Regional and local existing conditions are presented, along with pertinent emissions standards and regulations. The purpose of this assessment is to estimate Project-generated criteria air pollutants and greenhouse gas (GHG) emissions attributable to the Project and to determine the level of impact the Project would have on the environment.

1.1 Project Location and Description

The Project site is located in the City of Moreno Valley (City), located in northwest Riverside County (see Figure 1). The Project site is an approximate two-acre parcel located on the southeast corner of the intersection of Sunnymead Boulevard and Graham Street. The rectangular-shaped site is generally bounded by Sunnymead Boulevard to the north, commercial land uses to the east, a vacant lot with residents beyond to the south, and Graham Street with residents beyond to the west (see Figure 2. Project Vicinity). The Project is proposing the construction of a 5,063 square-foot (SF) convenience store, 3,561 SF retail store, 6,045 SF fuel canopy with ten fueling pumps (two of which would dispense hydrogen fuel), four underground fuel storage tanks, a 999 SF hydrogen equipment room, and a 2,485 SF car wash with 17 parking spaces and vacuums for customers. Proposed site improvements would also include the installation of driveways, parking, landscaping, stormwater drainage system, water and sewer connections, and lighting. Site access would be provided via two driveways, one on Sunnymead Boulevard and one on Graham Street.

The Project site is designated by the City of Moreno Valley General Plan as "Commercial". The Commercial land use designation is intended for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services (Moreno Valley 2006).

Location: N:\2020\2020-078 Go Fresh Gas Station Moreno Valley\MAPS\Location_Vicinity\GoFresh_Vicinity.mxd (TR)-trotellini 7/22/2020

Map Date: 7/22/2020

Sources:

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Figure 1. Project Vicinity

2020-78 Go Fresh Gas Station Moreno Valley

Attachment: Exhibit A - Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program [Revision 1] (4469 : PEN20-0141 Plot

Location: N:\2020\2020-078 Go Fresh Gas Station Moreno Valley\MAPS\Location_Vicinity\GoFresh_Location.mxd (TR)-trotellini 7/22/2020

Map Date: 7/22/2020

Service Layer Credits: Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

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Figure 2. Project Location

2020-078 Go Fresh Gas Station Moreno Valley

2.0 AIR QUALITY

2.1 Air Quality Setting

Air quality in a region is determined by its topography, meteorology, and existing air pollutant sources. These factors are discussed below, along with the current regulatory structure that applies to the South Coast Air Basin (SoCAB), which encompasses the Project site, pursuant to the regulatory authority of the SCAQMD.

Ambient air quality is commonly characterized by climate conditions, the meteorological influences on air quality, and the quantity and type of pollutants released. The air basin is subject to a combination of topographical and climatic factors that reduce the potential for high levels of regional and local air pollutants. The following section describes the pertinent characteristics of the air basin and provides an overview of the physical conditions affecting pollutant dispersion in the Project area.

2.1.1 South Coast Air Basin

CARB divides the state into air basins that share similar meteorological and topographical features. The Project site lies in the SoCAB, which includes the non-desert portions of Los Angeles, Riverside, and San Bernardino counties and all of Orange County. The air basin is on a coastal plain with connecting broad valleys and low hills and is bounded by the Pacific Ocean on the southwest, with high mountains forming the remainder of the perimeter (SCAQMD 1993).

Temperature and Precipitation

The air basin is part of a semi-permanent high-pressure zone in the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild weather pattern is interrupted infrequently by periods of extremely hot weather, winter storms, and Santa Ana winds. The annual average temperature varies little throughout the 6,645-square-mile SoCAB, ranging from the low 60s to the high 80s, measured in degrees Fahrenheit (°F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas (SCAQMD 1993).

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all annual rains fall between November and April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast, with slightly heavier shower activity in the east and over the mountains.

Humidity

Although the SoCAB has a semiarid climate, the air near the earth's surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the SoCAB by offshore winds, the "ocean effect" is dominant. Periods of heavy fog, especially along the coast, are frequent, and low clouds, often referred to as high fog, are a characteristic climatic feature. Annual average humidity is 70 percent at the coast and 57 percent in the eastern portions of the SoCAB (SCAQMD 1993).

Wind

Wind patterns across the south coastal region are characterized by westerly or southwesterly onshore winds during the day and by easterly or northeasterly breezes at night. Wind speed is higher during the dry summer months than during the rainy winter.

Between periods of wind, air stagnation may occur in both the morning and evening hours. Air stagnation is one of the critical determinants of air quality conditions on any given day. During the winter and fall, surface high-pressure systems over the SoCAB, combined with other meteorological conditions, can result in very strong, downslope Santa Ana winds. These winds normally continue a few days before predominant meteorological conditions are reestablished.

The mountain ranges to the east affect the diffusion of pollutants by inhibiting the eastward transport of pollutants. Air quality in the SoCAB generally ranges from fair to poor and is similar to air quality in most of coastal Southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions (SCAQMD 1993).

Inversions

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, two similarly distinct types of temperature inversions control the vertical depth through which pollutants are mixed. These inversions are the marine/subsidence inversion and the radiation inversion. The height of the base of the inversion at any given time is known as the “mixing height.” The combination of winds and inversions is a critical determinant leading to highly degraded air quality in the summer and generally good air quality in the winter in Los Angeles County (SCAQMD 1993).

2.1.2 Criteria Air Pollutants

Criteria air pollutants are defined as those pollutants for which the federal and state governments have established air quality standards for outdoor or ambient concentrations to protect public health with a determined margin of safety. Ozone (O_3), coarse particulate matter (PM_{10}), and fine particulate matter ($PM_{2.5}$) are generally considered to be regional pollutants because they or their precursors affect air quality on a regional scale. Pollutants such as carbon monoxide (CO), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2) are considered to be local pollutants because they tend to accumulate in the air locally. PM is also considered a local pollutant. Health effects commonly associated with criteria pollutants are summarized in Table 2-1.

Table 2-1. Criteria Air Pollutants- Summary of Common Sources and Effects

Pollutant	Major Manmade Sources	Human Health & Welfare Effects
CO	An odorless, colorless gas formed when carbon in fuel is not burned completely; a component of motor vehicle exhaust.	Reduces the ability of blood to deliver oxygen to vital tissues, effecting the cardiovascular and nervous system. Impairs vision, causes dizziness, and can lead to unconsciousness or death.
NO_2	A reddish-brown gas formed during fuel combustion for motor vehicles, energy utilities and industrial sources.	Respiratory irritant; aggravates lung and heart problems. Precursor to ozone and acid rain. Causes brown discoloration of the atmosphere.
O_3	Formed by a chemical reaction between reactive organic gases (ROGs) and nitrous oxides (N_2O) in the presence of sunlight. Common sources of these precursor pollutants include motor vehicle exhaust, industrial emissions, solvents, paints and landfills.	Irritates and causes inflammation of the mucous membranes and lung airways; causes wheezing, coughing and pain when inhaling deeply; decreases lung capacity; aggravates lung and heart problems. Damages plants; reduces crop yield.
PM_{10} & $PM_{2.5}$	Power plants, steel mills, chemical plants, unpaved roads and parking lots, wood-burning stoves and fireplaces, automobiles and others.	Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing; aggravated asthma; development of chronic bronchitis; irregular heartbeat; nonfatal heart attacks; and premature death in people with heart or lung disease. Impairs visibility (haze).
SO_2	A colorless, nonflammable gas formed when fuel containing sulfur is burned. Examples are refineries, cement manufacturing, and locomotives.	Respiratory irritant. Aggravates lung and heart problems. Can damage crops and natural vegetation. Impairs visibility.

Source: California Air Pollution Control Officers Association (CAPCOA 2013)

Carbon Monoxide

CO, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. CO combines with hemoglobin in the bloodstream and reduces the amount of oxygen that can be circulated through the body. High CO concentrations can cause headaches, aggravate cardiovascular disease and impair central nervous system functions. CO concentrations can vary greatly over comparatively short distances. Relatively high concentrations of CO are typically found near crowded intersections and along heavy roadways with slow moving traffic. Even under the most sever meteorological and traffic conditions, high concentrations of CO are limited to locations within relatively short distances (i.e., up to 600 feet or 185 meters) of the source. Overall CO emissions are decreasing as a result of the Federal Motor Vehicle Control Program, which has mandated increasingly lower emission levels for vehicles manufactured since 1973. CO levels in the SoCAB are in compliance with the state and federal one- and eight-hour standards.

Nitrogen Oxides

Nitrogen gas comprises about 80 percent of the air and is naturally occurring. At high temperatures and under certain conditions, nitrogen can combine with oxygen to form several different gaseous compounds collectively called nitric oxides (NO_x). Motor vehicle emissions are the main source of NO_x in urban areas. NO_x is very toxic to animals and humans because of its ability to form nitric acid with water in the eyes, lungs, mucus membrane, and skin. In animals, long-term exposure to NO_x increases susceptibility to respiratory infections, and lowering resistance to such diseases as pneumonia and influenza. Laboratory studies show that susceptible humans, such as asthmatics, who are exposed to high concentrations can suffer from lung irritation or possible lung damage. Precursors of NO_x, such as NO and NO_2, attribute to the formation of O_3 and $PM_{2.5}$. Epidemiological studies have also shown associations between NO_2 concentrations and daily mortality from respiratory and cardiovascular causes and with hospital admissions for respiratory conditions.

Ozone

O_3 is a secondary pollutant, meaning it is not directly emitted. It is formed when volatile organic compounds (VOCs) or ROG and NO_x undergo photochemical reactions that occur only in the presence of sunlight. The primary source of ROG emissions is unburned hydrocarbons in motor vehicle and other internal combustion engine exhaust. NO_x forms as a result of the combustion process, most notably due to the operation of motor vehicles. Sunlight and hot weather cause ground-level O_3 to form. Ground-level O_3 is the primary constituent of smog. Because O_3 formation occurs over extended periods of time, both O_3 and its precursors are transported by wind and high O_3 concentrations can occur in areas well away from sources of its constituent pollutants.

People with lung disease, children, older adults, and people who are active can be affected when O_3 levels exceed ambient air quality standards. Numerous scientific studies have linked ground-level O_3 exposure to a variety of problems including lung irritation, difficult breathing, permanent lung damage to those with repeated exposure, and respiratory illnesses.

Particulate Matter

Particulate matter includes both aerosols and solid particulates of a wide range of sizes and composition. Of concern are those particles smaller than or equal to 10 microns in diameter size (PM_{10}) and small than or equal to 2.5 microns in diameter ($PM_{2.5}$). Smaller particulates are of greater concern because they can penetrate deeper into the lungs than larger particles. PM_{10} is generally emitted directly as a result of mechanical processes that crush or grind larger particles or form the resuspension of dust, typically through construction activities and vehicular travel. PM_{10} generally settles out of the atmosphere rapidly and is not readily transported over large distances. $PM_{2.5}$ is directly emitted in combustion exhaust and is formed in atmospheric reactions between various gaseous pollutants, including NO_x, sulfur oxides (SOx) and ROG. $PM_{2.5}$ can remain suspended in the atmosphere for days and/or weeks and can be transported long distances.

The principal health effects of airborne PM are on the respiratory system. Short-term exposure of high $PM_{2.5}$ and PM_{10} levels are associated with premature mortality and increased hospital admissions and emergency room visits. Long-term exposure is associated with premature mortality and chronic respiratory disease. According to the U.S. Environmental Protection Agency (USEPA), some people are much more sensitive than others to breathing PM_{10} and $PM_{2.5}$. People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worse illnesses; people with bronchitis can expect aggravated symptoms; and children may experience decline in lung function due to breathing in PM_{10} and

$PM_{2.5}$. Other groups considered sensitive include smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive because many breathe through their mouths.

2.1.3 Toxic Air Contaminants

In addition to the criteria pollutants discussed above, toxic air contaminants (TACs) are another group of pollutants of concern. TACs are considered either carcinogenic or noncarcinogenic based on the nature of the health effects associated with exposure to the pollutant. For regulatory purposes, carcinogenic TACs are assumed to have no safe threshold below which health impacts would not occur, and cancer risk is expressed as excess cancer cases per one million exposed individuals. Noncarcinogenic TACs differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

There are many 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. Public exposure to TACs can result from emissions from normal operations, as well as from accidental releases of hazardous materials during upset conditions. The health effects of TACs include cancer, birth defects, neurological damage, and death.

Out of the toxic compounds emitted from gasoline stations, such as that proposed by the Project, benzene has cancer toxicity values. It is noted that benzene is the TAC which drives the risk of cancer, accounting for 87 percent of cancer risk from gasoline vapors (SCAQMD 2015). Furthermore, benzene constitutes more than three to four times the weight of gasoline than ethylbenzene and naphthalene, respectively (SCAQMD 2015). According to the California Air Pollution Control Officers Association (CAPCOA) benzene is the most important substance driving cancer risk, while xylene, another air pollutant associated with gasoline stations, is the only substance which is associated with acute adverse health effects (CAPCOA 1997). According to CAPCOA (1997), not until the benzene emissions are three orders of magnitude above the rate of an increase of 10 per million cancer risk, do the emissions of xylene begin to cause acute adverse health effects. Benzene is highly carcinogenic and occurs throughout California. Benzene also has non-cancer health effects. Brief inhalation exposure to high concentrations can cause central nervous system symptoms of nausea, tremors, drowsiness, dizziness, headache, intoxication, and unconsciousness.

Neurological symptoms of inhalation exposure to benzene include drowsiness, dizziness, headaches, and unconsciousness. Ingestion of large amounts of benzene may result in vomiting, dizziness, and convulsions. Exposure to liquid and vapor may irritate the skin, eyes, and upper respiratory tract. Redness and blisters may result from dermal exposure to benzene. Chronic inhalation of certain levels of benzene causes blood disorders because benzene specifically affects bone marrow, which produces blood cells. Aplastic anemia, excessive bleeding, and damage to the immune system (by changes in blood levels of antibodies and loss of white blood cells) may develop. Increased incidence of leukemia (cancer of the tissues that form white blood cells) has been observed in humans occupationally exposed to benzene.

2.1.4 *Ambient Air Quality*

Ambient air quality at the Project site can be inferred from ambient air quality measurements conducted at nearby air quality monitoring stations. CARB maintains more than 60 monitoring stations throughout California. The Perris (237 1/2 N. D Street, Perris) air quality monitoring station, located approximately 10 miles south of the Project site, monitors ambient concentrations of O_3 and PM_{10}. The Rubidoux - Mission Boulevard (5888 Mission Boulevard, Riverside) air quality monitoring station, located approximately 10.29 miles northwest, monitors ambient concentrations of $PM_{2.5}$. Together, the two monitoring stations monitor the three pollutants in nonattainment of air quality standards in the Project region. Ambient emission concentrations will vary due to localized variations in emission sources and climate and should be considered "generally" representative of ambient concentrations in the development area.

Table 2-2 summarizes the published data concerning O_3 and PM_{10} between 2016 and 2018 from the Perris monitoring station and published data concerning $PM_{2.5}$ from the Rubidoux - Mission Boulevard monitoring station for each year that the monitoring data is provided. O_3, PM_{10} and $PM_{2.5}$ are the pollutant species most potently affecting the Project region.

Table 2-2. Summary of Ambient Air Quality Data

Pollutant Standards	2016	2017	2018
O_3 – Perris Monitoring Station			
Max 1-hour concentration (ppm)	0.131	0.120	0.117
Max 8-hour concentration (ppm) (state/federal)	0.099 / 0.098	0.106 / 0.105	0.103 / 0.099
Number of days above 1-hour standard (state/federal)	23 / 1	33 / 0	31 / 0
Number of days above 8-hour standard (state/federal)	56 / 55	86 / 80	68 / 67
PM_{10} – Perris Monitoring Station			
Max 24-hour concentration (µg/m3) (state/federal)	76.0 / 76.0	75.4 / 75.4	64.4 / 64.4
Number of days above 24-hour standard (state/federal)	* / 0	68.7 / 0	12.1 / 0
$PM_{2.5}$– Rubidoux - Mission Boulevard Monitoring Station			
Max 24-hour concentration (µg/m3) (state/federal)	60.8 / 51.5	50.3 / 50.3	68.3 / 66.3
Number of days above federal 24-hour standard	* / 0	102.5 / 0	133.6 / 0

Source: CARB 2019a
µg/m3 = micrograms per cubic meter; ppm = parts per million
* = Insufficient data available

The USEPA and CARB designate air basins or portions of air basins and counties as being in "attainment" or "nonattainment" for each of the criteria pollutants. Areas that do not meet the standards are classified as nonattainment areas. The National Ambient Air Quality Standards (NAAQS) (other than O_3, PM_{10}, $PM_{2.5}$, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. The NAAQS for O_3, PM_{10}, and $PM_{2.5}$ are based on statistical calculations over one- to three-year periods, depending on the pollutant. The California Ambient Air Quality Standards (CAAQS) are not to be exceeded during a three-year period. The attainment status for the SoCAB is included in Table 2-3.

The determination of whether an area meets the state and federal standards is based on air quality monitoring data. Some areas are unclassified, which means there is insufficient monitoring data for determining attainment or nonattainment. Unclassified areas are typically treated as being in attainment. Because the attainment/nonattainment designation is pollutant-specific, an area may be classified as nonattainment for one pollutant and attainment for another. Similarly, because the state and federal standards differ, an area could be classified as attainment for the federal standards of a pollutant and as nonattainment for the state standards of the same pollutant. The region is designated as a nonattainment area for the federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for O_3, PM_{10}, and $PM_{2.5}$ (CARB 2018).

Table 2-3. Attainment Status of Criteria Pollutants in the South Coast Air Basin

Pollutant	State Designation	Federal Designation
O_3	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Unclassified/Attainment
NO_2	Attainment	Unclassified/Attainment
SO_2	Attainment	Unclassified/Attainment

Source: CARB 2018

2.1.5 Sensitive Receptors

Sensitive receptors are defined as facilities or land uses that include members of the population who are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

The nearest sensitive receptors to the Project site are residences located to the south and west. The closet residences are located approximately 90 feet to the west of the Project site across Graham Street.

2.2 Regulatory Framework

2.2.1 Federal

Clean Air Act

The Clean Air Act (CAA) of 1970 and the CAA Amendments of 1971 required the USEPA to establish the NAAQS, with states retaining the option to adopt more stringent standards or to include other specific pollutants. On April 2, 2007, the Supreme Court found that carbon dioxide (CO_2) is an air pollutant covered by the CAA; however, no NAAQS have been established for CO_2.

These standards are the levels of air quality considered safe, with an adequate margin of safety, to protect the public health and welfare. They are designed to protect those "sensitive receptors" most susceptible to further respiratory distress such as asthmatics, the elderly, very young children, people already weakened by other disease or illness, and persons engaged in strenuous work or exercise. Healthy adults can tolerate occasional exposure to air pollutant concentrations considerably above these minimum standards before adverse effects are observed.

The USEPA has classified air basins (or portions thereof) as being in attainment, nonattainment, or unclassified for each criteria air pollutant, based on whether or not the NAAQS have been achieved. If an area is designated unclassified, it is because inadequate air quality data were available as a basis for a nonattainment or attainment designation. Table 2-3 lists the federal attainment status of the SoCAB for the criteria pollutants.

2.2.2 State

California Clean Air Act

The California Clean Air Act (CCAA) allows the state to adopt ambient air quality standards and other regulations provided that they are at least as stringent as federal standards. CARB, 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, including setting the CAAQS. CARB also conducts research, compiles emission inventories, develops suggested control measures, and provides oversight of local programs. CARB establishes emissions standards for motor vehicles sold in California, consumer products (such as hairspray, aerosol paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions. CARB also has primary responsibility for the development of California's State Implementation Plan (SIP), for which it works closely with the federal government and the local air districts.

California State Implementation Plan

The federal CAA (and its subsequent amendments) requires each state to prepare an air quality control plan referred to as the SIP. The SIP is a living document that is periodically modified to reflect the latest emissions inventories, plans, and rules and regulations of air basins as reported by the agencies with jurisdiction over them. The CAA Amendments dictate that states containing areas violating the NAAQS revise their SIPs to include extra control measures to reduce air pollution. The SIP includes strategies and control measures to attain the NAAQS by deadlines established by the CAA. The USEPA has the responsibility to review all SIPs to determine if they conform to the requirements of the CAA.

State law makes CARB the lead agency for all purposes related to the SIP. Local air districts and other agencies prepare SIP elements and submit them to CARB for review and approval. CARB then forwards SIP revisions to the USEPA for approval and publication in the Federal Register. The *2016 Air Quality Management Plan* (2016 AQMP) is the SIP for the SoCAB. The 2016 AQMP is a regional blueprint for achieving air quality standards and healthful air in the SoCAB and those portions of the Salton Sea Air Basin that are under SCAQMD's jurisdiction. The 2016 AQMP represents a new approach, focusing on available, proven, and cost-effective alternatives to traditional strategies, while seeking to achieve multiple goals in partnership with other entities promoting reductions in GHGs and toxic risk, as well as efficiencies in energy use, transportation, and goods movement. The most effective way to reduce air pollution impacts is to reduce emissions from mobile sources. The AQMP relies on a regional and multi-level partnership of governmental agencies at the federal, state, regional, and local level. These agencies (USEPA, CARB, local governments, Southern California Association of Governments [SCAG] and the SCAQMD) are the primary agencies that implement the AQMP programs. The 2016 AQMP incorporates the latest scientific and technical information and planning assumptions, including SCAG's latest Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts. The 2016 AQMP includes integrated strategies and measures to meet the NAAQS. The current status of the SIPs for the SoCAB's nonattainment pollutants are shown below:

- On November 28, 2007, CARB submitted a SIP revision to the USEPA for O_3, $PM_{2.5}$ (1997 Standard), CO, and NO_2 in the SoCAB. This revision is identified as the "2007 South Coast SIP". The 2007 South Coast SIP demonstrates attainment of the federal $PM_{2.5}$ standard in the SoCAB by 2014 and attainment of the federal eight-hour O_3 standard by 2023. This SIP also includes a request to reclassify the O_3 attainment designation from "severe" to "extreme". The USEPA approved the redesignation effective June 4, 2010. The "extreme" designation requires the attainment of the eight-hour O_3 standard in the SoCAB by June 2024. CARB approved $PM_{2.5}$ SIP revisions in April 2011 and the O_3 SIP revisions in July 2011. The USEPA approved the $PM_{2.5}$ SIP in 2013 and has approved 46 of the 61, 1997 eight-hour O_3 SIP requirements (USEPA 2018a). In 2014, the USEPA proposed a finding that the SoCAB has attained the 1997 $PM_{2.5}$ standards. In 2016, the USEPA determined that the SoCAB had attained the 1997 $PM_{2.5}$ standards; however, the SoCAB was not redesignated as an attainment area because the USEPA had not approved a maintenance plan and additional requirements under the CAA had not been met (USEPA 2018b).
- In 2012, the SCAQMD adopted the 2012 AQMP, which was a regional and multiagency effort (the SCAQMD, CARB, SCAG, and the USEPA). The primary purposes of the 2012 AQMP were to demonstrate attainment of the federal 24-hour $PM_{2.5}$ standard by 2014 and to update the USEPA-approved eight-hour Ozone Control Plan. In 2012, the 2012 AQMP was submitted to CARB and the USEPA for concurrent review and approval for inclusion in the SIP. The 2012 AQMP was approved by CARB on January 25, 2013.

- In 2017, the SCAQMD adopted the 2016 AQMP. The 2016 AQMP includes strategies and measures to meet the following NAAQS:
  - 2008 eight-hour O_3 (75 parts per billion [ppb]) by 2013
  - 2012 Annual $PM_{2.5}$ (12 µg/m^3) by 2025
  - 1997 eight-hour O_3 (80 ppb) by 2023
  - 1979 one-hour O_3 (120 ppb) by 2022
  - 2006 24-hour $PM_{2.5}$ (35 µg/m^3) by 2019

2.2.3 Local

South Coast Air Quality Management District

The SCAQMD is the air pollution control agency for Orange County and the urban portions of Los Angeles, Riverside, and San Bernardino counties, including the Project site. The agency's primary responsibility is ensuring that the NAAQS and CAAQS are attained and maintained in the SoCAB. The SCAQMD is also responsible for adopting and enforcing rules and regulations concerning air pollutant sources, issuing permits for stationary sources of air pollutants, inspecting stationary sources of air pollutants, responding to citizen complaints, monitoring ambient air quality and meteorological conditions, awarding grants to reduce motor vehicle emissions, and conducting public education campaigns, as well as many other activities. All projects are subject to SCAQMD rules and regulations in effect at the time of construction.

The following is a list of noteworthy SCAQMD rules that are required of construction activities associated with the Proposed Project:

- **Rule 201 & Rule 203 (Permit to Construct & Permit to Operate)** – Rule 201 requires a "Permit to Construct" prior to the installation of any equipment "the use of which may cause the issuance of air contaminants . . ." and Regulation II provides the requirements for the application for a Permit to Construct. Rule 203 similarly requires a Permit to Operate.
- **Rule 402 (Nuisance)** – This rule prohibits the 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 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. This rule does not apply to odors emanating from agricultural operations necessary for the growing of crops or the raising of fowl or animals.
- **Rule 403 (Fugitive Dust)** – This rule requires fugitive dust sources to implement best available control measures for all sources, and all forms of visible PM are prohibited from crossing any property line. This rule is intended to reduce PM_{10} emissions from any transportation, handling,

construction, or storage activity that has the potential to generate fugitive dust. PM_{10} suppression techniques are summarized below.

a) Portions of a construction site to remain inactive longer than a period of three months will be seeded and watered until grass cover is grown or otherwise stabilized.

b) All onsite roads will be paved as soon as feasible or watered periodically or chemically stabilized.

c) All material transported offsite will be either sufficiently watered or securely covered to prevent excessive amounts of dust.

d) The area disturbed by clearing, grading, earthmoving, or excavation operations will be minimized at all times.

e) Where vehicles leave a construction site and enter adjacent public streets, the streets will be swept daily or washed down at the end of the workday to remove soil tracked onto the paved surface.

- **Rule 1113 (Architectural Coatings)** – This rule requires manufacturers, distributors, and end-users of architectural and industrial maintenance coatings to reduce ROG emissions from the use of these coatings, primarily by placing limits on the ROG content of various coating categories.
- **Rule 1401 (New Source Review of Toxic Air Contaminants)** – This rule requires new source review of any new, relocated, or modified permit units that emit TACs. The rule establishes allowable risks for permit units requiring permits pursuant to Rules 201 and 203 discussed above.

2.3 Air Quality Emissions Impact Assessment

2.3.1 Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act (CEQA) Guidelines Appendix G thresholds of significance. The Project would result in a significant impact to air quality if it would do any of the following:

1) Conflict with or obstruct implementation of any applicable air quality plan.

2) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

3) Expose sensitive receptors to substantial pollutant concentrations.

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

SCAQMD Regional Thresholds

The significance criteria established by the applicable air quality management or air pollution control district (SCAQMD) may be relied upon to make the above determinations. According to the SCAQMD, an air quality impact is considered significant if the Proposed Project would violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations. The SCAQMD has established thresholds of significance for air quality for construction and operational activities of land use development projects such as that proposed, as shown in Table 2-4.

Table 2-4. SCAQMD Regional Significance Thresholds – Pounds per Day

Air Pollutant	Construction Activities	Operations
Reactive Organic Gas	75	55
Carbon Monoxide	550	550
Nitrogen Oxide	100	55
Sulfur Oxide	150	150
Coarse Particulate Matter	150	150
Fine Particulate Matter	55	55

Source: SCAQMD 1993 ($PM_{2.5}$ threshold adopted June 1, 2007)

By its very nature, air pollution is largely a cumulative impact. No single project is sufficient in size, by itself, to result in nonattainment of ambient air quality standards. Instead, a project's individual emissions contribute to existing cumulatively significant adverse air quality impacts. If a project's individual emissions exceed its identified significance thresholds, the project would be cumulatively considerable. Projects that do not exceed significance thresholds would not be considered cumulative considerable.

Localized Significance Thresholds

In addition to regional significance thresholds, the SCAQMD developed localized significance thresholds (LSTs) for emissions of NO_2, CO, PM_{10}, and $PM_{2.5}$ generated at new development sites (offsite mobile source emissions are not included in the LST analysis protocol). LSTs represent the maximum emissions that can be generated at a Project site without expecting to cause or substantially contribute to an exceedance of the most stringent national or state ambient air quality standards. LSTs are based on the ambient concentrations of that pollutant within the Project source receptor area (SRA), as demarcated by the SCAQMD, and the distance to the nearest sensitive receptor. LST analysis for construction is applicable for all projects that disturb five acres or less on a single day. The Proposed Project is located within SCAQMD SRA 24 (Perris Valley). Table 2-5 shows the LSTs for a one-acre, two-acre, and five-acre project site in SRA 24 with sensitive receptors located within 25 meters of the Project site (as previously described, the nearest sensitive receptors are approximately 90 feet (27 meters) distant from the Project site).

Table 2-5. Local Significance Thresholds at or within 25 Meters of a Sensitive Receptor

Project Size	Pollutant (pounds per day Construction/Operations)			
	NO_2	CO	PM_{10}	$PM_{2.5}$
1 Acre	118 / 188	602 / 602	4 / 1	3 / 1
2 Acres	170 / 170	883 / 883	7 / 2	4 / 1
5 Acres	270 / 270	1,577 / 1,577	13 / 4	8 / 2

Source: SCAQMD 2009

2.3.2 Methodology

Air quality impacts were assessed in accordance with methodologies recommended by the SCAQMD. Where criteria air pollutant quantification was required, emissions were modeled using the California Emissions Estimator Model (CalEEMod), version 2016.3.2. CalEEMod is a statewide land use emissions computer model designed to quantify potential criteria pollutant emissions associated with both construction and operations from a variety of land use projects. Project construction-generated air pollutant emissions were calculated using CalEEMod model defaults for Riverside County. Operational air pollutant emissions were based on the Project site plans and the estimated traffic trip generation rates calculated by K2 Traffic Engineering, Inc. (2020).

Additionally, as the Project is proposing to dispense gasoline, the cancer risk at nearby land uses was calculated using the SCAQMD Risk Tool (Attachment B). The Risk Tool is used by the SCAQMD and CAPCOA to calculate the cancer risk per 10 million people based on SRA, location of the storage tanks, annual throughput, and distance to nearby receptors.

2.3.3 Impact Analysis

Project Construction-Generated Criteria Air Quality Emissions

Regional Construction Significance Analysis

Construction-generated emissions are temporary and short-term but have the potential to represent a significant air quality impact. Three basic sources of short-term emissions will be generated through construction of the Proposed Project: operation of the construction vehicles (i.e., excavators, trenchers, dump trucks), the creation of fugitive dust during clearing and grading, and the use of asphalt or other oil-based substances during paving activities. Construction activities such as excavation and grading operations, construction vehicle traffic, and wind blowing over exposed soils would generate exhaust emissions and fugitive PM emissions that affect local air quality at various times during construction. Effects would be variable depending on the weather, soil conditions, the amount of activity taking place, and the nature of dust control efforts. The dry climate of the area during the summer months creates a high potential for dust generation. Construction activities would be subject to SCAQMD Rule 403, which requires taking reasonable precautions to prevent the emissions of fugitive dust, such as using water or chemicals, where possible, for control of dust during the clearing of land and other construction activities.

Construction-generated emissions associated the Proposed Project were calculated using the CARB-approved CalEEMod computer program, which is designed to model emissions for land use development projects, based on typical construction requirements. See Attachment A for more information regarding the construction assumptions, including construction equipment and duration, used in this analysis.

Predicted maximum daily construction-generated emissions for the Proposed Project are summarized in Table 2-6. Construction-generated emissions are short-term and of temporary duration, lasting only as long as construction activities occur, but would be considered a significant air quality impact if the volume of pollutants generated exceeds the SCAQMD's thresholds of significance.

Table 2-6. Construction-Related Emissions (Regional Significance Analysis)

Construction Year	Pollutant (pounds per day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Construction in 2021	4.24	42.28	29.23	0.10	5.00	2.69
Construction in 2022	3.91	25.84	28.86	0.04	1.60	1.29
SCAQMD Regional Significance Threshold	*75*	*100*	*550*	*150*	*150*	*55*
Exceed SCAQMD Regional Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod version 2016.3.2. Refer to Attachment A for Model Data Outputs.
Notes: Emission reduction/credits for construction emissions are applied based on the required implementation of SCAQMD Rule 403. The specific Rule 403 measures applied in CalEEMod include the following: sweeping/cleaning adjacent roadway access areas daily; washing equipment tires before leaving the construction site; water exposed surfaces three times daily; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the SCAQMD CEQA Handbook (Tables XI-A through XI-E) were applied.

As shown in Table 2-6, emissions generated during Project construction would not exceed the SCAQMD's regional thresholds of significance. Therefore, criteria pollutant emissions generated during Project construction would not result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is nonattainment under an applicable federal or state ambient air quality standard.

Localized Construction Significance Analysis

The nearest sensitive receptors to the Project site are residences located to the south and west. The closet residences are located approximately 90 feet to the west of the Project site across Graham Street. In order to identify localized, air toxic-related impacts to sensitive receptors, the SCAQMD recommends addressing LSTs for construction. LSTs were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative (I-4). The SCAQMD provided the *Final Localized Significance Threshold Methodology* (dated June 2003 [revised 2008]) for guidance. The LST methodology assists lead agencies in analyzing localized impacts associated with Project-specific level proposed projects.

For this Project, the appropriate SRA for the localized significance thresholds is the Perris Valley, SRA 24. LSTs apply to CO, NO_2, PM_{10}, and $PM_{2.5}$. As previously described, the SCAQMD has produced lookup tables for projects that disturb one, two and five acres. The Proposed Project would disturb ±2.18 acres during construction. Thus, the LST threshold value for a two-acre site was employed from the LST lookup tables.

LST thresholds are provided for distances to sensitive receptors of 25, 50, 100, 200, and 500 meters. The nearest sensitive receptors to the Project site are the residences to the south and west, with the closest one being approximately 90 feet distant (27 meters). Therefore, LSTs for receptors located at 25 meters were utilized in this analysis. The SCAQMD's methodology clearly states that "offsite mobile emissions from a project should not be included in the emissions compared to LSTs." Therefore, for purposes of the construction LST analysis, only emissions included in the CalEEMod "onsite" emissions outputs were considered. Table 2-7 presents the results of localized emissions. The LSTs reflect a maximum disturbance of the entire site.

Table 2-7. Construction-Related Emissions (Localized Significance Analysis)

Activity	Pollutant (pounds per day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Site Preparation 2021	18.28	10.74	1.46	0.73
Grading 2021	20.21	9.76	3.88	2.36
Building Construction, Paving, & Painting 2021	28.18	28.14	1.48	1.40
Building Construction, Paving, & Painting 2022	25.33	27.85	1.26	1.20
SCAQMD Localized Significance Threshold (2.0 acre of disturbance)	*170*	*883*	*7*	*4*
Exceed SCAQMD Localized Threshold?	**No**	**No**	**No**	**No**

Source: CalEEMod version 2016.3.2. Refer to Attachment A for Model Data Outputs.
Notes: Emission reduction/credits for construction emissions are applied based on the required implementation of SCAQMD Rule 403. The specific Rule 403 measures applied in CalEEMod include the following: sweeping/cleaning adjacent roadway access areas daily; washing equipment tires before leaving the construction site; water exposed surfaces three times daily; and limit speeds on unpaved roads to 15 miles per hour. Reductions percentages from the SCAQMD CEQA Handbook (Tables XI-A through XI-E) were applied.

Table 2-7 shows that the emissions of these pollutants on the peak day of construction would not result in significant concentrations of pollutants at nearby sensitive receptors. Therefore, significant impacts would not occur concerning LSTs during construction activities. LSTs were developed in response to SCAQMD Governing Boards' Environmental Justice Enhancement Initiative. The SCAQMD Environmental Justice Enhancement Initiative program seeks to ensure that everyone has the right to equal protection from air pollution. The Environmental Justice Program is divided into three categories, with the LST protocol promulgated under Category I: *Further-Reduced Health Risk*. Thus, the fact that onsite Project construction emissions would be generated at rates below the LSTs for NO_x, CO, PM_{10}, and $PM_{2.5}$ demonstrates that the Project would likely not adversely impact the neighboring receptors in the vicinity of the Project.

Project Operations Criteria Air Quality Emissions

Regional Operational Significance Analysis

Implementation of the Project would result in long-term operational emissions of criteria air pollutants such as PM_{10}, $PM_{2.5}$, CO, and SO_2 as well as ozone precursors such as ROG and NO_X. Project-generated increases in emissions would be predominantly associated with motor vehicle use. As previously described, operational air pollutant emissions were based on the Project site plans and the estimated traffic trip generation rates from K2 Traffic Engineering, Inc. (2020).

Long-term operational emissions attributable to the Project are identified in Table 2-8 and compared to the regional operational significance thresholds promulgated by the SCAQMD.

Table 2-8. Operational-Related Emissions (Regional Significance Analysis)

Emission Source	Pollutant (pounds per day)					
	ROG	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Summer Emissions						
Area	12.93	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.08	0.07	0.00	0.00	0.00
Mobile	1.93	11.36	11.89	0.05	3.00	0.82
Total:	**14.86**	**11.44**	**11.96**	**0.05**	**3.00**	**0.82**
SCAQMD Regional Significance Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Exceed SCAQMD Regional Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Winter Emissions						
Area	12.93	0.00	0.00	0.00	0.00	0.00
Energy	0.00	0.08	0.07	0.00	0.00	0.00
Mobile	1.57	11.13	11.44	0.04	3.00	0.82
Total:	**14.50**	**11.21**	**11.51**	**0.04**	**3.00**	**0.82**
SCAQMD Regional Significance Threshold	*55*	*55*	*550*	*150*	*150*	*55*
Exceed SCAQMD Regional Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod version 2016.3.2. Refer to Attachment A for Model Data Outputs.

Notes: Emissions projections account for a trip generation rate and fleet mix identified by K2 Traffic Engineering, Inc. (2020). Specifically, K2 Traffic Engineering, Inc. estimates the Project generation of 1,464 average vehicle trips daily. The traffic fleet mix defaults contained in the CalEEMod model are based on the average fleet mix of Riverside County.

Area source emissions for the gasoline station include ROG released from consumer products as well as gasoline vapor during dispensing activities. Gasoline vapor emissions are calculated based on an emission factor of 1.27 pounds of ROG per 1,000 gallons of gasoline dispensed (CAPCOA 1997) and the prediction of 3,600,000 gallons of gasoline dispensed annually as provided by the Project applicant [(3,600,000/1,000) x 1.27 = 4,572 pounds annually. 4,572/365) = 12.52 pounds daily].

As shown in Table 2-8, the Project's emissions would not exceed any SCAQMD thresholds for any criteria air pollutants during operation.

As identified in Table 2-3, the Riverside County portion of the SoCAB is listed as a nonattainment area for federal O_3 and $PM_{2.5}$ standards and is also a nonattainment area for the state standards for O_3, PM_{10}, and $PM_{2.5}$. O_3 is a health threat to persons who already suffer from respiratory diseases and can cause severe ear, nose and throat irritation and increases susceptibility to respiratory infections. PM can adversely affect the human respiratory system. As shown in Table 2-8, the Proposed Project would result in increased emissions of the O_3 precursor pollutants ROG and NO_x, PM_{10}, and $PM_{2.5}$, however, the correlation between a project's emissions and increases in nonattainment days, or frequency or severity of related illnesses, cannot be accurately quantified. The overall strategy for reducing air pollution and related health effects in the SCAQMD is contained in the SCAQMD 2016 AQMP. The AQMP provides control measures that reduce emissions to attain federal ambient air quality standards by their applicable deadlines such as the application of available cleaner technologies, best management practices, incentive programs, as well as development and implementation of zero and near-zero technologies and control methods. The CEQA thresholds of significance established by the SCAQMD are designed to meet the objectives of the AQMP and in doing so achieve attainment status with state and federal standards. As noted above, the Project would increase the emission of these pollutants, but would not exceed the thresholds of significance established by the SCAQMD for purposes of reducing air pollution and its deleterious health effects.

Localized Operational Significance Analysis

According to the SCAQMD localized significance threshold methodology, LSTs would apply to the operational phase of a proposed project only if the project includes stationary sources (e.g., smokestacks) or attracts heavy-duty trucks that may spend long periods queuing and idling at the site (e.g., warehouse or transfer facilities). The Proposed Project does not include such uses. While the Project does propose gasoline dispensers, a source of the TAC, benzene, the SCAQMD LST protocol does not address this pollutant. Therefore, in the case of the Proposed Project, the operational LST protocol is not applied.

Conflict with the 2016 Air Quality Management Plan

As part of its enforcement responsibilities, the USEPA requires each state with nonattainment areas to prepare and submit a SIP that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution in nonattainment areas, using a combination of performance standards and market-based programs. Similarly, under state law, the CCAA requires an air quality attainment plan to be prepared for areas designated as nonattainment with regard to the NAAQS and CAAQS. Air quality attainment plans outline emissions limits and control measures to achieve and maintain these standards by the earliest practical date.

As previously mentioned, the Project site is located within the SoCAB, which is under the jurisdiction of the SCAQMD. The SCAQMD is required, pursuant to the federal CAA, to reduce emissions of criteria pollutants for which the SoCAB is in nonattainment. In order to reduce such emissions, the SCAQMD drafted the 2016 AQMP. The 2016 AQMP establishes a program of rules and regulations directed at reducing air pollutant emissions and achieving state (California) and national air quality standards. The 2016 AQMP is a regional and multi-agency effort including the SCAQMD, CARB, SCAG, and the USEPA. The plan's pollutant control strategies are based on the latest scientific and technical information and planning assumptions, including SCAG's 2016 RTP/SCS, updated emission inventory methodologies for various source categories, and SCAG's latest growth forecasts. (SCAG's latest growth forecasts were defined in consultation with local governments and with reference to local general plans.) The Project is subject to the SCAQMD's AQMP.

According to the SCAQMD, in order to determine consistency with SCAQMD's air quality planning two main criteria must be addressed.

Criterion 1:

With respect to the first criterion, SCAQMD methodologies require that an air quality analysis for a project include forecasts of project emissions in relation to contributing to air quality violations and delay of attainment.

a) Would the project result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new air quality violations?

As shown in Table 2-6, 2-7, and 2-8 above, the Proposed Project would result in emissions that would be below the SCAQMD regional and localized thresholds during both construction and operations. Therefore, the Proposed Project would not result in an increase in the frequency or severity of existing air quality violations and would not have the potential to cause or affect a violation of the ambient air quality standards.

b) Would the project delay timely attainment of air quality standards or the interim emissions reductions specified in the AQMP?

As shown in Table 2-6and 2-8 above, the Proposed Project would be below the SCAQMD regional thresholds for construction and operations. Because the Project would result in less than significant regional emission impacts, it would not delay the timely attainment of air quality standards or AQMP emissions reductions.

Criterion 2:

With respect to the second criterion for determining consistency with SCAQMD and SCAG air quality policies, it is important to recognize that air quality planning within the SoCAB focuses on attainment of ambient air quality standards at the earliest feasible date. Projections for achieving air quality goals are based on assumptions regarding population, housing, and growth trends. Thus, the SCAQMD's second criterion for determining Project consistency focuses on whether or not the Proposed Project exceeds the assumptions utilized in preparing the forecasts presented its air quality planning documents. Determining whether or not a project exceeds the assumptions reflected in the 2016 AQMP involves the evaluation of the three criteria outlined below. The following discussion provides an analysis of each of these criteria.

a) Would the project be consistent with the population, housing, and employment growth projections utilized in the preparation of the 2016 AQMP?

A project is consistent with regional air quality planning efforts in part if it is consistent with the population, housing, and employment assumptions that were used in the development of the SCAQMD air quality plans.

Generally, three sources of data form the basis for the projections of air pollutant emissions in Moreno Valley. Specifically, SCAG's Growth Management Chapter of the Regional Comprehensive Plan and Guide (RCPG) provides regional population forecasts for the region and SCAG's 2016 RTP/SCS provides socioeconomic forecast projections of regional population growth. The City of Moreno Valley General Plan is referenced by SCAG in order to assist forecasting future growth in Moreno Valley.

The Proposed Project site has a General Plan land use designation of "Commercial". The Commercial land use designation is intended for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services. The Project is proposing an automobile gas station consisting of a convenience store, retail store, fuel canopy, and automated carwash along with various other improvements such as installation of driveways and sewer connections. The Project is not proposing to amend the City General Plan and is consistent with all land use designations applied to the site. Additionally, the Project is considered 'infill development' as it proposes to develop a property in a rapidly urbanizing area surrounded by predominately urban residential uses. As a result of proposing a mix of commercial land uses in an area devoid of such uses and surrounded heavily by residences, the Project can be identified for its "location efficiency". Location efficiency describes the location of the Project relative to the type of urban landscape its proposed to fit within. In general, compared to the statewide average, a project with location efficiency can realize automotive vehicle mile trip (VMT) reductions between 10 and 65 percent (CAPCOA 2017). The Project would locate complementary commercial land uses in close to proximity to existing offsite residential uses, thereby providing commercial and work options to the existing, nearby residents currently living near the site. The location efficiency of the Project site would result in synergistic benefits that would reduce vehicle trips and VMT compared to the statewide average and would result in corresponding reductions in transportation-related emissions, a primary goal of the 2016 AQMP. Thus, the Project is consistent with the City of Moreno Valley General Plan and is therefore consistent with the types, intensity, and patterns of land use envisioned for the site vicinity in the 2016 RTP/SCS and RCPG. As a result, the Project would not conflict with the land use assumptions or exceed the population or job growth projections used by SCAQMD to develop the 2016 AQMP. The City's population, housing, and employment forecasts, which are adopted by SCAG's Regional Council, are based on the local plans and policies applicable to the City; and these are used by SCAG in all phases of implementation and review. Additionally, as the SCAQMD has incorporated these same projections into their air quality planning efforts, it can be concluded that the Proposed Project would be consistent with the projections. (SCAG's latest growth forecasts were defined in consultation with local governments and with reference to local general plans.) Therefore, the Proposed Project would be considered consistent with the population, housing, and employment growth projections utilized in the preparation of SCAQMD's air quality plans.

b) Would the project implement all feasible air quality mitigation measures?

In order to further reduce emissions, the Project would be required to comply with emission reduction measures promulgated by the SCAQMD, such as SCAQMD Rules 201, 402, 403, and 1113, and 1401. SCAQMD Rule 402 prohibits the 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 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. SCAQMD Rule 403 requires fugitive dust sources to implement Best Available Control Measures for all sources, and all forms of visible particulate matter are prohibited from crossing any property line. SCAQMD Rule 403 is intended to reduce PM_{10} emissions from any transportation, handling, construction, or storage activity that has the potential to generate fugitive dust. SCAQMD 1113 requires manufacturers, distributors, and end-users of architectural and industrial maintenance coatings to reduce ROG emissions from the use of these coatings, primarily by placing limits on the ROG content of various coating categories. Rule 201 requires a "Permit to Construct" prior to the installation of any equipment "the use of which may cause the issuance of air contaminants . . .", such as gasoline dispensers. Rule 1401 requires new source review of any new, relocated, or modified permit units that emit TACs, such as gasoline dispensers. The rule establishes allowable risks for permit units requiring air quality permits. As such, the Proposed Project meets this consistency criterion.

c) Would the project be consistent with the land use planning strategies set forth by SCAQMD air quality planning efforts?

The AQMP contains air pollutant reduction strategies based on SCAG's latest growth forecasts, and SCAG's growth forecasts were defined in consultation with local governments and with reference to local general plans. The Proposed Project is consistent with the land use designation and development density presented in the City's General Plan and therefore, would not exceed the population or job growth projections used by the SCAQMD to develop the AQMP.

In conclusion, the determination of AQMP consistency is primarily concerned with the long-term influence of a project on air quality. The Proposed Project would not result in a long-term impact on the region's ability to meet state and federal air quality standards. The Proposed Project's long-term influence would also be consistent with the goals and policies of the SCAQMD's 2016 AQMP.

The Project would be consistent with the emission-reduction goals of the 2016 AQMP. No impact would occur

Exposure of Sensitive Receptors to Toxic Air Contaminants

As previously described, sensitive receptors are defined as facilities or land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over age 65, children under age 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis. The nearest sensitive receptors to the Project site are residences located 90 feet to the west.

Construction-Generated Air Contaminants

Construction-related activities would result in temporary, short-term Proposed Project-generated emissions of diesel particulate matter (DPM), ROG, NOx, CO, and PM_{10} from the exhaust of off-road, heavy-duty diesel equipment for site preparation (e.g., clearing, grading); soil hauling truck traffic; paving; and other miscellaneous activities. The portion of the SoCAB which encompasses the Project area is designated as a nonattainment area for federal O_3 and fine particulate matter ($PM_{2.5}$) standards and is also a nonattainment area for the state standards for O_3, $PM_{2.5}$, and PM_{10} standards (CARB 2018). Thus, existing O_3 and $PM_{2.5}$ levels in the SoCAB are at unhealthy levels during certain periods. However, as shown in Table 2-6 and Table 2-7, the Project would not exceed the SCAQMD regional or localized significance thresholds for emissions.

The health effects associated with O_3 are generally associated with reduced lung function. Because the Project would not involve construction activities that would result in O_3 precursor emissions (ROG or NOx) in excess of the SCAQMD thresholds, the Project is not anticipated to substantially contribute to regional O_3 concentrations and the associated health impacts.

CO tends to be a localized impact associated with congested intersections. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions. The Project would not involve construction activities that would result in CO emissions in excess of the SCAQMD thresholds. Thus, the Project's CO emissions would not contribute to the health effects associated with this pollutant.

Particulate matter (PM_{10} and $PM_{2.5}$) contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Particulate matter exposure has been linked to a variety of problems, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms such as irritation of the airways, coughing, or difficulty breathing. For construction activity, DPM is also of concern. Particulate exhaust emissions from diesel-fueled engines (i.e., DPM) were identified as a TAC by the CARB in 1998. Based on the emission modeling conducted, the maximum onsite construction-related daily emissions of exhaust $PM_{2.5}$, considered a surrogate for DPM, would be 1.41 pounds/day during 2021 construction activities and 1.20 pounds/day during 2022 construction activities (see Attachment A). ($PM_{2.5}$ exhaust is considered a surrogate for DPM because more than 90 percent of DPM is less than 1 microgram in diameter and therefore is a subset of particulate matter under 2.5 microns in diameter [i.e., $PM_{2.5}$]. Most $PM_{2.5}$ derives from combustion, such as use of gasoline and diesel fuels by motor vehicles.) Most $PM_{2.5}$ derives from combustion, such as use of gasoline and diesel fuels by motor vehicles.) As with O_3 and NO_x, the Project-induced development would not generate emissions of $PM_{2.5}$ (or PM_{10}) that would exceed the SCAQMD's thresholds. The Project-induced development's $PM_{2.5}$ and PM_{10} emissions are not expected to cause any increase in related regional health effects for these pollutants.

In summary, the Project would not result in a potentially significant contribution to regional concentrations of nonattainment pollutants and would not result in a significant contribution to the adverse health impacts associated with those pollutants. Therefore, impacts associated with exposure of sensitive receptors to substantial pollutant concentrations would be less than significant.

Operational Air Contaminants

Cancer Risk

Operation of the Proposed Project would result in the development of sources of air toxins. Specifically, the Project would be a source of gasoline vapors such as benzene, methyl tertiary-butyl ether, toluene, and xylene. CARB identifies benzene as the primary TAC of concern associated with gas stations. Benzene is highly carcinogenic and occurs throughout California. According to CAPCOA, benzene is the most important substance driving cancer risk, while xylene, another air toxic associated with gasoline stations, is the only substance which is associated with acute adverse health effects (CAPCOA 1997). According to CAPCOA, not until the benzene emissions are three orders of magnitude above the rate of an increase of 10 per million cancer risk, do the emissions of xylene begin to cause acute adverse health effects. According to SCAQMD's 2015 Risk Assessment Procedures for Rules 1401, 1401.1, & 212, benzene is the TAC which drives potential health risk, accounting for 87 percent of cancer risk from gasoline vapors. Furthermore, a review of SCAQMD's 2015 Risk Assessment Procedures for Rules 1401, 1401.1, & 212 shows that benzene constitutes more than three to four times the weight of gasoline than ethylbenzene and naphthalene, respectively. The majority of benzene emitted in California comes from motor vehicles, including evaporative leakage and unburned fuel exhaust.

Gasoline vapors, including benzene, are released during the filling of stationary underground storage tanks and during the transfer from those underground tanks to individual vehicles. As the Project is proposing to dispense gasoline, the cancer risk at nearby land uses was calculated using the SCAQMD Risk Tool (Attachment B). The Risk Tool is used by the SCAQMD and CAPCOA to calculate the increase of cancer risk per 10 million people based on SRA, location of the storage tanks, annual throughput, and distance to nearby receptors.

The proposed underground storage tanks and fueling canopy will be located approximately 130 feet (39 meters) and from the nearest residence and approximately 193 feet (58 meters) from the nearest commercial land use. As previously mentioned, the Project site is located in Perris Valley SRA and is anticipating an annual throughput of 3.6 million gallons per year. Based on this information it is calculated, using the SCAQMD Risk Tool, that the cancer risk for the Proposed Project is 8.17 per one million for the nearby residential land uses and 0.33 per one million for the commercial land use. Both of these values are under the SCAQMD threshold of an increase in cancer risk of 10 people per 1 million.

Additionally, the SCAQMD has stringent requirements for the control of gasoline vapor emissions from gasoline-dispensing facilities. SCAQMD Rule 461, Gasoline Transfer and Dispensing, seeks to limit emissions of organic compounds from gasoline dispensing facilities. Rule 461 prohibits the transfer or allowance of the transfer of gasoline into stationary tanks at a gasoline dispensing facility unless a CARB-certified Phase I vapor recovery system is used, and further prohibits the transfer or allowance of the transfer of gasoline from stationary tanks into motor vehicle fuel tanks at a gasoline dispensing facility unless a CARB-certified Phase II vapor recovery system is used during each transfer. Vapor recovery systems collect gasoline vapors that would otherwise escape into the air during bulk fuel delivery (Phase I) or fuel storage and vehicle refueling (Phase II). Phase I vapor recovery system components include the couplers that connect tanker trucks to the underground tanks, spill containment drain valves, overfill prevention devices, and vent pressure/vacuum valves. Phase II vapor recovery system components include gasoline dispensers, nozzles, piping, break away hoses, face plates, vapor processors, and system monitors. Rule 461 also requires fuel storage tanks to be equipped with a permanent submerged fill pipe tank that prevents the escape of gasoline vapors. In addition, all gasoline must be stored underground with valves installed on the tank vent pipes to further control gasoline emissions.

Gasoline dispensing facilities are also regulated by SCAQMD Rule 1401, New Source Review of Toxic Air Contaminants, which provides for the review of TAC emissions in order to evaluate potential public exposure and health risk, to mitigate potentially significant health risks resulting from these exposures, and to provide net health risk benefits by improving the level of control when existing sources are modified or replaced. Pursuant to SCAQMD Rule 1401, stationary sources having the potential to emit TACs, including gas stations, are required to obtain permits from the SCAQMD. Permits may be granted to these operations provided they are operated in accordance with applicable SCAQMD rules and regulations. The SCAQMD's permitting procedures require substantial control of emissions, and permits are not issued unless TAC risk screening or TAC risk assessment can show that risks are not significant. The SCAQMD may impose limits on annual throughput to ensure risks are within acceptable limits. (In addition, California has statewide limits on the benzene content in gasoline, which greatly reduces the toxic potential of gasoline emissions.)

Naturally Occurring Asbestos

Another potential air quality issue associated with construction-related activities is the airborne entrainment of asbestos due to the disturbance of naturally-occurring asbestos-containing soils. The Proposed Project is not located within an area designated by the State of California as likely to contain naturally-occurring asbestos (Department of Conservation [DOC] 2000). As a result, construction-related activities would not be anticipated to result in increased exposure of sensitive land uses to asbestos.

Carbon Monoxide Hot Spots

It has long been recognized that CO exceedances are caused by vehicular emissions, primarily when idling at intersections. Concentrations of CO are a direct function of the number of vehicles, length of delay, and traffic flow conditions. Under certain meteorological conditions, CO concentrations close to congested intersections that experience high levels of traffic and elevated background concentrations may reach unhealthy levels, affecting nearby sensitive receptors. Given the high traffic volume potential, areas of high CO concentrations, or "hot spots," are typically associated with intersections that are projected to operate at unacceptable levels of service during the peak commute hours. It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. However, transport of this criteria pollutant is extremely limited, and CO disperses rapidly with distance from the source under normal meteorological conditions. Furthermore, vehicle emissions standards have become increasingly more stringent in the last 20 years. In 1993, the SoCAB was designated nonattainment under the CAAQS and NAAQS for CO. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the SoCAB is now designated as attainment. Detailed modeling of Project-specific CO "hot spots" is not necessary and thus this potential impact is addressed qualitatively.

A CO "hot spot" would occur if an exceedance of the state one-hour standard of 20 parts per million (ppm) or the eight-hour standard of 9 ppm were to occur. The analysis prepared for CO attainment in the SCAQMD's 1992 Federal Attainment Plan for Carbon Monoxide in Los Angeles County and a Modeling and Attainment Demonstration prepared by the SCAQMD as part of the 2003 AQMP can be used to demonstrate the potential for CO exceedances of these standards. The SCAQMD conducted a CO hot spot analysis as part of the 1992 CO Federal Attainment Plan at four busy intersections in Los Angeles County during the peak morning and afternoon time periods. The intersections evaluated included Long Beach Boulevard and Imperial Highway (Lynwood), Wilshire Boulevard and Veteran Avenue (Westwood), Sunset Boulevard and Highland Avenue (Hollywood), and La Cienega Boulevard and Century Boulevard (Inglewood). The busiest intersection evaluated was at Wilshire Boulevard and Veteran Avenue, which has a traffic volume of approximately 100,000 vehicles per day. Despite this level of traffic, the CO analysis concluded that there was no violation of CO standards (SCAQMD 1992). To establish a more accurate record of baseline CO concentrations affecting the SoCAB, a CO "hot spot" analysis was conducted in 2003 at the same four busy intersections in Los Angeles at the peak morning and afternoon time periods. This "hot spot" analysis did not predict any violation of CO standards. The highest one-hour concentration was measured at 4.6 ppm at Wilshire Boulevard and Veteran Avenue and the highest eight-hour concentration was measured at 8.4 ppm at Long Beach Boulevard and Imperial Highway.

Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD) concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact.

The greatest average daily trips instigated by the Project is predicted, per K2 Traffic Engineering, Inc. (2020), to be 1,464. This projected amount of traffic is lower than the highest daily traffic volumes at Wilshire Boulevard and Veteran Avenue of 100,000 vehicles per day.

As such, Project-related traffic volumes are less than the traffic volumes identified in the 2003 AQMP. The Project considered herein would not produce the volume of traffic required to generate a CO "hot spot" either in the context of the 2003 Los Angeles hot spot study or based on representative BAAQMD CO threshold considerations. Therefore, CO "hot spots" are not an environmental impact of concern for the Project. Localized air quality impacts related to mobile source emissions would not be a concern. Localized air quality impacts related to mobile source emissions would not be a concern.

Odors

Typically, odors are regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

With respect to odors, the human nose is the sole sensing device. The ability to detect odors varies considerably among the population and overall is quite subjective. Some individuals have the ability to smell minute quantities of specific substances; others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; in fact, an odor that is offensive to one person (e.g., from a fast-food restaurant) may be perfectly acceptable to another. It is also important to note that an unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. This is because of the phenomenon known as odor fatigue, in which a person can become desensitized to almost any odor and recognition only occurs with an alteration in the intensity.

Quality and intensity are two properties present in any odor. The quality of an odor indicates the nature of the smell experience. For instance, if a person describes an odor as flowery or sweet, then the person is describing the quality of the odor. Intensity refers to the strength of the odor. For example, a person may use the word "strong" to describe the intensity of an odor. Odor intensity depends on the odorant concentration in the air. When an odorous sample is progressively diluted, the odorant concentration decreases. As this occurs, the odor intensity weakens and eventually becomes so low that the detection or recognition of the odor is quite difficult. At some point during dilution, the concentration of the odorant reaches a detection threshold. An odorant concentration below the detection threshold means that the concentration in the air is not detectable by the average human.

According to the SCAQMD, land uses commonly considered to be potential sources of obnoxious odorous emissions include agriculture (farming and livestock), wastewater treatment plants, food processing plants, chemical plants, composting facilities, refineries, landfills, dairies, and fiberglass molding. The Proposed Project does not include any uses identified by the SCAQMD as being associated with odors.

3.0 GREENHOUSE GAS EMISSIONS

3.1 Greenhouse Gas Setting

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. Solar radiation enters the earth's atmosphere from space. A portion of the radiation is absorbed by the earth's surface and a smaller portion of this radiation is reflected back toward space. This absorbed radiation is then emitted from the earth as low-frequency infrared radiation. The frequencies at which bodies emit radiation are proportional to temperature. Because the earth has a much lower temperature than the sun, it emits lower-frequency radiation. Most solar radiation passes through GHGs; however, infrared radiation is absorbed by these gases. As a result, radiation that otherwise would have escaped back into space is instead trapped, resulting in a warming of the atmosphere. This phenomenon, known as the greenhouse effect, is responsible for maintaining a habitable climate on earth. Without the greenhouse effect, the earth would not be able to support life as we know it.

Prominent GHGs contributing to the greenhouse effect are carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). Fluorinated gases also make up a small fraction of the GHGs that contribute to climate change. Fluorinated gases include chlorofluorocarbons, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride; however, it is noted that these gases are not associated with typical land use development. Human-caused emissions of these GHGs in excess of natural ambient concentrations are believed to be responsible for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's climate, known as global climate change or global warming. It is "extremely likely" that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in GHG concentrations and other anthropogenic factors together (Intergovernmental Panel on Climate Change [IPCC] 2014).

Table 3-1 describes the primary GHGs attributed to global climate change, including their physical properties, primary sources, and contributions to the greenhouse effect.

Each GHG differs in its ability to absorb heat in the atmosphere based on the lifetime, or persistence, of the gas molecule in the atmosphere. CH_4 traps over 25 times more heat per molecule than CO_2, and N_2O absorbs 298 times more heat per molecule than CO_2 (IPCC 2014). Often, estimates of GHG emissions are presented in carbon dioxide equivalents (CO_2e), which weight each gas by its global warming potential. Expressing GHG emissions in CO_2e takes the contribution of all GHG emissions to the greenhouse effect and converts them to a single unit equivalent to the effect that would occur if only CO_2 were being emitted.

Climate change is a global problem. GHGs are global pollutants, unlike criteria air pollutants and TACs, which are pollutants of regional and local concern. Whereas pollutants with localized air quality effects have relatively short atmospheric lifetimes (about one day), GHGs have long atmospheric lifetimes (one to several thousand years). GHGs persist in the atmosphere for long enough time periods to be dispersed around the globe. Although the exact lifetime of any particular GHG molecule is dependent on multiple variables and cannot be pinpointed, it is understood that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, or other forms. Of the total annual human-caused CO_2 emissions, approximately 55 percent is sequestered through ocean and land uptakes every year, averaged over the last 50 years, whereas the remaining 45 percent of human-caused CO_2 emissions remains stored in the atmosphere (IPCC 2013).

Table 3-1. Greenhouse Gases

Greenhouse Gas	Description
CO_2	Carbon dioxide is a colorless, odorless gas. CO_2 is emitted in a number of ways, both naturally and through human activities. The largest source of CO_2 emissions globally is the combustion of fossil fuels such as coal, oil, and gas in power plants, automobiles, industrial facilities, and other sources. A number of specialized industrial production processes and product uses such as mineral production, metal production, and the use of petroleum-based products can also lead to CO_2 emissions. The atmospheric lifetime of CO_2 is variable because it is so readily exchanged in the atmosphere.[1]
CH_4	Methane is a colorless, odorless gas and is the major component of natural gas, about 87 percent by volume. It is also formed and released to the atmosphere by biological processes occurring in anaerobic environments. Methane is emitted from a variety of both human-related and natural sources. Human-related sources include fossil fuel production, animal husbandry (intestinal fermentation in livestock and manure management), rice cultivation, biomass burning, and waste management. These activities release significant quantities of CH_4 to the atmosphere. Natural sources of CH_4 include wetlands, gas hydrates, permafrost, termites, oceans, freshwater bodies, non-wetland soils, and other sources such as wildfires. The atmospheric lifetime of CH_4 is about12 years.[2]
N_2O	Nitrous oxide is a clear, colorless gas with a slightly sweet odor. Nitrous oxide is produced by both natural and human-related sources. Primary human-related sources of N_2O are agricultural soil management, animal manure management, sewage treatment, mobile and stationary combustion of fossil fuels, adipic acid production, and nitric acid production. N_2O is also produced naturally from a wide variety of biological sources in soil and water, particularly microbial action in wet tropical forests. The atmospheric lifetime of N_2O is approximately 120 years.[3]

Sources: [1]USEPA 2016a, [2]USEPA 2016b, [3]USEPA 2016c

The quantity of GHGs that it takes to ultimately result in climate change is not precisely known; it is sufficient to say the quantity is enormous, and no single project alone would measurably contribute to a noticeable incremental change in the global average temperature or to global, local, or microclimates. From the standpoint of CEQA, GHG impacts to global climate change are inherently cumulative.

3.1.1 Sources of Greenhouse Gas Emissions

In 2019, CARB released the 2019 edition of the California GHG inventory covering calendar year 2017 emissions. In 2017, California emitted 424.1 million gross metric tons of CO2e including from imported electricity. Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2017, accounting for approximately 41 percent of total GHG emissions in the state. This sector was followed by the industrial sector (24 percent) and the electric power sector including both in-state and out-of-state sources (15 percent) (CARB 2019b). Emissions of CO_2 are byproducts of fossil fuel combustion. CH_4, a highly potent GHG, primarily results from off-gassing (the release of chemicals from nonmetallic substances under ambient or greater pressure conditions) and is largely associated with agricultural practices and landfills. N_2O is also largely attributable to agricultural practices and soil management. Carbon dioxide sinks, or reservoirs, include vegetation and the ocean, which absorb CO_2 through sequestration and dissolution (CO_2 dissolving into the water), respectively, two of the most common processes for removing CO_2 from the atmosphere.

3.2 Regulatory Framework

3.2.1 State

Executive Order S-3-05

Executive Order (EO) S-3-05, signed by Governor Arnold Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change. It declares that increased temperatures could reduce the Sierra Nevada snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the EO established total GHG emission targets for the state. Specifically, emissions are to be reduced to the 2000 level by 2010, the 1990 level by 2020, and to 80 percent below the 1990 level by 2050.

Assembly Bill 32 Climate Change Scoping Plan and Updates

In 2006, the California legislature passed Assembly Bill (AB) 32 (Health and Safety Code § 38500 et seq., or AB 32), also known as the Global Warming Solutions Act. AB 32 requires CARB to design and implement feasible and cost-effective emission limits, regulations, and other measures, such that statewide GHG emissions are reduced to 1990 levels by 2020 (representing a 25 percent reduction in emissions). Pursuant to AB 32, CARB adopted a Scoping Plan in December 2008, which outlines measures to meet the 2020 GHG reduction goals. California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by the end of 2020.

The Scoping Plan is required by AB 32 to be updated at least every five years. The latest update, the 2017 Scoping Plan Update, addresses the 2030 target established by Senate Bill (SB) 32 as discussed below and establishes a proposed framework of action for California to meet a 40 percent reduction in GHG emissions by 2030 compared to 1990 levels. The key programs that the Scoping Plan Update builds on include increasing the use of renewable energy in the state, the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and reduction of methane emissions from agricultural and other wastes.

Executive Order B-30-15

On April 20, 2015 Governor Brown signed EO B-30-15 to establish a California GHG reduction target of 40 percent below 1990 levels by 2030. The Governor's EO aligns California's GHG reduction targets with those of leading international governments such as the 28-nation European Union, which adopted the same target in October 2014. California is on track to meet or exceed the target of reducing GHG emissions to 1990 levels by 2020, as established in the California Global Warming Solutions Act of 2006 (AB 32, discussed above). California's new emission reduction target of 40 percent below 1990 levels by 2030 will make it possible to reach the ultimate goal of reducing emissions 80 percent below 1990 levels by 2050. This is in line with the scientifically established levels needed in the U.S. to limit global warming below 2˚C, the warming threshold at which major climate disruptions are projected, such as super droughts and rising sea levels.

Senate Bill 32 and Assembly Bill 197 of 2016

In August 2016, Governor Brown signed SB 32 and AB 197, which serve to extend California's GHG reduction programs beyond 2020. SB 32 amended the Health and Safety Code to include § 38566, which contains language to authorize CARB to achieve a statewide GHG emission reduction of at least 40 percent below 1990 levels by no later than December 31, 2030. SB 32 codified the targets established by EO B-30-15 for 2030, which set the next interim step in the state's continuing efforts to pursue the long-term target expressed in EOs S-3-05 and B-30-15 of 80 percent below 1990 emissions levels by 2050.

Senate Bill X1-2 of 2011, Senate Bill 350 of 2015, and Senate Bill 100 of 2018

SB X1-2 of 2011 requires all California utilities to generate 33 percent of their electricity from renewables by 2020. SB X1-2 sets a three-stage compliance period requiring all California utilities, including independently-owned utilities, energy service providers, and community choice aggregators, to generate 20 percent of their electricity from renewables by December 31, 2013; 25 percent by December 31, 2016; and 33 percent by December 31, 2020. SB X1-2 also requires the renewable electricity standard to be met increasingly with renewable energy that is supplied to the California grid from sources within, or directly proximate to, California.

In October 2015, SB 350 was signed by Governor Edmund (Jerry) Brown, which requires retail sellers and publicly-owned utilities to procure 50 percent of their electricity from renewable resources by 2030. In 2018, SB 100 was signed by Governor Brown, codifying a goal of 60 percent renewable procurement by 2030 and 100 percent by 2045 Renewables Portfolio Standard.

2019 Building Energy Efficiency Standards for Residential and Nonresidential Buildings

The Building and Efficiency Standards (Energy Standards) were first adopted and put into effect in 1978 and have been updated periodically in the intervening years. The 2019 Building Energy Efficiency Standards improve upon the 2016 Energy Standards for new construction of, and additions and alterations to, residential and nonresidential buildings. The 2019 standards are a major step toward meeting Zero Net Energy. According to the California Energy Commission, single-family homes built with the 2019 standards will use about 7 percent less energy due to energy efficiency measures versus those built under the 2016 standards and nonresidential buildings will use about 30 percent less energy (due mainly to lighting upgrades) (California Energy Commission [CEC] 2018).

3.2.2 Local

South Coast Air Quality Management District

To provide guidance to local lead agencies on determining significance for GHG emissions in CEQA documents, SCAQMD staff is convening an ongoing GHG CEQA Significance Threshold Working Group. Members of the working group include government agencies implementing CEQA and representatives from various stakeholder groups that provide input to SCAQMD staff on developing the significance thresholds. On October 8, 2008, the SCAQMD released the Draft AQMD Staff CEQA GHG Significance Thresholds. These thresholds have not been finalized and continue to be developed through the working group.

On September 28, 2010, SCAQMD Working Group Meeting #15 provided further guidance, including an interim screening level numeric "bright-line" threshold of 3,000 metric tons of CO_2e annually and an efficiency-based threshold of 4.8 metric tons of CO_2e per service population (defined as the people that work, study, live, patronize and/or congregate on the Project site) per year in 2020 and 3.0 metric tons of CO_2e per service population per year in 2035. The SCAQMD has not announced when staff is expecting to present a finalized version of these thresholds to the governing board.

Southern California Association of Governments

On April 7, 2016, the SCAG Regional Council adopted the *2016-2040 Regional Transportation Plan/ Sustainable Communities Strategy* (2016 RTP/SCS). The 2016 RTP/SCS charts a course for closely integrating land use and transportation – so that the region can grow smartly and sustainably. It was prepared through a collaborative, continuous, and comprehensive process with input from local governments, county transportation commissions, tribal governments, non-profit organizations, businesses and local stakeholders within the counties of Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura. The 2016 RTP/SCS is a long-range visioning plan that balances future mobility and housing needs with economic, environmental and public health goals. The SCAG region strives toward sustainability through integrated land use and transportation planning. The SCAG region must achieve specific federal air quality standards and is required by State law to lower regional GHG emissions.

City of Moreno Valley Energy Efficiency and Climate Action Strategy

The City of Moreno Valley's Energy Efficiency and Climate Action Strategy (2012) main objectives are to reduce the environmental and fiscal impacts of energy and GHG emissions. The goals and policies identified in the Strategy are geared towards improving sustainability in Moreno Valley in a manner that provides environmental, economic and health benefits to the community. The Strategy is organized into two main sections, Energy Efficiency and Climate Action, with a component that addresses GHG emissions. To achieve compliance with statewide GHG reduction targets the City of Moreno Valley has put into effect local policies that will reduce GHG emissions by 15 percent by 2020. Additionally, with the implementation of the GHG component the City is projected to reduce community-wide emissions by 556 metric tons per year of CO_2e below the 2020 reduction target. The Energy Efference and Climate Action Strategy provides a focused roadmap for advancing environmental sustainability and reducing GHG emissions in the Moreno Valley.

3.3 Greenhouse Gas Emissions Impact Assessment

3.3.1 Thresholds of Significance

The impact analysis provided below is based on the following CEQA Guidelines Appendix G thresholds of significance. The Project would result in a significant impact to GHG emissions if it would:

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

2) Conflict with any applicable plan, policy, or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

SCAQMD Thresholds

The Appendix G thresholds for GHG emissions do not prescribe specific methodologies for performing an assessment, do not establish specific thresholds of significance, and do not mandate specific mitigation measures. Rather, the CEQA Guidelines emphasize the lead agency's discretion to determine the appropriate methodologies and thresholds of significance consistent with the manner in which other impact areas are handled in CEQA. With respect to GHG emissions, the CEQA Guidelines Section 15064.4(a) states that lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate" GHG emissions resulting from a project. The CEQA Guidelines note that an agency has the discretion to either quantify a project's GHG emissions or rely on a "qualitative analysis or other performance-based standards." (14 CCR 15064.4(b)). A lead agency may use a "model or methodology" to estimate GHG emissions and has the discretion to select the model or methodology it considers "most appropriate to enable decision makers to intelligently take into account the project's incremental contribution to climate change." (14 CCR 15064.4(c)). Section 15064.4(b) provides that the lead agency should consider the following when determining the significance of impacts from GHG emissions on the environment:

1. The extent a project may increase or reduce GHG emissions as compared to the existing environmental setting.
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions (14 CCR 15064.4(b)).

In addition, Section 15064.7(c) of the CEQA Guidelines specifies that "[w]hen adopting or using thresholds of significance, a lead agency may consider thresholds of significance previously adopted or recommended by other public agencies, or recommended by experts, provided the decision of the lead agency to adopt such thresholds is supported by substantial evidence" (14 CCR 15064.7(c)). The CEQA Guidelines also clarify that the effects of GHG emissions are cumulative and should be analyzed in the context of CEQA's requirements for cumulative impact analysis (see CEQA Guidelines Section 15130). As a note, the CEQA Guidelines were amended in response to Senate Bill 97. In particular, the CEQA Guidelines were amended to specify that compliance with a GHG emissions reduction plan renders a cumulative impact insignificant.

Per CEQA Guidelines Section 15064(h)(3), a project's incremental contribution to a cumulative impact can be found not cumulatively considerable if the project would comply with an approved plan or mitigation program that provides specific requirements that would avoid or substantially lessen the cumulative problem within the geographic area of the project. To qualify, such plans or programs must be specified in law or adopted by the public agency with jurisdiction over the affected resources through a public review process to implement, interpret, or make specific the law enforced or administered by the public agency. Examples of such programs include a "water quality control plan, air quality attainment or maintenance plan, integrated waste management plan, habitat conservation plan, natural community conservation plans [and] plans or regulations for the reduction of greenhouse gas emissions." Put another way, CEQA Guidelines Section 15064(h)(3) allows a lead agency to make a finding of less than significant for GHG emissions if a project complies with adopted programs, plans, policies and/or other regulatory strategies to reduce GHG emissions.

The local air quality agency regulating the SoCAB is the SCAQMD, the regional air pollution control officer for the basin. As previously stated, to provide guidance to local lead agencies on determining significance for GHG emissions in CEQA documents, SCAQMD staff convened a GHG CEQA Significance Threshold Working Group. The Working Group was formed to assist the SCAQMD's efforts to develop a GHG significance threshold and is composed of a wide variety of stakeholders including the State Office of Planning and Research (OPR), CARB, the Attorney General's Office, a variety of city and county planning departments in the Basin, various utilities such as sanitation and power companies throughout the Basin, industry groups, and environmental and professional organizations. The numeric bright line and efficiency-based thresholds described above were developed to be consistent with CEQA requirements for developing significance thresholds, are supported by substantial evidence, and provide guidance to CEQA practitioners and lead agencies with regard to determining whether GHG emissions from a proposed project are significant.

In *Center for Biological Diversity v. Department of Fish and Wildlife* (2015) 62 Cal. 4th 2014, 213, 221, 227, following its review of various potential GHG thresholds proposed in an academic study [Crockett, *Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World* (July 2011), 4 Golden Gate U. Envtl. L. J. 203], the California Supreme Court identified the use of numeric bright-line thresholds as a potential pathway for compliance with CEQA GHG requirements. The study found numeric bright line thresholds designed to determine when small projects were so small as to not cause a cumulatively considerable impact on global climate change was consistent with CEQA. Specifically, Public Resources Code section 21003(f) provides it is a policy of the state that "[a]ll persons and public agencies involved in the environmental review process be responsible for carrying out the process in the most efficient, expeditious manner in order to conserve the available financial, governmental, physical and social resources with the objective that those resources may be better applied toward the mitigation of actual significant effects on the environment." The Supreme Court-reviewed study noted, "[s]ubjecting the smallest projects to the full panoply of CEQA requirements, even though the public benefit would be minimal, would not be consistent with implementing the statute in the most efficient, expeditious manner. Nor would it be consistent with applying lead agencies' scarce resources toward mitigating actual significant climate change impacts." (Crockett, *Addressing the Significance of Greenhouse Gas Emissions: California's Search for Regulatory Certainty in an Uncertain World* (July 2011), 4 Golden Gate U. Envtl. L. J. 203, 221, 227.)

The significance of the Project's GHG emissions is evaluated consistent with CEQA Guidelines Section 15064.4(b)(2) by considering whether the Project complies with applicable plans, policies, regulations and requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of

GHG emissions. The City of Moreno Valley may set a project-specific threshold based on the context of each particular project, including using the SCAQMD Working Group expert recommendation. This standard is appropriate for this Project because it is in the same air quality basin that the experts analyzed. For the Proposed Project, the SCAQMD's 3,000 metric tons of CO_2e per year threshold is used as the significance threshold in addition to the qualitative thresholds of significance set forth below from Section VII of CEQA Guidelines Appendix G. The 3,000 metric tons of CO_2e per year threshold represents a 90 percent capture rate (i.e., this threshold captures projects that represent approximately 90 percent of GHG emissions from new sources). The 3,000 metric tons of CO_2e per year value is typically used in defining small projects within this air basin that are considered less than significant because it represents less than one percent of future 2050 statewide GHG emissions target and the lead agency can provide more efficient implementation of CEQA by focusing its scarce resources on the top 90 percent. This threshold is correlated to the 90 percent capture rate for industrial projects within the air basin. Land use projects above the 3,000 metric tons of CO_2e per year level would fall within the percentage of largest projects that are worth mitigating without wasting scarce financial, governmental, physical and social resources. (Crockett 2011). As noted in the academic study, the fact that small projects below a numeric bright line threshold are not subject to CEQA-based mitigation, does not mean such small projects do not help the state achieve its climate change goals because even small projects participate in or comply with non-CEQA-based GHG reduction programs, such as constructing development in accordance with statewide GHG-reducing energy efficiency building standards, called Cal Green or Title 24 energy-efficiency building standards (Crockett 2011).

Methodology

GHG-related impacts were assessed in accordance with methodologies recommended by the SCAQMD. Where GHG emission quantification was required, emissions were modeled using the CalEEMod, version 2016.3.2. CalEEMod is a statewide land use emissions computer model designed to quantify potential GHG emissions associated with both construction and operations from a variety of land use projects. Project construction-generated GHG emissions were calculated using CalEEMod model defaults for Riverside County. Operational GHG emissions were based on the Project site plans and the estimated traffic trip generation rates and from K2 Traffic Engineering, Inc. (2020).

3.3.2 Impact Analysis

Contribution of Greenhouse Gas Emissions

Construction

Construction-related activities that would generate GHG emissions include worker commute trips, haul trucks carrying supplies and materials to and from the Project site, and off-road construction equipment (e.g., dozers, loaders, excavators). Table 3-2 illustrates the specific construction generated GHG emissions that would result from construction of the Project.

As shown in Table 3-2, Project construction would result in the generation of approximately 501 metric tons of CO_2e over the course of construction. Once construction is complete, the generation of these GHG emissions would cease. Consistent with SCAQMD recommendations, Project construction GHG emissions have been amortized of the expected life of the Project (30 years. The amortized construction emissions are added to the annual average operational emissions.

Table 3-2. Construction-Related Greenhouse Gas Emissions

Emissions Source	CO_2e (Metric Tons/ Year)
2021 Construction	**474**
2022 Construction	**27**
Total Emissions	**501**

Source: CalEEMod version 2016.3.2. Refer to Attachment C for Model Data Outputs.

Operations

Operation of the Project would result in GHG emissions predominantly associated with motor vehicle use. Long-term operational GHG emissions attributable to the Project are identified in Table 3-3 and compared to SCAQMD's numeric bright-line threshold of 3,000 metric tons of CO_2e annually.

Table 3-3. Operational-Related GHG Emissions

Emissions Source	CO_2e (Metric Tons/ Year)
Construction Emissions (amortized over the 30-year life of the Project)	16
Area Source Emissions	0
Energy Source Emissions	83
Mobile Source Emissions	810
Solid Waste Emissions	20
Water Emissions	13
Total Emissions	**942**
SCAQMD Screening Threshold	*3,000*
Exceed SCAQMD Threshold?	**No**

Source: CalEEMod version 2016.3.2. Refer to Attachment C for Model Data Outputs.

As shown in Table 3-3, operational-generated emissions would not exceed the SCAQMD's interim screening level numeric bright-line threshold of 3,000 metric tons of CO_2e annually. SCAQMD thresholds were developed based on substantial evidence that such thresholds represent quantitative levels of GHG emissions, compliance with which means that the environmental impact of the GHG emissions will normally not be cumulatively considerable under CEQA. These thresholds were developed as part of the SCAQMD GHG CEQA Significance Threshold Working Group. The working group was formed to assist the SCAQMD's efforts to develop a GHG significance threshold and is composed of a wide variety of stakeholders including the state OPR, CARB, the Attorney General's Office, a variety of city and county planning departments in the SoCAB, various utilities such as sanitation and power companies throughout the basin, industry groups, and environmental and professional organizations.

Conflict with any Applicable Plan, Policy, or Regulation of an Agency Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases

The Moreno Valley Energy Efficiency and Climate Action Strategy is a strategic planning document that identifies sources of GHG emissions within the City's boundaries, presents current and future emission estimates, identifies a GHG reduction target for future years, and presents strategies, policies and actions to reduce emissions form the energy, transportation, land use, water use, and waste sectors. The GHG reduction strategies in this Strategy builds on inventory results and key opportunities prioritized by the City staff and members of the public. The Climate Action Strategy consists of strategies that identify steps the City will take to support reductions in GHG emissions. The City will achieve these reductions in GHG emissions through a mix of voluntary programs and new strategic standards. All standards presented in the Energy Efficiency and Climate Action Strategy respond to the needs of development through achieving more efficient and sustainable use of resources.

Both the existing and the projected GHG inventories in the Energy Efficiency and Climate Action Strategy were derived based on the land use designations and associated designations defined in the City 2006 General Plan. The Proposed Project is consistent with the land use designation and development density presented in the 2006 General Plan. As previously stated, the Project site is designated by the City's General Plan as Commercial. The Commercial land use designation is intended for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services. The Project is proposing an automobile gas station consisting of a convenience store, retail store, fuel canopy, and automated carwash along with various other improvements such as installation of driveways and sewer connections. The Project is not proposing to amend the City General Plan and is consistent with all land use designations applied to the site. Since the Project is consistent with the General Plan it is consistent with the types, intensity, and patterns of land use envisioned for the site vicinity in the General Plan, and as a result, the Project would not conflict with the land use assumptions or exceed the population or job growth projections used by the City to develop the Energy Efficiency and Climate Action Strategy.

Additionally, the Project is considered 'infill development' as it proposes to develop a property in a rapidly urbanizing area surrounded by predominately urban residential uses. As a result of proposing a mix of commercial land uses in an area devoid of such uses and surrounded heavily by residences, the Project can be identified for its "location efficiency". Location efficiency describes the location of the Project relative to the type of urban landscape its proposed to fit within. In general, compared to the statewide average, a project with location efficiency can realize automotive VMT reductions between 10 and 65 percent (CAPCOA 2017). The Project would locate complementary commercial land uses in close to proximity to existing offsite residential uses, thereby providing commercial and work options to the existing, nearby residents currently living near the site. The location efficiency of the Project site would result in synergistic benefits that would reduce vehicle trips and VMT compared to the statewide average and would result in corresponding reductions in transportation-related GHG emissions.

The Proposed Project would not conflict with an adopted plan, policy, or regulation pertaining to GHGs.

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LIST OF ATTACHMENTS

ATTACHMENT A

CalEEMod Output Files – Criteria Air Pollutants

Go Fresh Gas Station

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.00	1000sqft	0.37	999.00	0
Other Asphalt Surfaces	10.00	1000sqft	0.37	10,000.00	0
Convenience Market (24 Hour)	5.06	1000sqft	0.37	5,063.00	0
Free-Standing Discount Store	3.56	1000sqft	0.37	3,561.00	0
Gasoline/Service Station	10.00	Pump	0.37	6,045.00	0
User Defined Retail	0.00	User Defined Unit	0.37	2,485.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.4 **Precipitation Freq (Days)** 28

Climate Zone 10 **Operational Year** 2023

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 702.44 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - User Defined Retail= car wash. General light industral= hydrogen equipment room.

Construction Phase - construcion, paving and coating assumed to occur at the same time.

Grading - Information updated to match RFI

Vehicle Trips - Trips updated to match traffic count per K2. Traffic Engineering, Inc

Energy Use - User defined updated to reflect that of a car wash.

Water And Wastewater - Water use for car wash calculated from infomration provided by the international car was association

Solid Waste - Updated to reflect that of the land use.

Construction Off-road Equipment Mitigation - Rule 403

Water Mitigation -

Stationary Sources - Process Boilers -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	10.00	220.00
tblConstructionPhase	NumDays	10.00	220.00
tblEnergyUse	LightingElect	0.00	2.93
tblEnergyUse	NT24E	0.00	5.02
tblEnergyUse	NT24NG	0.00	14.13
tblEnergyUse	T24E	0.00	2.20
tblEnergyUse	T24NG	0.00	15.63
tblGrading	MaterialExported	0.00	75.00
tblGrading	MaterialExported	0.00	75.00
tblGrading	MaterialImported	0.00	2,573.00
tblGrading	MaterialImported	0.00	2,573.00

tblLandUse	LandUseSquareFeet	1,000.00	999.00
tblLandUse	LandUseSquareFeet	5,060.00	5,063.00
tblLandUse	LandUseSquareFeet	3,560.00	3,561.00
tblLandUse	LandUseSquareFeet	1,411.75	6,045.00
tblLandUse	LandUseSquareFeet	0.00	2,485.00
tblLandUse	LotAcreage	0.02	0.37
tblLandUse	LotAcreage	0.23	0.37
tblLandUse	LotAcreage	0.12	0.37
tblLandUse	LotAcreage	0.08	0.37
tblLandUse	LotAcreage	0.03	0.37
tblLandUse	LotAcreage	0.00	0.37
tblSolidWaste	SolidWasteGenerationRate	1.24	0.00
tblSolidWaste	SolidWasteGenerationRate	0.00	5.39
tblVehicleTrips	ST_TR	863.10	80.00
tblVehicleTrips	ST_TR	71.07	80.00
tblVehicleTrips	ST_TR	168.56	80.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	758.45	80.00
tblVehicleTrips	SU_TR	56.36	80.00
tblVehicleTrips	SU_TR	168.56	80.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	737.99	80.00
tblVehicleTrips	WD_TR	57.24	80.00
tblVehicleTrips	WD_TR	168.56	80.00
tblVehicleTrips	WD_TR	6.97	0.00
tblWater	IndoorWaterUseRate	231,250.00	0.00
tblWater	IndoorWaterUseRate	0.00	1,401,600.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2489	42.2894	29.2369	0.1084	7.6850	1.4966	8.6379	3.6701	1.4168	4.5481	0.0000	11,277.3932	11,277.3932	1.2817	0.0000	11,309.4364
2022	3.9138	25.8468	28.8613	0.0499	0.3338	1.2742	1.6081	0.0893	1.2071	1.2963	0.0000	4,692.8596	4,692.8596	1.0173	0.0000	4,718.2911
Maximum	**4.2489**	**42.2894**	**29.2369**	**0.1084**	**7.6850**	**1.4966**	**8.6379**	**3.6701**	**1.4168**	**4.5481**	**0.0000**	**11,277.3932**	**11,277.3932**	**1.2817**	**0.0000**	**11,309.4364**

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					
2021	4.2489	42.2894	29.2369	0.1084	4.0505	1.4966	5.0034	1.8133	1.4168	2.6914	0.0000	11,277.3932	11,277.3932	1.2817	0.0000	11,309.4364
2022	3.9138	25.8468	28.8613	0.0499	0.3338	1.2742	1.6081	0.0893	1.2071	1.2963	0.0000	4,692.8596	4,692.8596	1.0173	0.0000	4,718.2911
Maximum	**4.2489**	**42.2894**	**29.2369**	**0.1084**	**4.0505**	**1.4966**	**5.0034**	**1.8133**	**1.4168**	**2.6914**	**0.0000**	**11,277.3932**	**11,277.3932**	**1.2817**	**0.0000**	**11,309.4364**

	ROG	NOx	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	45.32	0.00	35.47	49.39	0.00	31.77	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4101	3.0000e-005	3.0200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.4800e-003	6.4800e-003	2.0000e-005		6.9100e-003
Energy	9.5100e-003	0.0865	0.0726	5.2000e-004		6.5700e-003	6.5700e-003		6.5700e-003	6.5700e-003		103.7739	103.7739	1.9900e-003	1.9000e-003	104.3906
Mobile	1.9373	11.3602	11.8932	0.0504	2.9762	0.0265	3.0027	0.7962	0.0247	0.8209		5,177.2041	5,177.2041	0.3428		5,185.7735
Total	**2.3569**	**11.4467**	**11.9689**	**0.0509**	**2.9762**	**0.0331**	**3.0093**	**0.7962**	**0.0312**	**0.8275**		**5,280.9844**	**5,280.9844**	**0.3448**	**1.9000e-003**	**5,290.1710**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4101	3.0000e-005	3.0200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.4800e-003	6.4800e-003	2.0000e-005		6.9100e-003
Energy	9.5100e-003	0.0865	0.0726	5.2000e-004		6.5700e-003	6.5700e-003		6.5700e-003	6.5700e-003		103.7739	103.7739	1.9900e-003	1.9000e-003	104.3906
Mobile	1.9373	11.3602	11.8932	0.0504	2.9762	0.0265	3.0027	0.7962	0.0247	0.8209		5,177.2041	5,177.2041	0.3428		5,185.7735
Total	**2.3569**	**11.4467**	**11.9689**	**0.0509**	**2.9762**	**0.0331**	**3.0093**	**0.7962**	**0.0312**	**0.8275**		**5,280.9844**	**5,280.9844**	**0.3448**	**1.9000e-003**	**5,290.1710**

Attachment: Exhibit A - Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/5/2021	3/9/2021	5	3	
2	Grading	Grading	3/10/2021	3/17/2021	5	6	
3	Building Construction	Building Construction	3/18/2021	1/19/2022	5	220	
4	Paving	Paving	3/18/2021	1/19/2022	5	220	
5	Architectural Coating	Architectural Coating	3/18/2021	1/19/2022	5	220	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 3

Acres of Paving: 0.37

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 27,230; Non-Residential Outdoor: 9,077; Striped Parking Area: 600 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	331.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	331.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	10.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

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					1.7025	0.0000	1.7025	0.1887	0.0000	0.1887			0.0000			0.0000
Off-Road	1.5463	18.2862	10.7496	0.0245		0.7019	0.7019		0.6457	0.6457		2,372.883 2	2,372.883 2	0.7674		2,392.069 2
Total	**1.5463**	**18.2862**	**10.7496**	**0.0245**	**1.7025**	**0.7019**	**2.4044**	**0.1887**	**0.6457**	**0.8344**		**2,372.883 2**	**2,372.883 2**	**0.7674**		**2,392.069 2**

3.2 Site Preparation - 2021

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	0.5371	23.9816	3.1536	0.0831	1.9300	0.0730	2.0030	0.5291	0.0699	0.5989		8,819.3299	8,819.3299	0.5123		8,832.1364
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0379	0.0216	0.2958	8.5000e-004	0.0894	5.3000e-004	0.0900	0.0237	4.9000e-004	0.0242		85.1801	85.1801	2.0300e-003		85.2309
Total	**0.5750**	**24.0032**	**3.4494**	**0.0839**	**2.0194**	**0.0736**	**2.0930**	**0.5528**	**0.0704**	**0.6231**		**8,904.5100**	**8,904.5100**	**0.5143**		**8,917.3672**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7661	0.0000	0.7661	0.0849	0.0000	0.0849			0.0000			0.0000
Off-Road	1.5463	18.2862	10.7496	0.0245		0.7019	0.7019		0.6457	0.6457	0.0000	2,372.8832	2,372.8832	0.7674		2,392.0692
Total	**1.5463**	**18.2862**	**10.7496**	**0.0245**	**0.7661**	**0.7019**	**1.4680**	**0.0849**	**0.6457**	**0.7306**	**0.0000**	**2,372.8832**	**2,372.8832**	**0.7674**		**2,392.0692**

3.2 Site Preparation - 2021

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	0.5371	23.9816	3.1536	0.0831	1.9300	0.0730	2.0030	0.5291	0.0699	0.5989		8,819.3299	8,819.3299	0.5123		8,832.1364
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0379	0.0216	0.2958	8.5000e-004	0.0894	5.3000e-004	0.0900	0.0237	4.9000e-004	0.0242		85.1801	85.1801	2.0300e-003		85.2309
Total	**0.5750**	**24.0032**	**3.4494**	**0.0839**	**2.0194**	**0.0736**	**2.0930**	**0.5528**	**0.0704**	**0.6231**		**8,904.5100**	**8,904.5100**	**0.5143**		**8,917.3672**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.6082	0.0000	6.6082	3.3759	0.0000	3.3759			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425		1,995.6114	1,995.6114	0.6454		2,011.7470
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**6.6082**	**0.9158**	**7.5240**	**3.3759**	**0.8425**	**4.2184**		**1,995.6114**	**1,995.6114**	**0.6454**		**2,011.7470**

3.3 Grading - 2021

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	0.2685	11.9908	1.5768	0.0415	0.9650	0.0365	1.0015	0.2645	0.0349	0.2995		4,409.665 0	4,409.665 0	0.2561		4,416.068 2
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0474	0.0270	0.3697	1.0700e-003	0.1118	6.6000e-004	0.1124	0.0296	6.1000e-004	0.0303		106.4751	106.4751	2.5400e-003		106.5386
Total	**0.3159**	**12.0178**	**1.9465**	**0.0426**	**1.0768**	**0.0372**	**1.1139**	**0.2942**	**0.0355**	**0.3297**		**4,516.140 1**	**4,516.140 1**	**0.2587**		**4,522.606 8**

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					2.9737	0.0000	2.9737	1.5192	0.0000	1.5192			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425	0.0000	1,995.611 4	1,995.611 4	0.6454		2,011.747 0
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**2.9737**	**0.9158**	**3.8895**	**1.5192**	**0.8425**	**2.3617**	**0.0000**	**1,995.611 4**	**1,995.611 4**	**0.6454**		**2,011.747 0**

3.3 Grading - 2021

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	0.2685	11.9908	1.5768	0.0415	0.9650	0.0365	1.0015	0.2645	0.0349	0.2995		4,409.665 0	4,409.665 0	0.2561		4,416.068 2
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0474	0.0270	0.3697	1.0700e-003	0.1118	6.6000e-004	0.1124	0.0296	6.1000e-004	0.0303		106.4751	106.4751	2.5400e-003		106.5386
Total	**0.3159**	**12.0178**	**1.9465**	**0.0426**	**1.0768**	**0.0372**	**1.1139**	**0.2942**	**0.0355**	**0.3297**		**4,516.140 1**	**4,516.140 1**	**0.2587**		**4,522.606 8**

3.4 Building Construction - 2021

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	2.0451	16.0275	14.5629	0.0250		0.8173	0.8173		0.7831	0.7831		2,288.935 5	2,288.935 5	0.4503		2,300.193 5
Total	**2.0451**	**16.0275**	**14.5629**	**0.0250**		**0.8173**	**0.8173**		**0.7831**	**0.7831**		**2,288.935 5**	**2,288.935 5**	**0.4503**		**2,300.193 5**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0117	0.4627	0.0826	1.3000e-003	0.0320	8.8000e-004	0.0329	9.2200e-003	8.4000e-004	0.0101		136.6255	136.6255	9.7700e-003		136.8699
Worker	0.0474	0.0270	0.3697	1.0700e-003	0.1118	6.6000e-004	0.1124	0.0296	6.1000e-004	0.0303		106.4751	106.4751	2.5400e-003		106.5386
Total	**0.0591**	**0.4897**	**0.4523**	**2.3700e-003**	**0.1438**	**1.5400e-003**	**0.1453**	**0.0389**	**1.4500e-003**	**0.0403**		**243.1006**	**243.1006**	**0.0123**		**243.4084**

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	2.0451	16.0275	14.5629	0.0250		0.8173	0.8173		0.7831	0.7831	0.0000	2,288.935 5	2,288.935 5	0.4503		2,300.193 5
Total	**2.0451**	**16.0275**	**14.5629**	**0.0250**		**0.8173**	**0.8173**		**0.7831**	**0.7831**	**0.0000**	**2,288.935 5**	**2,288.935 5**	**0.4503**		**2,300.193 5**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0117	0.4627	0.0826	1.3000e-003	0.0320	8.8000e-004	0.0329	9.2200e-003	8.4000e-004	0.0101		136.6255	136.6255	9.7700e-003		136.8699
Worker	0.0474	0.0270	0.3697	1.0700e-003	0.1118	6.6000e-004	0.1124	0.0296	6.1000e-004	0.0303		106.4751	106.4751	2.5400e-003		106.5386
Total	**0.0591**	**0.4897**	**0.4523**	**2.3700e-003**	**0.1438**	**1.5400e-003**	**0.1453**	**0.0389**	**1.4500e-003**	**0.0403**		**243.1006**	**243.1006**	**0.0123**		**243.4084**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8555	14.6040	14.3533	0.0250		0.7022	0.7022		0.6731	0.6731		2,289.2813	2,289.2813	0.4417		2,300.3230
Total	**1.8555**	**14.6040**	**14.3533**	**0.0250**		**0.7022**	**0.7022**		**0.6731**	**0.6731**		**2,289.2813**	**2,289.2813**	**0.4417**		**2,300.3230**

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0109	0.4365	0.0768	1.2800e-003	0.0320	7.4000e-004	0.0328	9.2200e-003	7.1000e-004	9.9300e-003		135.4626	135.4626	9.2600e-003		135.6940
Worker	0.0444	0.0243	0.3410	1.0300e-003	0.1118	6.4000e-004	0.1124	0.0296	5.9000e-004	0.0302		102.5846	102.5846	2.2800e-003		102.6416
Total	**0.0552**	**0.4609**	**0.4178**	**2.3100e-003**	**0.1438**	**1.3800e-003**	**0.1452**	**0.0389**	**1.3000e-003**	**0.0402**		**238.0472**	**238.0472**	**0.0115**		**238.3356**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8555	14.6040	14.3533	0.0250		0.7022	0.7022		0.6731	0.6731	0.0000	2,289.2813	2,289.2813	0.4417		2,300.3230
Total	**1.8555**	**14.6040**	**14.3533**	**0.0250**		**0.7022**	**0.7022**		**0.6731**	**0.6731**	**0.0000**	**2,289.2813**	**2,289.2813**	**0.4417**		**2,300.3230**

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0109	0.4365	0.0768	1.2800e-003	0.0320	7.4000e-004	0.0328	9.2200e-003	7.1000e-004	9.9300e-003		135.4626	135.4626	9.2600e-003		135.6940
Worker	0.0444	0.0243	0.3410	1.0300e-003	0.1118	6.4000e-004	0.1124	0.0296	5.9000e-004	0.0302		102.5846	102.5846	2.2800e-003		102.6416
Total	**0.0552**	**0.4609**	**0.4178**	**2.3100e-003**	**0.1438**	**1.3800e-003**	**0.1452**	**0.0389**	**1.3000e-003**	**0.0402**		**238.0472**	**238.0472**	**0.0115**		**238.3356**

3.5 Paving - 2021

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	1.0633	10.6478	11.7756	0.0178		0.5826	0.5826		0.5371	0.5371		1,709.1107	1,709.1107	0.5417		1,722.6524
Paving	4.4100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0677**	**10.6478**	**11.7756**	**0.0178**		**0.5826**	**0.5826**		**0.5371**	**0.5371**		**1,709.1107**	**1,709.1107**	**0.5417**		**1,722.6524**

3.5 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0711	0.0405	0.5546	1.6000e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		159.7126	159.7126	3.8100e-003		159.8078
Total	**0.0711**	**0.0405**	**0.5546**	**1.6000e-003**	**0.1677**	**9.9000e-004**	**0.1687**	**0.0445**	**9.1000e-004**	**0.0454**		**159.7126**	**159.7126**	**3.8100e-003**		**159.8078**

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	1.0633	10.6478	11.7756	0.0178		0.5826	0.5826		0.5371	0.5371	0.0000	1,709.1107	1,709.1107	0.5417		1,722.6524
Paving	4.4100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0677**	**10.6478**	**11.7756**	**0.0178**		**0.5826**	**0.5826**		**0.5371**	**0.5371**	**0.0000**	**1,709.1107**	**1,709.1107**	**0.5417**		**1,722.6524**

3.5 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0711	0.0405	0.5546	1.6000e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		159.7126	159.7126	3.8100e-003		159.8078
Total	**0.0711**	**0.0405**	**0.5546**	**1.6000e-003**	**0.1677**	**9.9000e-004**	**0.1687**	**0.0445**	**9.1000e-004**	**0.0454**		**159.7126**	**159.7126**	**3.8100e-003**		**159.8078**

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9412	9.3322	11.6970	0.0179		0.4879	0.4879		0.4500	0.4500		1,709.6892	1,709.6892	0.5419		1,723.2356
Paving	4.4100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9456**	**9.3322**	**11.6970**	**0.0179**		**0.4879**	**0.4879**		**0.4500**	**0.4500**		**1,709.6892**	**1,709.6892**	**0.5419**		**1,723.2356**

3.5 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0665	0.0365	0.5115	1.5400e-003	0.1677	9.6000e-004	0.1686	0.0445	8.9000e-004	0.0454		153.8769	153.8769	3.4200e-003		153.9624
Total	**0.0665**	**0.0365**	**0.5115**	**1.5400e-003**	**0.1677**	**9.6000e-004**	**0.1686**	**0.0445**	**8.9000e-004**	**0.0454**		**153.8769**	**153.8769**	**3.4200e-003**		**153.9624**

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	0.9412	9.3322	11.6970	0.0179		0.4879	0.4879		0.4500	0.4500	0.0000	1,709.6892	1,709.6892	0.5419		1,723.2356
Paving	4.4100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9456**	**9.3322**	**11.6970**	**0.0179**		**0.4879**	**0.4879**		**0.4500**	**0.4500**	**0.0000**	**1,709.6892**	**1,709.6892**	**0.5419**		**1,723.2356**

3.5 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0665	0.0365	0.5115	1.5400e-003	0.1677	9.6000e-004	0.1686	0.0445	8.9000e-004	0.0454		153.8769	153.8769	3.4200e-003		153.9624
Total	**0.0665**	**0.0365**	**0.5115**	**1.5400e-003**	**0.1677**	**9.6000e-004**	**0.1686**	**0.0445**	**8.9000e-004**	**0.0454**		**153.8769**	**153.8769**	**3.4200e-003**		**153.9624**

3.6 Architectural Coating - 2021

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	0.7776					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**0.9965**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	9.4800e-003	5.4000e-003	0.0739	2.1000e-004	0.0224	1.3000e-004	0.0225	5.9300e-003	1.2000e-004	6.0500e-003		21.2950	21.2950	5.1000e-004		21.3077
Total	**9.4800e-003**	**5.4000e-003**	**0.0739**	**2.1000e-004**	**0.0224**	**1.3000e-004**	**0.0225**	**5.9300e-003**	**1.2000e-004**	**6.0500e-003**		**21.2950**	**21.2950**	**5.1000e-004**		**21.3077**

Mitigated Construction On-Site

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Archit. Coating	0.7776					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**0.9965**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	9.4800e-003	5.4000e-003	0.0739	2.1000e-004	0.0224	1.3000e-004	0.0225	5.9300e-003	1.2000e-004	6.0500e-003		21.2950	21.2950	5.1000e-004		21.3077
Total	**9.4800e-003**	**5.4000e-003**	**0.0739**	**2.1000e-004**	**0.0224**	**1.3000e-004**	**0.0225**	**5.9300e-003**	**1.2000e-004**	**6.0500e-003**		**21.2950**	**21.2950**	**5.1000e-004**		**21.3077**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.7776					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**0.9821**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	8.8700e-003	4.8600e-003	0.0682	2.1000e-004	0.0224	1.3000e-004	0.0225	5.9300e-003	1.2000e-004	6.0500e-003		20.5169	20.5169	4.6000e-004		20.5283
Total	**8.8700e-003**	**4.8600e-003**	**0.0682**	**2.1000e-004**	**0.0224**	**1.3000e-004**	**0.0225**	**5.9300e-003**	**1.2000e-004**	**6.0500e-003**		**20.5169**	**20.5169**	**4.6000e-004**		**20.5283**

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	0.7776					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**0.9821**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	8.8700e-003	4.8600e-003	0.0682	2.1000e-004	0.0224	1.3000e-004	0.0225	5.9300e-003	1.2000e-004	6.0500e-003		20.5169	20.5169	4.6000e-004		20.5283
Total	**8.8700e-003**	**4.8600e-003**	**0.0682**	**2.1000e-004**	**0.0224**	**1.3000e-004**	**0.0225**	**5.9300e-003**	**1.2000e-004**	**6.0500e-003**		**20.5169**	**20.5169**	**4.6000e-004**		**20.5283**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	1.9373	11.3602	11.8932	0.0504	2.9762	0.0265	3.0027	0.7962	0.0247	0.8209		5,177.2041	5,177.2041	0.3428		5,185.7735
Unmitigated	1.9373	11.3602	11.8932	0.0504	2.9762	0.0265	3.0027	0.7962	0.0247	0.8209		5,177.2041	5,177.2041	0.3428		5,185.7735

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market (24 Hour)	404.80	404.80	404.80	343,819	343,819
Free-Standing Discount Store	284.80	284.80	284.80	534,488	534,488
Gasoline/Service Station	800.00	800.00	800.00	517,431	517,431
General Light Industry	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
User Defined Retail	0.00	0.00	0.00		
Total	1,489.60	1,489.60	1,489.60	1,395,738	1,395,738

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
Convenience Market (24 Hour)	16.60	8.40	6.90	0.90	80.10	19.00	24	15	61
Free-Standing Discount Store	16.60	8.40	6.90	12.20	68.80	19.00	47.5	35.5	17
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
User Defined Retail	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market (24 Hour)	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Free-Standing Discount Store	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Gasoline/Service Station	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
General Light Industry	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Other Asphalt Surfaces	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
User Defined Retail	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	9.5100e-003	0.0865	0.0726	5.2000e-004		6.5700e-003	6.5700e-003		6.5700e-003	6.5700e-003		103.7739	103.7739	1.9900e-003	1.9000e-003	104.3906
NaturalGas Unmitigated	9.5100e-003	0.0865	0.0726	5.2000e-004		6.5700e-003	6.5700e-003		6.5700e-003	6.5700e-003		103.7739	103.7739	1.9900e-003	1.9000e-003	104.3906

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					
Convenience Market (24 Hour)	30.7941	3.3000e-004	3.0200e-003	2.5400e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		3.6228	3.6228	7.0000e-005	7.0000e-005	3.6444
Free-Standing Discount Store	21.6587	2.3000e-004	2.1200e-003	1.7800e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.5481	2.5481	5.0000e-005	5.0000e-005	2.5632
Gasoline/Service Station	538.088	5.8000e-003	0.0528	0.0443	3.2000e-004		4.0100e-003	4.0100e-003		4.0100e-003	4.0100e-003		63.3045	63.3045	1.2100e-003	1.1600e-003	63.6806
General Light Industry	88.9247	9.6000e-004	8.7200e-003	7.3200e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004		10.4617	10.4617	2.0000e-004	1.9000e-004	10.5239
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Retail	202.613	2.1900e-003	0.0199	0.0167	1.2000e-004		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003		23.8368	23.8368	4.6000e-004	4.4000e-004	23.9784
Total		**9.5100e-003**	**0.0865**	**0.0726**	**5.2000e-004**		**6.5700e-003**	**6.5700e-003**		**6.5700e-003**	**6.5700e-003**		**103.7739**	**103.7739**	**1.9900e-003**	**1.9100e-003**	**104.3906**

5.2 Energy by Land Use - NaturalGas

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					
Convenience Market (24 Hour)	0.0307941	3.3000e-004	3.0200e-003	2.5400e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		3.6228	3.6228	7.0000e-005	7.0000e-005	3.6444
Free-Standing Discount Store	0.0216587	2.3000e-004	2.1200e-003	1.7800e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.5481	2.5481	5.0000e-005	5.0000e-005	2.5632
Gasoline/Service Station	0.538088	5.8000e-003	0.0528	0.0443	3.2000e-004		4.0100e-003	4.0100e-003		4.0100e-003	4.0100e-003		63.3045	63.3045	1.2100e-003	1.1600e-003	63.6806
General Light Industry	0.0889247	9.6000e-004	8.7200e-003	7.3200e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004		10.4617	10.4617	2.0000e-004	1.9000e-004	10.5239
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Retail	0.202613	2.1900e-003	0.0199	0.0167	1.2000e-004		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003		23.8368	23.8368	4.6000e-004	4.4000e-004	23.9784
Total		**9.5100e-003**	**0.0865**	**0.0726**	**5.2000e-004**		**6.5700e-003**	**6.5700e-003**		**6.5700e-003**	**6.5700e-003**		**103.7739**	**103.7739**	**1.9900e-003**	**1.9100e-003**	**104.3906**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.4101	3.0000e-005	3.0200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.4800e-003	6.4800e-003	2.0000e-005		6.9100e-003
Unmitigated	0.4101	3.0000e-005	3.0200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.4800e-003	6.4800e-003	2.0000e-005		6.9100e-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	lb/day										lb/day					
Architectural Coating	0.0469					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3630					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8000e-004	3.0000e-005	3.0200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.4800e-003	6.4800e-003	2.0000e-005		6.9100e-003
Total	**0.4101**	**3.0000e-005**	**3.0200e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.4800e-003**	**6.4800e-003**	**2.0000e-005**		**6.9100e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0469					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3630					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8000e-004	3.0000e-005	3.0200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.4800e-003	6.4800e-003	2.0000e-005		6.9100e-003
Total	**0.4101**	**3.0000e-005**	**3.0200e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.4800e-003**	**6.4800e-003**	**2.0000e-005**		**6.9100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Go Fresh Gas Station

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.00	1000sqft	0.37	999.00	0
Other Asphalt Surfaces	10.00	1000sqft	0.37	10,000.00	0
Convenience Market (24 Hour)	5.06	1000sqft	0.37	5,063.00	0
Free-Standing Discount Store	3.56	1000sqft	0.37	3,561.00	0
Gasoline/Service Station	10.00	Pump	0.37	6,045.00	0
User Defined Retail	0.00	User Defined Unit	0.37	2,485.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.4 **Precipitation Freq (Days)** 28

Climate Zone 10 **Operational Year** 2023

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 702.44 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - User Defined Retail= car wash. General light industral= hydrogen equipment room.

Construction Phase - construcion, paving and coating assumed to occur at the same time.

Grading - Information updated to match RFI

Vehicle Trips - Trips updated to match traffic count per K2. Traffic Engineering, Inc

Energy Use - User defined updated to reflect that of a car wash.

Water And Wastewater - Water use for car wash calculated from infomration provided by the international car was association

Solid Waste - Updated to reflect that of the land use.

Construction Off-road Equipment Mitigation - Rule 403

Water Mitigation -

Stationary Sources - Process Boilers -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	10.00	220.00
tblConstructionPhase	NumDays	10.00	220.00
tblEnergyUse	LightingElect	0.00	2.93
tblEnergyUse	NT24E	0.00	5.02
tblEnergyUse	NT24NG	0.00	14.13
tblEnergyUse	T24E	0.00	2.20
tblEnergyUse	T24NG	0.00	15.63
tblGrading	MaterialExported	0.00	75.00
tblGrading	MaterialExported	0.00	75.00
tblGrading	MaterialImported	0.00	2,573.00
tblGrading	MaterialImported	0.00	2,573.00

tblLandUse	LandUseSquareFeet	1,000.00	999.00
tblLandUse	LandUseSquareFeet	5,060.00	5,063.00
tblLandUse	LandUseSquareFeet	3,560.00	3,561.00
tblLandUse	LandUseSquareFeet	1,411.75	6,045.00
tblLandUse	LandUseSquareFeet	0.00	2,485.00
tblLandUse	LotAcreage	0.02	0.37
tblLandUse	LotAcreage	0.23	0.37
tblLandUse	LotAcreage	0.12	0.37
tblLandUse	LotAcreage	0.08	0.37
tblLandUse	LotAcreage	0.03	0.37
tblLandUse	LotAcreage	0.00	0.37
tblSolidWaste	SolidWasteGenerationRate	1.24	0.00
tblSolidWaste	SolidWasteGenerationRate	0.00	5.39
tblVehicleTrips	ST_TR	863.10	80.00
tblVehicleTrips	ST_TR	71.07	80.00
tblVehicleTrips	ST_TR	168.56	80.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	758.45	80.00
tblVehicleTrips	SU_TR	56.36	80.00
tblVehicleTrips	SU_TR	168.56	80.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	737.99	80.00
tblVehicleTrips	WD_TR	57.24	80.00
tblVehicleTrips	WD_TR	168.56	80.00
tblVehicleTrips	WD_TR	6.97	0.00
tblWater	IndoorWaterUseRate	231,250.00	0.00
tblWater	IndoorWaterUseRate	0.00	1,401,600.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	4.2473	42.4527	29.0596	0.1063	7.6850	1.4966	8.6385	3.6701	1.4168	4.5486	0.0000	11,047.0459	11,047.0459	1.3296	0.0000	11,080.2864
2022	3.9126	25.8447	28.6971	0.0496	0.3338	1.2742	1.6081	0.0893	1.2071	1.2964	0.0000	4,659.2486	4,659.2486	1.0175	0.0000	4,684.6869
Maximum	**4.2473**	**42.4527**	**29.0596**	**0.1063**	**7.6850**	**1.4966**	**8.6385**	**3.6701**	**1.4168**	**4.5486**	**0.0000**	**11,047.0459**	**11,047.0459**	**1.3296**	**0.0000**	**11,080.2864**

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					
2021	4.2473	42.4527	29.0596	0.1063	4.0505	1.4966	5.0039	1.8133	1.4168	2.6919	0.0000	11,047.0459	11,047.0459	1.3296	0.0000	11,080.2864
2022	3.9126	25.8447	28.6971	0.0496	0.3338	1.2742	1.6081	0.0893	1.2071	1.2964	0.0000	4,659.2486	4,659.2486	1.0175	0.0000	4,684.6869
Maximum	**4.2473**	**42.4527**	**29.0596**	**0.1063**	**4.0505**	**1.4966**	**5.0039**	**1.8133**	**1.4168**	**2.6919**	**0.0000**	**11,047.0459**	**11,047.0459**	**1.3296**	**0.0000**	**11,080.2864**

	ROG	NOx	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	45.32	0.00	35.47	49.39	0.00	31.77	0.00	0.00	0.00	0.00	0.00	0.00

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4101	3.0000e-005	3.0200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.4800e-003	6.4800e-003	2.0000e-005		6.9100e-003
Energy	9.5100e-003	0.0865	0.0726	5.2000e-004		6.5700e-003	6.5700e-003		6.5700e-003	6.5700e-003		103.7739	103.7739	1.9900e-003	1.9000e-003	104.3906
Mobile	1.5725	11.1329	11.3680	0.0461	2.9762	0.0270	3.0032	0.7962	0.0251	0.8213		4,733.0785	4,733.0785	0.3715		4,742.3665
Total	**1.9921**	**11.2194**	**11.4437**	**0.0466**	**2.9762**	**0.0335**	**3.0098**	**0.7962**	**0.0317**	**0.8279**		**4,836.8589**	**4,836.8589**	**0.3735**	**1.9000e-003**	**4,846.7640**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.4101	3.0000e-005	3.0200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.4800e-003	6.4800e-003	2.0000e-005		6.9100e-003
Energy	9.5100e-003	0.0865	0.0726	5.2000e-004		6.5700e-003	6.5700e-003		6.5700e-003	6.5700e-003		103.7739	103.7739	1.9900e-003	1.9000e-003	104.3906
Mobile	1.5725	11.1329	11.3680	0.0461	2.9762	0.0270	3.0032	0.7962	0.0251	0.8213		4,733.0785	4,733.0785	0.3715		4,742.3665
Total	**1.9921**	**11.2194**	**11.4437**	**0.0466**	**2.9762**	**0.0335**	**3.0098**	**0.7962**	**0.0317**	**0.8279**		**4,836.8589**	**4,836.8589**	**0.3735**	**1.9000e-003**	**4,846.7640**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/5/2021	3/9/2021	5	3	
2	Grading	Grading	3/10/2021	3/17/2021	5	6	
3	Building Construction	Building Construction	3/18/2021	1/19/2022	5	220	
4	Paving	Paving	3/18/2021	1/19/2022	5	220	
5	Architectural Coating	Architectural Coating	3/18/2021	1/19/2022	5	220	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 3

Acres of Paving: 0.37

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 27,230; Non-Residential Outdoor: 9,077; Striped Parking Area: 600 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	331.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	331.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	10.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

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					1.7025	0.0000	1.7025	0.1887	0.0000	0.1887			0.0000			0.0000
Off-Road	1.5463	18.2862	10.7496	0.0245		0.7019	0.7019		0.6457	0.6457		2,372.883 2	2,372.883 2	0.7674		2,392.069 2
Total	**1.5463**	**18.2862**	**10.7496**	**0.0245**	**1.7025**	**0.7019**	**2.4044**	**0.1887**	**0.6457**	**0.8344**		**2,372.883 2**	**2,372.883 2**	**0.7674**		**2,392.069 2**

3.2 Site Preparation - 2021

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	0.5652	24.1441	3.6787	0.0810	1.9300	0.0741	2.0041	0.5291	0.0709	0.5999		8,597.747 3	8,597.747 3	0.5604		8,611.757 6
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0372	0.0224	0.2387	7.7000e-004	0.0894	5.3000e-004	0.0900	0.0237	4.9000e-004	0.0242		76.4155	76.4155	1.7700e-003		76.4596
Total	**0.6024**	**24.1665**	**3.9174**	**0.0818**	**2.0194**	**0.0746**	**2.0940**	**0.5528**	**0.0714**	**0.6241**		**8,674.162 7**	**8,674.162 7**	**0.5622**		**8,688.217 2**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.7661	0.0000	0.7661	0.0849	0.0000	0.0849			0.0000			0.0000
Off-Road	1.5463	18.2862	10.7496	0.0245		0.7019	0.7019		0.6457	0.6457	0.0000	2,372.883 2	2,372.883 2	0.7674		2,392.069 2
Total	**1.5463**	**18.2862**	**10.7496**	**0.0245**	**0.7661**	**0.7019**	**1.4680**	**0.0849**	**0.6457**	**0.7306**	**0.0000**	**2,372.883 2**	**2,372.883 2**	**0.7674**		**2,392.069 2**

3.2 Site Preparation - 2021

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	0.5652	24.1441	3.6787	0.0810	1.9300	0.0741	2.0041	0.5291	0.0709	0.5999		8,597.747 3	8,597.747 3	0.5604		8,611.757 6
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0372	0.0224	0.2387	7.7000e-004	0.0894	5.3000e-004	0.0900	0.0237	4.9000e-004	0.0242		76.4155	76.4155	1.7700e-003		76.4596
Total	**0.6024**	**24.1665**	**3.9174**	**0.0818**	**2.0194**	**0.0746**	**2.0940**	**0.5528**	**0.0714**	**0.6241**		**8,674.162 7**	**8,674.162 7**	**0.5622**		**8,688.217 2**

3.3 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.6082	0.0000	6.6082	3.3759	0.0000	3.3759			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425		1,995.611 4	1,995.611 4	0.6454		2,011.747 0
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**6.6082**	**0.9158**	**7.5240**	**3.3759**	**0.8425**	**4.2184**		**1,995.611 4**	**1,995.611 4**	**0.6454**		**2,011.747 0**

3.3 Grading - 2021

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	0.2826	12.0721	1.8393	0.0405	0.9650	0.0370	1.0020	0.2645	0.0354	0.3000		4,298.8736	4,298.8736	0.2802		4,305.8788
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0465	0.0279	0.2984	9.6000e-004	0.1118	6.6000e-004	0.1124	0.0296	6.1000e-004	0.0303		95.5194	95.5194	2.2100e-003		95.5745
Total	**0.3291**	**12.1000**	**2.1378**	**0.0415**	**1.0768**	**0.0377**	**1.1145**	**0.2942**	**0.0361**	**0.3302**		**4,394.3930**	**4,394.3930**	**0.2824**		**4,401.4534**

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					2.9737	0.0000	2.9737	1.5192	0.0000	1.5192			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425	0.0000	1,995.6114	1,995.6114	0.6454		2,011.7470
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**2.9737**	**0.9158**	**3.8895**	**1.5192**	**0.8425**	**2.3617**	**0.0000**	**1,995.6114**	**1,995.6114**	**0.6454**		**2,011.7470**

3.3 Grading - 2021

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	0.2826	12.0721	1.8393	0.0405	0.9650	0.0370	1.0020	0.2645	0.0354	0.3000		4,298.873 6	4,298.873 6	0.2802		4,305.878 8
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0465	0.0279	0.2984	9.6000e-004	0.1118	6.6000e-004	0.1124	0.0296	6.1000e-004	0.0303		95.5194	95.5194	2.2100e-003		95.5745
Total	**0.3291**	**12.1000**	**2.1378**	**0.0415**	**1.0768**	**0.0377**	**1.1145**	**0.2942**	**0.0361**	**0.3302**		**4,394.393 0**	**4,394.393 0**	**0.2824**		**4,401.453 4**

3.4 Building Construction - 2021

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	2.0451	16.0275	14.5629	0.0250		0.8173	0.8173		0.7831	0.7831		2,288.935 5	2,288.935 5	0.4503		2,300.193 5
Total	**2.0451**	**16.0275**	**14.5629**	**0.0250**		**0.8173**	**0.8173**		**0.7831**	**0.7831**		**2,288.935 5**	**2,288.935 5**	**0.4503**		**2,300.193 5**

3.4 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0124	0.4587	0.0977	1.2500e-003	0.0320	9.1000e-004	0.0329	9.2200e-003	8.7000e-004	0.0101		131.4866	131.4866	0.0109		131.7589
Worker	0.0465	0.0279	0.2984	9.6000e-004	0.1118	6.6000e-004	0.1124	0.0296	6.1000e-004	0.0303		95.5194	95.5194	2.2100e-003		95.5745
Total	**0.0589**	**0.4866**	**0.3961**	**2.2100e-003**	**0.1438**	**1.5700e-003**	**0.1454**	**0.0389**	**1.4800e-003**	**0.0403**		**227.0060**	**227.0060**	**0.0131**		**227.3334**

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	2.0451	16.0275	14.5629	0.0250		0.8173	0.8173		0.7831	0.7831	0.0000	2,288.935 5	2,288.935 5	0.4503		2,300.193 5
Total	**2.0451**	**16.0275**	**14.5629**	**0.0250**		**0.8173**	**0.8173**		**0.7831**	**0.7831**	**0.0000**	**2,288.935 5**	**2,288.935 5**	**0.4503**		**2,300.193 5**

3.4 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0124	0.4587	0.0977	1.2500e-003	0.0320	9.1000e-004	0.0329	9.2200e-003	8.7000e-004	0.0101		131.4866	131.4866	0.0109		131.7589
Worker	0.0465	0.0279	0.2984	9.6000e-004	0.1118	6.6000e-004	0.1124	0.0296	6.1000e-004	0.0303		95.5194	95.5194	2.2100e-003		95.5745
Total	**0.0589**	**0.4866**	**0.3961**	**2.2100e-003**	**0.1438**	**1.5700e-003**	**0.1454**	**0.0389**	**1.4800e-003**	**0.0403**		**227.0060**	**227.0060**	**0.0131**		**227.3334**

3.4 Building Construction - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8555	14.6040	14.3533	0.0250		0.7022	0.7022		0.6731	0.6731		2,289.2813	2,289.2813	0.4417		2,300.3230
Total	**1.8555**	**14.6040**	**14.3533**	**0.0250**		**0.7022**	**0.7022**		**0.6731**	**0.6731**		**2,289.2813**	**2,289.2813**	**0.4417**		**2,300.3230**

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0116	0.4322	0.0912	1.2400e-003	0.0320	7.6000e-004	0.0328	9.2200e-003	7.3000e-004	9.9500e-003		130.3386	130.3386	0.0103		130.5967
Worker	0.0437	0.0251	0.2748	9.2000e-004	0.1118	6.4000e-004	0.1124	0.0296	5.9000e-004	0.0302		92.0339	92.0339	1.9800e-003		92.0835
Total	**0.0552**	**0.4573**	**0.3660**	**2.1600e-003**	**0.1438**	**1.4000e-003**	**0.1452**	**0.0389**	**1.3200e-003**	**0.0402**		**222.3725**	**222.3725**	**0.0123**		**222.6802**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8555	14.6040	14.3533	0.0250		0.7022	0.7022		0.6731	0.6731	0.0000	2,289.2813	2,289.2813	0.4417		2,300.3230
Total	**1.8555**	**14.6040**	**14.3533**	**0.0250**		**0.7022**	**0.7022**		**0.6731**	**0.6731**	**0.0000**	**2,289.2813**	**2,289.2813**	**0.4417**		**2,300.3230**

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0116	0.4322	0.0912	1.2400e-003	0.0320	7.6000e-004	0.0328	9.2200e-003	7.3000e-004	9.9500e-003		130.3386	130.3386	0.0103		130.5967
Worker	0.0437	0.0251	0.2748	9.2000e-004	0.1118	6.4000e-004	0.1124	0.0296	5.9000e-004	0.0302		92.0339	92.0339	1.9800e-003		92.0835
Total	**0.0552**	**0.4573**	**0.3660**	**2.1600e-003**	**0.1438**	**1.4000e-003**	**0.1452**	**0.0389**	**1.3200e-003**	**0.0402**		**222.3725**	**222.3725**	**0.0123**		**222.6802**

3.5 Paving - 2021

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	1.0633	10.6478	11.7756	0.0178		0.5826	0.5826		0.5371	0.5371		1,709.1107	1,709.1107	0.5417		1,722.6524
Paving	4.4100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0677**	**10.6478**	**11.7756**	**0.0178**		**0.5826**	**0.5826**		**0.5371**	**0.5371**		**1,709.1107**	**1,709.1107**	**0.5417**		**1,722.6524**

3.5 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0419	0.4476	1.4400e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		143.2790	143.2790	3.3100e-003		143.3618
Total	**0.0698**	**0.0419**	**0.4476**	**1.4400e-003**	**0.1677**	**9.9000e-004**	**0.1687**	**0.0445**	**9.1000e-004**	**0.0454**		**143.2790**	**143.2790**	**3.3100e-003**		**143.3618**

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	1.0633	10.6478	11.7756	0.0178		0.5826	0.5826		0.5371	0.5371	0.0000	1,709.1107	1,709.1107	0.5417		1,722.6524
Paving	4.4100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0677**	**10.6478**	**11.7756**	**0.0178**		**0.5826**	**0.5826**		**0.5371**	**0.5371**	**0.0000**	**1,709.1107**	**1,709.1107**	**0.5417**		**1,722.6524**

3.5 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0698	0.0419	0.4476	1.4400e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		143.2790	143.2790	3.3100e-003		143.3618
Total	**0.0698**	**0.0419**	**0.4476**	**1.4400e-003**	**0.1677**	**9.9000e-004**	**0.1687**	**0.0445**	**9.1000e-004**	**0.0454**		**143.2790**	**143.2790**	**3.3100e-003**		**143.3618**

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.9412	9.3322	11.6970	0.0179		0.4879	0.4879		0.4500	0.4500		1,709.6892	1,709.6892	0.5419		1,723.2356
Paving	4.4100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9456**	**9.3322**	**11.6970**	**0.0179**		**0.4879**	**0.4879**		**0.4500**	**0.4500**		**1,709.6892**	**1,709.6892**	**0.5419**		**1,723.2356**

3.5 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0655	0.0377	0.4123	1.3800e-003	0.1677	9.6000e-004	0.1686	0.0445	8.9000e-004	0.0454		138.0508	138.0508	2.9800e-003		138.1253
Total	**0.0655**	**0.0377**	**0.4123**	**1.3800e-003**	**0.1677**	**9.6000e-004**	**0.1686**	**0.0445**	**8.9000e-004**	**0.0454**		**138.0508**	**138.0508**	**2.9800e-003**		**138.1253**

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	0.9412	9.3322	11.6970	0.0179		0.4879	0.4879		0.4500	0.4500	0.0000	1,709.6892	1,709.6892	0.5419		1,723.2356
Paving	4.4100e-003					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.9456**	**9.3322**	**11.6970**	**0.0179**		**0.4879**	**0.4879**		**0.4500**	**0.4500**	**0.0000**	**1,709.6892**	**1,709.6892**	**0.5419**		**1,723.2356**

3.5 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0655	0.0377	0.4123	1.3800e-003	0.1677	9.6000e-004	0.1686	0.0445	8.9000e-004	0.0454		138.0508	138.0508	2.9800e-003		138.1253
Total	**0.0655**	**0.0377**	**0.4123**	**1.3800e-003**	**0.1677**	**9.6000e-004**	**0.1686**	**0.0445**	**8.9000e-004**	**0.0454**		**138.0508**	**138.0508**	**2.9800e-003**		**138.1253**

3.6 Architectural Coating - 2021

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	0.7776					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**0.9965**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	9.3100e-003	5.5900e-003	0.0597	1.9000e-004	0.0224	1.3000e-004	0.0225	5.9300e-003	1.2000e-004	6.0500e-003		19.1039	19.1039	4.4000e-004		19.1149
Total	**9.3100e-003**	**5.5900e-003**	**0.0597**	**1.9000e-004**	**0.0224**	**1.3000e-004**	**0.0225**	**5.9300e-003**	**1.2000e-004**	**6.0500e-003**		**19.1039**	**19.1039**	**4.4000e-004**		**19.1149**

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	0.7776					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**0.9965**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.6 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	9.3100e-003	5.5900e-003	0.0597	1.9000e-004	0.0224	1.3000e-004	0.0225	5.9300e-003	1.2000e-004	6.0500e-003		19.1039	19.1039	4.4000e-004		19.1149
Total	**9.3100e-003**	**5.5900e-003**	**0.0597**	**1.9000e-004**	**0.0224**	**1.3000e-004**	**0.0225**	**5.9300e-003**	**1.2000e-004**	**6.0500e-003**		**19.1039**	**19.1039**	**4.4000e-004**		**19.1149**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	0.7776					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817		281.4481	281.4481	0.0183		281.9062
Total	**0.9821**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**		**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	8.7300e-003	5.0300e-003	0.0550	1.8000e-004	0.0224	1.3000e-004	0.0225	5.9300e-003	1.2000e-004	6.0500e-003		18.4068	18.4068	4.0000e-004		18.4167
Total	**8.7300e-003**	**5.0300e-003**	**0.0550**	**1.8000e-004**	**0.0224**	**1.3000e-004**	**0.0225**	**5.9300e-003**	**1.2000e-004**	**6.0500e-003**		**18.4068**	**18.4068**	**4.0000e-004**		**18.4167**

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	0.7776					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2045	1.4085	1.8136	2.9700e-003		0.0817	0.0817		0.0817	0.0817	0.0000	281.4481	281.4481	0.0183		281.9062
Total	**0.9821**	**1.4085**	**1.8136**	**2.9700e-003**		**0.0817**	**0.0817**		**0.0817**	**0.0817**	**0.0000**	**281.4481**	**281.4481**	**0.0183**		**281.9062**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	8.7300e-003	5.0300e-003	0.0550	1.8000e-004	0.0224	1.3000e-004	0.0225	5.9300e-003	1.2000e-004	6.0500e-003		18.4068	18.4068	4.0000e-004		18.4167
Total	**8.7300e-003**	**5.0300e-003**	**0.0550**	**1.8000e-004**	**0.0224**	**1.3000e-004**	**0.0225**	**5.9300e-003**	**1.2000e-004**	**6.0500e-003**		**18.4068**	**18.4068**	**4.0000e-004**		**18.4167**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.5725	11.1329	11.3680	0.0461	2.9762	0.0270	3.0032	0.7962	0.0251	0.8213		4,733.078 5	4,733.078 5	0.3715		4,742.366 5
Unmitigated	1.5725	11.1329	11.3680	0.0461	2.9762	0.0270	3.0032	0.7962	0.0251	0.8213		4,733.078 5	4,733.078 5	0.3715		4,742.366 5

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market (24 Hour)	404.80	404.80	404.80	343,819	343,819
Free-Standing Discount Store	284.80	284.80	284.80	534,488	534,488
Gasoline/Service Station	800.00	800.00	800.00	517,431	517,431
General Light Industry	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
User Defined Retail	0.00	0.00	0.00		
Total	1,489.60	1,489.60	1,489.60	1,395,738	1,395,738

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
Convenience Market (24 Hour)	16.60	8.40	6.90	0.90	80.10	19.00	24	15	61
Free-Standing Discount Store	16.60	8.40	6.90	12.20	68.80	19.00	47.5	35.5	17
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
User Defined Retail	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market (24 Hour)	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Free-Standing Discount Store	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Gasoline/Service Station	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
General Light Industry	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Other Asphalt Surfaces	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
User Defined Retail	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	9.5100e-003	0.0865	0.0726	5.2000e-004		6.5700e-003	6.5700e-003		6.5700e-003	6.5700e-003		103.7739	103.7739	1.9900e-003	1.9000e-003	104.3906
NaturalGas Unmitigated	9.5100e-003	0.0865	0.0726	5.2000e-004		6.5700e-003	6.5700e-003		6.5700e-003	6.5700e-003		103.7739	103.7739	1.9900e-003	1.9000e-003	104.3906

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					
Convenience Market (24 Hour)	30.7941	3.3000e-004	3.0200e-003	2.5400e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		3.6228	3.6228	7.0000e-005	7.0000e-005	3.6444
Free-Standing Discount Store	21.6587	2.3000e-004	2.1200e-003	1.7800e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.5481	2.5481	5.0000e-005	5.0000e-005	2.5632
Gasoline/Service Station	538.088	5.8000e-003	0.0528	0.0443	3.2000e-004		4.0100e-003	4.0100e-003		4.0100e-003	4.0100e-003		63.3045	63.3045	1.2100e-003	1.1600e-003	63.6806
General Light Industry	88.9247	9.6000e-004	8.7200e-003	7.3200e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004		10.4617	10.4617	2.0000e-004	1.9000e-004	10.5239
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Retail	202.613	2.1900e-003	0.0199	0.0167	1.2000e-004		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003		23.8368	23.8368	4.6000e-004	4.4000e-004	23.9784
Total		**9.5100e-003**	**0.0865**	**0.0726**	**5.2000e-004**		**6.5700e-003**	**6.5700e-003**		**6.5700e-003**	**6.5700e-003**		**103.7739**	**103.7739**	**1.9900e-003**	**1.9100e-003**	**104.3906**

5.2 Energy by Land Use - NaturalGas

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					
Convenience Market (24 Hour)	0.0307941	3.3000e-004	3.0200e-003	2.5400e-003	2.0000e-005		2.3000e-004	2.3000e-004		2.3000e-004	2.3000e-004		3.6228	3.6228	7.0000e-005	7.0000e-005	3.6444
Free-Standing Discount Store	0.0216587	2.3000e-004	2.1200e-003	1.7800e-003	1.0000e-005		1.6000e-004	1.6000e-004		1.6000e-004	1.6000e-004		2.5481	2.5481	5.0000e-005	5.0000e-005	2.5632
Gasoline/Service Station	0.538088	5.8000e-003	0.0528	0.0443	3.2000e-004		4.0100e-003	4.0100e-003		4.0100e-003	4.0100e-003		63.3045	63.3045	1.2100e-003	1.1600e-003	63.6806
General Light Industry	0.0889247	9.6000e-004	8.7200e-003	7.3200e-003	5.0000e-005		6.6000e-004	6.6000e-004		6.6000e-004	6.6000e-004		10.4617	10.4617	2.0000e-004	1.9000e-004	10.5239
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Retail	0.202613	2.1900e-003	0.0199	0.0167	1.2000e-004		1.5100e-003	1.5100e-003		1.5100e-003	1.5100e-003		23.8368	23.8368	4.6000e-004	4.4000e-004	23.9784
Total		**9.5100e-003**	**0.0865**	**0.0726**	**5.2000e-004**		**6.5700e-003**	**6.5700e-003**		**6.5700e-003**	**6.5700e-003**		**103.7739**	**103.7739**	**1.9900e-003**	**1.9100e-003**	**104.3906**

6.0 Area Detail

6.1 Mitigation Measures Area

Category	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Mitigated	0.4101	3.0000e-005	3.0200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.4800e-003	6.4800e-003	2.0000e-005		6.9100e-003
Unmitigated	0.4101	3.0000e-005	3.0200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.4800e-003	6.4800e-003	2.0000e-005		6.9100e-003

6.2 Area by SubCategory

Unmitigated

SubCategory	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	lb/day										lb/day					
Architectural Coating	0.0469					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3630					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8000e-004	3.0000e-005	3.0200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.4800e-003	6.4800e-003	2.0000e-005		6.9100e-003
Total	**0.4101**	**3.0000e-005**	**3.0200e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.4800e-003**	**6.4800e-003**	**2.0000e-005**		**6.9100e-003**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0469					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.3630					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.8000e-004	3.0000e-005	3.0200e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.4800e-003	6.4800e-003	2.0000e-005		6.9100e-003
Total	**0.4101**	**3.0000e-005**	**3.0200e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.4800e-003**	**6.4800e-003**	**2.0000e-005**		**6.9100e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix B – Gasoline Vapor Health Risk

GASOLINE DISPENSING SERVICE STATION

(Procedure Version 8.1 & Package N, September 1, 2017) - Risk Tool V1.1

AN:
Facility Name: Go Fresh Gas Station
Deem Complete Date: 7/21/2020

Storage Tank Type	Underground		MET Station	Perris	
Annual Throughput	3.6	million gallons /year	Distance to Resident	39	meter
T-BACT	YES		Distance to Commercial	58	meter

MICR Calculation: MICR = MICR per 1 Million gallons/yr x Annual Throughput (Million gallons/yr)

HIA & HIC Calculation: Negligible compared to Cancer risk and is not calculated.

MICR Result

	Resident	Commercial
MICR	8.176	0.330
MICR ≤ 10	**PASS**	**PASS**

Interpolation for MICR from Nearest Distances

	Residential			**Commercial**		
	near	**actual**	far	near	**actual**	far
Distance (meter)	25	**39**	50	50	**58**	75
MICR (per 1 million gasoline gallon throughput per year)	3.494	**2.2710**	1.310	0.108	**0.092**	0.057

Look up from Table 12 - MICR for Underground Storage Tank

		Downwind Distance (m)							
Station	**Receptor**	**25**	**50**	**75**	**100**	**200**	**300**	**500**	**1000**
Perris	Resident	3.494	1.310	0.695	0.436	0.127	0.063	0.026	0.008
	Commercial	0.288	0.108	0.057	0.036	0.010	0.005	0.002	0.001

Appendix C – Fuel Consumption

Go Fresh Gas Station

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Light Industry	1.00	1000sqft	0.37	999.00	0
Other Asphalt Surfaces	10.00	1000sqft	0.37	10,000.00	0
Convenience Market (24 Hour)	5.06	1000sqft	0.37	5,063.00	0
Free-Standing Discount Store	3.56	1000sqft	0.37	3,561.00	0
Gasoline/Service Station	10.00	Pump	0.37	6,045.00	0
User Defined Retail	0.00	User Defined Unit	0.37	2,485.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - User Defined Retail= car wash. General light industral= hydrogen equipment room.

Construction Phase - construcion, paving and coating assumed to occur at the same time.

Grading - Information updated to match RFI

Vehicle Trips - Trips updated to match traffic count per K2. Traffic Engineering, Inc

Energy Use - User defined updated to reflect that of a car wash.

Water And Wastewater - Water use for car wash calculated from infomration provided by the international car was association

Solid Waste - Updated to reflect that of the land use.

Construction Off-road Equipment Mitigation - Rule 403

Water Mitigation -

Stationary Sources - Process Boilers -

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	55
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	55
tblConstDustMitigation	WaterUnpavedRoadVehicleSpeed	0	15
tblConstructionPhase	NumDays	10.00	220.00
tblConstructionPhase	NumDays	10.00	220.00
tblEnergyUse	LightingElect	0.00	2.93
tblEnergyUse	NT24E	0.00	5.02
tblEnergyUse	NT24NG	0.00	14.13
tblEnergyUse	T24E	0.00	2.20
tblEnergyUse	T24NG	0.00	15.63
tblGrading	MaterialExported	0.00	75.00
tblGrading	MaterialExported	0.00	75.00
tblGrading	MaterialImported	0.00	2,573.00
tblGrading	MaterialImported	0.00	2,573.00

tblLandUse	LandUseSquareFeet	1,000.00	999.00
tblLandUse	LandUseSquareFeet	5,060.00	5,063.00
tblLandUse	LandUseSquareFeet	3,560.00	3,561.00
tblLandUse	LandUseSquareFeet	1,411.75	6,045.00
tblLandUse	LandUseSquareFeet	0.00	2,485.00
tblLandUse	LotAcreage	0.02	0.37
tblLandUse	LotAcreage	0.23	0.37
tblLandUse	LotAcreage	0.12	0.37
tblLandUse	LotAcreage	0.08	0.37
tblLandUse	LotAcreage	0.03	0.37
tblLandUse	LotAcreage	0.00	0.37
tblSolidWaste	SolidWasteGenerationRate	1.24	0.00
tblSolidWaste	SolidWasteGenerationRate	0.00	5.39
tblVehicleTrips	ST_TR	863.10	80.00
tblVehicleTrips	ST_TR	71.07	80.00
tblVehicleTrips	ST_TR	168.56	80.00
tblVehicleTrips	ST_TR	1.32	0.00
tblVehicleTrips	SU_TR	758.45	80.00
tblVehicleTrips	SU_TR	56.36	80.00
tblVehicleTrips	SU_TR	168.56	80.00
tblVehicleTrips	SU_TR	0.68	0.00
tblVehicleTrips	WD_TR	737.99	80.00
tblVehicleTrips	WD_TR	57.24	80.00
tblVehicleTrips	WD_TR	168.56	80.00
tblVehicleTrips	WD_TR	6.97	0.00
tblWater	IndoorWaterUseRate	231,250.00	0.00
tblWater	IndoorWaterUseRate	0.00	1,401,600.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	0.4482	3.1370	3.0683	5.5000e-003	0.0625	0.1589	0.2215	0.0212	0.1504	0.1716	0.0000	472.0641	472.0641	0.1008	0.0000	474.5830
2022	0.0254	0.1681	0.1868	3.2000e-004	2.1300e-003	8.2800e-003	0.0104	5.7000e-004	7.8500e-003	8.4200e-003	0.0000	27.5294	27.5294	6.0000e-003	0.0000	27.6794
Maximum	**0.4482**	**3.1370**	**3.0683**	**5.5000e-003**	**0.0625**	**0.1589**	**0.2215**	**0.0212**	**0.1504**	**0.1716**	**0.0000**	**472.0641**	**472.0641**	**0.1008**	**0.0000**	**474.5830**

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					
2021	0.4482	3.1370	3.0683	5.5000e-003	0.0502	0.1589	0.2091	0.0155	0.1504	0.1658	0.0000	472.0636	472.0636	0.1008	0.0000	474.5825
2022	0.0254	0.1681	0.1868	3.2000e-004	2.1300e-003	8.2800e-003	0.0104	5.7000e-004	7.8500e-003	8.4200e-003	0.0000	27.5294	27.5294	6.0000e-003	0.0000	27.6794
Maximum	**0.4482**	**3.1370**	**3.0683**	**5.5000e-003**	**0.0502**	**0.1589**	**0.2091**	**0.0155**	**0.1504**	**0.1658**	**0.0000**	**472.0636**	**472.0636**	**0.1008**	**0.0000**	**474.5825**

	ROG	NOx	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**	**19.04**	**0.00**	**5.31**	**26.32**	**0.00**	**3.18**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**2-5-2021**	**5-4-2021**	0.7436	0.7436
2	**5-5-2021**	**8-4-2021**	1.0838	1.0838
3	**8-5-2021**	**11-4-2021**	1.0838	1.0838
4	**11-5-2021**	**2-4-2022**	0.8734	0.8734
		Highest	1.0838	1.0838

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	0.0748	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.8000e-004
Energy	1.7400e-003	0.0158	0.0133	9.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003	0.0000	82.7024	82.7024	3.0300e-003	8.7000e-004	83.0389
Mobile	0.2859	2.0611	2.0756	8.6700e-003	0.5328	4.8500e-003	0.5377	0.1427	4.5200e-003	0.1473	0.0000	808.7832	808.7832	0.0585	0.0000	810.2445
Waste						0.0000	0.0000		0.0000	0.0000	8.3835	0.0000	8.3835	0.4955	0.0000	20.7698
Water						0.0000	0.0000		0.0000	0.0000	0.6894	10.6884	11.3778	0.0713	1.7600e-003	13.6844
Total	**0.3625**	**2.0769**	**2.0892**	**8.7600e-003**	**0.5328**	**6.0500e-003**	**0.5389**	**0.1427**	**5.7200e-003**	**0.1485**	**9.0729**	**902.1748**	**911.2477**	**0.6282**	**2.6300e-003**	**927.7384**

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	0.0748	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.8000e-004
Energy	1.7400e-003	0.0158	0.0133	9.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003	0.0000	82.7024	82.7024	3.0300e-003	8.7000e-004	83.0389
Mobile	0.2859	2.0611	2.0756	8.6700e-003	0.5328	4.8500e-003	0.5377	0.1427	4.5200e-003	0.1473	0.0000	808.7832	808.7832	0.0585	0.0000	810.2445
Waste						0.0000	0.0000		0.0000	0.0000	8.3835	0.0000	8.3835	0.4955	0.0000	20.7698
Water						0.0000	0.0000		0.0000	0.0000	0.5818	9.2821	9.8639	0.0601	1.4900e-003	11.8116
Total	**0.3625**	**2.0769**	**2.0892**	**8.7600e-003**	**0.5328**	**6.0500e-003**	**0.5389**	**0.1427**	**5.7200e-003**	**0.1485**	**8.9654**	**900.7684**	**909.7338**	**0.6171**	**2.3600e-003**	**925.8656**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.19	0.16	0.17	1.77	10.27	0.20

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	3/5/2021	3/9/2021	5	3	
2	Grading	Grading	3/10/2021	3/17/2021	5	6	
3	Building Construction	Building Construction	3/18/2021	1/19/2022	5	220	
4	Paving	Paving	3/18/2021	1/19/2022	5	220	
5	Architectural Coating	Architectural Coating	3/18/2021	1/19/2022	5	220	

Acres of Grading (Site Preparation Phase): 4.5

Acres of Grading (Grading Phase): 3

Acres of Paving: 0.37

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 27,230; Non-Residential Outdoor: 9,077; Striped Parking Area: 600 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	3	8.00	0.00	331.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	331.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	10.00	5.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.5500e-003	0.0000	2.5500e-003	2.8000e-004	0.0000	2.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3200e-003	0.0274	0.0161	4.0000e-005		1.0500e-003	1.0500e-003		9.7000e-004	9.7000e-004	0.0000	3.2290	3.2290	1.0400e-003	0.0000	3.2551
Total	**2.3200e-003**	**0.0274**	**0.0161**	**4.0000e-005**	**2.5500e-003**	**1.0500e-003**	**3.6000e-003**	**2.8000e-004**	**9.7000e-004**	**1.2500e-003**	**0.0000**	**3.2290**	**3.2290**	**1.0400e-003**	**0.0000**	**3.2551**

Attachment: Exhibit A - Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program

3.2 Site Preparation - 2021

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	8.2000e-004	0.0368	5.0700e-003	1.2000e-004	2.8500e-003	1.1000e-004	2.9600e-003	7.8000e-004	1.1000e-004	8.9000e-004	0.0000	11.8745	11.8745	7.3000e-004	0.0000	11.8926
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	5.0000e-005	3.0000e-005	3.8000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1067	0.1067	0.0000	0.0000	0.1067
Total	**8.7000e-004**	**0.0368**	**5.4500e-003**	**1.2000e-004**	**2.9800e-003**	**1.1000e-004**	**3.0900e-003**	**8.2000e-004**	**1.1000e-004**	**9.3000e-004**	**0.0000**	**11.9812**	**11.9812**	**7.3000e-004**	**0.0000**	**11.9994**

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					1.1500e-003	0.0000	1.1500e-003	1.3000e-004	0.0000	1.3000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3200e-003	0.0274	0.0161	4.0000e-005		1.0500e-003	1.0500e-003		9.7000e-004	9.7000e-004	0.0000	3.2290	3.2290	1.0400e-003	0.0000	3.2551
Total	**2.3200e-003**	**0.0274**	**0.0161**	**4.0000e-005**	**1.1500e-003**	**1.0500e-003**	**2.2000e-003**	**1.3000e-004**	**9.7000e-004**	**1.1000e-003**	**0.0000**	**3.2290**	**3.2290**	**1.0400e-003**	**0.0000**	**3.2551**

3.2 Site Preparation - 2021

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	8.2000e-004	0.0368	5.0700e-003	1.2000e-004	2.8500e-003	1.1000e-004	2.9600e-003	7.8000e-004	1.1000e-004	8.9000e-004	0.0000	11.8745	11.8745	7.3000e-004	0.0000	11.8926
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	5.0000e-005	3.0000e-005	3.8000e-004	0.0000	1.3000e-004	0.0000	1.3000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1067	0.1067	0.0000	0.0000	0.1067
Total	**8.7000e-004**	**0.0368**	**5.4500e-003**	**1.2000e-004**	**2.9800e-003**	**1.1000e-004**	**3.0900e-003**	**8.2000e-004**	**1.1000e-004**	**9.3000e-004**	**0.0000**	**11.9812**	**11.9812**	**7.3000e-004**	**0.0000**	**11.9994**

3.3 Grading - 2021

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					0.0198	0.0000	0.0198	0.0101	0.0000	0.0101	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4800e-003	0.0606	0.0293	6.0000e-005		2.7500e-003	2.7500e-003		2.5300e-003	2.5300e-003	0.0000	5.4312	5.4312	1.7600e-003	0.0000	5.4751
Total	**5.4800e-003**	**0.0606**	**0.0293**	**6.0000e-005**	**0.0198**	**2.7500e-003**	**0.0226**	**0.0101**	**2.5300e-003**	**0.0127**	**0.0000**	**5.4312**	**5.4312**	**1.7600e-003**	**0.0000**	**5.4751**

3.3 Grading - 2021

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	8.2000e-004	0.0368	5.0700e-003	1.2000e-004	2.8500e-003	1.1000e-004	2.9600e-003	7.8000e-004	1.1000e-004	8.9000e-004	0.0000	11.8745	11.8745	7.3000e-004	0.0000	11.8926
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	9.0000e-005	9.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2667	0.2667	1.0000e-005	0.0000	0.2668
Total	**9.5000e-004**	**0.0369**	**6.0100e-003**	**1.2000e-004**	**3.1800e-003**	**1.1000e-004**	**3.2900e-003**	**8.7000e-004**	**1.1000e-004**	**9.8000e-004**	**0.0000**	**12.1412**	**12.1412**	**7.4000e-004**	**0.0000**	**12.1594**

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					8.9200e-003	0.0000	8.9200e-003	4.5600e-003	0.0000	4.5600e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.4800e-003	0.0606	0.0293	6.0000e-005		2.7500e-003	2.7500e-003		2.5300e-003	2.5300e-003	0.0000	5.4312	5.4312	1.7600e-003	0.0000	5.4751
Total	**5.4800e-003**	**0.0606**	**0.0293**	**6.0000e-005**	**8.9200e-003**	**2.7500e-003**	**0.0117**	**4.5600e-003**	**2.5300e-003**	**7.0900e-003**	**0.0000**	**5.4312**	**5.4312**	**1.7600e-003**	**0.0000**	**5.4751**

3.3 Grading - 2021

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	8.2000e-004	0.0368	5.0700e-003	1.2000e-004	2.8500e-003	1.1000e-004	2.9600e-003	7.8000e-004	1.1000e-004	8.9000e-004	0.0000	11.8745	11.8745	7.3000e-004	0.0000	11.8926
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3000e-004	9.0000e-005	9.4000e-004	0.0000	3.3000e-004	0.0000	3.3000e-004	9.0000e-005	0.0000	9.0000e-005	0.0000	0.2667	0.2667	1.0000e-005	0.0000	0.2668
Total	**9.5000e-004**	**0.0369**	**6.0100e-003**	**1.2000e-004**	**3.1800e-003**	**1.1000e-004**	**3.2900e-003**	**8.7000e-004**	**1.1000e-004**	**9.8000e-004**	**0.0000**	**12.1412**	**12.1412**	**7.4000e-004**	**0.0000**	**12.1594**

3.4 Building Construction - 2021

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	0.2117	1.6589	1.5073	2.5900e-003		0.0846	0.0846		0.0811	0.0811	0.0000	214.9164	214.9164	0.0423	0.0000	215.9735
Total	**0.2117**	**1.6589**	**1.5073**	**2.5900e-003**		**0.0846**	**0.0846**		**0.0811**	**0.0811**	**0.0000**	**214.9164**	**214.9164**	**0.0423**	**0.0000**	**215.9735**

3.4 Building Construction - 2021

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	1.2300e-003	0.0483	9.2800e-003	1.3000e-004	3.2700e-003	9.0000e-005	3.3600e-003	9.4000e-004	9.0000e-005	1.0300e-003	0.0000	12.6256	12.6256	9.6000e-004	0.0000	12.6497
Worker	4.4400e-003	2.9900e-003	0.0326	1.0000e-004	0.0114	7.0000e-005	0.0114	3.0200e-003	6.0000e-005	3.0800e-003	0.0000	9.1996	9.1996	2.1000e-004	0.0000	9.2049
Total	**5.6700e-003**	**0.0512**	**0.0419**	**2.3000e-004**	**0.0147**	**1.6000e-004**	**0.0148**	**3.9600e-003**	**1.5000e-004**	**4.1100e-003**	**0.0000**	**21.8252**	**21.8252**	**1.1700e-003**	**0.0000**	**21.8546**

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	0.2117	1.6589	1.5073	2.5900e-003		0.0846	0.0846		0.0811	0.0811	0.0000	214.9162	214.9162	0.0423	0.0000	215.9732
Total	**0.2117**	**1.6589**	**1.5073**	**2.5900e-003**		**0.0846**	**0.0846**		**0.0811**	**0.0811**	**0.0000**	**214.9162**	**214.9162**	**0.0423**	**0.0000**	**215.9732**

3.4 Building Construction - 2021

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	1.2300e-003	0.0483	9.2800e-003	1.3000e-004	3.2700e-003	9.0000e-005	3.3600e-003	9.4000e-004	9.0000e-005	1.0300e-003	0.0000	12.6256	12.6256	9.6000e-004	0.0000	12.6497
Worker	4.4400e-003	2.9900e-003	0.0326	1.0000e-004	0.0114	7.0000e-005	0.0114	3.0200e-003	6.0000e-005	3.0800e-003	0.0000	9.1996	9.1996	2.1000e-004	0.0000	9.2049
Total	**5.6700e-003**	**0.0512**	**0.0419**	**2.3000e-004**	**0.0147**	**1.6000e-004**	**0.0148**	**3.9600e-003**	**1.5000e-004**	**4.1100e-003**	**0.0000**	**21.8252**	**21.8252**	**1.1700e-003**	**0.0000**	**21.8546**

3.4 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	0.0121	0.0949	0.0933	1.6000e-004		4.5600e-003	4.5600e-003		4.3800e-003	4.3800e-003	0.0000	13.4992	13.4992	2.6000e-003	0.0000	13.5643
Total	**0.0121**	**0.0949**	**0.0933**	**1.6000e-004**		**4.5600e-003**	**4.5600e-003**		**4.3800e-003**	**4.3800e-003**	**0.0000**	**13.4992**	**13.4992**	**2.6000e-003**	**0.0000**	**13.5643**

3.4 Building Construction - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.8500e-003	5.4000e-004	1.0000e-005	2.1000e-004	0.0000	2.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.7861	0.7861	6.0000e-005	0.0000	0.7875
Worker	2.6000e-004	1.7000e-004	1.8800e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5567	0.5567	1.0000e-005	0.0000	0.5570
Total	**3.3000e-004**	**3.0200e-003**	**2.4200e-003**	**2.0000e-005**	**9.2000e-004**	**0.0000**	**9.3000e-004**	**2.5000e-004**	**0.0000**	**2.5000e-004**	**0.0000**	**1.3428**	**1.3428**	**7.0000e-005**	**0.0000**	**1.3445**

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	0.0121	0.0949	0.0933	1.6000e-004		4.5600e-003	4.5600e-003		4.3800e-003	4.3800e-003	0.0000	13.4992	13.4992	2.6000e-003	0.0000	13.5643
Total	**0.0121**	**0.0949**	**0.0933**	**1.6000e-004**		**4.5600e-003**	**4.5600e-003**		**4.3800e-003**	**4.3800e-003**	**0.0000**	**13.4992**	**13.4992**	**2.6000e-003**	**0.0000**	**13.5643**

3.4 Building Construction - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.0000e-005	2.8500e-003	5.4000e-004	1.0000e-005	2.1000e-004	0.0000	2.1000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.7861	0.7861	6.0000e-005	0.0000	0.7875
Worker	2.6000e-004	1.7000e-004	1.8800e-003	1.0000e-005	7.1000e-004	0.0000	7.2000e-004	1.9000e-004	0.0000	1.9000e-004	0.0000	0.5567	0.5567	1.0000e-005	0.0000	0.5570
Total	**3.3000e-004**	**3.0200e-003**	**2.4200e-003**	**2.0000e-005**	**9.2000e-004**	**0.0000**	**9.3000e-004**	**2.5000e-004**	**0.0000**	**2.5000e-004**	**0.0000**	**1.3428**	**1.3428**	**7.0000e-005**	**0.0000**	**1.3445**

3.5 Paving - 2021

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	0.1101	1.1021	1.2188	1.8500e-003		0.0603	0.0603		0.0556	0.0556	0.0000	160.4746	160.4746	0.0509	0.0000	161.7461
Paving	4.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1105**	**1.1021**	**1.2188**	**1.8500e-003**		**0.0603**	**0.0603**		**0.0556**	**0.0556**	**0.0000**	**160.4746**	**160.4746**	**0.0509**	**0.0000**	**161.7461**

3.5 Paving - 2021

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	6.6600e-003	4.4900e-003	0.0489	1.5000e-004	0.0171	1.0000e-004	0.0172	4.5300e-003	9.0000e-005	4.6300e-003	0.0000	13.7993	13.7993	3.2000e-004	0.0000	13.8074
Total	**6.6600e-003**	**4.4900e-003**	**0.0489**	**1.5000e-004**	**0.0171**	**1.0000e-004**	**0.0172**	**4.5300e-003**	**9.0000e-005**	**4.6300e-003**	**0.0000**	**13.7993**	**13.7993**	**3.2000e-004**	**0.0000**	**13.8074**

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	0.1101	1.1020	1.2188	1.8500e-003		0.0603	0.0603		0.0556	0.0556	0.0000	160.4744	160.4744	0.0509	0.0000	161.7459
Paving	4.6000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1105**	**1.1020**	**1.2188**	**1.8500e-003**		**0.0603**	**0.0603**		**0.0556**	**0.0556**	**0.0000**	**160.4744**	**160.4744**	**0.0509**	**0.0000**	**161.7459**

3.5 Paving - 2021

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	6.6600e-003	4.4900e-003	0.0489	1.5000e-004	0.0171	1.0000e-004	0.0172	4.5300e-003	9.0000e-005	4.6300e-003	0.0000	13.7993	13.7993	3.2000e-004	0.0000	13.8074
Total	**6.6600e-003**	**4.4900e-003**	**0.0489**	**1.5000e-004**	**0.0171**	**1.0000e-004**	**0.0172**	**4.5300e-003**	**9.0000e-005**	**4.6300e-003**	**0.0000**	**13.7993**	**13.7993**	**3.2000e-004**	**0.0000**	**13.8074**

3.5 Paving - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	6.1200e-003	0.0607	0.0760	1.2000e-004		3.1700e-003	3.1700e-003		2.9200e-003	2.9200e-003	0.0000	10.0815	10.0815	3.2000e-003	0.0000	10.1614
Paving	3.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.1500e-003**	**0.0607**	**0.0760**	**1.2000e-004**		**3.1700e-003**	**3.1700e-003**		**2.9200e-003**	**2.9200e-003**	**0.0000**	**10.0815**	**10.0815**	**3.2000e-003**	**0.0000**	**10.1614**

Attachment: Exhibit A - Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program

3.5 Paving - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.5000e-004	2.8300e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.8350	0.8350	2.0000e-005	0.0000	0.8355
Total	**3.9000e-004**	**2.5000e-004**	**2.8300e-003**	**1.0000e-005**	**1.0700e-003**	**1.0000e-005**	**1.0800e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.8350**	**0.8350**	**2.0000e-005**	**0.0000**	**0.8355**

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	6.1200e-003	0.0607	0.0760	1.2000e-004		3.1700e-003	3.1700e-003		2.9200e-003	2.9200e-003	0.0000	10.0815	10.0815	3.2000e-003	0.0000	10.1614
Paving	3.0000e-005					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.1500e-003**	**0.0607**	**0.0760**	**1.2000e-004**		**3.1700e-003**	**3.1700e-003**		**2.9200e-003**	**2.9200e-003**	**0.0000**	**10.0815**	**10.0815**	**3.2000e-003**	**0.0000**	**10.1614**

3.5 Paving - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.9000e-004	2.5000e-004	2.8300e-003	1.0000e-005	1.0700e-003	1.0000e-005	1.0800e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.8350	0.8350	2.0000e-005	0.0000	0.8355
Total	**3.9000e-004**	**2.5000e-004**	**2.8300e-003**	**1.0000e-005**	**1.0700e-003**	**1.0000e-005**	**1.0800e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.8350**	**0.8350**	**2.0000e-005**	**0.0000**	**0.8355**

3.6 Architectural Coating - 2021

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	0.0805					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0227	0.1580	0.1881	3.1000e-004		9.7400e-003	9.7400e-003		9.7400e-003	9.7400e-003	0.0000	26.4262	26.4262	1.8100e-003	0.0000	26.4715
Total	**0.1031**	**0.1580**	**0.1881**	**3.1000e-004**		**9.7400e-003**	**9.7400e-003**		**9.7400e-003**	**9.7400e-003**	**0.0000**	**26.4262**	**26.4262**	**1.8100e-003**	**0.0000**	**26.4715**

3.6 Architectural Coating - 2021

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	8.9000e-004	6.0000e-004	6.5200e-003	2.0000e-005	2.2800e-003	1.0000e-005	2.2900e-003	6.0000e-004	1.0000e-005	6.2000e-004	0.0000	1.8399	1.8399	4.0000e-005	0.0000	1.8410
Total	**8.9000e-004**	**6.0000e-004**	**6.5200e-003**	**2.0000e-005**	**2.2800e-003**	**1.0000e-005**	**2.2900e-003**	**6.0000e-004**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**1.8399**	**1.8399**	**4.0000e-005**	**0.0000**	**1.8410**

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	0.0805					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0227	0.1580	0.1881	3.1000e-004		9.7400e-003	9.7400e-003		9.7400e-003	9.7400e-003	0.0000	26.4261	26.4261	1.8100e-003	0.0000	26.4715
Total	**0.1031**	**0.1580**	**0.1881**	**3.1000e-004**		**9.7400e-003**	**9.7400e-003**		**9.7400e-003**	**9.7400e-003**	**0.0000**	**26.4261**	**26.4261**	**1.8100e-003**	**0.0000**	**26.4715**

3.6 Architectural Coating - 2021

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	8.9000e-004	6.0000e-004	6.5200e-003	2.0000e-005	2.2800e-003	1.0000e-005	2.2900e-003	6.0000e-004	1.0000e-005	6.2000e-004	0.0000	1.8399	1.8399	4.0000e-005	0.0000	1.8410
Total	**8.9000e-004**	**6.0000e-004**	**6.5200e-003**	**2.0000e-005**	**2.2800e-003**	**1.0000e-005**	**2.2900e-003**	**6.0000e-004**	**1.0000e-005**	**6.2000e-004**	**0.0000**	**1.8399**	**1.8399**	**4.0000e-005**	**0.0000**	**1.8410**

3.6 Architectural Coating - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	5.0500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3300e-003	9.1600e-003	0.0118	2.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	1.6596	1.6596	1.1000e-004	0.0000	1.6623
Total	**6.3800e-003**	**9.1600e-003**	**0.0118**	**2.0000e-005**		**5.3000e-004**	**5.3000e-004**		**5.3000e-004**	**5.3000e-004**	**0.0000**	**1.6596**	**1.6596**	**1.1000e-004**	**0.0000**	**1.6623**

3.6 Architectural Coating - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	3.8000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1113	0.1113	0.0000	0.0000	0.1114
Total	**5.0000e-005**	**3.0000e-005**	**3.8000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1113**	**0.1113**	**0.0000**	**0.0000**	**0.1114**

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	5.0500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.3300e-003	9.1600e-003	0.0118	2.0000e-005		5.3000e-004	5.3000e-004		5.3000e-004	5.3000e-004	0.0000	1.6596	1.6596	1.1000e-004	0.0000	1.6623
Total	**6.3800e-003**	**9.1600e-003**	**0.0118**	**2.0000e-005**		**5.3000e-004**	**5.3000e-004**		**5.3000e-004**	**5.3000e-004**	**0.0000**	**1.6596**	**1.6596**	**1.1000e-004**	**0.0000**	**1.6623**

3.6 Architectural Coating - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-005	3.0000e-005	3.8000e-004	0.0000	1.4000e-004	0.0000	1.4000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1113	0.1113	0.0000	0.0000	0.1114
Total	**5.0000e-005**	**3.0000e-005**	**3.8000e-004**	**0.0000**	**1.4000e-004**	**0.0000**	**1.4000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1113**	**0.1113**	**0.0000**	**0.0000**	**0.1114**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2859	2.0611	2.0756	8.6700e-003	0.5328	4.8500e-003	0.5377	0.1427	4.5200e-003	0.1473	0.0000	808.7832	808.7832	0.0585	0.0000	810.2445
Unmitigated	0.2859	2.0611	2.0756	8.6700e-003	0.5328	4.8500e-003	0.5377	0.1427	4.5200e-003	0.1473	0.0000	808.7832	808.7832	0.0585	0.0000	810.2445

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market (24 Hour)	404.80	404.80	404.80	343,819	343,819
Free-Standing Discount Store	284.80	284.80	284.80	534,488	534,488
Gasoline/Service Station	800.00	800.00	800.00	517,431	517,431
General Light Industry	0.00	0.00	0.00		
Other Asphalt Surfaces	0.00	0.00	0.00		
User Defined Retail	0.00	0.00	0.00		
Total	1,489.60	1,489.60	1,489.60	1,395,738	1,395,738

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
Convenience Market (24 Hour)	16.60	8.40	6.90	0.90	80.10	19.00	24	15	61
Free-Standing Discount Store	16.60	8.40	6.90	12.20	68.80	19.00	47.5	35.5	17
Gasoline/Service Station	16.60	8.40	6.90	2.00	79.00	19.00	14	27	59
General Light Industry	16.60	8.40	6.90	59.00	28.00	13.00	92	5	3
Other Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
User Defined Retail	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market (24 Hour)	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Free-Standing Discount Store	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Gasoline/Service Station	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
General Light Industry	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
Other Asphalt Surfaces	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898
User Defined Retail	0.548600	0.036250	0.186898	0.112544	0.014284	0.004806	0.017604	0.070134	0.001409	0.001147	0.004508	0.000918	0.000898

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	65.5215	65.5215	2.7100e-003	5.6000e-004	65.7559
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	65.5215	65.5215	2.7100e-003	5.6000e-004	65.7559
NaturalGas Mitigated	1.7400e-003	0.0158	0.0133	9.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003	0.0000	17.1809	17.1809	3.3000e-004	3.1000e-004	17.2830
NaturalGas Unmitigated	1.7400e-003	0.0158	0.0133	9.0000e-005		1.2000e-003	1.2000e-003		1.2000e-003	1.2000e-003	0.0000	17.1809	17.1809	3.3000e-004	3.1000e-004	17.2830

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					
Convenience Market (24 Hour)	11239.9	6.0000e-005	5.5000e-004	4.6000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5998	0.5998	1.0000e-005	1.0000e-005	0.6034
Free-Standing Discount Store	7905.42	4.0000e-005	3.9000e-004	3.3000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4219	0.4219	1.0000e-005	1.0000e-005	0.4244
Gasoline/Service Station	196402	1.0600e-003	9.6300e-003	8.0900e-003	6.0000e-005		7.3000e-004	7.3000e-004		7.3000e-004	7.3000e-004	0.0000	10.4808	10.4808	2.0000e-004	1.9000e-004	10.5430
General Light Industry	32457.5	1.8000e-004	1.5900e-003	1.3400e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	1.7321	1.7321	3.0000e-005	3.0000e-005	1.7424
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Retail	73953.6	4.0000e-004	3.6300e-003	3.0500e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004	0.0000	3.9465	3.9465	8.0000e-005	7.0000e-005	3.9699
Total		**1.7400e-003**	**0.0158**	**0.0133**	**9.0000e-005**		**1.2000e-003**	**1.2000e-003**		**1.2000e-003**	**1.2000e-003**	**0.0000**	**17.1809**	**17.1809**	**3.3000e-004**	**3.1000e-004**	**17.2830**

5.2 Energy by Land Use - NaturalGas

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					
Convenience Market (24 Hour)	11239.9	6.0000e-005	5.5000e-004	4.6000e-004	0.0000		4.0000e-005	4.0000e-005		4.0000e-005	4.0000e-005	0.0000	0.5998	0.5998	1.0000e-005	1.0000e-005	0.6034
Free-Standing Discount Store	7905.42	4.0000e-005	3.9000e-004	3.3000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4219	0.4219	1.0000e-005	1.0000e-005	0.4244
Gasoline/Service Station	196402	1.0600e-003	9.6300e-003	8.0900e-003	6.0000e-005		7.3000e-004	7.3000e-004		7.3000e-004	7.3000e-004	0.0000	10.4808	10.4808	2.0000e-004	1.9000e-004	10.5430
General Light Industry	32457.5	1.8000e-004	1.5900e-003	1.3400e-003	1.0000e-005		1.2000e-004	1.2000e-004		1.2000e-004	1.2000e-004	0.0000	1.7321	1.7321	3.0000e-005	3.0000e-005	1.7424
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
User Defined Retail	73953.6	4.0000e-004	3.6300e-003	3.0500e-003	2.0000e-005		2.8000e-004	2.8000e-004		2.8000e-004	2.8000e-004	0.0000	3.9465	3.9465	8.0000e-005	7.0000e-005	3.9699
Total		**1.7400e-003**	**0.0158**	**0.0133**	**9.0000e-005**		**1.2000e-003**	**1.2000e-003**		**1.2000e-003**	**1.2000e-003**	**0.0000**	**17.1809**	**17.1809**	**3.3000e-004**	**3.1000e-004**	**17.2830**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market (24 Hour)	63945.7	20.3745	8.4000e-004	1.7000e-004	20.4474
Free-Standing Discount Store	44975.4	14.3301	5.9000e-004	1.2000e-004	14.3814
Gasoline/Service Station	61356.8	19.5496	8.1000e-004	1.7000e-004	19.6195
General Light Industry	10139.9	3.2308	1.3000e-004	3.0000e-005	3.2423
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
User Defined Retail	25222.8	8.0365	3.3000e-004	7.0000e-005	8.0653
Total		**65.5215**	**2.7000e-003**	**5.6000e-004**	**65.7559**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market (24 Hour)	63945.7	20.3745	8.4000e-004	1.7000e-004	20.4474
Free-Standing Discount Store	44975.4	14.3301	5.9000e-004	1.2000e-004	14.3814
Gasoline/Service Station	61356.8	19.5496	8.1000e-004	1.7000e-004	19.6195
General Light Industry	10139.9	3.2308	1.3000e-004	3.0000e-005	3.2423
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
User Defined Retail	25222.8	8.0365	3.3000e-004	7.0000e-005	8.0653
Total		**65.5215**	**2.7000e-003**	**5.6000e-004**	**65.7559**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0748	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.8000e-004
Unmitigated	0.0748	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.8000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	8.5500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0662					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.8000e-004
Total	**0.0748**	**0.0000**	**3.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.4000e-004**	**7.4000e-004**	**0.0000**	**0.0000**	**7.8000e-004**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	8.5500e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0662					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.8000e-004
Total	**0.0748**	**0.0000**	**3.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.4000e-004**	**7.4000e-004**	**0.0000**	**0.0000**	**7.8000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	9.8639	0.0601	1.4900e-003	11.8116
Unmitigated	11.3778	0.0713	1.7600e-003	13.6844

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market (24 Hour)	0.374807 / 0.22972	2.4871	0.0123	3.1000e-004	2.8868
Free-Standing Discount Store	0.263698 / 0.161621	1.7498	8.6600e-003	2.2000e-004	2.0310
Gasoline/Service Station	0.132819 / 0.0814051	0.8813	4.3600e-003	1.1000e-004	1.0230
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
User Defined Retail	1.4016 / 0	6.2596	0.0459	1.1300e-003	7.7435
Total		**11.3778**	**0.0712**	**1.7700e-003**	**13.6844**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market (24 Hour)	0.316337 / 0.22972	2.2260	0.0104	2.6000e-004	2.5638
Free-Standing Discount Store	0.222561 / 0.161621	1.5661	7.3100e-003	1.8000e-004	1.8038
Gasoline/Service Station	0.112099 / 0.0814051	0.7888	3.6800e-003	9.0000e-005	0.9085
General Light Industry	0 / 0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
User Defined Retail	1.18295 / 0	5.2831	0.0388	9.5000e-004	6.5355
Total		**9.8639**	**0.0601**	**1.4800e-003**	**11.8116**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	8.3835	0.4955	0.0000	20.7698
Unmitigated	8.3835	0.4955	0.0000	20.7698

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Convenience Market (24 Hour)	15.21	3.0875	0.1825	0.0000	7.6491
Free-Standing Discount Store	15.31	3.1078	0.1837	0.0000	7.6994
Gasoline/Service Station	5.39	1.0941	0.0647	0.0000	2.7106
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
User Defined Retail	5.39	1.0941	0.0647	0.0000	2.7106
Total		**8.3835**	**0.4955**	**0.0000**	**20.7698**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Convenience Market (24 Hour)	15.21	3.0875	0.1825	0.0000	7.6491
Free-Standing Discount Store	15.31	3.1078	0.1837	0.0000	7.6994
Gasoline/Service Station	5.39	1.0941	0.0647	0.0000	2.7106
General Light Industry	0	0.0000	0.0000	0.0000	0.0000
Other Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
User Defined Retail	5.39	1.0941	0.0647	0.0000	2.7106
Total		**8.3835**	**0.4955**	**0.0000**	**20.7698**

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix D – Noise Impact Assessment

Noise Impact Assessment

Go Fresh Gas Station

Moreno Valley, California

Prepared For:

M. Kaskas
Go Fresh, LLC.
1835 Mount Langley Street
Fountain Valley, CA 92708

January 2021

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

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LIST OF ACRONYMS AND ABBREVIATIONS

CNEL	Community Noise Equivalent Level
dB	Decibel
dBA	Decibel is A-weighted
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Leq	Measure of ambient noise
OPR	Office of Planning and Research
OSHA	Federal Occupational Safety and Health Administration
PPV	Peak particle velocity
Project	Go Fresh Gas Staion Project
RMS	Root mean square

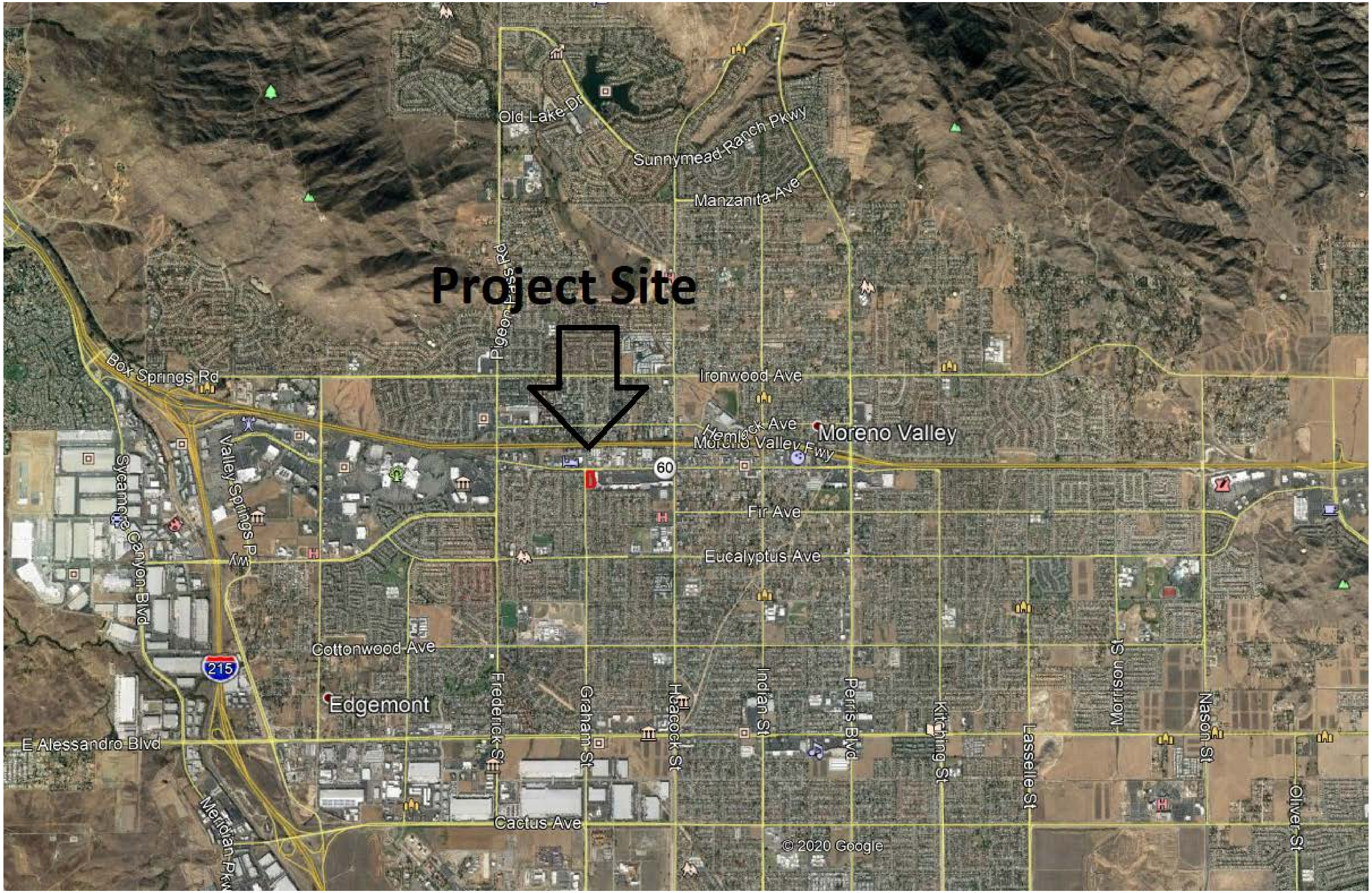
1.0 INTRODUCTION

This report documents the results of a Noise Impact Assessment completed for the Go Fresh Gas Station Project (Project), which includes the construction of an automobile gas station, a convenience store, a retail store, a fuel canopy, and a carwash on an approximately two-acre parcel located in Moreno Valley, California. This assessment was prepared as a comparison of predicted Project noise levels to noise standards promulgated by the Moreno Valley General Plan Noise Element and Municipal Code. The purpose of this report is to estimate Project-generated noise levels and to determine the level of impact the Project would have on the environment.

1.1 Project Location and Description

The Project site is located in the City of Moreno Valley (City), located in northwest Riverside County (see Figure 1). The Project site is an approximate two-acre parcel located on the southeast corner of the intersection of Sunnymead Boulevard and Graham Street. The rectangular-shaped site is generally bounded by Sunnymead Boulevard to the north, commercial land uses to the east, a vacant lot with residents beyond to the south, and Graham Street with residents beyond to the west (see Figure 2. Project Vicinity). The Project is proposing the construction of a 5,063 square-foot (SF) convenience store, 3,561 SF retail store, 6,045 SF fuel canopy with ten fueling pumps (two of which would dispense hydrogen fuel), four underground fuel storage tanks, a 999 SF hydrogen equipment room, and a 2,485 SF car wash with 17 parking spaces and vacuums for customers. Proposed site improvements would also include the installation of driveways, parking, landscaping, stormwater drainage system, water and sewer connections, and lighting. Site access would be provided via two driveways, one on Sunnymead Boulevard and one on Graham Street.

The Project site is designated by the City of Moreno Valley General Plan as "Commercial". The Commercial land use designation is intended for business purposes, including, but not limited to, retail stores, restaurants, banks, hotels, professional offices, personal services and repair services (Moreno Valley 2006).



Map Date: *10/5/2020*
Photo (or Base) Source: *Google Earth*

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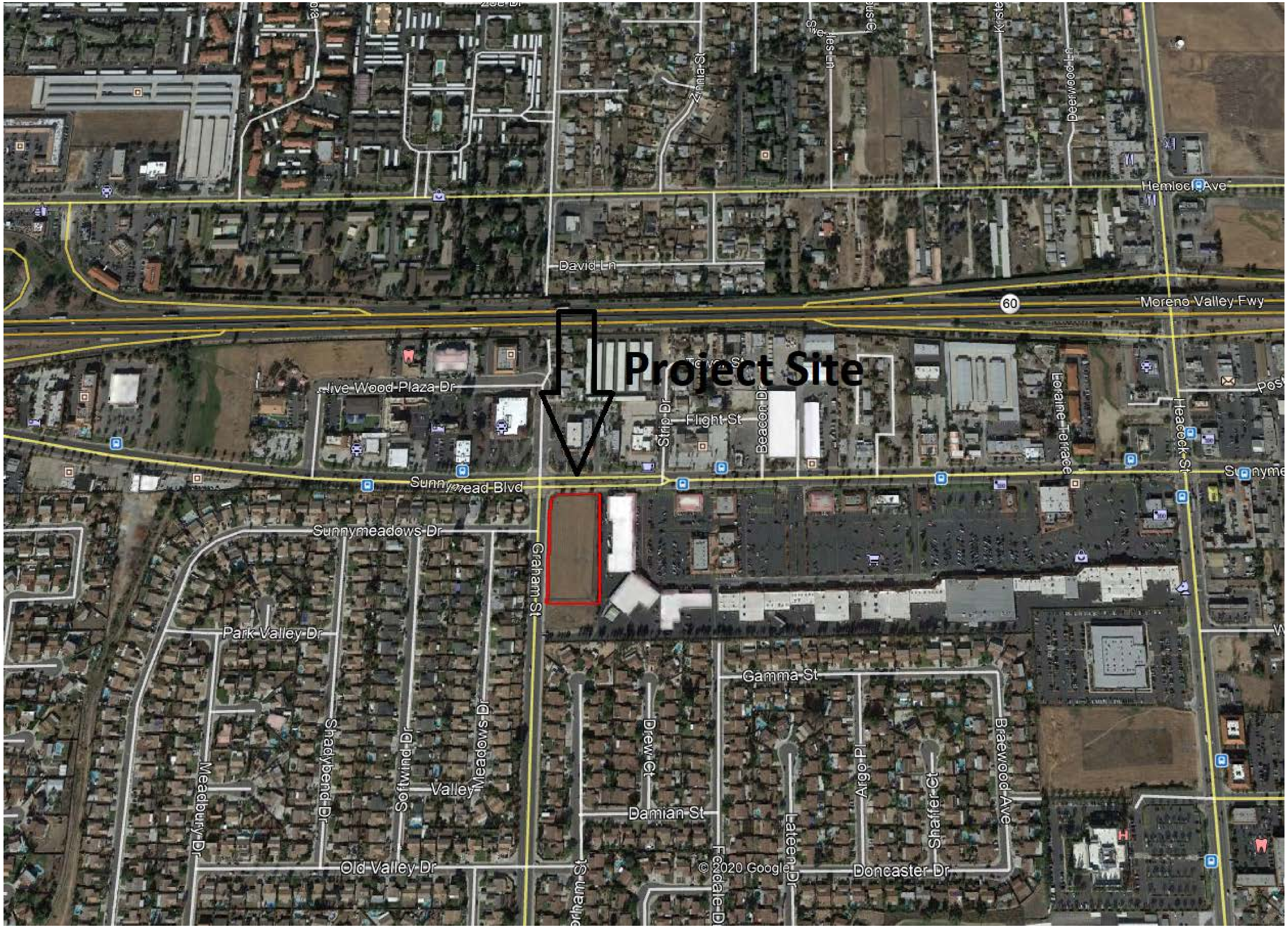
Figure 1. Project Vicinity

Attachment: Exhibit A - Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program [Revision 1] (4469 : PEN20-0141 Plot



Map Date: *10/5/2020*
Photo (or Base) Source: *Google Earth*

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Figure 2. Project Locatio

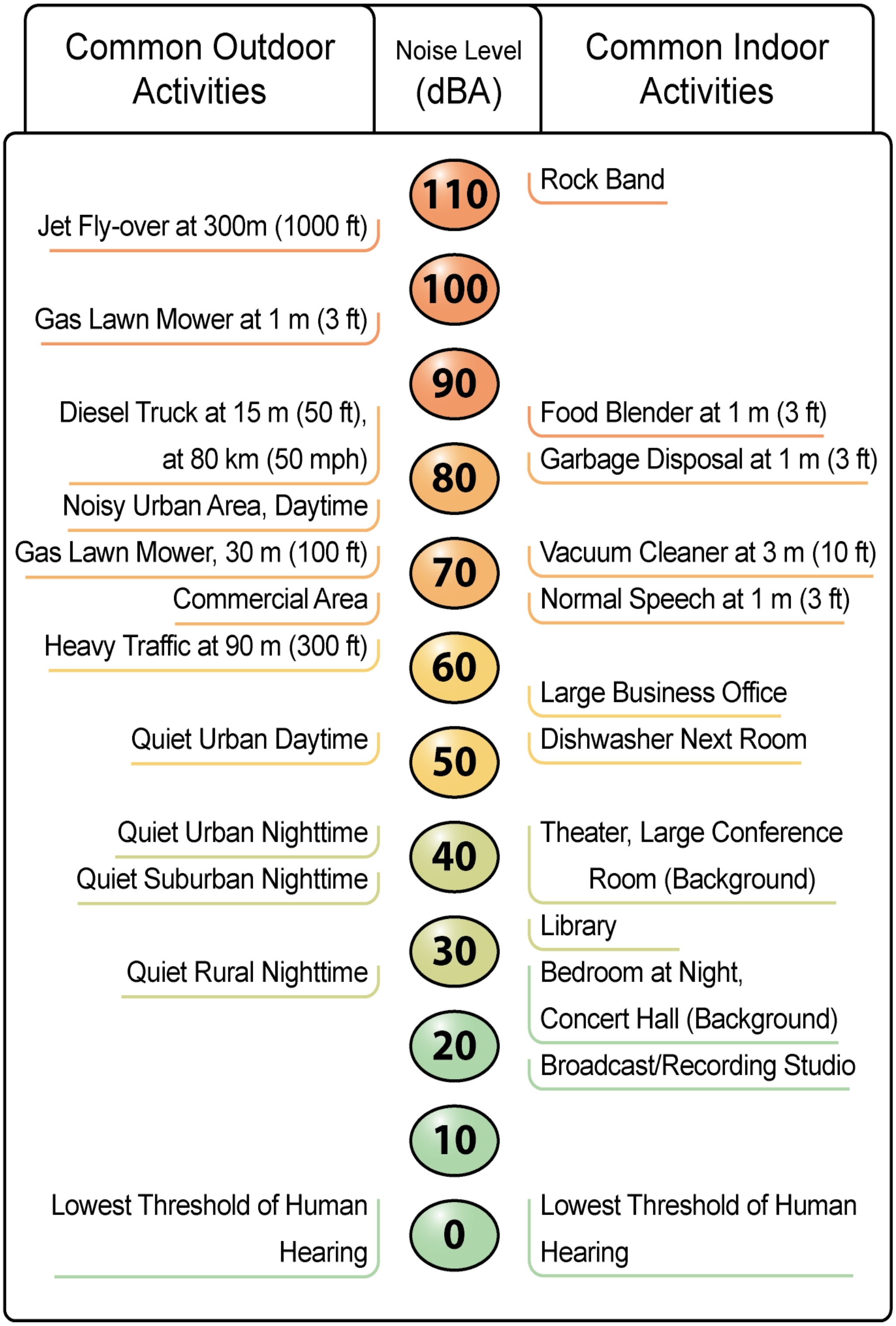
2.0 ENVIRONMENTAL NOISE AND GROUNDBORNE VIBRATION ANALYSIS

2.1 Fundamentals of Noise and Environmental Sound

2.1.1 Addition of Decibels

The decibel (dB) scale is logarithmic, not linear, and therefore sound levels cannot be added or subtracted through ordinary arithmetic. Two sound levels 10 dB apart differ in acoustic energy by a factor of 10. When the standard logarithmic decibel is A-weighted (dBA), an increase of 10 dBA is generally perceived as a doubling in loudness. For example, a 70-dBA sound is half as loud as an 80-dBA sound and twice as loud as a 60-dBA sound. When two identical sources are each producing sound of the same loudness, the resulting sound level at a given distance would be three dB higher than one source under the same conditions (Federal Transit Administration [FTA] 2018). For example, a 65-dB source of sound, such as a truck, when joined by another 65 dB source results in a sound amplitude of 68 dB, not 130 dB (i.e., doubling the source strength increases the sound pressure by three dB). Under the decibel scale, three sources of equal loudness together would produce an increase of five dB.

Typical noise levels associated with common noise sources are depicted in Figure 3. *Common Noise Levels*



Source: California Department of Transportation (Caltrans) 2012

Figure 3. Common Noise Levels

2.1.2 Sound Propagation and Attenuation

Noise can be generated by a number of sources, including mobile sources such as automobiles, trucks and airplanes, and stationary sources such as construction sites, machinery, and industrial operations. Sound spreads (propagates) uniformly outward in a spherical pattern, and the sound level decreases (attenuates) at a rate of approximately six dB for each doubling of distance from a stationary or point source. Sound from a line source, such as a highway, propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of approximately three dB for each doubling of distance from a line source, such as a roadway, depending on ground surface characteristics (Federal Highway Administration [FHWA] 2011). No excess attenuation is assumed for hard surfaces like a parking lot or a body of water. Soft surfaces, such as soft dirt or grass, can absorb sound, so an excess ground-attenuation value of 1.5 dB per doubling of distance is normally assumed. For line sources, an overall attenuation rate of three dB per doubling of distance is assumed (FHWA 2011).

Noise levels may also be reduced by intervening structures; generally, a single row of detached buildings between the receptor and the noise source reduces the noise level by about five dBA (FHWA 2006), while a solid wall or berm generally reduces noise levels by 10 to 20 dBA (FHWA 2011). However, noise barriers or enclosures specifically designed to reduce site-specific construction noise can provide a sound reduction 35 dBA or greater (Western Electro-Acoustic Laboratory, Inc. [WEAL] 2000). To achieve the most potent noise-reducing effect, a noise enclosure/barrier must physically fit in the available space, must completely break the “line of sight” between the noise source and the receptors, must be free of degrading holes or gaps, and must not be flanked by nearby reflective surfaces. Noise barriers must be sizable enough to cover the entire noise source and extend lengthwise and vertically as far as feasibly possible to be most effective. The limiting factor for a noise barrier is not the component of noise transmitted through the material, but rather the amount of noise flanking around and over the barrier. In general, barriers contribute to decreasing noise levels only when the structure breaks the "line of sight" between the source and the receiver.

The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows (Caltrans 2002). The exterior-to-interior reduction of newer residential units is generally 30 dBA or more (Harris Miller, Miller & Hanson Inc. [HMMH] 2006). Generally, in exterior noise environments ranging from 60 dBA Community Noise Equivalent Level (CNEL) to 65 dBA CNEL, interior noise levels can typically be maintained below 45 dBA, a typically residential interior noise standard, with the incorporation of an adequate forced air mechanical ventilation system in each residential building, and standard thermal-pane residential windows/doors with a minimum rating of Sound Transmission Class (STC) 28. (STC is an integer rating of how well a building partition attenuates airborne sound. In the U.S., it is widely used to rate interior partitions, ceilings, floors, doors, windows, and exterior wall configurations.) In exterior noise environments of 65 dBA CNEL or greater, a combination of forced-air mechanical ventilation and sound-rated construction methods is often required to meet the interior noise level limit. Attaining the necessary noise reduction from exterior to interior spaces is readily achievable in noise environments less than 75 dBA CNEL with proper wall construction techniques following California Building Code methods, the selections of proper windows and doors, and the incorporation of forced-air mechanical ventilation systems.

2.1.3 Noise Descriptors

The decibel scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise on people is largely dependent on the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL (Community Noise Equivalent Level) are measures of community noise. Each is applicable to this analysis and defined in Table 2-1.

Table 2-1. Common Acoustical Descriptors

Descriptor	Definition
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.
Sound Pressure Level	Sound pressure is the sound force per unit area, usually expressed in micropascals (or 20 micronewtons per square meter), where 1 pascal is the pressure resulting from a force of 1 newton exerted over an area of 1 square meter. The sound pressure level is expressed in decibels as 20 times the logarithm to the base 10 of the ratio between the pressures exerted by the sound to a reference sound pressure (e.g., 20 micropascals). Sound pressure level is the quantity that is directly measured by a sound level meter.
Frequency, Hz	The number of complete pressure fluctuations per second above and below atmospheric pressure. Normal human hearing is between 20 Hz and 20,000 Hz. Infrasonic sound are below 20 Hz and ultrasonic sounds are above 20,000 Hz.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Equivalent Noise Level, L_{eq}	The average acoustic energy content of noise for a stated period of time. Thus, the Leq of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
L_{max}, L_{min}	The maximum and minimum A-weighted noise level during the measurement period.
L_{01}, L_{10}, L_{50}, L_{90}	The A-weighted noise levels that are exceeded 1%, 10%, 50%, and 90% of the time during the measurement period.
Day/Night Noise Level, L_{dn} or DNL	A 24-hour average Leq with a 10 dBA “weighting” added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24-hour Leq would result in a measurement of 66.4 dBA Ldn.
Community Noise Equivalent Level, CNEL	A 24-hour average Leq with a 5 dBA “weighting” during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA “weighting” added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24-hour Leq would result in a measurement of 66.7 dBA CNEL.
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
Intrusive	That noise which intrudes over and above the existing ambient noise at a given location. The relative intrusiveness of a sound depends on its amplitude, duration, frequency, and time of occurrence and tonal or informational content as well as the prevailing ambient noise level.
Decibel, dB	A unit describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure. The reference pressure for air is 20.

The A weighted decibel sound level scale gives greater weight to the frequencies of sound to which the human ear is most sensitive. Because sound levels can vary markedly over a short period of time, a method for describing either the average character of the sound or the statistical behavior of the variations must be utilized. Most commonly, environmental sounds are described in terms of an average level that has the same acoustical energy as the summation of all the time-varying events.

The scientific instrument used to measure noise is the sound level meter. Sound level meters can accurately measure environmental noise levels to within about ±1 dBA. Various computer models are used to predict environmental noise levels from sources, such as roadways and airports. The accuracy of the predicted models depends on the distance between the receptor and the noise source. Close to the noise source, the models are accurate to within about ±1 to 2 dBA.

2.1.4 Human Response to Noise

The human response to environmental noise is subjective and varies considerably from individual to individual. Noise in the community has often been cited as a health problem, not in terms of actual physiological damage, such as hearing impairment, but in terms of inhibiting general well-being and contributing to undue stress and annoyance. The health effects of noise in the community arise from interference with human activities, including sleep, speech, recreation, and tasks that demand concentration or coordination. Hearing loss can occur at the highest noise intensity levels.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings with noise levels as low as 20 dBA and quiet, suburban, residential streets with noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with noisier urban residential or residential-commercial areas (60 to 75 dBA) or dense urban or industrial areas (65 to 80 dBA). Regarding increases in A-weighted noise levels (dBA), the following relationships should be noted in understanding this analysis:

- Except in carefully controlled laboratory experiments, a change of 1 dBA cannot be perceived by humans.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A change in level of at least 5 dBA is required before any noticeable change in community response would be expected. An increase of 5 dBA is typically considered substantial.
- A 10-dBA change is subjectively heard as an approximate doubling in loudness and would almost certainly cause an adverse change in community response.

2.1.5 Effects of Noise on People

Hearing Loss

While physical damage to the ear from an intense noise impulse is rare, a degradation of auditory acuity can occur even within a community noise environment. Hearing loss occurs mainly due to chronic exposure to excessive noise but may be due to a single event such as an explosion. Natural hearing loss associated with aging may also be accelerated from chronic exposure to loud noise.

The Occupational Safety and Health Administration (OSHA) has a noise exposure standard that is set at the noise threshold where hearing loss may occur from long-term exposures. The maximum allowable level is 90 dBA averaged over eight hours. If the noise is above 90 dBA, the allowable exposure time is correspondingly shorter.

Annoyance

Attitude surveys are used for measuring the annoyance felt in a community for noises intruding into homes or affecting outdoor activity areas. In these surveys, it was determined that causes for annoyance include interference with speech, radio and television, house vibrations, and interference with sleep and rest. The L_{dn} as a measure of noise has been found to provide a valid correlation of noise level and the percentage of people annoyed. People have been asked to judge the annoyance caused by aircraft noise and ground transportation noise. There continues to be disagreement about the relative annoyance of these different sources. For ground vehicles, a noise level of about 55 dBA L_{dn} is the threshold at which a substantial percentage of people begin to report annoyance.

2.2 Fundamentals of Environmental Groundborne Vibration

2.2.1 Vibration Sources and Characteristics

Sources of earthborne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or manmade causes (explosions, machinery, traffic, trains, construction equipment, etc.). Vibration sources may be continuous (e.g., factory machinery) or transient (e.g., explosions).

Ground vibration consists of rapidly fluctuating motions or waves with an average motion of zero. Several different methods are typically used to quantify vibration amplitude. One is the peak particle velocity (PPV); another is the root mean square (RMS) velocity. The PPV is defined as the maximum instantaneous positive or negative peak of the vibration wave. The RMS velocity is defined as the average of the squared amplitude of the signal. The PPV and RMS vibration velocity amplitudes are used to evaluate human response to vibration.

PPV is generally accepted as the most appropriate descriptor for evaluating the potential for building damage. For human response, however, an average vibration amplitude is more appropriate because it takes time for the human body to respond to the excitation (the human body responds to an average vibration amplitude, not a peak amplitude). Because the average particle velocity over time is zero, the RMS amplitude is typically used to assess human response. The RMS value is the average of the amplitude squared over time, typically a 1- sec. period (FTA 2018).

2.2.2 Vibration Sources and Characteristics

Table 2-2 displays the reactions of people and the effects on buildings produced by continuous vibration levels. The annoyance levels shown in the table should be interpreted with care since vibration may be found to be annoying at much lower levels than those listed, depending on the level of activity or the sensitivity of the individual. To sensitive individuals, vibrations approaching the threshold of perception can be annoying. Low-level vibrations frequently cause irritating secondary vibration, such as a slight rattling of windows, doors, or stacked dishes. The rattling sound can give rise to exaggerated vibration complaints, even though there is very little risk of actual structural damage. In high-noise environments, which are more prevalent where groundborne vibration approaches perceptible levels, this rattling phenomenon may also be produced by loud airborne environmental noise causing induced vibration in exterior doors and windows.

Ground vibration can be a concern in instances where buildings shake, and substantial rumblings occur. However, it is unusual for vibration from typical urban sources such as buses and heavy trucks to be perceptible. For instance, heavy-duty trucks generally generate groundborne vibration velocity levels of 0.006 PPV at 50 feet under typical circumstances, which as identified in Table 3 is considered very unlikely to cause damage to buildings of any type. Common sources for groundborne vibration are planes, trains, and construction activities such as earth-moving which requires the use of heavy-duty earth moving equipment.

Table 2-2. Human Reaction and Damage to Buildings for Continuous or Frequent Intermittent Vibration Levels

Peak Particle Velocity (inches/second)	Approximate Vibration Velocity Level (VdB)	Human Reaction	Effect on Buildings
0.006–0.019	64–74	Range of threshold of perception	Vibrations unlikely to cause damage of any type
0.08	87	Vibrations readily perceptible	Recommended upper level to which ruins and ancient monuments should be subjected
0.1	92	Level at which continuous vibrations may begin to annoy people, particularly those involved in vibration sensitive activities	Virtually no risk of architectural damage to normal buildings
0.2	94	Vibrations may begin to annoy people in buildings	Threshold at which there is a risk of architectural damage to normal dwellings
0.4–0.6	98–104	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Architectural damage and possibly minor structural damage

Source: Caltrans 2020

3.0 EXISTING ENVIRONMENTAL NOISE SETTING

3.1 Noise-Sensitive Land Uses

Noise-sensitive land uses are generally considered to include those uses where noise exposure could result in health-related risks to individuals, as well as places where quiet is an essential element of their intended purpose. Residential dwellings are of primary concern because of the potential for increased and prolonged exposure of individuals to both interior and exterior noise levels. Additional land uses such as hospitals, historic sites, cemeteries, and certain recreation areas are considered sensitive to increases in exterior noise levels. Schools, churches, hotels, libraries, and other places where low interior noise levels are essential are also considered noise-sensitive land uses.

The Project is proposing the construction of an automobile gas station, a convenience store, a retail store, a fuel canopy, a carwash and associated features. The nearest existing noise-sensitive land uses to the Project site are residences located approximately 90 feet distant across Graham Street.

3.2 Existing Ambient Noise Environment

The most common and significant source of noise in Moreno Valley is mobile noise generated by transportation-related sources. Other sources of noise are the various land uses (i.e., residential, commercial, industrial and institutional) that generate stationary-source noise. The Project site is bound by Sunnymead Boulevard to the north, commercial land uses to the east, a vacant lot with residents beyond to the south, and Graham Street with residents beyond to the west. As shown in Table 3-1 below, the ambient recorded noise levels range from 50.1 to 66.8 dBA near the Project site.

3.2.1 Existing Ambient Noise Measurements

The Project site can be characterized by flat and undeveloped land. It is surrounded by a mix of residential and commercial land uses. In order to quantify existing ambient noise levels in the Project area, ECORP Consulting, Inc. conducted five short-term noise measurements on May 14, 2020. The noise measurement sites were representative of typical existing noise exposure within and immediately adjacent to the Project site. The 10-minute measurements were taken between 10:13 a.m. and 11:26 a.m. Short-term (L_{eq}) measurements are considered representative of the noise levels throughout the daytime. L_{eq} is the equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night..The average noise levels and sources of noise measured at each location are listed in in Table 3-1. See Attachment A for Noise Measurement Locations.

Table 3-1. Existing (Baseline) Noise Measurements

Location Number	Location	L_{eq} dBA	L_{min} dBA	L_{max} dBA	Time
1	Corner of Sunnymeadows Boulevard and Graham Street (across the street from the Project site)	65.9	45.6	87.8	10:13 a.m. – 10:23 a.m.
2	On the sidewalk along Graham Street (across the street from the Project site)	66.8	44.9	84.8	10:32 a.m. – 10:42 a.m.
3	On the northwest corner of Valley Meadows Drive and Sunnymeadows Boulevard	56.3	46.8	71.2	10:47 a.m. – 10:47 a.m.
4	South of Project site and adjacent to missionary wall and dirt lot.	59.7	45.4	75.2	11:00 a.m. – 11:10 a.m.
5	Northwest corner of cul-de-sac along Gorham Street	65.9	45.6	87.8	10:13 a.m. – 10:23 a.m.

Source: Measurements were taken by ECORP with a Larson Davis SoundExpert LxT precision sound level meter, which satisfies the American National Standards Institute for general environmental noise measurement instrumentation. Prior to the measurements, the SoundExpert LxT sound level meter was calibrated according to manufacturer specifications with a Larson Davis CAL200 Class I Calibrator. See Attachment A for noise measurement outputs.

As shown in Table 3-1, the ambient recorded noise levels range from 50.1 to 66.8 dBA near the Project site. The most common noise in the Project vicinity is produced by automotive vehicles (e.g., cars, trucks, buses, motorcycles). Traffic moving along streets produces a sound level that remains relatively constant and is part of the Project Area's minimum ambient noise level. Vehicular noise varies with the volume, speed and type of traffic. Slower traffic produces less noise than fast-moving traffic. Trucks typically generate more noise than cars. Infrequent or intermittent noise also is associated with vehicles, including sirens, vehicle alarms, slamming of doors, trains, garbage and construction vehicle activity and honking of horns. These noises add to urban noise and are regulated by a variety of agencies.

3.2.2 Existing Roadway Noise Levels

Existing roadway noise levels were calculated for the roadway segments in the Project vicinity. This task was accomplished using the FHWA Highway Traffic Noise Prediction Model (FHWA-RD-77-108) (see Attachment B) and traffic volumes from the Project's Traffic Impact Study (K2 Traffic Engineering, Inc. 2020). The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (energy rates) used in the FHWA model have been modified to reflect average vehicle noise rates identified for California by Caltrans. The Caltrans data shows that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA lower than national levels. The average daily noise levels along these roadway segments are presented in Table 3-2.

Table 3-2. Existing (Baseline) Traffic Noise Levels

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway
Frederick Street		
South of Sunnymead Boulevard	Residential	61.5
Graham Street		
Between Sunnymead Boulevard and Eucalyptus Avenue	Residential	55.4
South of Eucalyptus Avenue	Residential	54.6
Sunnymead Boulevard		
Between Frederick Street and Graham Street	Residential and Commercial	57.2
Eucalyptus Avenue		
East of Graham Street	Residential and Commercial	55.8
West of Graham Street	Residential	55.4

Source: Traffic noise levels were calculated by ECORP using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by K2 Traffic Engineering, Inc. (2020). Refer to Attachment B for traffic noise modeling assumptions and results.

Note: A total of 4 intersections were analyzed in the Traffic Impact Study; however, only roadway segments that impact sensitive receptors were included for the purposes of this analysis.

As shown, the existing traffic-generated noise level on Project-vicinity roadways currently ranges from 54.6 to 61.5 dBA CNEL at a distance of 100 feet from the centerline. As previously described, CNEL is 24-hour average noise level with a 5 dBA "weighting" during the hours of 7:00 p.m. to 10:00 p.m. and a 10 dBA "weighting" added to noise during the hours of 10:00 p.m. to 7:00 a.m. to account for noise sensitivity in the evening and nighttime, respectively. It should be noted that the modeled noise levels depicted in Table 3-2 differ from measured levels in Table 3-1 because the measurements represent noise levels at different locations around the Project site and are also reported in different noise metrics (e.g., noise measurements are the L_{eq} values and traffic noise levels are reported in CNEL).

4.0 REGULATORY FRAMEWORK

4.1 Federal

4.1.1 Occupational Safety and Health Act of 1970

OSHA regulates onsite noise levels and protects workers from occupational noise exposure. To protect hearing, worker noise exposure is limited to 90 decibels with A-weighting (dBA) over an eight-hour work shift (29 Code of Regulations 1910.95). Employers are required to develop a hearing conservation program when employees are exposed to noise levels exceeding 85 dBA. These programs include provision of hearing protection devices and testing employees for hearing loss on a periodic basis.

4.2 State

4.2.1 State of California General Plan Guidelines

The State of California regulates vehicular and freeway noise affecting classrooms, sets standards for sound transmission and occupational noise control, and identifies noise insulation standards and airport noise/land-use compatibility criteria. The State of California General Plan Guidelines (State of California 2003), published by the Governor's Office of Planning and Research (OPR), also provides guidance for the acceptability of projects within specific CNEL/L_{dn} contours. The guidelines also present adjustment factors that may be used in order to arrive at noise acceptability standards that reflect the noise control goals of the community, the particular community's sensitivity to noise, and the community's assessment of the relative importance of noise pollution.

4.2.2 State Office of Planning and Research Noise Element Guidelines

The State OPR Noise Element Guidelines include recommended exterior and interior noise level standards for local jurisdictions to identify and prevent the creation of incompatible land uses due to noise. The Noise Element Guidelines contain a land use compatibility table that describes the compatibility of various land uses with a range of environmental noise levels in terms of the CNEL.

4.3 Local

4.3.1 City of Moreno Valley General Plan Noise Environmental Safety Element

The Environmental Safety Element of the General Plan provides policy direction for minimizing noise impacts on the community and for coordinating with surround jurisdictions and other entities regarding noise control. By identifying noise-sensitive land uses and establishing compatibility guidelines for land use and noises, noise considerations will influence the general distribution, location, and intensity of future land uses. The result is that effective land use planning and mitigation can alleviate the majority of noise problems.

The most basic planning strategy to minimize adverse impacts on new land uses due to noise is to avoid designating certain land uses at locations within the City that would negatively affect noise sensitive land users. Users such as schools, hospitals, child care, senior care, congregate care, churches, and all types of residential use should be located outside of any area anticipated to exceed acceptable noise levels as defined by the Land Use Compatibility Guidelines, or should be protected from noise through sound attenuation measures such as site and architectural design and sound walls. The City of Moreno Valley has adopted guidelines as a basis for planning decisions based on noise considerations set by the State of California OPR. These guidelines are shown in Table 4-1. In the case that the noise levels identified at a Proposed Project site fall within levels considered normally acceptable, the Project is considered compatible with the existing noise environment.

Table 4-1. Land Use Compatibility for Community Noise Environments				
Land Use Category	Community Noise Exposure (CNEL)			
	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential – Low Density, Single-Family, Duplex, Mobile Homes	50 – 60	55 – 65	65 – 75	75 – 85
Residential – Multiple Unit, Mixed Use	50 – 65	60 – 70	70 – 75	75 – 85
Lodging – Hotels	50 – 65	60 – 70	70 – 80	80 – 85
Schools, Libraries, Community Centers, Religious Institutions, Hospitals, Nursing Homes	50 – 70	60 – 70	70 – 80	80 – 85
Auditoriums, Concert Halls, Amphitheaters	NA	50 – 70	65 – 85	NA
Sports Arenas, Outdoor Spectator Sports	NA	50 – 75	70 – 85	NA
Playgrounds, Neighborhood Parks	50 – 70	NA	67.5 –75	72.5 – 85
Outdoor Recreation (Commercial and Public)	50 – 75	NA	70 – 80	80 – 85
Office, Retail, and Commercial	50 – 70	67.5 – 77.5	N/A	75 – 85
Industrial, Manufacturing, Utilities, Agriculture	50 – 75	70 – 80	N/A	75 – 85

Source: Office of Planning and Research, California, General Plan Guidelines
Notes:
NA: Not Applicable; CNEL: Community Noise Equivalent Level

Normally Acceptable –	*Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.*
Conditionally Acceptable –	*New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice. Outdoor environment will seem noisy.*
Normally Unacceptable –	*New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design. Outdoor areas must be shielded.*
Clearly Unacceptable –	*New construction or development should generally not be undertaken. Construction costs to make the indoor environment acceptable would be prohibitive and the outdoor environment would not be usable.*

4.3.2 City of Moreno Valley Municipal Code

The City of Moreno Valley's regulations with respect to noise are included in Title 11 Chapter 11.80 of the Municipal Code, also known as the Noise Regulations. Specifically, Section 11.80.030 prohibits the operation of any tools or equipment used in construction, drilling, repair, alteration or demolition work between the hours of 8:00 p.m. and 7:00 a.m. the following day such that the sound there from creates a noise disturbance, except for emergency work by public service utilities or for other work approved by the City manager or designee. Additionally, this section outlines residential and commercial noise standards that are displayed in 4-2.

Table 4-2. Maximum Sound Level for Source Land Uses		
Land Use	Maximum Allowable	
	10:00 p.m. to 7:00 a.m.	7:00 a.m. to 10:00 p.m.
Residential	55	60
Commercial	60	65

Source: City of Moreno Valley 2018

Section 11.80 also includes maximum continuous sound levels based on statistics from the Center for Disease Control and Prevention and the National Institute for Occupational Safety and Health. These limits, which if exceeded, will have a high probability of producing permanent hearing loss in anyone in the area where sound levels are being exceeded. These standards are included in Table 4-3.

Table 4-3. Maximum Continuous Sound Levels	
Duration Per Day (Continuous Hours)	Sound Level (dBA)
8	90
6	92
4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25	115

Source: City of Moreno Valley 2018

4.3.3 Federal Interagency Committee on Noise (FICON)

The FICON thresholds of significance for evaluating the impact of increased traffic noise. The 2000 FICON findings provide guidance as to the significance of changes in ambient noise levels due to transportation noise sources. FICON recommendations are based on studies that relate aircraft and traffic noise levels to the percentage of persons highly annoyed by the noise. FICON's measure of substantial increase for transportation noise exposure is as follows:

- If the existing ambient noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.) are less than 60 dBA CNEL and the Project creates a readily perceptible 5 dBA CNEL or greater noise level increase and the resulting noise level would exceed acceptable exterior noise standards; or

- If the existing noise levels range from 60 to 65 dBA CNEL and the Project creates a barely perceptible 3 dBA CNEL or greater noise level increase and the resulting noise level would exceed acceptable exterior noise standards; or
- If the existing noise levels already exceed 65 dBA CNEL and the Project creates a community noise level increase of greater than 1.5 dBA CNEL.

5.0 IMPACT ASSESSMENT

5.1 Thresholds of Significance

The impact analysis provided below is based on the following California Environmental Quality Act Guidelines Appendix G thresholds of significance. The Project would result in a significant noise-related impact if it would produce:

1) 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.

2) Generation of excessive groundborne vibration or groundborne noise levels.

3) 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.

For purposes of this analysis, Project construction noise is compared to the NIOSH standard of 85 dBA for more than 8 hours per day, since construction work is anticipated to span a typical workday of 8 hours daily. The increase in transportation-related noise is compared against the FICON recommendation for evaluating the impact of increased traffic noise.

5.2 Methodology

This analysis of the existing and future noise environments is based on noise prediction modeling and empirical observations. Predicted construction noise levels were calculated utilizing the FHWA's Roadway Construction Model (2006). Transportation-source noise levels in the Project vicinity were calculated using the FHWA Highway Noise Prediction Model (FHWA-RD-77-108). Onsite stationary source noise levels have been calculated with the SoundPLAN 3D noise model, which predicts noise propagation from a noise source based on the location, noise level, and frequency spectra of the noise sources as well as the geometry and reflective properties of the local terrain, buildings and barriers. In the analysis below the size, location and noise producing level of each source is discussed in detail.

Groundborne vibration levels associated with construction-related activities for the Project were evaluated utilizing typical groundborne vibration levels associated with construction equipment. Potential groundborne vibration impacts related to structural damage and human annoyance were evaluated, taking into account the distance from construction activities to nearby structures and typically applied criteria for structural damage and human annoyance.

5.3 Impact Analysis

5.3.1 Project Construction Noise

Would the Project Result in Short-Term Construction-Generated Noise in Excess of Standards?

Construction noise associated with both the Proposed Project would be temporary and would vary depending on the nature of the activities being performed. Noise generated would primarily be associated with the operation of off-road equipment for onsite construction activities as well as construction vehicle traffic on area roadways. 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 earth movers, material handlers, and portable generators, can reach high levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four 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). During construction, exterior noise levels could negatively affect sensitive land uses in the vicinity of the construction site

The nearest noise sensitive land uses to the Project site are residences located approximately 90 feet distant across Graham Street. As previously described, Chapter 11.80 of the City of Moreno Valley Municipal Code prohibits construction between the hours of 8:00 p.m. and 7:00 a.m. but does not promulgate a numeric threshold pertaining to the noise associated with construction. This is due to the fact that construction noise is temporary, short term, intermittent in nature, and would cease on completion of the Project. Furthermore, the City of Moreno Valley is a developing urban community and construction noise is generally accepted as a reality within the urban environment. Additionally, construction would occur through the Project site and would not be concentrated at one point.

To estimate the worst-case onsite construction noise levels that may occur at the nearest noise-sensitive receptors in the Project vicinity, the construction equipment noise levels were calculated using the Roadway Noise Construction Model for the various construction phases for each roadway segment and compared against the construction-related noise level threshold established in the Criteria for a Recommended Standard: Occupational Noise Exposure prepared in 1998 by National Institute for Occupational Safety and Health (NIOSH). A division of the US Department of Health and Human Services, NIOSH identifies a noise level threshold based on the duration of exposure to the source. The NIOSH construction-related noise level threshold starts at 85 dBA for more than 8 hours per day; for every 3-dBA increase, the exposure time is cut in half. This reduction results in noise level thresholds of 88 dBA for more than 4 hours per day, 92 dBA for more than 1 hour per day, 96 dBA for more than 30 minutes per day, and up to 100 dBA for more than 15 minutes per day. For the purposes of this analysis, the lowest, more conservative threshold of 85 dBA L_{eq} is used as an acceptable threshold for construction noise at the nearby existing and future planned sensitive receptors.

The anticipated short-term construction noise levels generated for the necessary equipment is presented in Table 5-1. Consistent with FTA recommendations for calculating construction noise, construction noise was measured from the center of the Project site (FTA 2018).

Table 5-1. Onsite Construction Average (dBA) Noise Levels at Nearest Receptor			
Equipment	**Estimated Exterior Construction Noise Level at Existing Residences**	**Construction Noise Standards (dBA L_{eq})**	**Exceeds Standards?**
Site Preparation			
Graders (1)	69.4	85	**No**
Tractors/Loaders/Backhoes (1)	68.4	85	**No**
Scrapers (1)	68.0	85	**No**
Combined Site Preparation Equipment	73.4	85	**No**
Grading			
Rubber Tired Dozers (1)	66.1	85	**No**
Tractors/Loaders/Backhoes (2)	68.4 (each)	85	**No**
Graders (1)	69.4	85	**No**
Combined Grading Equipment	74.3	85	**No**
Building Construction, Paving & Painting			
Generator Sets (1)	66.0	85	**No**
Cranes (1)	61.0	85	**No**
Forklifts (2)	67.8 (each)	85	**No**
Tractors/Loaders/Backhoes (2)	68.4 (each)	85	**No**
Welders (3)	58.4 (each)	85	**No**
Cement and Mortar Mixers (1)	63.2	85	**No**
Pavers (1)	62.6	85	**No**
Rollers (1)	61.4	85	**No**
Air Compressors (1)	62.1	85	**No**
Combined Building Construction, Paving & Painting Equipment	76.1	85	**No**

Source: Construction noise levels were calculated by ECORP Consulting using the FHWA Roadway Noise Construction Model (FHWA 2006). Refer to Attachment C for Model Data Outputs.

Notes: Construction equipment used during construction derived from CalEEMod 2016.3.2. Building construction, paving and painting are assumed to occur simultaneously. Distance to the nearest noise-sensitive receptor was measured from the center of the Project site (approximately 190 feet).

L_{eq} = The equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the Leq of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.

As shown in Table 5-1, no individual or cumulative pieces of construction equipment would exceed the 85 dBA NIOSH construction noise standard during any phase of construction at the nearby noise-sensitive receptors.

5.3.2 *Project Operational Noise*

Would the Project Result in a Substantial Permanent Increase in Ambient Noise Levels in Excess of City Standards During Operations?

As previously described, noise-sensitive land uses are locations where people reside or where the presence of unwanted sound could adversely affect the use of the land. Residences, schools, hospitals, guest lodging, libraries, and some passive recreation areas would each be considered noise-sensitive and may warrant unique measures for protection from intruding noise. The existing nearest noise-sensitive land use to the Project site are residences located across Graham Street approximately 90 feet distant.

The operational noise sources associated with the various land use plans are discussed below. Operational noise sources associated with the Proposed Project include mobile and stationary (i.e., parking lot, gas station, and carwash activity) sources.

Operational Offsite Traffic Noise

Future traffic noise levels throughout the Project vicinity (i.e., vicinity roadway segments that traverse noise-sensitive land uses) for the Proposed Project were modeled based on the traffic volumes identified by K2 Traffic Engineering, Inc. (2020) to determine the noise levels along Project vicinity roadways. Table 5-2 shows the calculated offsite roadway noise levels under existing traffic levels compared to future build-out of the Project. The calculated noise levels as a result of the Project at affected sensitive land uses are compared to the Federal Interagency Committee of Noise (FICON) thresholds of significance. The 2000 FICON findings provide guidance as to the significance of changes in ambient noise levels due to transportation noise sources. FICON recommendations are based on studies that relate aircraft and traffic noise levels to the percentage of persons highly annoyed by the noise. FICON's measure of substantial increase for transportation noise exposure is as follows:

- If the existing ambient noise levels at existing and future noise-sensitive land uses (e.g. residential, etc.) are less than 60 dBA CNEL and the Project creates a readily perceptible 5 dBA CNEL or greater noise level increase and the resulting noise level would exceed acceptable exterior noise standards; or
- If the existing noise levels range from 60 to 65 dBA CNEL and the Project creates a barely perceptible 3 dBA CNEL or greater noise level increase and the resulting noise level would exceed acceptable exterior noise standards; or
- If the existing noise levels already exceed 65 dBA CNEL, and the Project creates a community noise level increase of greater than 1.5 dBA CNEL

Table 5-2. Existing Plus Project Conditions - Predicted Traffic Noise Levels

Roadway Segment	Surrounding Uses	CNEL at 100 feet from Centerline of Roadway		Noise Standard (dBA CNEL)	Exceed Standard?
		Existing Conditions	Existing + Project Conditions		
Frederick Street					
South of Sunnymead Boulevard	Residential	61.5	61.6	>3	**No**
Graham Street					
Between Sunnymead Boulevard and Eucalyptus Avenue	Residential	55.4	55.8	>5	**No**
South of Eucalyptus Avenue	Residential	54.6	54.7	>5	**No**
Sunnymead Boulevard					
Between Frederick Street and Graham Street	Residential and Commercial	57.2	57.3	>5	**No**
Eucalyptus Avenue					
East of Graham Street	Residential and Commercial	55.8	55.8	>5	**No**
West of Graham Street	Residential	55.4	55.5	>5	**No**

Source: Traffic noise levels were calculated by ECORP Consulting using the FHWA roadway noise prediction model in conjunction with the trip generation rate identified by K2 Traffic Engineering, Inc. 2020. Refer to Attachment B for traffic noise modeling assumptions and results.

Notes: A total of 4 intersections were analyzed in the Traffic Impact Analysis; however, only roadway segments that impact sensitive receptors were included for the purposes of this analysis.

As shown in Table 5-2, no roadway segment would generate an increase of noise beyond the FICON significance standards.

Operational Onsite Stationary Noise

The main stationary operational noise associated with the Project would be activities occurring on the Project site, such as gas station operations and carwash activity including washing/drying components of the carwash and the use of vacuums. Onsite Project operations have been calculated using the SoundPLAN 3D noise model. The stationary onsite noise sources used in the SoundPLAN model can be found in Table 5-3.

Table 5-3. Summary of Onsite Stationary Sources	
Stationary Sources	**Noise Level (dBA L_{eq}) at the Source**
Vacuum Turbines[1]	86.0
Dryer System[1]	75.0
Queuing Lane[2]	75.0
Each Individual (17) Vacuum Drop Point Source[2]	63.8
Gas Station Activity[2]	49.5

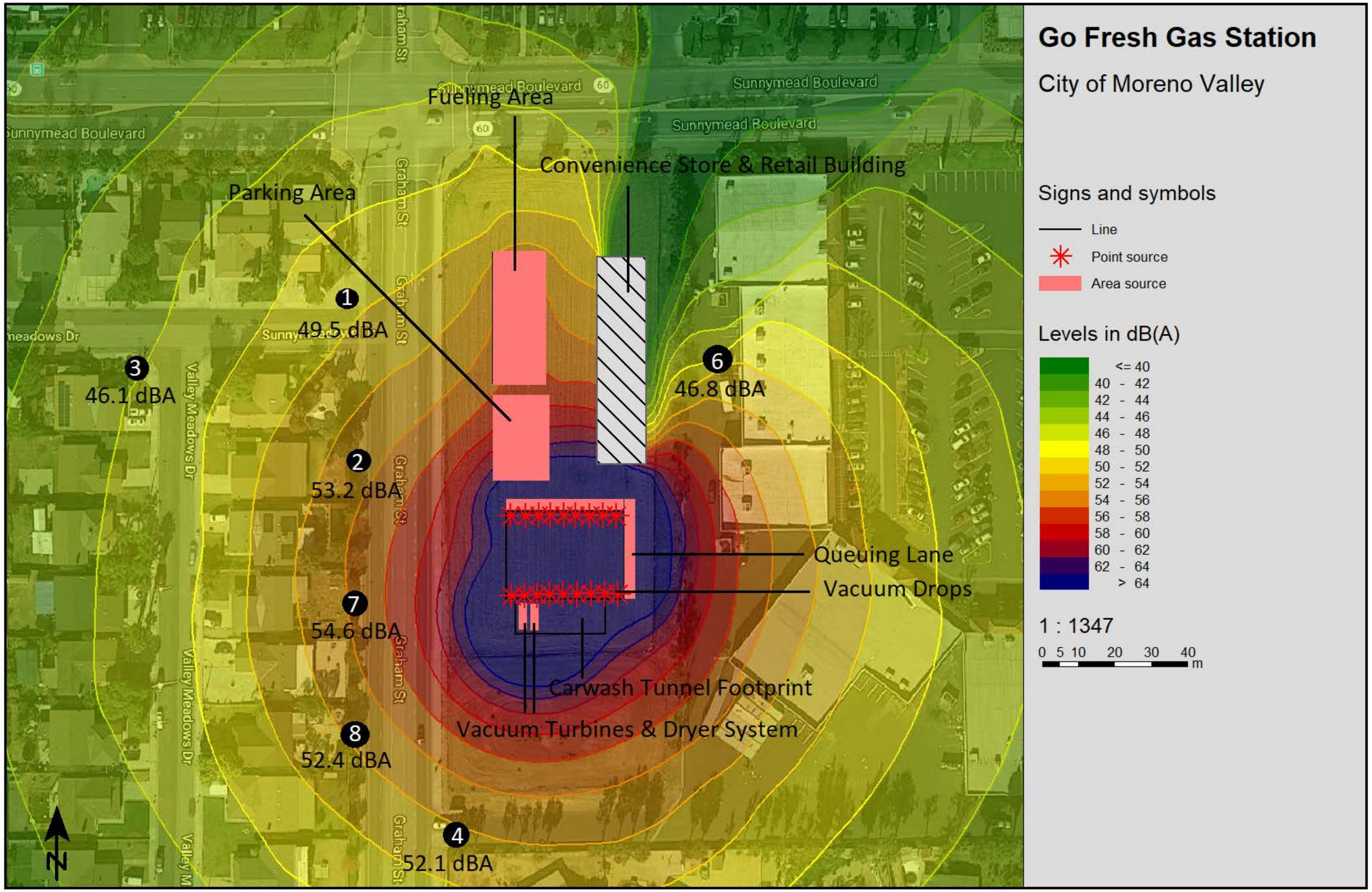
Sources: [1]AUTOVAC manufacture specification sheet. [2]ECORP Consulting Reference Measurements (previous measurements conducted by ECORP staff at actual sources).

The results of this model can be found in Appendix C. Table 5-4 shows the predicted Project noise levels at seven locations in the Project vicinity. Four of the receptor locations are where baseline noise measurements (Locations 1-4) were taken by ECORP (see Table 3-1) and three of the receptor locations are receptors near the Project site. Additionally, a noise contour graphic (Figure 4) has been prepared to depict the predicted noise levels in the Project vicinity from Project operations.

Table 5-4. Modeled Operational Noise Levels

Receptor Location Number	Location	Existing Baseline Noise Measurements (L_{eq} dBA)	Modeled Operational Noise Attributable to Project (L_{eq} dBA)	City Noise Standards (dBA) (Day/Night)	Exceed Standard? (Day/Night)
1	Corner of Sunnymead Boulevard and Graham Street (across the street from the Project site)	65.9	**49.5**	*60 / 55*	**No / No**
2	On the sidewalk along Graham Street (across the street from the Project site)	66.8	**53.2**	*60 / 55*	**No / No**
3	On the northwest corner of Valley Meadows Drive and Sunnymead Boulevard	56.3	**46.1**	*60 / 55*	**No / No**
4	South of Project site and adjacent to missionary wall and dirt lot.	59.7	**52.1**	*60 / 55*	**No / No**
5	East of the Project site adjacent to commercial building	N/A	**46.8**	*65 / 60*	**No / No**
6	West of the Project site adjacent to residence	N/A	**54.6**	*60 / 55*	**No / No**
7	West of the Project site adjacent to residence	N/A	**52.4**	*60 / 55*	**No / No**

Source: Stationary source noise levels were modeled by ECORP using SoundPLAN 3D noise model. Refer to Appendix D for noise modeling assumptions and results.



Map Date: *7/24/2020*
Photo (or Base) Source: *SoundPLAN 5.0*

ECORP Consulting, Inc.
ENVIRONMENTAL CONSULTANTS

Figure 4. SoundPLAN - Go Fresh Gas Station Project

2020-078

As shown in Table 5-4, noise levels as a result of Project operations have the potential to range from 46.1 to 54.6 dBA L_{eq} as a result of full Project operations. These numbers fall below the daytime (8:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 8:00 a.m.) noise standards for residential and commercial land uses. It is noted that Project noise modeling represents a worst-case scenario in which all potential Project noise sources are being generated at full intensity at the same moment. It is very unlikely that noise levels on the Project site would reach that of those predicted in Table 5-4. Additionally, as noted by the Project applicant, the carwash will be in operations from 6:00 a.m. to 10:00 p.m. As such, noise levels during the hours when the carwash is not in operations would be substantially lower. Furthermore, the modeled operational noise levels were less than the baseline noise measurements identified in Table 3-1. As such, noise as a result of Project operations could be mostly unperceivable due to the greater ambient noise levels.

5.3.3 Project Construction Groundborne Vibration

Would the Project Expose Structures to Substantial Groundborne Vibration During Construction?

Excessive groundborne vibration impacts result from continuously occurring vibration levels. Increases in groundborne vibration levels attributable to the Project would be primarily associated with short-term construction-related activities. Construction on the Project site would have the potential to result in varying degrees of temporary groundborne vibration, depending on the specific construction equipment used and the operations involved. Ground vibration generated by construction equipment spreads through the ground and diminishes in magnitude with increases in distance.

Construction-related ground vibration is normally associated with impact equipment such as pile drivers, jackhammers, and the operation of some heavy-duty construction equipment, such as dozers and trucks. It is noted that pile drivers would not be necessary during Project construction. Vibration decreases rapidly with distance and it is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to sensitive receptors. Groundborne vibration levels associated with construction equipment are summarized in Table 5-5.

Table 5-5. Representative Vibration Source Levels for Construction Equipment

Equipment Type	Peak Particle Velocity at 25 Feet (inches per second)
Large Bulldozer	0.089
Caisson Drilling	0.089
Loaded Trucks	0.076
Hoe Ram	0.089
Jackhammer	0.035
Small Bulldozer/Tractor	0.003

Source: FTA 2018; Caltrans 2020

The City of Moreno Valley does not regulate vibrations associated with construction. However, a discussion of construction vibration is included for full disclosure purposes. For comparison purposes, the Caltrans' (2020) recommended standard of 0.2 inch per second PPV with respect to the prevention of structural damage for older residential buildings is used as a threshold. This is also the level at which vibrations may begin to annoy people in buildings.

It is acknowledged that construction activities would occur throughout the Project site and would not be concentrated at the point closest to the nearest structure. The nearest structure of concern to the construction site is a commercial building located 35 feet to the east. Based on the vibration levels presented in Table 5-5, ground vibration generated by heavy-duty equipment would not be anticipated to exceed approximately 0.170 inch per second PPV at 25 feet. Thus, the structure located at 35 feet would not be negatively affected. Predicted vibration levels at the nearest structures would not exceed recommended criteria.

5.3.4 Project Operational Groundborne Vibration

Would the Project Expose Structures to Substantial Groundborne Vibration During Operations?

Project operations would not include the use of any stationary equipment that would result in excessive vibration levels. Therefore, the Project would not result groundborne vibration impacts during operations.

5.3.5 Excess Airport Noise

Would the Project Expose People Residing or Working in the Project area to Excessive Airport Noise?

The Project site is located approximately three miles south of the March Air Reserve Base. The Project site is located outside the 60 dBA CNEL noise impact zone per the *Transportation-Related Noise* section of the Moreno Valley General Plan Final Program EIR. Implementation of the Proposed Project would not affect airport operations nor result in increased exposure of employees or those visiting the site to aircraft noise.

6.0 REFERENCES

Caltrans. 2020. *Transportation and Construction Vibration Guidance Manual*.

_____. 2012. IS/EA Annotated Outline. http://www.dot.ca.gov/ser/vol1/sec4/ch31ea/chap31ea.htm.

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FTA. 2018. *Transit Noise and Vibration Impact Assessment*.

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OPR. 2003. *State of California General Plan Guidelines*.

WEAL. 2000. *Sound Transmission Sound Test Laboratory Report No. TL 96-186*.

LIST OF ATTACHMENTS

Attachment A - Baseline (Existing) Noise Measurements – Project Site and Vicinity

Attachment B - Federal Highway Administration Highway Noise Prediction Model (FHWA-RD-77-108) Outputs – Project Traffic Noise

Attachment C - Federal Highway Administration Highway Roadway Construction Noise Outputs – Project Construction Noise

Attachment D - SoundPLAN Outputs – Onsite Project Noise

ATTACHMENT A

Baseline (Existing) Noise Measurements – Project Site and Vicinity

BASELINE NOISE MEASUREMENTS

Site Number: 1

Recorded By: Lindsay Liegler

Job Number: 2020-078

Date: 5/14/2020

Time: 10:13 a.m.

Location: Corner of Sunnymeadows Boulevard and Graham Street (across the street from the Project site)

Source of Peak Noise: Vehicles on adjacent roadways and pedestrians on the sidewalk

Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
65.9	45.6	87.8	123.4

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**8/05/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**8/05/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**8/02/2019**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Partly cloudy
	Note: dBA Offset = 0.05		**Sensor Height (ft):** 3 feet
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	3	63	29.97

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.259	Computer's File Name	SLM_0005120_LxT_Data_259.00.ldbin
Meter	LxT SE		
Firmware	2.302		
User	Lindsay Liegler	Location	
Description			
Note			

Start Time	2020-05-14 10:12:32	Duration	0:10:24.8		
End Time	2020-05-14 10:24:30	Run Time	0:10:17.1	Pause Time	0:00:07.7

Results

Overall Metrics

LA_{eq}	65.9 dB		
LAE	93.8 dB	SEA	133.4 dB
EA	265.8 µPa²h		
LZ_{peak}	123.4 dB	2020-05-14 10:23:56	
LAS_{max}	87.8 dB	2020-05-14 10:20:28	
LAS_{min}	45.6 dB	2020-05-14 10:15:43	
LA_{eq}	65.9 dB		
LC_{eq}	75.8 dB	$LC_{eq} - LA_{eq}$	9.9 dB
LAI_{eq}	68.8 dB	$LAI_{eq} - LA_{eq}$	2.9 dB

Exceedances

Exceedances	Count	Duration
LAS > 85.0 dB	1	0:00:02.9
LAS > 115.0 dB	0	0:00:00.0
LZpeak > 135.0 dB	0	0:00:00.0
LZpeak > 137.0 dB	0	0:00:00.0
LZpeak > 140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
65.9 dB	65.9 dB	0.0 dB	
LDEN	**LDay**	**LEve**	**LNight**
65.9 dB	65.9 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	65.9 dB		75.8 dB		--- dB	
$Ls_{(max)}$	87.8 dB	2020-05-14 10:20:28	--- dB		--- dB	
$LS_{(min)}$	45.6 dB	2020-05-14 10:15:43	--- dB		--- dB	
$L_{Peak(max)}$	--- dB		--- dB		123.4 dB	2020-05-14 10:23:56

Overloads

Count	Duration	OBA Count	OBA Duration
1	0:00:02.0	11	0:00:37.5

Statistics

LAS 5.0	67.6 dB
LAS 10.0	65.6 dB
LAS 33.3	60.5 dB
LAS 50.0	57.9 dB
LAS 66.6	55.8 dB
LAS 90.0	51.4 dB

Site Number: 2			
Recorded By: Lindsay Liegler			
Job Number: 2020-078			
Date: 5/14/2020			
Time: 10:32 a.m.			
Location: On the sidewalk along Graham Street (across the street from the Project site)			
Source of Peak Noise: Vehicles on adjacent roadways			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
66.8	44.9	84.8	110.3

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**8/05/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**8/05/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**8/02/2019**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Partly cloudy
	Note: dBA Offset = 0.05		**Sensor Height (ft):** 3 feet
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	3	63	29.97

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.260	Computer's File Name	SLM_0005120_LxT_Data_260.00.ldbin
Meter	LxT SE		
Firmware	2.302		
User	Lindsay Liegler	Location	
Description			
Note			

Start Time	2020-05-14 10:33:19	Duration	0:10:08.1		
End Time	2020-05-14 10:43:27	Run Time	0:10:08.1	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	66.8 dB		
LAE	94.7 dB	SEA	--- dB
EA	325.4 µPa²h		
LZ_{peak}	110.3 dB	2020-05-14 10:36:30	
LAS_{max}	84.8 dB	2020-05-14 10:36:30	
LAS_{min}	44.9 dB	2020-05-14 10:40:11	
LA_{eq}	66.8 dB		
LC_{eq}	76.2 dB	LC_{eq} - LA_{eq}	9.3 dB
LAI_{eq}	69.8 dB	LAI_{eq} - LA_{eq}	3.0 dB

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZpeak > 135.0 dB	0	0:00:00.0
LZpeak > 137.0 dB	0	0:00:00.0
LZpeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	66.8 dB	66.8 dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	66.8 dB	66.8 dB	--- dB	--- dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	66.8 dB		76.2 dB		--- dB	
$LS_{(max)}$	84.8 dB	2020-05-14 10:36:30	--- dB		--- dB	
$LS_{(min)}$	44.9 dB	2020-05-14 10:40:11	--- dB		--- dB	
$L_{Peak(max)}$	--- dB		--- dB		110.3 dB	2020-05-14 10:36:30

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	16	0:00:51.8

Statistics

LAS 5.0	72.9 dB
LAS 10.0	70.7 dB
LAS 33.3	63.6 dB
LAS 50.0	58.9 dB
LAS 66.6	53.3 dB
LAS 90.0	47.8 dB

Site Number: 3
Recorded By: Lindsay Liegler
Job Number: 2020-078
Date: 5/14/2020
Time: 10:47 a.m.
Location: On the northwest corner of Valley Meadows Drive and Sunnymeadows Boulevard
Source of Peak Noise: Vehicles on adjacent roadways and typical neighborhood noise

Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
56.3	46.8	71.2	99.5

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**8/05/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**8/05/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**8/02/2019**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Partly cloudy
	Note: dBA Offset = 0.05		**Sensor Height (ft):** 3 feet
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	3	63	29.97

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.261	Computer's File Name	SLM_0005120_LxT_Data_261.00.ldbin
Meter	LxT SE		
Firmware	2.302		
User	Lindsay Liegler	Location	
Description			
Note			

Start Time	2020-05-14 10:48:56	Duration	0:10:04.3		
End Time	2020-05-14 10:59:00	Run Time	0:10:04.3	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	56.3 dB		
LAE	84.2 dB	SEA	--- dB
EA	28.9 µPa²h		
LZ_{peak}	99.5 dB	2020-05-14 10:49:22	
LAS_{max}	71.2 dB	2020-05-14 10:56:02	
LAS_{min}	46.8 dB	2020-05-14 10:55:24	
LA_{eq}	56.3 dB		
LC_{eq}	65.5 dB	LC_{eq} - LA_{eq}	9.1 dB
LAI_{eq}	59.7 dB	LAI_{eq} - LA_{eq}	3.4 dB

Exceedances

Exceedances		Count	Duration
LAS >	85.0 dB	0	0:00:00.0
LAS >	115.0 dB	0	0:00:00.0
LZpeak >	135.0 dB	0	0:00:00.0
LZpeak >	137.0 dB	0	0:00:00.0
LZpeak >	140.0 dB	0	0:00:00.0

Community Noise

LDN	LDay	LNight	
56.3 dB	56.3 dB	0.0 dB	
LDEN	**LDay**	**LEve**	**LNight**
56.3 dB	56.3 dB	--- dB	--- dB

Any Data

	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	56.3 dB		65.5 dB		--- dB	
$Ls_{(max)}$	71.2 dB	2020-05-14 10:56:02	--- dB		--- dB	
$LS_{(min)}$	46.8 dB	2020-05-14 10:55:24	--- dB		--- dB	
$L_{Peak(max)}$	--- dB		--- dB		99.5 dB	2020-05-14 10:49:22

Overloads

Count	Duration	OBA Count	OBA Duration
0	0:00:00.0	4	0:00:08.7

Statistics

LAS 5.0	60.1 dB
LAS 10.0	58.1 dB
LAS 33.3	54.2 dB
LAS 50.0	52.9 dB
LAS 66.6	51.5 dB
LAS 90.0	48.8 dB

Site Number: 4			
Recorded By: Lindsay Liegler			
Job Number: 2020-078			
Date: 5/14/2020			
Time: 11:00 a.m.			
Location: South of Project site and adjacent to missionary wall and dirt lot.			
Source of Peak Noise: Vehicles on adjacent roadways			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
59.7	45.4	75.2	98.4

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**8/05/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**8/05/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**8/02/2019**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Partly cloudy
	Note: dBA Offset = 0.05		**Sensor Height (ft):** 3 feet
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	3	63	29.97

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.262	Computer's File Name	SLM_0005120_LxT_Data_262.00.ldbin
Meter	LxT SE		
Firmware	2.302		
User	Lindsay Liegler	Location	
Description			
Note			

Start Time	2020-05-14 11:01:39	Duration	0:10:30.5		
End Time	2020-05-14 11:12:09	Run Time	0:10:30.5	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	59.7 dB		
LAE	87.7 dB	SEA	--- dB
EA	65.6 µPa²h		
LZ_{peak}	98.4 dB	2020-05-14 11:07:49	
LAS_{max}	75.2 dB	2020-05-14 11:06:18	
LAS_{min}	45.4 dB	2020-05-14 11:07:33	
LA_{eq}	59.7 dB		
LC_{eq}	70.5 dB	LC_{eq} - LA_{eq}	10.8 dB
LAI_{eq}	63.0 dB	LAI_{eq} - LA_{eq}	3.3 dB

Exceedances	Count	Duration
LAS > 85.0 dB	0	0:00:00.0
LAS > 115.0 dB	0	0:00:00.0
LZpeak > 135.0 dB	0	0:00:00.0
LZpeak > 137.0 dB	0	0:00:00.0
LZpeak > 140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	59.7 dB	59.7 dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	59.7 dB	59.7 dB	--- dB	--- dB

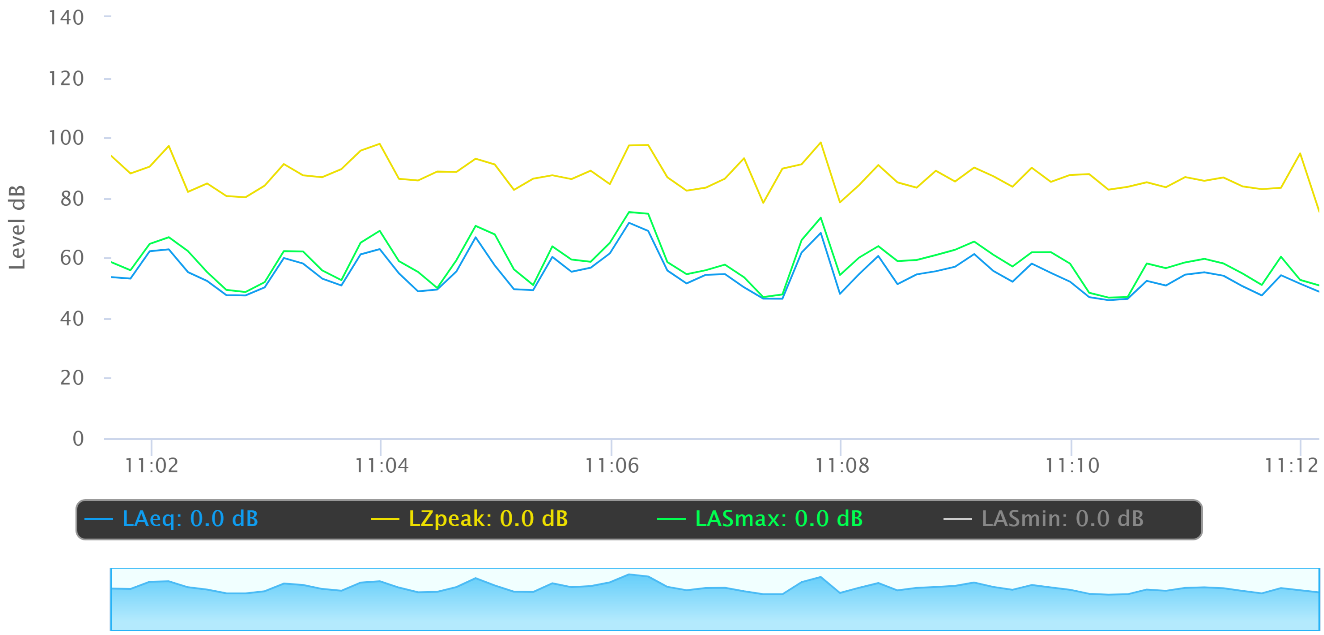
Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	59.7 dB		70.5 dB		--- dB	
$Ls_{(max)}$	75.2 dB	2020-05-14 11:06:18	--- dB		--- dB	
$LS_{(min)}$	45.4 dB	2020-05-14 11:07:33	--- dB		--- dB	
$L_{Peak(max)}$	--- dB		--- dB		98.4 dB	2020-05-14 11:07:49

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	6	0:00:23.5

Statistics

LAS 5.0	65.6 dB
LAS 10.0	62.2 dB
LAS 33.3	55.7 dB
LAS 50.0	52.7 dB
LAS 66.6	50.2 dB
LAS 90.0	47.2 dB

Time History



Site Number: 5			
Recorded By: Lindsay Liegler			
Job Number: 2020-078			
Date: 5/14/2020			
Time: 11:16 a.m.			
Location: Northwest corner of cul-de-sac along Gorham Street			
Source of Peak Noise: Typical neighborhood noise			
Noise Data			
Leq (dB)	**Lmin (dB)**	**Lmax (dB)**	**Peak (dB)**
50.1	41.9	61.7	94.2

Equipment						
Category	**Type**	**Vendor**	**Model**	**Serial No.**	**Cert. Date**	**Note**
Sound	Sound Level Meter	**Larson Davis**	**LxT SE**	**0005120**	**8/05/2019**	
	Microphone	**Larson Davis**	**377B02**	**174464**	**8/05/2019**	
	Preamp	**Larson Davis**	**PRMLxT1L**	**042852**	**8/05/2019**	
	Calibrator	**Larson Davis**	**CAL200**	**14105**	**8/02/2019**	

Weather Data			
Est.	**Duration:** 10 minutes		**Sky:** Partly cloudy
	Note: dBA Offset = 0.05		**Sensor Height (ft):** 3 feet
	Wind Ave Speed (mph)	**Temperature (degrees Fahrenheit)**	**Barometer Pressure (hPa)**
	3	63	29.97

Photo of Measurement Location

Measurement Report

Report Summary

Meter's File Name	LxT_Data.263	Computer's File Name	SLM_0005120_LxT_Data_263.00.ldbin
Meter	LxT SE		
Firmware	2.302		
User	Lindsay Liegler	Location	
Description			
Note			

Start Time	2020-05-14 11:17:19	Duration	0:10:08.6		
End Time	2020-05-14 11:27:27	Run Time	0:10:08.6	Pause Time	0:00:00.0

Results

Overall Metrics

LA_{eq}	50.1 dB		
LAE	78.0 dB	SEA	--- dB
EA	7.0 µPa²h		
LZ_{peak}	94.2 dB	2020-05-14 11:17:31	
LAS_{max}	61.7 dB	2020-05-14 11:26:33	
LAS_{min}	41.9 dB	2020-05-14 11:24:37	
LA_{eq}	50.1 dB		
LC_{eq}	65.5 dB	LC_{eq} - LA_{eq}	15.4 dB
LAI_{eq}	54.0 dB	LAI_{eq} - LA_{eq}	3.8 dB

Exceedances		Count	Duration
LAS >	85.0 dB	0	0:00:00.0
LAS >	115.0 dB	0	0:00:00.0
LZpeak >	135.0 dB	0	0:00:00.0
LZpeak >	137.0 dB	0	0:00:00.0
LZpeak >	140.0 dB	0	0:00:00.0

Community Noise	LDN	LDay	LNight	
	50.1 dB	50.1 dB	0.0 dB	
	LDEN	LDay	LEve	LNight
	50.1 dB	50.1 dB	--- dB	--- dB

Any Data	A		C		Z	
	Level	Time Stamp	Level	Time Stamp	Level	Time Stamp
L_{eq}	50.1 dB		65.5 dB		--- dB	
$Ls_{(max)}$	61.7 dB	2020-05-14 11:26:33	--- dB		--- dB	
$LS_{(min)}$	41.9 dB	2020-05-14 11:24:37	--- dB		--- dB	
$L_{Peak(max)}$	--- dB		--- dB		94.2 dB	2020-05-14 11:17:31

Overloads	Count	Duration	OBA Count	OBA Duration
	0	0:00:00.0	2	0:00:03.10

Statistics

LAS 5.0	55.0 dB
LAS 10.0	52.9 dB
LAS 33.3	49.7 dB
LAS 50.0	48.4 dB
LAS 66.6	47.0 dB
LAS 90.0	44.7 dB

ATTACHMENT B

Federal Highway Administration Highway Noise Prediction Model (FHWA-RD-77-108) Outputs – Project Traffic Noise

PROJECT TRAFFIC NOISE

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2020-078
Project Name: Go Fresh Gas Station

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes: K2 Traffic Engineers 2020
Community Noise Descriptor: L_{dn}: ____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway: Distance to Contour 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist	Traffic Volumes Day	Eve	Nigh
Existing																
Frederick Street																
South of Sunnymead Boulevard	4	0	13,941	40	0.5	1.8%	0.7%	**61.5**	-	59	127	273	100	10,832	1,771	1,3
Graham Street																
Between Sunnymead Boulevard and Eucalyptus Avenue	4	0	3,420	40	0.5	1.8%	0.7%	**55.4**	-	-	50	107	100	2,657	434	32
South of Eucalyptus Avenue	4	0	2,844	40	0.5	1.8%	0.7%	**54.6**	-	-	-	95	100	2,210	361	27
Sunnymead Boulevard																
Between Frederick Street and Graham Street	4	0	6,912	35	0.5	1.8%	0.7%	**57.2**	-	-	65	139	100	5,371	878	66
Eucalyptus Avenue																
East of Graham Street	4	0	3,681	40	0.5	1.8%	0.7%	**55.8**	-	-	52	112	100	2,860	467	35
West of Graham Street	4	0	3,393	40	0.5	1.8%	0.7%	**55.4**	-	-	49	106	100	2,636	431	32

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 2020-078
Project Name: Go Fresh Gas Station

Background Information

Model Description:	FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
Source of Traffic Volumes:	K2 Traffic Engineers 2020
Community Noise Descriptor:	L_{dn}: ____ CNEL: x

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix Medium Trucks	Vehicle Mix Heavy Trucks	CNEL at 100 Feet	Distance from Centerline of Roadway Distance to Contour 70 CNEL	65 CNEL	60 CNEL	55 CNEL	Calc Dist	Traffic Volumes Day	Eve	Nigh
Existing+Project																
Frederick Street																
South of Sunnymead Boulevard	4	0	14,013	40	0.5	1.8%	0.7%	**61.6**	-	59	127	274	100	10,888	1,780	1,3
Graham Street																
Between Sunnymead Boulevard and Eucalyptus Avenue	4	0	3,757	40	0.5	1.8%	0.7%	**55.8**	-	-	53	114	100	2,919	477	36
South of Eucalyptus Avenue	4	0	2,871	40	0.5	1.8%	0.7%	**54.7**	-	-	44	95	100	2,231	365	27
Sunnymead Boulevard																
Between Frederick Street and Graham Street	4	0	7,164	35	0.5	1.8%	0.7%	**57.3**	-	-	66	143	100	5,566	910	68
Eucalyptus Avenue																
East of Graham Street	4	0	3,735	40	0.5	1.8%	0.7%	**55.8**	-	-	53	113	100	2,902	474	35
West of Graham Street	4	0	3,447	40	0.5	1.8%	0.7%	**55.5**	-	-	50	108	100	2,678	438	33

ATTACHMENT C

Federal Highway Administration Highway Roadway Construction Noise Outputs – Project Construction Noise

PROJECT CONSTRUCTION NOISE

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 7/22/2020
Case Description: Site Preparation

Description	Land Use
Residential	Residential

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)
Grader	No	40	85		190
Tractor	No	40	84		190
Scraper	No	40		83.6	190

Calculated (dBA)

Equipment		*Lmax	Leq
Grader		73.4	69.4
Tractor		72.4	68.4
Scraper		72	68
	Total	**73.4**	**73.4**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 7/22/2020
Case Description: Grading

Description	**Land Use**
Residential	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Dozer	No	40		81.7	190
Tractor	No	40	84		190
Tractor	No	40	84		190
Grader	No	40	85		190

Calculated (dBA)

Equipment		*Lmax	Leq
Dozer		70.1	66.1
Tractor		72.4	68.4
Tractor		72.4	68.4
Grader		73.4	69.4
	Total	**73.4**	**74.3**

*Calculated Lmax is the Loudest value.

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 7/22/2020
Case Description: Building Construction, Paving & Painting

Description	**Land Use**
Residential	Residential

Description	**Impact Device**	**Usage(%)**	**Equipment Spec Lmax (dBA)**	**Actual Lmax (dBA)**	**Receptor Distance (feet)**
Generator	No	50		80.6	190
Crane	No	16		80.6	190
Gradall	No	40		83.4	190
Gradall	No	40		83.4	190
Tractor	No	40	84		190
Tractor	No	40	84		190
Welder / Torch	No	40		74	190
Welder / Torch	No	40		74	190
Welder / Torch	No	40		74	190
Concrete Mixer Truck	No	40		78.8	190
Paver	No	50		77.2	190
Roller	No	20		80	190
Compressor (air)	No	40		77.7	190

Calculated (dBA)

Equipment	***Lmax**	**Leq**
Generator	**69**	**66**
Crane	**69**	**61**
Gradall	**71.8**	**67.8**

Gradall	**71.8**	**67.8**
Tractor	**72.4**	**68.4**
Tractor	**72.4**	**68.4**
Welder / Torch	**62.4**	**58.4**
Welder / Torch	**62.4**	**58.4**
Welder / Torch	**62.4**	**58.4**
Concrete Mixer Truck	**67.2**	**63.2**
Paver	**65.6**	**62.6**
Roller	**68.4**	**61.4**
Compressor (air)	**66.1**	**62.1**
Total	**72.4**	**76.1**

*Calculated Lmax is the Loudest value.

ATTACHMENT D

SoundPLAN Outputs – Onsite Project Noise

SoundPLAN
Output Source Information

Number	Reciever Name	Floor	Level at Receiver
1	Corner of Sunnymead Boulevard and Graham Street (across the street from the Project site	Ground Floor	49.5 dBA
2	On the sidewalk along Graham Street (across the street from the Project site)	Ground Floor	53.2 dBA
3	On the northwest corner of Valley Meadows Drive and Sunnymead Boulevard	Ground Floor	46.1 dBA
4	South of Project site and adjacent to missionary wall and dirt lot.	Ground Floor	52.1 dBA
5	East of the Project site adjacent to commercial building	Ground Floor	46.8 dBA
6	West of the Project site adjacent to residence	Ground Floor	54.6 dBA
7	West of the Project site adjacent to residence	Ground Floor	52.4 dBA

Number	Noise Source Information	Citation	Level at Source
1	Vacuum Turbines	Auto Vac Industrial Vacuum & Air Systems Equipment Decibel Cirtification	86.0 dBA
2	Dryer Systems	Auto Vac Industrial Vacuum & Air Systems Equipment Decibel Cirtification	75.0 dBA
3	Full Capacity Queuing Lanes Area Source	ECORP Noise Measurements at a carwash	75.0 dBA
4	Each Individual (18) Vacuum Drop Point Source	ECORP Noise Measurements at a carwash	63.8 dBA
5	Gas Station Activity	ECORP Noise Measurements at a gas station with nine fuleing postions and a C Store	49.5 dBA

Appendix E – Biological Resources Assessment

INFORMATION SUMMARY
Biological Assessment of the Go Fresh Gas Station, Moreno Valley CA
Car Wash, Convenience Store Deli, & Fuel Canopy

A. Report Date: 13 November 2019

B. Report Title: Report of Biological Survey and Protocol Survey for Burrowing Owl, Moreno Valley, California. Phase I & II Surveys

C. APN #:479-070-051-1

D. Project Location: The 2.18-acre site is located the City of Moreno Valley in western Riverside County. The map location of the site is: 33°56'17.51" N; 117° 15' 08.05"W; NW¼ Section 12 , Range 6W, Tier 3S, with a central elevation of 1636'. Access to the site is from State Route 60 to the Sunnymead Boulevard, south to on Graham Street to the northwest side of the site.

E. Applicant: Alex A. Irshaid, RamCam Group, 670 East Parkridge Avenue, Suite 101, Corona CA 92879, 951 734 6330 x 202

F. Principal Investigator: R. Mitchel Beauchamp, M. Sc., Pacific Southwest Biological Services, Inc. (619) 477-5333. P. O. Box 985, National City, CA 91951-0985;

G. Preparer: R. Mitchel Beauchamp (Botanist and Wetlands Delineator, Field Zoologist)

H. Dates of Survey: 23 October 2019

I. Summary: A general biological survey of the site revealed one vegetation type/habitat communities: Disturbed Habitat.

A general zoological survey and Phase I & II Surveys for the Burrowing Owl did not encounter occupied burrow sites for the species on or near the site. No sensitive faunal species were observed.

BIOLOGICAL REPORT

Go Fresh LLC
Biological Survey and Protocol Survey for Burrowing Owl,
Phase I & II Surveys
APN 479-070-051-1
Moreno Valley, California.

PSBS # W506

Prepared for
Alex A. Irshaid
RamCam Group
670 East Parkridge Avenue, Suite 101
Corona CA 92879
951 734 6330 x 202

Prepared by
Pacific Southwest Biological Services Inc.
Post Office Box 985
National City CA 91951

R. Mitchel Beauchamp, M. Sc., President

13 November 2019

Report of a Biological Survey and Focused Protocol Survey for Burrowing Owl, Phase I & II Survey
APN 479-070-051-1
Moreno Valley, California
13 November 2019

SUMMARY

A general biological survey of the site revealed a single vegetation type/habitat community: Disturbed Habitat. The 2.18-acre site is an open field that has been plowed annually for weed and fire abatement purposes, always involving disturbance. No sensitive flora was observed on the site. The loss of habitats on the site through the proposed project plan is not considered significant and requires no mitigation, aside from the administrative payment of the development fees.
A general zoological survey, and Phase I & II survey for the Burrowing Owl did not observe the species on or near the site. No other sensitive faunal species were observed. At the time of the surveys, no nesting birds were observed.

INTRODUCTION

PURPOSE OF THE STUDY

Pacific Southwest Biological Services, Inc., (Pacific Southwest), at the request of Mr. Alex A. Irshaid, RamCam Group of Corona, conducted a biological assessment on the 2.18-acre site in the City of Moreno Valley. The purpose of the assessment was to inventory and evaluate biological resources on the site and to analyze potential impacts of the proposed project. This report summarizes the findings of the survey and provides an analysis of potential impacts to sensitive resources. No mitigation measures to reduce impacts to below a level of significance are recommended. It is anticipated that the information herein will be available for public agency review.

PROJECT LOCATION

The 2.18-acre site proposed project is bounded by Sunnymead Boulevard and Graham Street in the City of Moreno Valley.

Site coordinates are: 33°56'17.51" N; 117° 15' 08.05"W; SW¼ Section 1, Range 4W, Tier 3S, Riverside East U.S.G.S. 7.5" quadrangle, with a low elevation of 1631' at south edge and 1637' at the north edge.

Access to the site from State Route 60 is to Sunnymead Boulevard to Graham Street.

PROJECT DESCRIPTION

The construction of an automotive service facility at the site is proposed.

METHODS

Principal biologist R. Mitchel Beauchamp conducted the botanical survey and general zoological survey. The Phase I (Habitat Assessment) survey for the Burrowing Owl (*Athene cunicularia*) (Owl) was also conducted by Mr. Beauchamp. Authorization from the Service is not required to conduct such surveys for the Owl. The schedule and field conditions during the visit are summarized below:

Date	Personnel	Time	Weather
23 October 2019	RMB	09:15-11:00	Skies clear, 78°F

Methods for the Phase I Survey for the Owl consisted of visual verification of potential Owl habitat on the site. Methods for the Phase II Survey consisted of walking through suitable habitat over the entire site, establishing walking transects spaced to allow 100% visual coverage of the ground surface. Methods for the general zoological survey consisted of walking slowly over the appropriate habitats of the site while watching and listening for wildlife and observing indirect signs. "Pishing", a technique commonly used to attract the interest of passerines and draw them into view, was occasionally employed. Direct observations were supplemented by indirect indications of presence such as scat, tracks, burrows, and diggings. Binoculars (8.5x44) were used to assist in the detection and identification of wildlife. Methods for the botanical survey consisted of walking slowly along the site, observing the flora and vegetation and recording observations as they were made. The site and adjacent land are of such size that they could be surveyed in their entirety during the single survey visit.

SURVEY LIMITATIONS

Complete biological inventories of sites often require a large number of field hours during different seasons, as well as nocturnal sampling for some animal groups such as small mammals. Depending on the season during which the field visit is conducted, amphibians, snakes, many mammals, owls and other nocturnal birds, and annual plants are groups that can be difficult to inventory. Many groups of vertebrates are difficult to find during short-term field surveys. Some, such as migratory or nomadic birds, may be absent from the site while the fieldwork is being conducted. Other species occur at low densities and may easily have been missed. Species that are declining or have naturally patchy distribution may not be present in areas of what appears to be suitable habitat. However, through literature review, study of museum records, and knowledge of the habitat requirements and distribution patterns of individual species, the probability of a given species being present on a site can often be quite accurately predicted.

DEFINITIONS

<u>Vegetation Communities</u>

Vegetation habitats or communities are assemblages of plant species that usually coexist in the same area. The classification of vegetation communities is based upon the life form of the dominant species within the community and the associated flora. The nomenclature for vegetation communities is as follows: Holland's Preliminary Descriptions of the Terrestrial Natural Communities of California (1986), as modified by Oberbauer (1996).

<u>Wildlife Habitats</u>

Wildlife habitats differ from vegetation communities in that a wildlife habitat may contain several vegetation communities that are similar in structure but different in the plant species composition, location and soil substrate. This distinction becomes an important factor when assessing the sensitivity of a particular wildlife habitat. In addition, the interaction of various wildlife species occurs between many different wildlife habitats. This becomes more evident where these habitats overlap in areas known as ecotones. These ecotones support a combination of species from two or more adjoining habitats that generally increases the number and diversity of species within these areas. Wildlife habitats encountered on the project site approximate the vegetation communities discussed below.

Species Nomenclature
The scientific nomenclature used in this report is from the following standard references: vascular plants (Beauchamp 1986, Baldwin, *et al*. 2012); vegetation communities (Holland 1986, Oberbauer 1996); wildlife habitats (Mayer et al. 1988); reptiles (Crother 2000); birds (American Ornithologists' Union 1998); and mammals (Jameson and Peeters 1988).

SURVEY RESULTS
GENERAL PHYSIOGRAPHY
The proposed project site is an open field. Elevations range from 1637 to 1631 feet in elevation.

This site geology is early Pleistocene very old alluvial fan deposits (Morton & Matti 1996).

Soils mapped for the site are Ramona very fine sandy loam, 0 to 8 percent slopes, eroded (ReC) and adjacent areas of Ramona sandy loam, 8 to 15 percent slopes, eroded (RaB2) (Knecht. 1971).

BOTANICAL RESOURCES
Vegetation Communities A single vegetation type/habitat community occurs on the site: Disturbed Habitat. Description of the community, the Holland Element Code Numbers (#), and approximate extents follow.

Disturbed Habitat (#11300) (2.18 acres). The Ramona series soils constitute the disturbed habitat. This is dominated by non-native annuals such as Slender Wild Oat (*Avena barbata*) and Pigweed (*Amaranthus albus*).

Flora
The flora of the site is limited due to the disturbed nature of the site. Eighteen plant taxa were observed on the site (Appendix 1); only one (5%) of these are native, indicating the high level of disturbance of the site. Included is the usual set of weeds encountered in the region, such as Wild Radish (*Raphanus sativus*), Russian-Thistle (*Salsola tragus*) and Wild Oats (*Avena barbata*).

Sensitive Vegetation Observed
Plowing has maintained the parcel and that to the adjacent south. Lands in such a condition are not suitable for occupancy by any sensitive plants.

ZOOLOGICAL RESOURCES
General Wildlife Habitat
Wildlife habitat in terms of wildlife habitat quality in the Disturbed Habitat on the site is low, because of the extensive level of prior plowing disturbance.

During the visit dog tracks were noted about the site. The perimeter fencing has been compromised such that access is possible.

Fauna
Twelve species of animals were detected on the property. These included a reptile, 9 avian species, and 2 mammals. A complete list of animals observed or detected on the site is included (Appendix 2).

Birds

Those species observed include such common and widespread species as the Rock Dove (*Columba livia*), Mourning Dove (*Zenaida macroura*), Black Phoebe (*Sayornis nigricans*), American Crow (*Corvus brachyrhynchos*), and Northern Mockingbird (*Mimus polyglottos*). Many of these birds were in the trees along the eastern side of the project site.

Open field habitat is of concern because of its function as raptorial bird foraging habitat, and potential habitat for Stephens' Kangaroo Rat; however, the history of plowing has reduced the potential for such presence.

Burrowing Owl

There are two recognized subspecies of Burrowing Owls that are known to occur within North America. The Western Burrowing Owl (*Athene cunicularia*) occurs throughout western North America, from the Mississippi River to the Pacific Ocean, and from the prairie provinces of Canada south to portions of Central and South America. The Florida Burrowing Owl (*Athene cunicularia floridana*) is restricted to Florida, extreme southeastern Georgia, and the Bahamas.

The Burrowing Owl is a migratory species protected under the Migratory Bird Treaty Act (MBTA) of 1918 (16 U.S.C. 703-711). The MBTA makes it unlawful to possess, buy, sell, or barter any migratory bird listed in 50 C.F.R. Part 10, including feathers or other parts, nests, eggs, or products, except as allowed by implementing regulations (50 C.P.R. 21). Additionally, Burrowing Owls and their nests are protected by Section 2000, 3503, 3503.5, and 3800 of the California Fish and Game Code that prohibit the take, possession, or destruction of birds, their nests, or eggs. Avoiding violation of the take provisions of these laws generally requires that the project-related disturbance at active nesting territories be reduced or eliminated during the nesting period (generally considered February l to August 31). 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.

Burrowing Owls are small owls that live in dry, open areas where grasslands, rangelands, agricultural lands, deserts and scrublands are found. These small owls are less than 12 inches tall, have long legs and a short tail, are mostly brown with numerous white or tan spots, and have white eyebrows just above bright yellow eyes. As their name implies, Burrowing Owls actually make their homes underground. Western Burrowing Owls rely on the abandoned burrows of ground squirrels, rabbits, coyotes, and foxes in this region.

Habitat Requirements

Burrowing Owls are known to occur in a variety of generally flat, dry, and open habitats with adequate densities of suitable burrows. Burrowing Owls typically require relatively low vegetative cover and sufficient perching locations to aid in foraging and predator detection. Specifically, preferred natural breeding habitat for the species includes annual grasslands, shrub steppe, and desert habitats (CDFW, 2012). Burrowing Owls typically require an existing burrow or cavity of appropriate size and depth for a nest burrow, although they have been documented to excavate their own burrows where existing burrows are absent (CDFW, 20 12). Burrowing Owls are also well-adapted to a variety of urban environments, often utilizing man-made structures (e.g., drainage pipes, culverts, agricultural berms, irrigation ditches, etc.). Within California, the Western Burrowing Owl is often associated with the burrows of the California Ground Squirrel (*Spermophilus beecheyi*); however, within desert habitats the burrows of other species (e.g. Round-tailed Ground Squirrel

(*Citellus teretcaudus*), American Badger (*Taxidea taxus*), Coyote (*Canis latrans*), etc.) are known to be utilized (CDFW 2012).

Breeding Ecology Within California

Western Burrowing Owls typically breed between February 1 and August 31, with the peak of breeding season generally occurring between April 15 and July 15 (CDFW, 2012). Males select a nest burrow and begin engaging in courtship behaviors. Burrowing Owls typically lay one clutch of eggs per season, with females incubating and brooding the young, while males engage in territory defense and foraging behaviors. Incubation typically takes approximately 29 days, and nestlings can be observed at burrow entrances within approximately two weeks after hatching, and generally fledge within six weeks of hatching (Haug 1993). Burrowing Owls are known to exercise a moderate level of nest site fidelity, often utilizing the same nest burrows in subsequent years (CDFW 2012).

Dietary Habits

Burrowing Owls are considered opportunistic predators, feeding on a wide variety of prey species, including arthropods, birds, small mammals, amphibians, reptiles, and carrion (CDFW 2012). Although Burrowing Owls are typically active during the day, they are known to forage during the night, potentially to avoid predation by diurnal predator species (e.g., falcon, hawks, etc.). Burrowing Owls are known to hunt from elevated perches, often engaging in short glides, flights, or runs to capture prey (Thomsen 1971).

Population Trends

Burrowing Owl populations have shown a continuous decline throughout much of their North American range over the last century (Johnson *et al.* 2010). The historical breeding range of the species has been restricted significantly across the plains and coastal areas of North America, with the species believed extirpated in much of its northern range (EcoSystems 2005). The species has declined in several Southern California and Bay Area counties, particularly within coastal areas. Extensive population declines in the Imperial and Central Valley regions have been associated with agricultural conversion (Rosenberg *et al.*, 2009). Locally, loss of suitable habitat to development and habitat type conversion are largely responsible for the decline of the species.

Methods

All aspects of the field survey were conducted by the biologist who is experienced and knowledgeable in identifying Burrowing Owl habitat, ecology, and individuals, as well as sign of presence such as feathers, excrement, pellets and potential burrows suitable for breeding and shelter.

Habitat Assessment

The Burrowing Owl habitat assessment was conducted on the property, as well as within a 150-meter buffer surrounding the site, by biologist R. Mitchel Beauchamp. Conditions during the habitat assessment are provided in the table above. Prior to the habitat assessment, existing vegetation maps, survey reports, and aerial photographs were referenced to aid in the field assessment (Google Earth 2014).

Suitability of habitat was determined by walking about and driving around the property and the surrounding buffer. The initial habitat suitability assessment was continually refined throughout the course of the focused survey effort. Plant communities were classified during the baseline habitat assessment in order to evaluate the potential for Burrowing Owl to utilize the property and surrounding buffer. All plants observed during the habitat assessment were identified in the field.

Focused Survey

The focused survey was conducted on foot throughout the property and surrounding buffer within all areas of suitable habitat where safe and legal access was available. The date, times and weather of the survey are noted above.

All areas had direct access during the survey. The survey was conducted by walking straight-line transects spaced no more than 20 meters apart, adjusting for vegetation height and density. At the start of each transect and at least every 100 meters, the biologist scanned the entire visible area for Burrowing Owls with the aid of binoculars. No potential burrows, as identified by the presence of Burrowing Owls or sign (i.e. pellets, prey remains, whitewash, or decoration) were recorded.

Results

The property and surrounding buffer are characterized by developed commercial properties and an open field to the adjacent south. The single habitat type within the property and surrounding buffer is Disturbed Habitat or Urban / Developed. The area was identified as providing low quality Burrowing Owl habitat, as indicated by the absence of active Ground Squirrel burrows, berms, or proximity to developed commercial properties.

The project site was classified as Disturbed Habitat. Due to plowing the site was identified as un-suitable Burrowing Owl habitat.

No Ground Squirrel activity was observed on-site.

The Burrowing Owl was not observed on or near the project site during the survey. No active owl burrows were identified during the focused surveys. An active burrow would have consisted of at least one adult burrowing owl associated with a burrow, determined by direct observation. An active burrow may support a single burrowing owl, pair of Burrowing Owls, or a family group (i.e., a breeding pair and nestlings). Also, no owl droppings or feeding debris was noted at the site.

Discussion

Although the site was considered as potential Burrowing Owl habitat, largely due to the open nature of the site and soft soils, no active owl borrows were encountered. As Burrowing Owls within the region are closely associated with the presence of California Ground Squirrel burrows, the lack of such burrows precludes habitat for Burrowing Owls.

No measures are recommended relative to any Burrowing Owl issues.

Stephens' Kangaroo Rat

In the historic past, potential Stephens' Kangaroo Rat (*Dipdomys stephensii*) (a federally-listed Endangered Animal Species) habitat most likely occurred on the property. Regulatory agencies have developed a fee system to provide for the species, as well as others, present or not on site within the historic range of the species.

RESOURCE EVALUATION

The site is located outside any criteria cell groups of the MSHCP. The site is disturbed and isolated by the surrounding residential and commercial uses and by the presence of canine and feline pets. The site provides no corridor function due to the presence of the surrounding development with major highways and arterial roadways.

Historic habitat for the Stephens' Kangaroo Rat most likely existed on the site but has suffered habitat degradation by historic and frequent plowing.

POTENTIAL BIOLOGICAL EFFECTS OF THE PROPOSED PROJECT
DIRECT EFFECTS
1. Vegetation Impacts. Development of the site will remove about 2.18 acres of Disturbed Habitat from the region.

INDIRECT EFFECTS
Increased occupation of the land by residential use results in reduction of open habitat in the region.

RECOMMENDATIONS TO REDUCE POTENTIAL BIOLOGICAL EFFECTS
Vegetation Impacts
Effective March 12, 2004, a fee payment is required by the MSHCP. The fee is to assist in providing revenue to acquire and preserve vegetation communities and natural areas within western Riverside County which are known to support threatened, endangered or key sensitive populations of plant and wildlife species. This local development mitigation fee shall be paid for each development project or portion thereof to be constructed within MSCP area. The amount of the local development mitigation fee shall be calculated on the basis of the acreage of the project area, in accordance with the following:
1. The project area shall be determined by city staff based on the subdivision map, plot plan, and other information submitted to or required by the city. 2. An applicant may elect, at his or her own expense, to have a project area dimensioned, calculated, and certified by a registered civil engineer or licensed land surveyor. The engineer or land surveyor shall prepare a wet-stamped letter of certification of the project area dimensions and a plot plan exhibit thereof that clearly delineates the project area. Upon receipt of the letter of certification and plot plan exhibit, the county shall calculate the local development mitigation fee required to be paid based on the certified project area.

16.05.060 Payment of local development mitigation fee. A. The local development mitigation fee shall be paid in full in accordance with applicable law. B. The local development mitigation fee shall be assessed one time per lot or parcel, except when additional construction or improvement on the lot or parcel results in the disturbance of additional area. C. The local development mitigation fee required to be paid under this chapter shall be the fee in effect at the time of payment.

From the language in the above ordinance, it would appear that the parcel would be subject to a fee for 2.18 acres.

CERTIFICATION
Certification: I hereby certify that the statements furnished above 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.

DATE: 13 November 2019 ________________________________

R. Mitchel Beauchamp-Report Author

Fieldwork Performed By: ___________________________
R. Mitchel Beauchamp, Biologist

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APPENDIX 1. FLORAL CHECKLIST OF SPECIES OBSERVED

SCIENTIFIC NAME COMMON NAME
DICOTYLEDONS
Amaranthaceae – Pigweed Family
**Amaranthus albus* L Pigweed
* *Chenopodium album* L. Lamb's Quarters
* *Salsola tragus* L. Russian-Thistle

Anacardiaceae - Cashew Family
**Pistachia chinensis* Bunge Chinese Pistachio

Asteraceae - Sunflower Family
**Centaurea melitensis* L. Tocalote
**Conyza canadensis* (L.) Cronquist Flea-bane
**Lactua serriola* L. Wild Lettuce
**Sonchus oleraceus* L. Sow-thistle

Boraginaceae – Borage Family
Amsinckia intermedia (Gray)Greene Rancher's Fiddleneck

Brassicaceae - Mustard Family
* *Hirschfeldia incana* (L.) Lagr.-Fossat Short-pod Mustard
* *Raphanus sativus* L. Wild Radish

Geraniaceae - Geranium Family
* *Erodium cicutarium* (L.) L'Hér. Red-stem Filaree

Labiateae - Mint Family
**Salvia leucantha* Cav. Mexican sage

Malvaceae- Mallow Family
**Malva parviflora* L. Cheeseweed

Myrtceae- Myrtle Family
**Eucalyptus polyanthemos* Schauer Silver-dollar Gum Tree

Zygophyllaceae – Caltrop Family
**Tribulus terrestris* L. Puncture Vine

MONOCOTYLEDONS
Poaceae - Grass Family
**Avena barbata* Link Slender Wild Oat
**Schismus barbatus* (L.) Thell. Mediterranean Schismus
* - Denotes non-native plant taxa

APPENDIX 2. ANIMALS OBSERVED OR DETECTED AT THE SITE

COMMON NAME *SCIENTIFIC NAME*
REPTILES
Phrynosomatidae
Side-blotched Lizard *Uta stansburiana*

BIRDS
Accipitridae (Hawks, Eagles, Harriers, and Kites)
Red-tailed Hawk *Buteo jamaicensis*

Columbidae (Pigeons and Doves)
Rock Dove *Columba livia*
Mourning Dove *Zenaida macroura*

Tyrannidae (Tyrant Flycatchers)
Black Phoebe *Sayornis nigricans*

Corvidae (Jays, Crows, Ravens, and Magpies)
American Crow *Corvus brachyrhynchos*

Mimidae (Mockingbirds and Thrashers)
Northern Mockingbird *Mimus polyglottos*

Sturnidae (Starlings)
European Starling *Sturnus vulgaris*

Fringillidae (Finches)
House Finch *Haemorhous mexicanus*

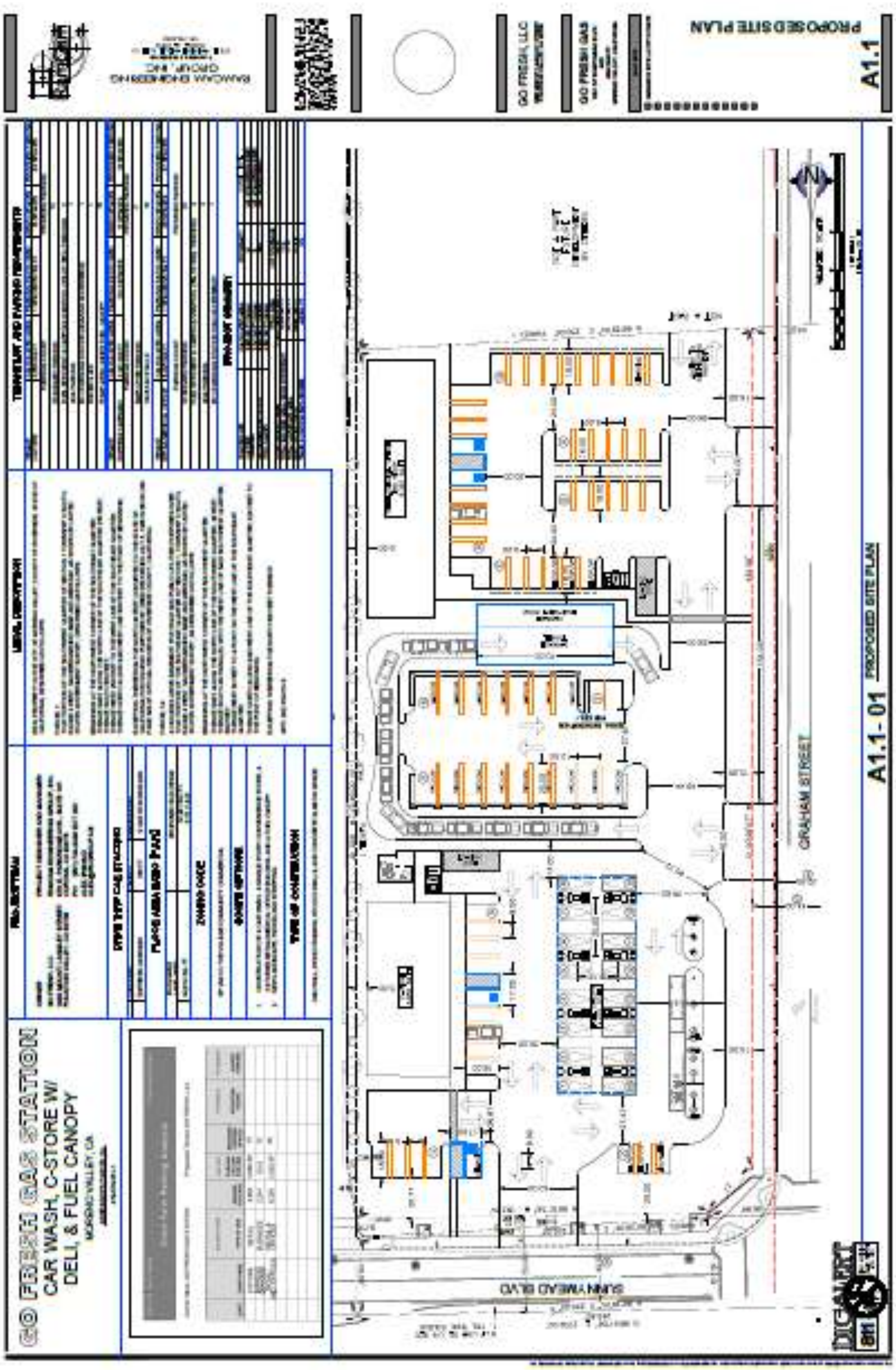
Passeridae (Old World Sparrows)
House Sparrow *Passer domesticus*

MAMMALS
Rotentidae
Pocket Gopher *Thomomys bottae*
Caninidae
Coyote *Canis latrans*

Figure 1. Vicinity Map

Figure 2. Vegetation Map

Figure 3. Proposed Project Design



Appendix F – Cultural Resources Assessment

PHASE I CULTURAL RESOURCES SURVEY FOR THE GO FRESH GAS STATION PROJECT

CITY OF MORENO VALLEY, RIVERSIDE COUNTY, CALIFORNIA

APN 292-100-012

Submitted to:

City of Moreno Valley
14177 Frederick Street
Moreno Valley, California 92552

Prepared for:

RAMCAM Group
670 East Parkridge Avenue, Suite 101
Corona, California 92879

Prepared by:

Brian F. Smith and Associates, Inc.
14010 Poway Road, Suite A
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December 12, 2019

Archaeological Database Information

Author(s):	Andrew J. Garrison and Brian F. Smith
Prepared by:	Brian F. Smith and Associates, Inc. 14010 Poway Road, Suite A Poway, California 92064 (858) 484-0915
Report Date:	December 12, 2019
Report Title:	Phase I Cultural Resources Survey for the Go Fresh Gas Station Project, City of Moreno Valley, Riverside County, California
Submitted to:	City of Moreno Valley 14177 Frederick Street Moreno Valley, California 92552
Prepared for:	RAMCAM Group 670 East Parkridge Avenue, Suite 101 Corona, California 92879
Assessor's Parcel Number:	292-100-012
USGS Quadrangle:	*Riverside East, California* (7.5 minute)
Study Area:	Approximately two acres
Key Words:	Cultural resources survey; city of Moreno Valley; negative survey; no mitigation measures recommended.

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Appendix B – Archaeological Records Search Results*
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**Deleted for public review and bound separately in the Confidential Appendix*

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1.0 MANAGEMENT SUMMARY/ABSTRACT

The following report describes the results of a Phase I cultural resources assessment conducted by Brian F. Smith and Associates, Inc. (BFSA) for the Go Fresh Gas Station Project. The survey covered approximately two acres (Assessor's Parcel Number [APN] 292-100-012) located southeast of the intersection of Sunnymead Boulevard and Graham Street in city of Moreno Valley, Riverside County, California. The project, which is located within Section 1 of the USGS 7.5-minute *Riverside East, California* topographic quadrangle (Township 3 South, Range 4 West, San Bernardino Base and Meridian), proposes the construction of a convenience store and gas station and associated infrastructure. In compliance with the California Environmental Quality Act (CEQA) and City of Moreno Valley environmental policies, BFSA conducted the assessment to locate and record any cultural resources present within the project.

The cultural resources investigation of the subject property included a records search performed by BFSA at the Eastern Information Center (EIC) at the University of California at Riverside (UCR) on December 2, 2019 in order to identify any previously recorded cultural resources or previous archaeological studies within a one-mile radius of the project. The EIC records search results indicate that six cultural resources and 40 cultural resource studies are recorded within a one-mile radius of the project. While no cultural resource sites have been previously recorded within a one-mile radius of the project, one study covers the subject property (McCarthy 1987). BFSA also requested Sacred Lands Files (SLF) search from the Native American Heritage Commission (NAHC), which indicate that no recorded Native American sacred sites or locations of religious or ceremonial importance are present within the vicinity of the project.

The cultural resources survey of the property was conducted on November 21, 2019. Survey conditions were generally good and ground visibility was good to excellent as much of the property has been disturbed by historic agricultural uses, vegetation clearing, disking, grading, and development of the surrounding area. No prehistoric or historic cultural resources were identified during the survey and the records search results suggest a low potential for resources to be present in the project area; therefore, monitoring of grading is not recommended as a condition of approval for the project.

A copy of this report will be permanently filed with the EIC at UCR. All notes, photographs, and other materials related to this project will be curated at the archaeological laboratory of BFSA in Poway, California.

2.0 INTRODUCTION

In response to a request by the RAMCAM Group, BFSA conducted a cultural resources assessment of the Go Fresh Gas Station Project. The cultural resources survey and evaluation program for the project were conducted in order to comply with CEQA and City of Moreno Valley environmental policies. The project is located in an area of low archaeological sensitivity, as suggested by known site density and predictive modeling.

The approximately two-acre property is located southeast of the intersection of Sunnymead Boulevard and Graham Street in the city of Moreno Valley, Riverside County, California, and encompasses the entirety of APN 292-100-012 (Figure 2.0–1). The project is located within Section 1 of the USGS 7.5-minute *Riverside East, California* topographic quadrangle (Township 3 South, Range 4 West, San Bernardino Base and Meridian) (Figure 2.0–2) and proposes the construction of a convenience store and gas station with associated infrastructure. An aerial view of the property is provided in Figure 2.0–3.

Principal Investigator Brian F. Smith directed the Phase I archaeological survey program with assistance from Senior Project Archaeologist Andrew J. Garrison. The technical report was prepared by Andrew Garrison and Brian Smith. Elena Goralogia conducted technical editing and report production and the report graphics were generated by Andrew Garrison. Qualifications of key personnel are provided in Appendix A.

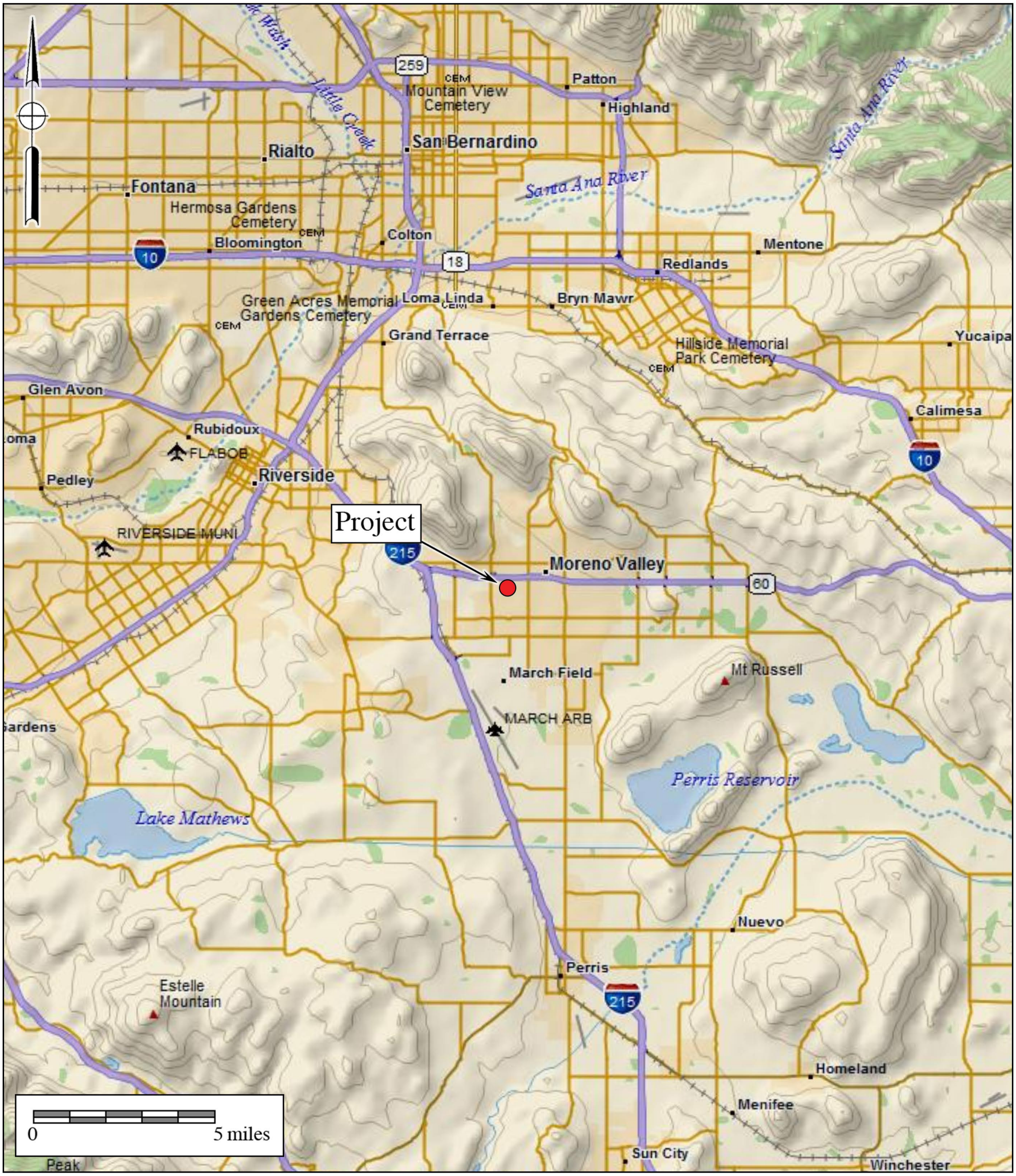

Figure 2.0–1

General Location Map

The Go Fresh Gas Station Project

DeLorme (1:250,000)

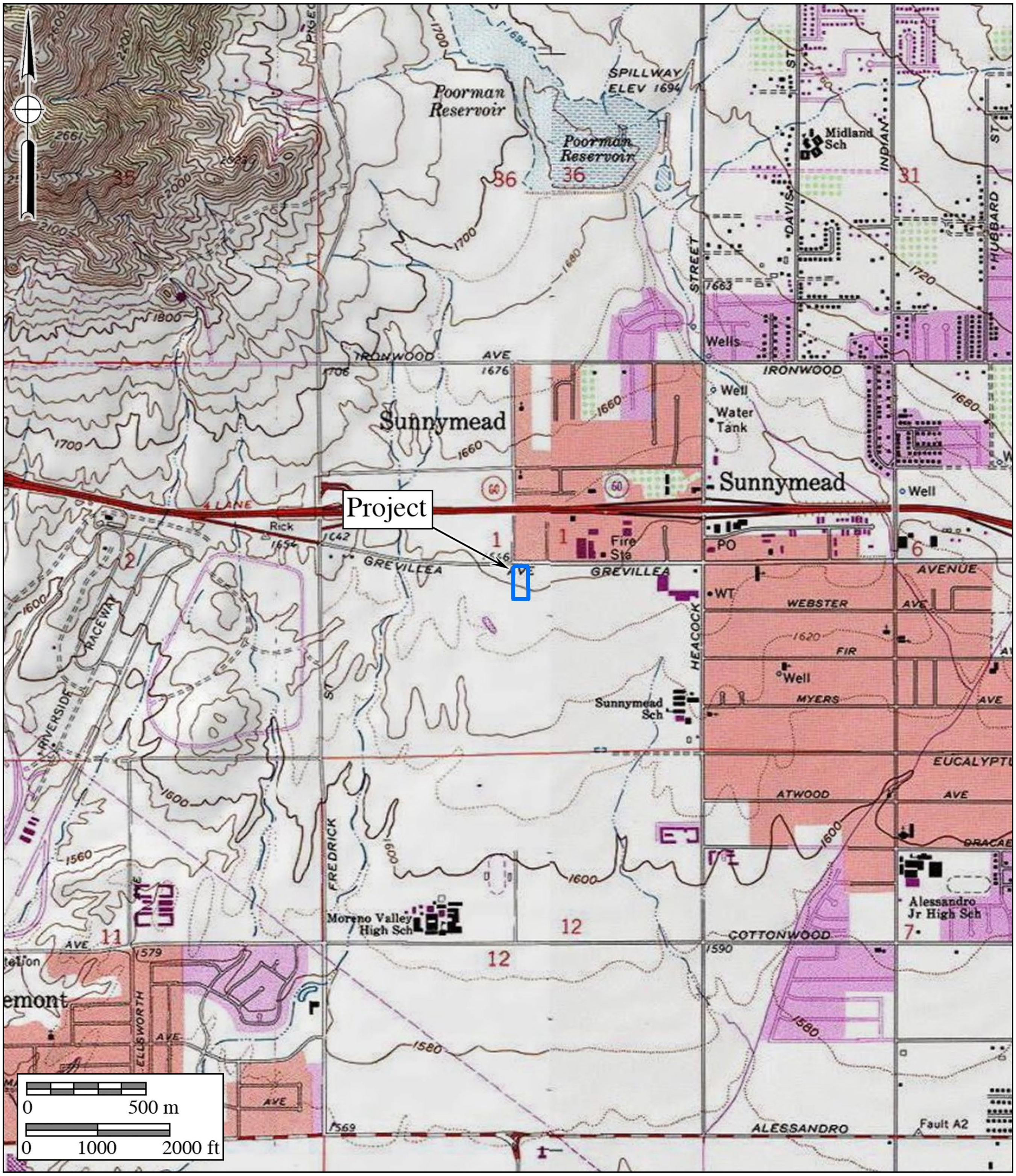

Figure 2.0–2

Project Location Map

The Go Fresh Gas Station Project

USGS *Riverside East* and *Sunnymead* Quadrangles (7.5-minute series)

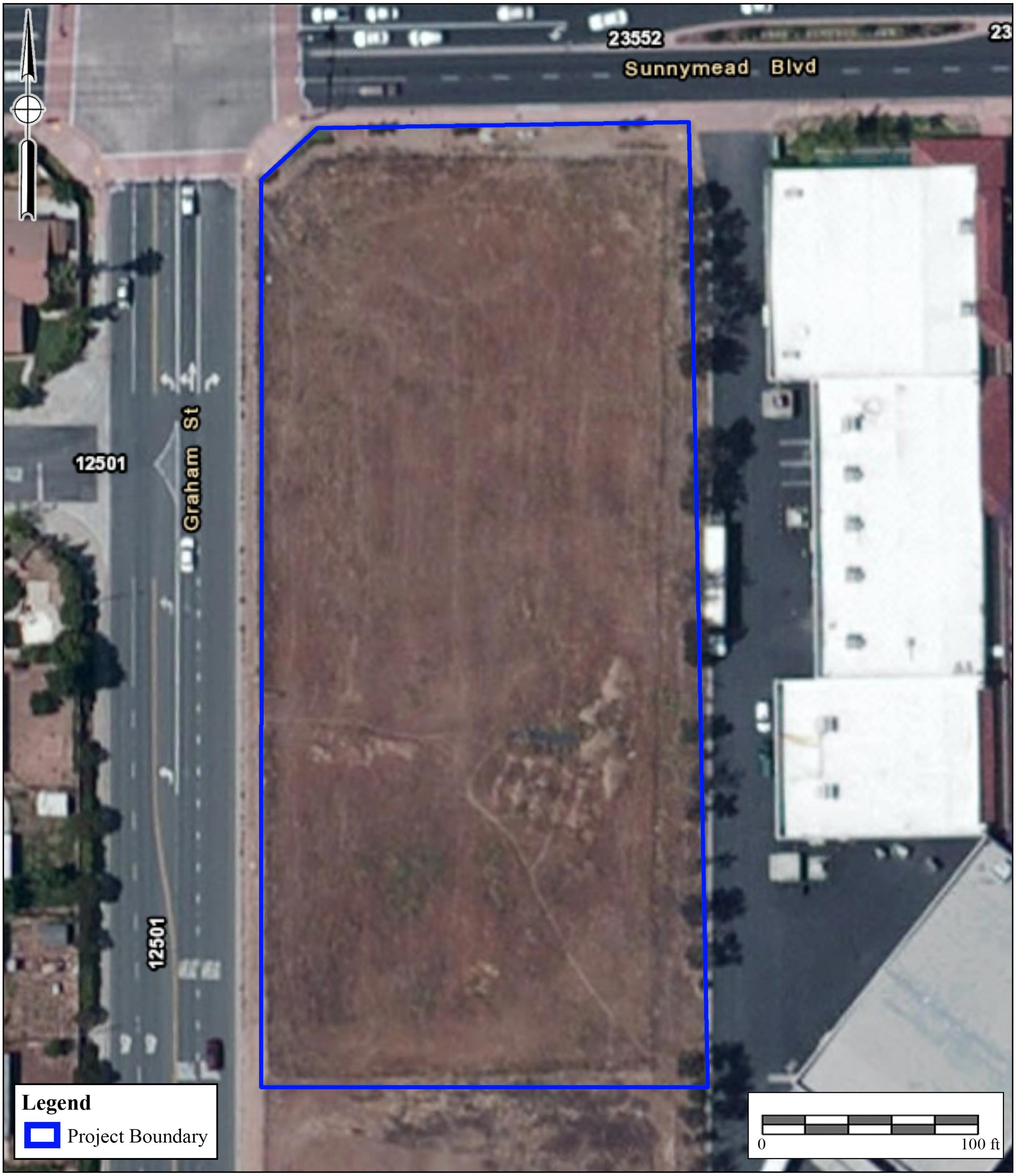

Figure 2.0–3

Project Location Shown on Aerial Imagery

The Go Fresh Gas Station Project

3.0 PROJECT SETTING

The project setting includes the natural physical, geological, and biological contexts of the proposed project, as well as the cultural setting of prehistoric and historic human activities in the general area. The following sections discuss the environmental and cultural settings at the subject property, the relationship between the two, and the relevance of that relationship to the project.

3.1 Environmental Setting

Riverside County lies in the Peninsular Ranges Geologic Province of southern California. The range, which lies in a northwest to southeast trend through the county, extends some 1,000 miles from the Raymond-Malibu Fault Zone in western Los Angeles County to the southern tip of Baja California. The subject property is located northwest of the Perris Reservoir in Moreno Valley, southeast of the Box Springs Mountains. The project is relatively flat, with an elevation of approximately 1,635 feet above mean sea level, and has been disked and disturbed by past agricultural activities. The property also appears to have been previously graded and exhibits non-native weeds and grasses that are approximately two to six inches in height. A row of eucalyptus trees is located along the eastern project boundary, separating it from a commercial shopping center.

3.2 Cultural Setting

Paleo Indian, Archaic Period Milling Stone Horizon, and the Late Prehistoric Takic groups are the three general cultural periods represented in Riverside County. The following discussion of the cultural history of Riverside County references the San Dieguito Complex, Encinitas Tradition, Milling Stone Horizon, La Jolla Complex, Pauma Complex, and San Luis Rey Complex, since these culture sequences have been used to describe archaeological manifestations in the region. The Late Prehistoric component in Riverside County was represented by the Cahuilla, Gabrielino, and Luiseño Indians.

Absolute chronological information, where possible, will be incorporated into this discussion to examine the effectiveness of continuing to interchangeably use these terms. Reference will be made to the geologic framework that divides the culture chronology of the area into four segments: the late Pleistocene (20,000 to 10,000 years before the present [YBP]), the early Holocene (10,000 to 6,650 YBP), the middle Holocene (6,650 to 3,350 YBP), and the late Holocene (3,350 to 200 YBP).

3.2.1 Paleo Indian Period (Late Pleistocene: 11,500 to circa 9,000 YBP)

The Paleo Indian Period is associated with the terminus of the late Pleistocene (12,000 to 10,000 YBP). The environment during the late Pleistocene was cool and moist, which allowed for glaciation in the mountains and the formation of deep, pluvial lakes in the deserts and basin lands (Moratto 1984). However, by the terminus of the late Pleistocene, the climate became warmer, which caused the glaciers to melt, sea levels to rise, greater coastal erosion, large lakes to recede and evaporate, extinction of Pleistocene megafauna, and major vegetation changes (Moratto 1984; Martin 1967, 1973; Fagan 1991). The coastal shoreline at 10,000 YBP, depending upon the particular area of the coast, was near the 30-meter isobath, or two to six kilometers further west than its present location (Masters 1983).

Paleo Indians were likely attracted to multiple habitat types, including mountains, marshlands, estuaries, and lakeshores. These people likely subsisted using a more generalized hunting, gathering, and collecting adaptation utilizing a variety of resources including birds, mollusks, and both large and small mammals (Erlandson and Colten 1991; Moratto 1984; Moss and Erlandson 1995).

3.2.2 Archaic Period (Early and Middle Holocene: circa 9,000 to 1,300 YBP)

Between 9,000 and 8,000 YBP, a widespread complex was established in the southern California region, primarily along the coast (Warren and True 1961). This complex is locally known as the La Jolla Complex (Rogers 1939; Moriarty 1966), which is regionally associated with the Encinitas Tradition (Warren 1968) and shares cultural components with the widespread Milling Stone Horizon (Wallace 1955). The coastal expression of this complex appeared in the southern California coastal areas and focused upon coastal resources and the development of deeply stratified shell middens that were primarily located around bays and lagoons. The older sites associated with this expression are located at Topanga Canyon, Newport Bay, Agua Hedionda Lagoon, and some of the Channel Islands. Radiocarbon dates from sites attributed to this complex span a period of over 7,000 years in this region, beginning over 9,000 YBP.

The Encinitas Tradition is best recognized for its pattern of large coastal sites characterized by shell middens, grinding tools that are closely associated with the marine resources of the area, cobble-based tools, and flexed human burials (Shumway et al. 1961; Smith and Moriarty 1985). While ground stone tools and scrapers are the most recognized tool types, coastal Encinitas Tradition sites also contain numerous utilized flakes, which may have been used to pry open shellfish. Artifact assemblages at coastal sites indicate a subsistence pattern focused upon shellfish collection and nearshore fishing. This suggests an incipient maritime adaptation with regional similarities to more northern sites of the same period (Koerper et al. 1986). Other artifacts associated with Encinitas Tradition sites include stone bowls, doughnut stones, discoidals, stone balls, and stone, bone, and shell beads.

The coastal lagoons in southern California supported large Milling Stone Horizon populations circa 6,000 YBP, as is shown by numerous radiocarbon dates from the many sites adjacent to the lagoons. The ensuing millennia were not environmentally stable, and by 3,000 YBP, many of the coastal sites in central San Diego County had been abandoned (Gallegos 1987, 1992). The abandonment of the area is usually attributed to the sedimentation of coastal lagoons and the resulting deterioration of fish and mollusk habitat, which is a well-documented situation at Batiquitos Lagoon (Miller 1966; Gallegos 1987). Over a two-thousand-year period at Batiquitos

Lagoon, dominant mollusk species occurring in archaeological middens shift from deep-water mollusks (*Argopecten* sp.) to species tolerant of tidal flat conditions (*Chione* sp.), indicating water depth and temperature changes (Miller 1966; Gallegos 1987).

This situation likely occurred for other small drainages (Buena Vista, Agua Hedionda, San Marcos, and Escondido creeks) along the central San Diego coast where low flow rates did not produce sufficient discharge to flush the lagoons they fed (Buena Vista, Agua Hedionda, Batiquitos, and San Elijo lagoons) (Byrd 1998). Drainages along the northern and southern San Diego coastline were larger and flushed the coastal hydrological features they fed, keeping them open to the ocean and allowing for continued human exploitation (Byrd 1998). Peñasquitos Lagoon exhibits dates as late as 2,355 YBP (Smith and Moriarty 1985) and San Diego Bay showed continuous occupation until the close of the Milling Stone Horizon (Gallegos and Kyle 1988). Additionally, data from several drainages in Marine Corps Base Camp Pendleton indicate a continued occupation of shell midden sites until the close of the period, indicating that coastal sites were not entirely abandoned during this time (Byrd 1998).

By 5,000 YBP, an inland expression of the La Jolla Complex is evident in the archaeological record, exhibiting influences from the Campbell Tradition from the north. These inland Milling Stone Horizon sites have been termed "Pauma Complex" (True 1958; Warren et al. 1961; Meighan 1954). By definition, Pauma Complex sites share a predominance of grinding implements (manos and metates), lack mollusk remains, have greater tool variety (including atlatl dart points, quarry-based tools, and crescentics), and seem to express a more sedentary lifestyle with a subsistence economy based upon the use of a broad variety of terrestrial resources. Although originally viewed as a separate culture from the coastal La Jolla Complex (True 1980), it appears that these inland sites may be part of a subsistence and settlement system utilized by the coastal peoples. Evidence from the 4S Project in inland San Diego County suggests that these inland sites may represent seasonal components within an annual subsistence round by La Jolla Complex populations (Raven-Jennings et al. 1996). Including both coastal and inland sites of this time period in discussions of the Encinitas Tradition, therefore, provides a more complete appraisal of the settlement and subsistence system exhibited by this cultural complex.

More recent work by Sutton has identified a more localized complex known as the Greven Knoll Complex. The Greven Knoll Complex is a redefined northern inland expression of the Encinitas Tradition first put forth by Mark Sutton and Jill Gardener (2010). Sutton and Gardner (2010:25) state that "[t]he early millingstone archaeological record in the northern portion of the interior southern California was not formally named but was often referred to as 'Inland Millingstone,' 'Encinitas,' or even 'Topanga.'" Therefore, they proposed that all expressions of the inland Milling Stone in southern California north of San Diego County be grouped together in the Greven Knoll Complex.

The Greven Knoll Complex, as postulated by Sutton and Gardener (2010), is broken into three phases and obtained its name from the type-site Greven Knoll located in Yucaipa, California. Presently, the Greven Knoll Site is part of the Yukaipa't Site (SBR-1000) and was combined with the adjacent Simpson Site. Excavations at Greven Knoll recovered manos, metates, projectile points, discoidal cogged stones, and a flexed inhumation with a possible cremation (Kowta 1969:39). It is believed that the Greven Knoll Site was occupied between 5,000 and 3,500 YBP. The Simpson Site contained mortars, pestles, side-notched points, and stone and shell beads. Based upon the data recovered at these sites, Kowta (1969:39) suggested that "coastal Milling Stone Complexes extended to and interdigitated with the desert Pinto Basin Complex in the vicinity of the Cajon Pass."

Phase I of the Greven Knoll Complex is generally dominated by the presence of manos and metates, core tools, hammerstones, large dart points, flexed inhumations, and occasional cremations. Mortars and pestles are absent from this early phase, and the subsistence economy emphasized hunting. Sutton and Gardener (2010:26) propose that the similarity of the material culture of Greven Knoll Phase I and that found in the Mojave Desert at Pinto Period sites indicates that the Greven Knoll Complex was influenced by neighbors to the north at that time. Accordingly, Sutton and Gardener (2010) believe that Greven Knoll Phase I may have appeared as early as 9,400 YBP and lasted until about 4,000 YBP.

Greven Knoll Phase II is associated with a period between 4,000 and 3,000 YBP. Artifacts common to Greven Knoll Phase II include manos and metates, Elko points, core tools, and discoidals. Pestles and mortars are present; however, they are only represented in small numbers. Finally, there is an emphasis upon hunting and gathering for subsistence (Sutton and Gardner 2010:8).

Greven Knoll Phase III includes manos, metates, Elko points, scraper planes, choppers, hammerstones, and discoidals. Again, small numbers of mortars and pestles are present. Greven Knoll Phase III spans from approximately 3,000 to 1,000 YBP and shows a reliance upon seeds and yucca. Hunting is still important, but bones seem to have been processed to obtain bone grease more often in this later phase (Sutton and Gardner 2010:8).

The shifts in food processing technologies during each of these phases indicate a change in subsistence strategies; although people were still hunting for large game, plant-based foods eventually became the primary dietary resource (Sutton 2011a). Sutton's (2011b) argument posits that the development of mortars and pestles during the middle Holocene can be attributed to the year-round exploitation of acorns as a main dietary provision. Additionally, the warmer and drier climate may have been responsible for groups from the east moving toward coastal populations, which is archaeologically represented by the interchange of coastal and eastern cultural traits (Sutton 2011a).

3.2.3 Late Prehistoric Period (Late Holocene: 1,300 YBP to 1790)

Many Luiseño hold the world view that as a population they were created in southern California; however, archaeological and anthropological data proposes a scientific perspective. Archaeological and anthropological evidence suggests that at approximately 1,350 YBP, Takic-speaking groups from the Great Basin region moved into Riverside County, marking the transition to the Late Prehistoric Period. An analysis of the Takic expansion by Sutton (2009) indicates that inland southern California was occupied by "proto-Yuman" populations before 1,000 YBP. The comprehensive, multi-phase model offered by Sutton (2009) employs linguistic, ethnographic, archaeological, and biological data to solidify a reasonable argument for population replacement of Takic groups to the north by Penutians (Laylander 1985). As a result, it is believed that Takic expansion occurred starting around 3,500 YBP moving toward southern California, with the Gabrielino language diffusing south into neighboring Yuman (Hokan) groups around 1,500 to 1,000 YBP, possibly resulting in the Luiseño dialect.

Based upon Sutton's model, the final Takic expansion would not have occurred until about 1,000 YBP, resulting in Vanyume, Serrano, Cahuilla, and Cupeño dialects. The model suggests that the Luiseño did not simply replace Hokan speakers, but were rather a northern San Diego County/southern Riverside County Yuman population who adopted the Takic language. This period is characterized by higher population densities and elaborations in social, political, and technological systems. Economic systems diversified and intensified during this period with the continued elaboration of trade networks, the use of shell-bead currency, and the appearance of more labor-intensive, yet effective, technological innovations. Technological developments during this period included the introduction of the bow and arrow between A.D. 400 and 600 and the introduction of ceramics. Atlatl darts were replaced by smaller arrow darts, including Cottonwood series points. Other hallmarks of the Late Prehistoric Period include extensive trade networks as far-reaching as the Colorado River Basin and cremation of the dead.

3.2.4 Protohistoric Period (Late Holocene: 1790 to Present)

Ethnohistoric and ethnographic evidence indicates that three Takic-speaking groups occupied portions of Riverside County: the Cahuilla, the Gabrielino, and the Luiseño. The geographic boundaries between these groups in pre- and proto-historic times are difficult to place, but the project is located within the borders of ethnographic Cahuilla territory. Ethnographic data for the three groups is presented below.

Cahuilla

At the time of Spanish contact in the sixteenth century, the Cahuilla occupied territory that included the San Bernardino Mountains, Orocopia Mountain, and the Chocolate Mountains to the west, Salton Sea and Borrego Springs to the south, Palomar Mountain and Lake Mathews to the west, and the Santa Ana River to the north. The Cahuilla are a Takic-speaking people closely related to their Gabrielino and Luiseño neighbors, although relations with the Gabrielino were more intense than with the Luiseño. They differ from the Luiseño and Gabrielino in that their religion is more similar to the Mohave tribes of the eastern deserts than the Chingichngish religious group of the Luiseño and Gabrielino. The following is a summary of ethnographic data regarding this group (Bean 1978; Kroeber 1976).

Subsistence and Settlement

Cahuilla villages were typically permanent and located on low terraces within canyons in proximity to water sources. These locations proved to be rich in food resources and also afforded protection from prevailing winds. Villages had areas that were publicly owned and areas that were privately owned by clans, families, or individuals. Each village was associated with a particular lineage and series of sacred sites that included unique petroglyphs and pictographs. Villages were occupied throughout the year; however, during a several-week period in the fall, most of the village members relocated to mountain oak groves to take part in acorn harvesting (Bean 1978; Kroeber 1976).

The Cahuilla's use of plant resources is well documented. Plant foods harvested by the Cahuilla included valley oak acorns and single-leaf pinyon pine nuts. Other important plant species included bean and screw mesquite, agave, Mohave yucca, cacti, palm, chia, quail brush, yellowray goldfield, goosefoot, manzanita, catsclaw, desert lily, mariposa lily, and a number of other species such as grass seed. A number of agricultural domesticates were acquired from the Colorado River tribes including corn, bean, squash, and melon grown in limited amounts. Animal species taken included deer, bighorn sheep, pronghorn antelope, rabbit, hare, rat, quail, dove, duck, roadrunner, and a variety of rodents, reptiles, fish, and insects (Bean 1978; Kroeber 1976).

Social Organization

The Cahuilla was not a political nation, but rather a cultural nationality with a common language. Two non-political, non-territorial patrimoieties were recognized, the Wildcats (túktem) and the Coyotes (?ístam). Lineage and kinship were memorized at a young age among the Cahuilla, providing a backdrop for political relationships. Clans were composed of three to 10 lineages; each lineage owned a village site and specific resource areas. Lineages within a clan cooperated in subsistence activities, defense, and rituals (Bean 1978; Kroeber 1976).

A system of ceremonial hierarchy operated within each lineage. The hierarchy included the lineage leader, who was responsible for leading subsistence activities, guarding the sacred bundle, and negotiating with other lineage leaders in matters concerning land use, boundary disputes, marriage arrangements, trade, warfare, and ceremonies. The ceremonial assistant to the lineage leader was responsible for organizing ceremonies. A ceremonial singer possessed and performed songs at rituals and trained assistant singers. The shaman cured illnesses through supernatural powers, controlled natural phenomena, and was the guardian of ceremonies, keeping evil spirits away. The diviner was responsible for finding lost objects, telling future events, and locating game and other food resources. Doctors were usually older women who cured various ailments and illnesses with their knowledge of medicinal herbs. Finally, certain Cahuilla specialized as traders, who ranged as far west as Santa Catalina and as far east as the Gila River (Bean 1978; Kroeber 1976).

Marriages were arranged by parents from opposite moieties. When a child was born, an alliance formed between the families, which included frequent reciprocal exchanges. The Cahuilla kinship system extended to relatives within five generations. Important economic decisions, primarily the distribution of goods, operated within this kinship system (Bean 1978; Kroeber 1976).

Material Culture

Cahuilla houses were dome-shaped or rectangular, thatched structures. The home of the lineage leader was the largest, located near the ceremonial house with the best access to water. Other structures within the village included the men's sweathouse and granaries (Bean 1978; Kroeber 1976).

Cahuilla clothing, like other groups in the area, was minimal. Men typically wore a loincloth and sandals; women wore skirts made from mesquite bark, animal skin, or tules. Babies wore mesquite bark diapers. Rabbit skin cloaks were worn in cold weather (Bean 1978; Kroeber 1976).

Hunting implements included the bow and arrow, throwing sticks, and clubs. Grinding tools used in food processing included manos, metates, and wooden mortars. The Cahuilla were known to use long, wood, grinding implements to process mesquite beans; the mortar was typically a hollowed wooden log buried in the ground. Other tools included steatite arrow shaft straighteners (Bean 1978; Kroeber 1976).

Baskets were made from rush, deer grass, and skunkbush. Different species and leaves were chosen for different colors in the basket design. Coiled-ware baskets were either flat (for plates, trays, or winnowing), bowl-shaped (for food serving), deep, inverted, and cone-shaped (for transporting), or rounded and flat-bottomed for storing utensils and personal items (Bean 1978; Kroeber 1976).

Cahuilla pottery was made from a thin, red-colored ceramic ware that was often painted and incised. Four basic vessel types are known for the Cahuilla: small-mouthed jars, cooking pots, bowls, and dishes. Additionally, smoking pipes and flutes were fashioned from ceramic (Bean 1978; Kroeber 1976).

<u>Luiseño</u>

This group was a seasonal hunting and gathering people with cultural elements that were very distinct from Archaic Period peoples. These distinctions include cremation of the dead, the use of the bow and arrow, and exploitation of the acorn as a main food staple (Moratto 1984). Along the coast, the Luiseño made use of available marine resources by fishing and collecting mollusks for food. Seasonally available terrestrial resources, including acorns and game, were also sources of nourishment for Luiseño groups. Elaborate kinship and clan systems between the Luiseño and other groups facilitated a wide-reaching trade network that included trade of Obsidian Butte obsidian and other resources from the eastern deserts, as well as steatite from the Channel Islands.

According to Charles Handley (1967), the primary settlements of Late Prehistoric Luiseño Indians in the San Jacinto Plain were represented by Ivah and Soboba near Soboba Springs, Jusipah near the town of San Jacinto, Ararah in Webster's Canyon en route to Idyllwild, Pahsitha near Big Springs Ranch southeast of Hemet, and Corova in Castillo Canyon. These locations share features such as the availability of food and water resources. Features of this land use include petroglyphs and pictographs, as well as widespread milling, which is evident in bedrock and portable implements.

When contacted by the Spanish in the sixteenth century, the Luiseño occupied a territory bounded on the west by the Pacific Ocean, on the east by the Peninsular Ranges mountains at San Jacinto (including Palomar Mountain to the south and Santiago Peak to the north), on the south by Agua Hedionda Lagoon, and on the north by Aliso Creek in present-day San Juan Capistrano. The Luiseño were a Takic-speaking people more closely related linguistically and ethnographically to the Cahuilla, Gabrielino, and Cupeño to the north and east rather than the Kumeyaay who occupied territory to the south. The Luiseño differed from their neighboring Takic speakers in having an extensive proliferation of social statuses, a system of ruling families that provided ethnic cohesion within the territory, a distinct worldview that stemmed from the use of datura (a hallucinogen), and an elaborate religion that included the creation of sacred sand paintings depicting the deity Chingichngish (Bean and Shipek 1978; Kroeber 1976).

Subsistence and Settlement

The Luiseño occupied sedentary villages most often located in sheltered areas in valley bottoms, along streams, or along coastal strands near mountain ranges. Villages were located near water sources to facilitate acorn leaching and in areas that offered thermal and defensive protection. Villages were composed of areas that were publicly and privately (by family) owned. Publicly owned areas included trails, temporary campsites, hunting areas, and quarry sites. Inland groups had fishing and gathering sites along the coast that were used intensively from January to March when inland food resources were scarce. During October and November, most of the village would relocate to mountain oak groves to harvest acorns. The Luiseño remained at village sites for the remainder of the year, where food resources were within a day's travel (Bean and Shipek 1978; Kroeber 1976).

The most important food source for the Luiseño was the acorn, six different species of which were used (*Quercus californica, Quercus agrifolia, Quercus chrysolepis, Quercus dumosa, Quercus engelmannii,* and *Quercus wislizenii*). Seeds, particularly of grasses, flowering plants, and mints, were also heavily exploited. Seed-bearing species were encouraged through controlled burns, which were conducted at least every third year. A variety of other stems, leaves, shoots, bulbs, roots, and fruits were also collected. Hunting augmented this vegetal diet. Animal species taken included deer, rabbit, hare, woodrat, ground squirrel, antelope, quail, duck, freshwater fish from mountain streams, marine mammals, and other sea creatures such as fish, crustaceans, and mollusks (particularly abalone, or *Haliotis* sp.). In addition, a variety of snakes, small birds, and rodents were eaten (Bean and Shipek 1978; Kroeber 1976).

Social Organization

Social groups within the Luiseño nation consisted of patrilinear families or clans, which were politically and economically autonomous. Several clans comprised a religious party, or nota, which was headed by a chief who organized ceremonies and controlled economics and warfare. The chief had assistants who specialized in particular aspects of ceremonial or environmental knowledge and who, with the chief, were part of a religion-based social group with special access to supernatural power, particularly that of Chingichngish. The positions of chief and assistants were hereditary, and the complexity and multiplicity of these specialists' roles likely increased in coastal and larger inland villages (Bean and Shipek 1978; Kroeber 1976; Strong 1929).

Marriages were arranged by the parents, often made to forge alliances between lineages. Useful alliances included those between groups of differing ecological niches and those that resulted in territorial expansion. Residence was patrilocal (Bean and Shipek 1978; Kroeber 1976). Women were primarily responsible for plant gathering, and men principally hunted, although at times, particularly during acorn and marine mollusk harvests, there was no division of labor. Elderly women cared for children and elderly men participated in rituals, ceremonies, and political affairs. They were also responsible for manufacturing hunting and ritual implements. Children were taught subsistence skills at the earliest age possible (Bean and Shipek 1978; Kroeber 1976).

Material Culture

House structures were conical, partially subterranean, and thatched with reeds, brush, or bark. Ramadas were rectangular, protected workplaces for domestic chores such as cooking. Ceremonial sweathouses were important in purification rituals; these were round and partially subterranean thatched structures covered with a layer of mud. Another ceremonial structure was the wámkis (located in the center of the village, serving as the place of rituals), where sand paintings and other rituals associated with the Chingichngish religious group were performed (Bean and Shipek 1978; Kroeber 1976).

Clothing was minimal; women wore a cedar-bark and netted twine double apron and men wore a waist cord. In cold weather, cloaks or robes of rabbit fur, deerskin, or sea otter fur were worn by both sexes. Footwear included deerskin moccasins and sandals fashioned from yucca fibers. Adornments included bead necklaces and pendants made of bone, clay, stone, shell, bear claw, mica, deer hooves, and abalone shell. Men wore ear and nose piercings made from cane or bone, which were sometimes decorated with beads. Other adornments were commonly decorated with semiprecious stones including quartz, topaz, garnet, opal, opalite, agate, and jasper (Bean and Shipek 1978; Kroeber 1976).

Hunting implements included the bow and arrow. Arrows were tipped with either a carved, fire-hardened wooden tip or a lithic point, usually fashioned from locally available metavolcanic material or quartz. Throwing sticks fashioned from wood were used in hunting small game, while deer head decoys were used during deer hunts. Coastal groups fashioned dugout canoes for nearshore fishing and harvested fish with seines, nets, traps, and hooks made of bone or abalone shell (Bean and Shipek 1978; Kroeber 1976).

The Luiseño had a well-developed basket industry. Baskets were used in resource gathering, food preparation, storage, and food serving. Ceramic containers were shaped by paddle and anvil and fired in shallow, open pits to be used for food storage, cooking, and serving. Other utensils included wood implements, steatite bowls, and ground stone manos, metates, mortars, and pestles (Bean and Shipek 1978; Kroeber 1976). Additional tools such as knives, scrapers, choppers, awls, and drills were also used. Shamanistic items include soapstone or clay smoking pipes and crystals made of quartz or tourmaline (Bean and Shipek 1978; Kroeber 1976).

<u>*Gabrielino*</u>

The territory of the Gabrielino at the time of Spanish contact covers much of present-day Los Angeles and Orange counties. The southern extent of this culture area is bounded by Aliso Creek, the eastern extent is located east of present-day San Bernardino along the Santa Ana River, the northern extent includes the San Fernando Valley, and the western extent includes portions of the Santa Monica Mountains. The Gabrielino also occupied several Channel Islands including Santa Barbara Island, Santa Catalina Island, San Nicholas Island, and San Clemente Island. Because of their access to certain resources, including a steatite source from Santa Catalina Island, this group was among the wealthiest and most populous aboriginal groups in all of southern California. Trade of materials and resources controlled by the Gabrielino extended as far north as the San Joaquin Valley, as far east as the Colorado River, and as far south as Baja California (Bean and Smith 1978; Kroeber 1976).

Subsistence and Settlement

The Gabrielino lived in permanent villages and smaller resource-gathering camps occupied at various times of the year depending upon the seasonality of the resource. Larger villages were comprised of several families or clans, while smaller, seasonal camps typically housed smaller family units. The coastal area between San Pedro and Topanga Canyon was the location of primary subsistence villages, while secondary sites were located near inland sage stands, oak groves, and pine forests. Permanent villages were located along rivers and streams and in sheltered areas along the coast. As previously mentioned, the Channel Islands were also the locations of relatively large settlements (Bean and Smith 1978; Kroeber 1976).

Resources procured along the coast and on the islands were primarily marine in nature and included tuna, swordfish, ray and shark, California sea lion, Stellar sea lion, harbor seal, northern elephant seal, sea otter, dolphin and porpoise, various waterfowl species, numerous fish species, purple sea urchin, and mollusks, such as rock scallop, California mussel, and limpet. Inland resources included oak acorn, pine nut, Mohave yucca, cacti, sage, grass nut, deer, rabbit, hare, rodent, quail, duck, and a variety of reptiles such as western pond turtle and numerous snake species (Bean and Smith 1978; Kroeber 1976).

Social Organization

The social structure of the Gabrielino is little known; however, there appears to have been at least three social classes: 1) the elite, which included the rich, chiefs, and their immediate family; 2) a middle class, which included people of relatively high economic status or long-established lineages; and 3) a class of people that included most other individuals in the society. Villages were politically autonomous units comprised of several lineages. During times of the year when certain seasonal resources were available, the village would divide into lineage groups and move out to exploit them, returning to the village between forays (Bean and Smith 1978; Kroeber 1976).

Each lineage had its own leader, with the village chief coming from the dominant lineage. Several villages might be allied under a paramount chief. Chiefly positions were of an ascribed status, most often passed to the eldest son. Chiefly duties included providing village cohesion, leading warfare and peace negotiations with other groups, collecting tribute from the village(s) under his jurisdiction, and arbitrating disputes within the village(s). The status of the chief was legitimized by his safekeeping of the sacred bundle, a representation of the link between the material and spiritual realms and the embodiment of power (Bean and Smith 1978; Kroeber 1976).

Shamans were leaders in the spirit realm. The duties of the shaman included conducting healing and curing ceremonies, guarding the sacred bundle, locating lost items, identifying and collecting poisons for arrows, and making rain (Bean and Smith 1978; Kroeber 1976).

Marriages were made between individuals of equal social status and, in the case of powerful lineages, marriages were arranged to establish political ties between the lineages (Bean and Smith 1978; Kroeber 1976).

Men conducted the majority of the heavy labor, hunting, fishing, and trading with other groups. Women's duties included gathering and preparing plant and animal resources, and making baskets, pots, and clothing (Bean and Smith 1978; Kroeber 1976).

Material Culture

Gabrielino houses were domed, circular structures made of thatched vegetation. Houses varied in size and could house from one to several families. Sweathouses (semicircular, earth-covered buildings) were public structures used in male social ceremonies. Other structures included menstrual huts and a ceremonial structure called a yuvar, an open-air structure built near the chief's house (Bean and Smith 1978; Kroeber 1976).

Clothing was minimal; men and children most often went naked, while women wore deerskin or bark aprons. In cold weather, deerskin, rabbit fur, or bird skin (with feathers intact) cloaks were worn. Island and coastal groups used sea otter fur for cloaks. In areas of rough terrain, yucca fiber sandals were worn. Women often used red ochre on their faces and skin for adornment or protection from the sun. Adornment items included feathers, fur, shells, and beads (Bean and Smith 1978; Kroeber 1976).

Hunting implements included wooden clubs, sinew-backed bows, slings, and throwing clubs. Maritime implements included rafts, harpoons, spears, hook and line, and nets. A variety of other tools included deer scapulae saws, bone and shell needles, bone awls, scrapers, bone or shell flakers, wedges, stone knives and drills, metates, mullers, manos, shell spoons, bark platters, and wooden paddles and bowls. Baskets were made from rush, deer grass, and skunkbush. Baskets were fashioned for hoppers, plates, trays, and winnowers for leaching, straining, and gathering. Baskets were also used for storing, preparing, and serving food, and for keeping personal and ceremonial items (Bean and Smith 1978; Kroeber 1976).

The Gabrielino had exclusive access to soapstone, or steatite, procured from Santa Catalina Island quarries. This highly prized material was used for making pipes, animal carvings, ritual objects, ornaments, and cooking utensils. The Gabrielino profited well from trading steatite since it was valued so much by groups throughout southern California (Bean and Smith 1978; Kroeber 1976).

3.2.5 Ethnohistoric Period (1769 to Present)

European exploration along the California coast began in 1542 with the landing of Juan Rodriguez Cabrillo and his men at San Diego Bay. Sixty years after the Cabrillo expeditions, an expedition under Sebastian Viscaíno made an extensive and thorough exploration of the Pacific coast. Although the voyage did not extend beyond the northern limits of the Cabrillo track, Viscaíno had the most lasting effect upon the nomenclature of the coast. Many of the names he gave to various locations have survived, whereas practically every one of the names given by Cabrillo has faded from use. For instance, Cabrillo gave the name "San Miguel" to the first port he stopped at in what is now the United States; 60 years later, Viscaíno changed it to "San Diego" (Rolle 1969). The early European voyages observed Native Americans living in villages along the coast but did not make any substantial, long-lasting impact. At the time of contact, the Luiseño population was estimated to have ranged from 4,000 to as many as 10,000 individuals (Bean and Shipek 1978; Kroeber 1976).

3.2.6 Historic Period

The historic background of the project area began with the Spanish colonization of Alta California. The first Spanish colonizing expedition reached southern California in 1769 with the intention of converting and civilizing the indigenous populations and expanding the knowledge of and access to new resources in the region (Brigandi 1998). In the late eighteenth century, the San Gabriel (Los Angeles County), San Juan Capistrano (Orange County), and San Luis Rey (San Diego County) missions began colonizing southern California, gradually expanding their use of the interior valley (into what is now western Riverside County) for raising grain and cattle to support the missions (Riverside County n.d.). The San Gabriel Mission claimed lands in what is now Jurupa, Riverside, San Jacinto, and the San Gorgonio Pass, while the San Luis Rey Mission claimed land in what is now Lake Elsinore, Temecula, and Murrieta (American Local History

Network: Riverside County, California 1998). The indigenous groups who occupied these lands were recruited by missionaries, converted, and put to work in the missions (Pourade 1964). Throughout this period, the Native American populations were decimated by introduced diseases, a drastic shift in diet resulting in poor nutrition, and social conflicts due to the introduction of an entirely new social order (Cook 1976).

In the mid- to late 1770s, Juan Bautista de Anza passed through much of Riverside County while searching for an overland route from Sonora, Mexico to San Gabriel and Los Angeles, describing fertile valleys, lakes, and sub-desert areas (American Local History Network: Riverside County, California 1998; Riverside County n.d.). In 1797, Father Presidente Lausen, Father Norberto de Santiago, and Corporal Pedro Lisalde led an expedition from Mission San Juan Capistrano through southwestern Riverside County in search of a new mission site before constructing Mission San Luis Rey in northern San Diego County (Brigandi 1998). While no missions were ever built in what would become Riverside County (American Local History Network: Riverside County, California 1998), many mission outposts, or asistencias, were established in the early years of the nineteenth century to extend the missions' influence to the backcountry (Brigandi 1998). Two outposts located in Riverside County include San Jacinto and Temecula.

Mexico gained independence in 1822 and desecularized the missions in 1832, signifying the end of the Mission Period (Brigandi 1998; Riverside County n.d.). By this time, the missions owned some of the best and most fertile land in southern California. In order for California to develop, the land would have to be made productive enough to turn a profit (Brigandi 1998). The new government began distributing the vast mission holdings to wealthy and politically connected Mexican citizens. The "grants" were called "ranchos," of which Jurupa, El Rincon, La Sierra, El Sobrante de San Jacinto, La Laguna (Lake Elsinore), Santa Rosa, Temecula, Pauba, San Jacinto Nuevo y Potrero, and San Jacinto Viejo were located in present-day Riverside County. Many of these ranchos have lent their names to modern-day locales (American Local History Network: Riverside County, California 1998). The first grant in present-day Riverside County, Rancho Jurupa, was given to Juan Bandini in 1838. These ranchos were all located in the valley environments typical of western Riverside County.

The treatment of Native Americans grew worse during the Rancho Period. Most of the Native Americans were forced off of their land or put to work on the now privately-owned ranchos, most often as slave labor. In light of the brutal ranchos, the degree to which Native Americans had become dependent upon the mission system is evident when, in 1838, a group of Native Americans from the San Luis Rey Mission petitioned government officials in San Diego to relieve suffering at the hands of the rancheros:

> We have suffered incalculable losses, for some of which we are in part to be blamed for because many of us have abandoned the Mission … We plead and beseech you … to grant us a Rev. Father for this place. We have been accustomed to the Rev.

> Fathers and to their manner of managing the duties. We labored under their intelligent directions, and we were obedient to the Fathers according to the regulations, because we considered it as good for us. (Brigandi 1998:21)

Native American culture had been disrupted to the point where they could no longer rely upon prehistoric subsistence and social patterns. Not only does this illustrate how dependent the Native Americans had become upon the missionaries, but it also indicates a marked contrast in the way the Spanish treated the Native Americans compared to the Mexican and United States ranchers. Spanish colonialism (missions) is based upon utilizing human resources while integrating them into their society. The Mexican and American ranchers did not accept Native Americans into their social order and used them specifically for the extraction of labor, resources, and profit. Rather than being incorporated, they were either subjugated or exterminated (Cook 1976).

In 1846, war erupted between Mexico and the United States. In 1848, with the signing of the Treaty of Guadalupe Hidalgo, the region was annexed as a territory of the United States, leading to California became a state in 1850. These events generated a steady flow of settlers into the area, including gold miners, entrepreneurs, health-seekers, speculators, politicians, adventurers, seekers of religious freedom, and individuals desiring to create utopian colonies.

In early 1852, the Native Americans of southern Riverside County, including the Luiseño and the Cahuilla, thought they had signed a treaty resulting in their ownership of all lands from Temecula to Aguanga east to the desert, including the San Jacinto Valley and the San Gorgonio Pass. The Temecula Treaty also included food and clothing provisions for the Native Americans. However, Congress never ratified the treaties, and the promise of one large reservation was rescinded (Brigandi 1998).

With the completion of the transcontinental railroad in 1869, land speculators, developers, and colonists began to invest in southern California. The first colony in what was to become Riverside County was Riverside itself. Judge John Wesley North, an abolitionist from Tennessee, brought a group of associates and co-investors out to southern California and founded Riverside on part of the Jurupa Rancho. A few years after, the navel orange was planted and found to be such a success that it quickly became the agricultural staple of the region (American Local History Network: Riverside County, California 1998).

By the late 1880s and early 1890s, there was growing discontent between Riverside and San Bernardino, its neighbor 10 miles to the north, due to differences in opinion concerning religion, morality, the Civil War, politics, and fierce competition to attract settlers. After a series of instances in which charges were claimed about unfair use of tax monies to the benefit of the city of only San Bernardino, several people from Riverside decided to investigate the possibility of a new county. In May 1893, voters living within portions of San Bernardino County (to the north) and San Diego County (to the south) approved the formation of Riverside County. Early business opportunities were linked to the agriculture industry, but commerce, construction, manufacturing, transportation, and tourism also provided a healthy local economy. By the time of Riverside County's formation, Riverside had grown to become the wealthiest city per capita in the country due to the successful cultivation of the navel orange (American Local History Network: Riverside County, California 1998; Riverside County n.d.).

Ranchers and farmers traveled to Riverside County to establish agricultural land. In 1883, pioneer Frank E. Brown formed the Bear Valley Land and Water Company (City of Moreno Valley 2019). Brown constructed a dam at Bear Valley in the San Bernardino Mountains in order to provide water for new communities. On December 3, 1884, the three communities of Moreno, Edgemont, and Sunnymead were merged, officially becoming the City of Moreno Valley ("Moreno" meaning "Brown" in Spanish after Frank E. Brown). In 1891, the formation of the Perris and Alessandro Irrigation District increased demands upon Bear Valley water, resulting in a lawsuit with the City of Redlands. The litigation caused a drought, which severely affected farmers who developed an agricultural base of deciduous and citrus fruit trees. Residents of Moreno Valley were forced to leave the area for a more habitable environment. By 1901, few people remained in the city of Moreno Valley; those who stayed turned to dry farming hay, grain, and grapes. The city maintained the name of "Moreno," serving as a reminder of an empire's vulnerability to such simple needs as water (City of Moreno Valley 2019).

3.3 Applicable Regulations

Resource importance is assigned to districts, sites, buildings, structures, and objects that possess exceptional value or quality illustrating or interpreting the heritage of Riverside County in history, architecture, archaeology, engineering, and culture. A number of criteria are used in demonstrating resource importance. Specifically, criteria outlined in CEQA provide the guidance for making such a determination. The following sections detail the CEQA criteria that a resource must meet in order to be determined important.

3.3.1 California Environmental Quality Act

According to CEQA (§15064.5a), the term "historical resource" includes the following:

1) A resource listed in or determined to be eligible by the State Historical Resources Commission for listing on the California Register of Historical Resources (CRHR) (Public Resources Code [PRC] SS5024.1, Title 14 CCR. Section 4850 et seq.).
2) A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the PRC or identified as significant in a historical resource survey meeting the requirements of Section 5024.1(g) of the PRC, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.
3) Any object, building, structure, site, area, place, record, or manuscript that a lead

agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be a historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically significant" if the resource meets the criteria for listing on the CRHR (PRC SS5024.1, Title 14, Section 4852) including the following:

a) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
b) Is associated with the lives of persons important in our past;
c) 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
d) Has yielded, or may be likely to yield, information important in prehistory or history.

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

According to CEQA (§15064.5b), a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect upon the environment. CEQA defines a substantial adverse change as:

1) Substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.
2) The significance of a historical resource is materially impaired when a project:

a) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for inclusion in, the CRHR;
b) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in a

historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant;

c) Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA.

Section 15064.5(c) of CEQA applies to effects upon archaeological sites and contains the following additional provisions regarding archaeological sites:

1. When a project will impact an archaeological site, a lead agency shall first determine whether the site is a historical resource, as defined in subsection (a).
2. If a lead agency determines that the archaeological site is a historical resource, it shall refer to the provisions of Section 21084.1 of the PRC, Section 15126.4 of the guidelines, and the limits contained in Section 21083.2 of the PRC do not apply.
3. If an archaeological site does not meet the criteria defined in subsection (a) but does meet the definition of a unique archaeological resource in Section 21083.2 of the PRC, the site shall be treated in accordance with the provisions of Section 21083.2. The time and cost limitations described in PRC Section 21083.2 (c-f) do not apply to surveys and site evaluation activities intended to determine whether the project location contains unique archaeological resources.
4. If an archaeological resource is neither a unique archaeological nor historical resource, the effects of the project upon those resources shall not be considered a significant effect upon the environment. It shall be sufficient that both the resource and the effect upon it are noted in the Initial Study or Environmental Impact Report, if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process.

Section 15064.5 (d) and (e) contain additional provisions regarding human remains. Regarding Native American human remains, paragraph (d) provides:

(d) When an initial study identifies the existence of, or the probable likelihood of, Native American human remains within the project, a lead agency shall work with the appropriate Native Americans as identified by the NAHC, as provided in PRC SS5097.98. The applicant may develop an agreement for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American burials with the appropriate Native Americans as identified by the NAHC. Action implementing such an agreement is exempt from:

1) The general prohibition on disinterring, disturbing, or removing human remains from any location other than a dedicated cemetery (Health and Safety Code Section 7050.5).
2) The requirements of CEQA and the Coastal Act.

3.4 Research Design

The primary goal of the research design is to attempt to understand the way in which humans have used the land and resources within the project area through time, as well as to aid in the determination of resource significance. For the current project, the study area under investigation is the city of Moreno Valley in western Riverside County. The scope of work for the archaeological program conducted for the project included the survey of an approximately two-acre property. Given the area involved, the research design for the project was limited and general in nature. Since the main objective of the investigation was to identify the presence of and potential impacts to cultural resources, the goal here is not necessarily to answer wide-reaching theories regarding the development of early southern California, but to investigate the role and importance of the identified resources. Nevertheless, the assessment of the significance of a resource must take into consideration a variety of characteristics, as well as the ability of the resource to address regional research topics and issues.

Although survey-level investigations are limited in terms of the amount of information available, several specific research questions were developed that could be used to guide the initial investigations of any observed cultural resources. The following research questions take into account the size and location of the project area discussed above.

Research Questions:

- Can located cultural resources be situated with a specific time period, population, or individual?
- Do the types of located cultural resources allow a site activity/function to be determined from a preliminary investigation? What are the site activities? What is the site function? What resources were exploited?
- How do the located sites compare to others reported from different surveys conducted in the area?
- How do the located sites fit existing models of settlement and subsistence for valley environments of the region?

<u>*Data Needs*</u>

At the survey level, the principal research objective is a generalized investigation of changing settlement patterns in both the prehistoric and historic periods within the study area. The overall goal is to understand settlement and resource procurement patterns of the project area occupants. Therefore, adequate information on site function, context, and chronology from an archaeological perspective is essential for the investigation. The fieldwork and archival research were undertaken with these primary research goals in mind:

1) To identify cultural resources occurring within the project;
2) To determine, if possible, site type and function, context of the deposit, and chronological placement of each cultural resource identified;
3) To place each cultural resource identified within a regional perspective; and
4) To provide recommendations for the treatment of each of the cultural resources identified.

4.0 METHODOLOGY

The cultural resources assessment conducted for the Go Fresh Gas Station Project consisted of a reconnaissance-level survey of the property by a qualified archaeologist and an institutional records search. This archaeological study conformed to City of Moreno Valley environmental guidelines and the statutory requirements of CEQA were followed in evaluating potential impacts.

4.1 Field Methodology

The cultural resources survey of the project was conducted on November 21, 2019. The intensive pedestrian reconnaissance of the property consisted of a series of parallel transects spaced at approximately 10-meter intervals, which covered all areas of the project. Ground visibility was good to excellent and was only limited due to non-native weeds and grasses. The entire property was accessible and no constraints were encountered. Photographs were taken to document project conditions during the survey (see Section 5.2).

4.2 Records Search

The records search conducted at the EIC at UCR on December 2, 2019 was reviewed for an area of one mile surrounding the project in order to determine the presence of any previously recorded cultural resources. Results of the records search are provided in Appendix B and discussed in Section 5.1. During the EIC records search, a standard review of the National Register of Historic Places (NRHP) and the Office of Historic Preservation (OHP) Historic Property Directory was completed. Land patent records held by the Bureau of Land Management (BLM) and accessible through the BLM General Land Office (GLO) website were also reviewed for pertinent project information. In addition, the BFSA research library and historic aerial photographs were also consulted.

4.3 Report Preparation and Recordation

This report contains information regarding previous studies, statutory requirements for the project, and a brief description of the setting, research methods employed, overall results, and recommendations. The report includes all appropriate illustrations and tabular information needed to make a complete and comprehensive presentation of these activities, including the methodologies employed and the personnel involved. A copy of this report will be placed at the EIC at UCR. Any newly recorded sites or sites requiring updated information will be recorded on the appropriate Department of Parks and Recreation forms, which will be filed with the EIC.

4.4 Native American Consultation

BFSA requested a SLF search from the NAHC, which was negative for Native American sacred sites or locations of religious or ceremonial importance within the general area of the subject property. In accordance with the recommendations of the NAHC, BFSA contacted all Native

American consultants listed in the NAHC response letter to request any relevant information concerning the property. However, this request is not part of any Assembly Bill 52 Native American consultation. As of the date of this report, one response has been received from the San Manuel Band of Mission Indians, who indicate that while the project can be counted as in the tribe's ancestral territory, it is not near any cultural resources that are of concern to the tribe. All correspondence is provided in Appendix C.

5.0 REPORT OF FINDINGS

5.1 Results of the Institutional Records Searches

A records search was conducted by BFSA at the EIC at UCR. The EIC records search indicates that six cultural resources are present within a one-mile radius of the project, none of which are located within the project boundaries. These six cultural resources include four single-family residences, one road alignment, and one bedrock milling feature that is recorded within the developed residential area surrounding the Moreno Valley Mall (Table 5.1–1).

Table 5.1–1

Cultural Resources Located Within One
Mile of the Go Fresh Gas Station Project

Site(s)	Description
RIV-2763	Prehistoric bedrock milling feature
P-33-007285, P-33-007289, P-33-017202, and P-33-017203	Historic single-family residence
RIV-7865	Historic Pigeon Pass Road/Trail alignment

The records search also indicates that 40 cultural resource studies conducted have been conducted within a one-mile radius of the project, one of which included the current property (McCarthy 1987). However, while the archaeological assessment conducted by McCarthy (1987) for the entirety of the city of Moreno Valley included the subject property, it was not surveyed and only noted as being within an already developed "urban" area. The 1974 Clough study, which is mapped adjacent to the subject property, consists of a series of field notes describing the linear survey of various Eastern Municipal Water District pipeline alignments, but did not survey or directly address the current project.

For the current project, the following historic sources were reviewed at the EIC:

- The NRHP Index
- The OHP, Archaeological Determinations of Eligibility
- The OHP, Directory of Properties in the Historic Property Data File

However, none of these sources identified any cultural resources within the project. The complete records search results are provided in Appendix B.

An in-house assessment of historic maps and aerial photographs was also conducted. According to the 1897 and 1947 15' USGS *Riverside* topographic quadrangles, the 1953 7.5' USGS *Riverside East* topographic quadrangle, and historic aerial photographs from 1966 to 2018, no structures have ever been located within the property. Further, the aerial photographs show that the subject and adjacent properties were primarily used for agriculture since at least 1966, and between 1978 and 1994, the adjacent properties were developed for commercial and residential purposes while the current project remained vacant. The online BLM GLO records did not identify any records for the subject property.

BFSA requested a SLF search from the NAHC, which was negative for Native American sacred sites or locations of religious or ceremonial importance within the general area of the subject property. In accordance with the recommendations of the NAHC, BFSA contacted all Native American representatives listed in the NAHC response letter to request any relevant information concerning the property. However, this request is not part of any Assembly Bill 52 Native American consultation. As of the date of this report, one response has been received from the San Manuel Band of Mission Indians, who indicate that while the project can be counted as in the tribe's ancestral territory, it is not near any cultural resources that are of concern to the tribe. All correspondence is provided in Appendix C.

Based upon the records search results, the subject property possesses a low sensitivity for cultural resources. Only one prehistoric site has been recorded within one mile of the project, and the bedrock milling feature has since been removed and the area developed. Further, the project does not contain bedrock outcrops, natural sources of water, or other landforms that are typically associated with prehistoric use areas. Given the valley setting and lack of exposed bedrock outcrops or water sources for the property, predictive modeling would suggest that if prehistoric sites are present within the project, they will likely be isolated artifacts, artifact scatters, or specialized resource processing loci that would have developed as a result of prehistoric resource extraction practices.

5.2 Results of the Field Survey

The cultural resources survey took place on November 21, 2019. The survey was directed by Principal Investigator Brian F. Smith and conducted by Senior Project Archaeologist Andrew Garrison. The intensive reconnaissance consisted of a series of parallel survey transects spaced at approximately 10-meter intervals. The entire property was accessible and no constraints were encountered. The survey indicated that the entirety of the project has been disturbed by agricultural uses, repeated episodes of vegetation clearing, disking, grading, and the development of the surrounding area (Plates 5.2–1 and 5.2–2). Modern garbage and building materials were noted throughout the property. Ground visibility was generally good to excellent and was only limited due to vegetation that included two- to six-inch-high, non-native weeds and grasses. In addition, a row of eucalyptus trees is located along the eastern project boundary, separating it from a commercial shopping center. The survey did not result in the identification of any cultural resources within the subject property.

Plate 5.2–1: Overview of the project, facing east.

Plate 5.2–2: Overview of the project, facing north.

6.0 RECOMMENDATIONS

The cultural resources survey for the Go Fresh Gas Station Project was negative for the presence of archaeological sites. The EIC records search also indicates that while six cultural resource sites are recorded within one mile of the project, none are recorded within the project boundaries. Property research indicates the project has been historically used for agriculture activities and no structures could be identified on historic maps or aerial photographs. In addition, the property does not contain bedrock outcrops, natural sources of water, or other landforms that are typically associated with prehistoric use areas. Therefore, as a result of the research findings, the documented land use of the property, and the current survey, it is unlikely that any cultural resources exist within the project.

Given that no archaeological sites, features, or artifacts have been identified within the project, no potential impacts to cultural resources are associated with the proposed development. The archaeological study was completed in accordance with the City of Moreno Valley environmental policies and CEQA significance evaluation criteria. Based upon the absence of any cultural resources within the subject property, site-specific mitigation measures will not be required for this project. Further, as a result of previous ground-disturbing activities and the absence of recorded cultural resources within the project boundaries, there is little potential for cultural resources to be present or disturbed by the proposed development. No further archaeological study or mitigation measures are recommended as a condition of permit approval based upon the records search and the results of the field survey.

7.0 CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this archaeological report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

	December 12, 2019
Brian F. Smith Principal Investigator	Date

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Wallace, William J.
1955 A Suggested Chronology for Southern California Coastal Archaeology. *Southwestern Journal of Anthropology* 11:214–230.

Warren, Claude N. (editor)
1968 Cultural Tradition and Ecological Adaptation on the Southern Coast. In *Archaic Prehistory in the Western United States,* C.I. Williams ed. *Eastern New Mexico University Contributions in Anthropology* 1(3):1–14.

Warren, Claude N. and D.L. True
1961 The San Dieguito Complex and its Place in California Prehistory, In *Archaeological Survey Annual Report 1960-1961*. University of California Press, Los Angeles, California.

Warren, Claude N., D.L. True, and Ardith A. Eudey
1961 Early Gathering Complexes of Western San Diego County: Results and Interpretations of an Archaeological Survey. *Archaeological Survey Annual Report 1960-1961*. University of California, Los Angeles.

APPENDIX A

Qualifications of Key Personnel

Brian F. Smith, MA

Owner, Principal Investigator

Brian F. Smith and Associates, Inc.
14010 Poway Road • Suite A •
Phone: (858) 679-8218 • Fax: (858) 679-9896 • E-Mail: bsmith@bfsa-ca.com

Education

Master of Arts, History, University of San Diego, California **1982**

Bachelor of Arts, History, and Anthropology, University of San Diego, California **1975**

Professional Memberships

Society for California Archaeology

Experience

Principal Investigator **1977–Present**
Brian F. Smith and Associates, Inc. **Poway, California**

Brian F. Smith is the owner and principal historical and archaeological consultant for Brian F. Smith and Associates. Over the past 32 years, he has conducted over 2,500 cultural resource studies in California, Arizona, Nevada, Montana, and Texas. These studies include every possible aspect of archaeology from literature searches and large-scale surveys to intensive data recovery excavations. Reports prepared by Mr. Smith have been submitted to all facets of local, state, and federal review agencies, including the US Army Crops of Engineers, the Bureau of Land Management, the Bureau of Reclamation, the Department of Defense, and the Department of Homeland Security. In addition, Mr. Smith has conducted studies for utility companies (Sempra Energy) and state highway departments (CalTrans).

Professional Accomplishments

These selected major professional accomplishments represent research efforts that have added significantly to the body of knowledge concerning the prehistoric life ways of cultures once present in the Southern California area and historic settlement since the late 18th century. Mr. Smith has been principal investigator on the following select projects, except where noted.

Downtown San Diego Mitigation and Monitoring Reporting Programs: Large numbers of downtown San Diego mitigation and monitoring projects submitted to the Centre City Development Corporation, some of which included Strata (2008), Hotel Indigo (2008), Lofts at 707 10th Avenue Project (2007), Breeza (2007), Bayside at the Embarcadero (2007), Aria (2007), Icon (2007), Vantage Pointe (2007), Aperture (2007), Sapphire Tower (2007), Lofts at 655 Sixth Avenue (2007), Metrowork (2007), The Legend (2006), The Mark (2006), Smart Corner (2006), Lofts at 677 7th Avenue (2005), Aloft on Cortez Hill (2005), Front and

Beech Apartments (2003), Bella Via Condominiums (2003), Acqua Vista Residential Tower (2003), Northblock Lofts (2003), Westin Park Place Hotel (2001), Parkloft Apartment Complex (2001), Renaissance Park (2001), and Laurel Bay Apartments (2001).

Archaeology at the Padres Ballpark: Involved the analysis of historic resources within a seven-block area of the "East Village" area of San Diego, where occupation spanned a period from the 1870s to the 1940s. Over a period of two years, BFSA recovered over 200,000 artifacts and hundreds of pounds of metal, construction debris, unidentified broken glass, and wood. Collectively, the Ballpark Project and the other downtown mitigation and monitoring projects represent the largest historical archaeological program anywhere in the country in the past decade (2000-2007).

4S Ranch Archaeological and Historical Cultural Resources Study: Data recovery program consisted of the excavation of over 2,000 square meters of archaeological deposits that produced over one million artifacts, containing primarily prehistoric materials. The archaeological program at 4S Ranch is the largest archaeological study ever undertaken in the San Diego County area and has produced data that has exceeded expectations regarding the resolution of long-standing research questions and regional prehistoric settlement patterns.

Charles H. Brown Site: Attracted international attention to the discovery of evidence of the antiquity of man in North America. Site located in Mission Valley, in the city of San Diego.

Del Mar Man Site: Study of the now famous Early Man Site in Del Mar, California, for the San Diego Science Foundation and the San Diego Museum of Man, under the direction of Dr. Spencer Rogers and Dr. James R. Moriarty.

Old Town State Park Projects: Consulting Historical Archaeologist. Projects completed in the Old Town State Park involved development of individual lots for commercial enterprises. The projects completed in Old Town include Archaeological and Historical Site Assessment for the Great Wall Cafe (1992), Archaeological Study for the Old Town Commercial Project (1991), and Cultural Resources Site Survey at the Old San Diego Inn (1988).

Site W-20, Del Mar, California: A two-year-long investigation of a major prehistoric site in the Del Mar area of the city of San Diego. This research effort documented the earliest practice of religious/ceremonial activities in San Diego County (circa 6,000 years ago), facilitated the projection of major non-material aspects of the La Jolla Complex, and revealed the pattern of civilization at this site over a continuous period of 5,000 years. The report for the investigation included over 600 pages, with nearly 500,000 words of text, illustrations, maps, and photographs documenting this major study.

City of San Diego Reclaimed Water Distribution System: A cultural resource study of nearly 400 miles of pipeline in the city and county of San Diego.

Master Environmental Assessment Project, City of Poway: Conducted for the City of Poway to produce a complete inventory of all recorded historic and prehistoric properties within the city. The information was used in conjunction with the City's General Plan Update to produce a map matrix of the city showing areas of high, moderate, and low potential for the presence of cultural resources. The effort also included the development of the City's Cultural Resource Guidelines, which were adopted as City policy.

Draft of the City of Carlsbad Historical and Archaeological Guidelines: Contracted by the City of Carlsbad to produce the draft of the City's historical and archaeological guidelines for use by the Planning Department of the City.

The Mid-Bayfront Project for the City of Chula Vista: Involved a large expanse of undeveloped agricultural land situated between the railroad and San Diego Bay in the northwestern portion of the city. The study included the analysis of some potentially historic features and numerous prehistoric sites.

Cultural Resources Survey and Test of Sites Within the Proposed Development of the Audie Murphy Ranch, Riverside County, California: Project manager/director of the investigation of 1,113.4 acres and 43 sites, both prehistoric and historic—included project coordination; direction of field crews; evaluation of sites for significance based on County of Riverside and CEQA guidelines; assessment of cupule, pictograph, and rock shelter sites, co-authoring of cultural resources project report. February-September 2002.

Cultural Resources Evaluation of Sites Within the Proposed Development of the Otay Ranch Village 13 Project, San Diego County, California: Project manager/director of the investigation of 1,947 acres and 76 sites, both prehistoric and historic—included project coordination and budgeting; direction of field crews; assessment of sites for significance based on County of San Diego and CEQA guidelines; co-authoring of cultural resources project report. May-November 2002.

Cultural Resources Survey for the Remote Video Surveillance Project, El Centro Sector, Imperial County: Project manager/director for a survey of 29 individual sites near the U.S./Mexico Border for proposed video surveillance camera locations associated with the San Diego Border barrier Project—project coordination and budgeting; direction of field crews; site identification and recordation; assessment of potential impacts to cultural resources; meeting and coordinating with U.S. Army Corps of Engineers, U.S. Border Patrol, and other government agencies involved; co-authoring of cultural resources project report. January, February, and July 2002.

Cultural Resources Survey and Test of Sites Within the Proposed Development of the Menifee West GPA, Riverside County, California: Project manager/director of the investigation of nine sites, both prehistoric and historic—included project coordination and budgeting; direction of field crews; assessment of sites for significance based on County of Riverside and CEQA guidelines; historic research; co-authoring of cultural resources project report. January-March 2002.

Mitigation of An Archaic Cultural Resource for the Eastlake III Woods Project for the City of Chula Vista, California: Project archaeologist/ director—included direction of field crews; development and completion of data recovery program including collection of material for specialized faunal and botanical analyses; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; co-authoring of cultural resources project report, in prep. September 2001-March 2002.

Cultural Resources Survey and Test of Sites Within the Proposed French Valley Specific Plan/EIR, Riverside County, California: Project manager/director of the investigation of two prehistoric and three historic sites—included project coordination and budgeting; survey of project area; Native American consultation; direction of field crews; assessment of sites for significance based on CEQA guidelines; cultural resources project report in prep. July-August 2000.

Cultural Resources Survey and Test of Sites Within the Proposed Lawson Valley Project, San Diego County, California: Project manager/director of the investigation of 28 prehistoric and two historic sites—included project coordination; direction of field crews; assessment of sites for significance based on CEQA guidelines; cultural resources project report in prep. July-August 2000.

Cultural Resource Survey and Geotechnical Monitoring for the Mohyi Residence Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; field survey; assessment of parcel for potentially buried cultural deposits; monitoring of geotechnichal borings; authoring of cultural resources project report. Brian F. Smith and Associates, San Diego, California. June 2000.

Enhanced Cultural Resource Survey and Evaluation for the Prewitt/Schmucker/Cavadias Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; direction of field crews; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. June 2000.

Cultural Resources Survey and Test of Sites Within the Proposed Development of the Menifee Ranch, Riverside County, California: Project manager/director of the investigation of one prehistoric and five historic sites—included project coordination and budgeting; direction of field crews; feature recordation; historic structure assessments; assessment of sites for significance based on CEQA guidelines; historic research; co-authoring of cultural resources project report. February-June 2000.

Salvage Mitigation of a Portion of the San Diego Presidio Identified During Water Pipe Construction for the City of San Diego, California: Project archaeologist/director—included direction of field crews; development and completion of data recovery program; management of artifact collections cataloging and curation; data synthesis and authoring of cultural resources project report in prep. April 2000.

Enhanced Cultural Resource Survey and Evaluation for the Tyrian 3 Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. April 2000.

Enhanced Cultural Resource Survey and Evaluation for the Lamont 5 Project, Pacific Beach, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. April 2000.

Enhanced Cultural Resource Survey and Evaluation for the Reiss Residence Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. March-April 2000.

Salvage Mitigation of a Portion of Site SDM-W-95 (CA-SDI-211) for the Poinsettia Shores Santalina Development Project and Caltrans, Carlsbad, California: Project achaeologist/ director—included direction of field crews; development and completion of data recovery program; management of artifact collections cataloging and curation; data synthesis and authoring of cultural resources project report in prep. December 1999-January 2000.

Survey and Testing of Two Prehistoric Cultural Resources for the Airway Truck Parking Project, Otay Mesa, California: Project archaeologist/director—included direction of field crews; development and completion of testing recovery program; assessment of site for significance based on CEQA guidelines; authoring of cultural resources project report, in prep. December 1999-January 2000.

Cultural Resources Phase I and II Investigations for the Tin Can Hill Segment of the Immigration and Naturalization Services Triple Fence Project Along the International Border, San Diego County, California: Project manager/director for a survey and testing of a prehistoric quarry site along the border—NRHP eligibility assessment; project coordination and budgeting; direction of field crews; feature recordation; meeting and coordinating with U.S. Army Corps of Engineers; co-authoring of cultural resources project report. December 1999-January 2000.

Mitigation of a Prehistoric Cultural Resource for the Westview High School Project for the City of San Diego, California: Project archaeologist/ director—included direction of field crews; development and completion of data recovery program including collection of material for specialized faunal and botanical analyses; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; co-authoring of cultural resources project report, in prep. October 1999-January 2000.

Mitigation of a Prehistoric Cultural Resource for the Otay Ranch SPA-One West Project for the City of Chula Vista, California: Project archaeologist/director—included direction of field crews; development of data recovery program; management of artifact collections cataloging and curation; assessment of site for significance based on CEQA guidelines; data synthesis; authoring of cultural resources project report, in prep. September 1999-January 2000.

Monitoring of Grading for the Herschel Place Project, La Jolla, California: Project archaeologist/ monitor—included monitoring of grading activities associated with the development of a single-dwelling parcel. September 1999.

Survey and Testing of a Historic Resource for the Osterkamp Development Project, Valley Center, California: Project archaeologist/ director—included direction of field crews; development and completion of data recovery program; budget development; assessment of site for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report. July-August 1999.

Survey and Testing of a Prehistoric Cultural Resource for the Proposed College Boulevard Alignment Project, Carlsbad, California: Project manager/director —included direction of field crews; development and completion of testing recovery program; assessment of site for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report, in prep. July-August 1999.

Survey and Evaluation of Cultural Resources for the Palomar Christian Conference Center Project, Palomar Mountain, California: Project archaeologist—included direction of field crews; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report. July-August 1999.

Survey and Evaluation of Cultural Resources at the Village 2 High School Site, Otay Ranch, City of Chula Vista, California: Project manager/director —management of artifact collections cataloging and curation; assessment of site for significance based on CEQA guidelines; data synthesis; authoring of cultural resources project report. July 1999.

Cultural Resources Phase I, II, and III Investigations for the Immigration and Naturalization Services Triple Fence Project Along the International Border, San Diego County, California: Project manager/director for the survey, testing, and mitigation of sites along border—supervision of multiple field crews, NRHP eligibility assessments, Native American consultation, contribution to Environmental Assessment document, lithic and marine shell analysis, authoring of cultural resources project report. August 1997-January 2000.

Phase I, II, and II Investigations for the Scripps Poway Parkway East Project, Poway California: Project archaeologist/project director—included recordation and assessment of multicomponent prehistoric and historic sites; direction of Phase II and III investigations; direction of laboratory analyses including prehistoric and historic collections; curation of collections; data synthesis; coauthorship of final cultural resources report. February 1994; March-September 1994; September-December 1995.

Archaeological Evaluation of Cultural Resources Within the Proposed Corridor for the San Elijo Water Reclamation System Project, San Elijo, California: Project manager/director —test excavations; direction of artifact identification and analysis; graphics production; coauthorship of final cultural resources report. December 1994-July 1995.

Evaluation of Cultural Resources for the Environmental Impact Report for the Rose Canyon Trunk Sewer Project, San Diego, California: Project manager/Director —direction of test excavations; identification and analysis of prehistoric and historic artifact collections; data synthesis; co-authorship of final cultural resources report, San Diego, California. June 1991-March 1992.

Reports/Papers

Author, coauthor, or contributor to over 2,500 cultural resources management publications, a selection of which are presented below.

2015 An Archaeological/Historical Study for the Safari Highlands Ranch Project, City of Escondido, County of San Diego.

2015 A Phase I and II Cultural Resources Assessment for the Decker Parcels II Project, Planning Case No. 36962, Riverside County, California.

2015 A Phase I and II Cultural Resources Assessment for the Decker Parcels I Project, Planning Case No. 36950, Riverside County, California.

2015 Cultural Resource Data Recovery and Mitigation Monitoring Program for Site SDI-10,237 Locus F, Everly Subdivision Project, El Cajon, California.

2015 Phase I Cultural Resource Survey for the Woodward Street Senior Housing Project, City of San Marcos, California (APN 218-120-31).

2015 An Updated Cultural Resource Survey for the Box Springs Project (TR 33410), APNs 255-230-010, 255-240-005, 255-240-006, and Portions of 257-180-004, 257-180-005, and 257-180-006.

2015 A Phase I and II Cultural Resource Report for the Lake Ranch Project, TR 36730, Riverside County, California.

2015 A Phase II Cultural Resource Assessment for the Munro Valley Solar Project, Inyo County, California.

2014 Cultural Resources Monitoring Report for the Diamond Valley Solar Project, Community of Winchester, County of Riverside.

2014 National Historic Preservation Act Section 106 Compliance for the Proposed Saddleback Estates Project, Riverside County, California.

2014 A Phase II Cultural Resource Evaluation Report for RIV-8137 at the Toscana Project, TR 36593, Riverside County, California.

2014 Cultural Resources Study for the Estates at Del Mar Project, City of Del Mar, San Diego, California (TTM 14-001).

2014 Cultural Resources Study for the Aliso Canyon Major Subdivision Project, Rancho Santa Fe, San Diego County, California.

2014 Cultural Resources Due Diligence Assessment of the Ocean Colony Project, City of Encinitas.

2014 A Phase I and Phase II Cultural Resource Assessment for the Citrus Heights II Project, TTM 36475, Riverside County, California.

2013 A Phase I Cultural Resource Assessment for the Modular Logistics Center, Moreno Valley, Riverside County, California.

2013 A Phase I Cultural Resources Survey of the Ivey Ranch Project, Thousand Palms, Riverside County, California.

2013 Cultural Resources Report for the Emerald Acres Project, Riverside County, California.

2013 A Cultural Resources Records Search and Review for the Pala Del Norte Conservation Bank Project, San Diego County, California.

2013 An Updated Phase I Cultural Resources Assessment for Tentative Tract Maps 36484 and 36485, Audie Murphy Ranch, City of Menifee, County of Riverside.

2013 El Centro Town Center Industrial Development Project (EDA Grant No. 07-01-06386); Result of Cultural Resource Monitoring.

2013 Cultural Resources Survey Report for the Renda Residence Project, 9521 La Jolla Farms Road, La Jolla, California.

2013 A Phase I Cultural Resource Study for the Ballpark Village Project, San Diego, California.

2013 Archaeological Monitoring and Mitigation Program, San Clemente Senior Housing Project, 2350 South El Camino Real, City of San Clemente, Orange County, California (CUP No. 06-065; APN-060-032-04).

2012 Mitigation Monitoring Report for the Los Peñasquitos Recycled Water Pipeline.

2012 Cultural Resources Report for Menifee Heights (Tract 32277).

2012 A Phase I Cultural Resource Study for the Altman Residence at 9696 La Jolla Farms Road, La Jolla, California 92037.

2012 Mission Ranch Project (TM 5290-1/MUP P87-036W3): Results of Cultural Resources Monitoring During Mass Grading.

2012 A Phase I Cultural Resource Study for the Payan Property Project, San Diego, California.

2012 Phase I Archaeological Survey of the Rieger Residence, 13707 Durango Drive, Del Mar, California 92014, APN 300-369-49.

2011 Mission Ranch Project (TM 5290-1/MUP P87-036W3): Results of Cultural Resources Monitoring During Mass Grading.

2011 Mitigation Monitoring Report for the 1887 Viking Way Project, La Jolla, California.

2011 Cultural Resource Monitoring Report for the Sewer Group 714 Project.

2011 Results of Archaeological Monitoring at the 10th Avenue Parking Lot Project, City of San Diego, California (APNs 534-194-02 and 03).

2011 Archaeological Survey of the Pelberg Residence for a Bulletin 560 Permit Application; 8335 Camino Del Oro; La Jolla, California 92037 APN 346-162-01-00 .

2011 A Cultural Resources Survey Update and Evaluation for the Robertson Ranch West Project and an Evaluation of National Register Eligibility of Archaeological sites for Sites for Section 106 Review (NHPA).

2011 Mitigation Monitoring Report for the 43rd and Logan Project.

2011 Mitigation Monitoring Report for the Sewer Group 682 M Project, City of San Diego Project #174116.

2011 A Phase I Cultural Resource Study for the Nooren Residence Project, 8001 Calle de la Plata, La Jolla, California, Project No. 226965.

2011 A Phase I Cultural Resource Study for the Keating Residence Project, 9633 La Jolla Farms Road, La Jolla, California 92037.

2010 Mitigation Monitoring Report for the 15th & Island Project, City of San Diego; APNs 535-365-01, 535-365-02 and 535-392-05 through 535-392-07.

2010 Archaeological Resource Report Form: Mitigation Monitoring of the Sewer and Water Group 772 Project, San Diego, California, W.O. Nos. 187861 and 178351.

2010 Pottery Canyon Site Archaeological Evaluation Project, City of San Diego, California, Contract No. H105126.

2010 Archaeological Resource Report Form: Mitigation Monitoring of the Racetrack View Drive Project, San Diego, California; Project No. 163216.

2010 A Historical Evaluation of Structures on the Butterfield Trails Property.

2010 Historic Archaeological Significance Evaluation of 1761 Haydn Drive, Encinitas, California (APN 260-276-07-00).

2010 Results of Archaeological Monitoring of the Heller/Nguyen Project, TPM 06-01, Poway, California.

2010 Cultural Resource Survey and Evaluation Program for the Sunday Drive Parcel Project, San Diego County, California, APN 189-281-14.

2010 Archaeological Resource Report Form: Mitigation Monitoring of the Emergency Garnet Avenue Storm Drain Replacement Project, San Diego, California, Project No. B10062

2010 An Archaeological Study for the 1912 Spindrift Drive Project

2009 Cultural Resource Assessment of the North Ocean Beach Gateway Project City of San Diego #64A-003A; Project #154116.

2009 Archaeological Constraints Study of the Morgan Valley Wind Assessment Project, Lake County, California.

2008 Results of an Archaeological Review of the Helen Park Lane 3.1-acre Property (APN 314-561-31), Poway, California.

2008 Archaeological Letter Report for a Phase I Archaeological Assessment of the Valley Park Condominium Project, Ramona, California; APN 282-262-75-00.

2007 Archaeology at the Ballpark. Brian F. Smith and Associates, San Diego, California. Submitted to the Centre City Development Corporation.

2007 Result of an Archaeological Survey for the Villages at Promenade Project (APNs 115-180-007-3,115-180-049-1, 115-180-042-4, 115-180-047-9) in the City of Corona, Riverside County.

2007 Monitoring Results for the Capping of Site CA-SDI-6038/SDM-W-5517 within the Katzer Jamul Center Project; P00-017.

2006 Archaeological Assessment for The Johnson Project (APN 322-011-10), Poway, California.

2005 Results of Archaeological Monitoring at the El Camino Del Teatro Accelerated Sewer Replacement Project (Bid No. K041364; WO # 177741; CIP # 46-610.6.

2005 Results of Archaeological Monitoring at the Baltazar Draper Avenue Project (Project No. 15857; APN: 351-040-09).

2004 TM 5325 ER #03-14-043 Cultural Resources.

2004 An Archaeological Survey and an Evaluation of Cultural Resources at the Salt Creek Project. Report on file at Brian F. Smith and Associates.

2003 An Archaeological Assessment for the Hidden Meadows Project, San Diego County, TM 5174, Log No. 99-08-033. Report on file at Brian F. Smith and Associates.

2003 An Archaeological Survey for the Manchester Estates Project, Coastal Development Permit #02-009, Encinitas, California. Report on file at Brian F. Smith and Associates.

2003 Archaeological Investigations at the Manchester Estates Project, Coastal Development Permit #02-009, Encinitas, California. Report on file at Brian F. Smith and Associates.

2003 Archaeological Monitoring of Geological Testing Cores at the Pacific Beach Christian Church Project. Report on file at Brian F. Smith and Associates.

2003 San Juan Creek Drilling Archaeological Monitoring. Report on file at Brian F. Smith and Associates.

2003 Evaluation of Archaeological Resources Within the Spring Canyon Biological Mitigation Area, Otay Mesa, San Diego County, California. Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for the Otay Ranch Village 13 Project (et al.). Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for the Audie Murphy Ranch Project (et al.). Brian F. Smith and Associates, San Diego, California.

2002 Results of an Archaeological Survey for the Remote Video Surveillance Project, El Centro Sector, Imperial County, California. Brian F. Smith and Associates, San Diego, California.

2002 A Cultural Resources Survey and Evaluation for the Proposed Robertson Ranch Project, City of Carlsbad. Brian F. Smith and Associates, San Diego, California.

2002 Archaeological Mitigation of Impacts to Prehistoric Site SDI-7976 for the Eastlake III Woods Project, Chula Vista, California. Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for Tract No. 29777, Menifee West GPA Project, Perris Valley, Riverside County. Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for Tract No. 29835, Menifee West GPA Project, Perris Valley, Riverside County. Brian F. Smith and Associates, San Diego, California.

2001 An Archaeological Survey and Evaluation of a Cultural Resource for the Moore Property, Poway. Brian F. Smith and Associates, San Diego, California.

2001 An Archaeological Report for the Mitigation, Monitoring, and Reporting Program at the Water and Sewer Group Job 530A, Old Town San Diego. Brian F. Smith and Associates, San Diego, California.

2001 A Cultural Resources Impact Survey for the High Desert Water District Recharge Site 6 Project, Yucca Valley. Brian F. Smith and Associates, San Diego, California.

2001 Archaeological Mitigation of Impacts to Prehistoric Site SDI-13,864 at the Otay Ranch SPA-One West Project. Brian F. Smith and Associates, San Diego, California.

2001 A Cultural Resources Survey and Site Evaluations at the Stewart Subdivision Project, Moreno Valley, County of San Diego. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological/Historical Study for the French Valley Specific Plan/EIR, French Valley, County of Riverside. Brian F. Smith and Associates, San Diego, California.

2000 Results of an Archaeological Survey and the Evaluation of Cultural Resources at The TPM#24003–Lawson Valley Project. Brian F. Smith and Associates, San Diego, California.

2000 Archaeological Mitigation of Impacts to Prehistoric Site SDI-5326 at the Westview High School Project for the Poway Unified School District. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological/Historical Study for the Menifee Ranch Project. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological Survey and Evaluation of Cultural Resources for the Bernardo Mountain Project, Escondido, California. Brian F. Smith and Associates, San Diego, California.

2000 A Cultural Resources Impact Survey for the Nextel Black Mountain Road Project, San Diego, California. Brian F. Smith and Associates, San Diego, California.

2000 A Cultural Resources Impact Survey for the Rancho Vista Project, 740 Hilltop Drive, Chula Vista, California. Brian F. Smith and Associates, San Diego, California.

2000 A Cultural Resources Impact Survey for the Poway Creek Project, Poway, California. Brian F. Smith and Associates, San Diego, California.

2000 Cultural Resource Survey and Geotechnical Monitoring for the Mohyi Residence Project. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Prewitt/Schmucker/ Cavadias Project. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Lamont 5 Project. Brian F. Smith and Associates, San Diego, California.

2000 Salvage Excavations at Site SDM-W-95 (CA-SDI-211) for the Poinsettia Shores Santalina Development Project, Carlsbad, California. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Reiss Residence Project, La Jolla, California. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Tyrian 3 Project, La Jolla, California. Brian F. Smith and Associates, San Diego, California.

2000 A Report for an Archaeological Evaluation of Cultural Resources at the Otay Ranch Village Two SPA, Chula Vista, California. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological Evaluation of Cultural Resources for the Airway Truck Parking Project, Otay Mesa, County of San Diego. Brian F. Smith and Associates, San Diego, California.

2000 Results of an Archaeological Survey and Evaluation of a Resource for the Tin Can Hill Segment of the Immigration and Naturalization and Immigration Service Border Road, Fence, and Lighting Project, San Diego County, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey of the Home Creek Village Project, 4600 Block of Home Avenue, San Diego, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey for the Sgobassi Lot Split, San Diego County, California. Brian F. Smith and Associates, San Diego, California.

1999 An Evaluation of Cultural Resources at the Otay Ranch Village 11 Project. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological/Historical Survey and Evaluation of a Cultural Resource for The Osterkamp Development Project, Valley Center, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey and Evaluation of Cultural Resources for the Palomar Christian Conference Center Project, Palomar Mountain, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey and Evaluation of a Cultural Resource for the Proposed College Boulevard Alignment Project. Brian F. Smith and Associates, San Diego, California.

1999 Results of an Archaeological Evaluation for the Anthony's Pizza Acquisition Project in Ocean Beach, City of San Diego (with L. Pierson and B. Smith). Brian F. Smith and Associates, San Diego, California.

1996 An Archaeological Testing Program for the Scripps Poway Parkway East Project. Brian F. Smith and Associates, San Diego, California.

1995 Results of a Cultural Resources Study for the 4S Ranch. Brian F. Smith and Associates, San Diego, California.

1995 Results of an Archaeological Evaluation of Cultural Resources Within the Proposed Corridor for the San Elijo Water Reclamation System. Brian F. Smith and Associates, San Diego, California.

1994 Results of the Cultural Resources Mitigation Programs at Sites SDI-11,044/H and SDI-12,038 at the Salt Creek Ranch Project . Brian F. Smith and Associates, San Diego, California.

1993 Results of an Archaeological Survey and Evaluation of Cultural Resources at the Stallion Oaks Ranch Project. Brian F. Smith and Associates, San Diego, California.

1992 Results of an Archaeological Survey and the Evaluation of Cultural Resources at the Ely Lot Split Project. Brian F. Smith and Associates, San Diego, California.

1991 The Results of an Archaeological Study for the Walton Development Group Project. Brian F. Smith and Associates, San Diego, California.

Andrew J. Garrison, M.A., RPA

Senior Project Archaeologist

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14010 Poway Road • Suite A •
Phone: (858) 679-8218 • Fax: (858) 679-9896 • E-Mail: agarrison@bfsa-ca.com

Education

Master of Arts, Public History, University of California, Riverside **2009**

Bachelor of Science, Anthropology, University of California, Riverside **2005**

Bachelor of Arts, History, University of California, Riverside **2005**

Professional Memberships

Register of Professional Archaeologists
Society for California Archaeology
Society for American Archaeology
California Council for the Promotion of History
Society of Primitive Technology
Lithic Studies Society
California Preservation Foundation
Pacific Coast Archaeological Society

Experience

Senior Project Archaeologist **June 2017–Present**
Brian F. Smith and Associates, Inc. **Poway, California**

Project management of all phases of archaeological investigations for local, state, and federal agencies including National Register of Historic Places (NRHP) and California Environmental Quality Act (CEQA) level projects interacting with clients, sub-consultants, and lead agencies. Supervise and perform fieldwork including archaeological survey, monitoring, site testing, comprehensive site records checks, and historic building assessments. Perform and oversee technological analysis of prehistoric lithic assemblages. Author or co-author cultural resource management reports submitted to private clients and lead agencies.

Senior Archaeologist and GIS Specialist **2009–2017**
Scientific Resource Surveys, Inc. **Orange, California**

Served as Project Archaeologist or Principal Investigator on multiple projects, including archaeological monitoring, cultural resource surveys, test excavations, and historic building assessments. Directed projects from start to finish, including budget and personnel hours proposals, field and laboratory direction, report writing, technical editing, Native American consultation, and final report submittal. Oversaw all GIS projects including data collection, spatial analysis, and map creation.

Preservation Researcher **2009**
City of Riverside Modernism Survey **Riverside, California**

Completed DPR Primary, District, and Building, Structure and Object Forms for five sites for a grant-funded project to survey designated modern architectural resources within the City of Riverside.

Information Officer **2005, 2008–2009**
Eastern Information Center (EIC), University of California, Riverside **Riverside, California**

Processed and catalogued restricted and unrestricted archaeological and historical site record forms. Conducted research projects and records searches for government agencies and private cultural resource firms.

Reports/Papers

2017 A Phase I Cultural Resources Assessment for the Marbella Villa Project, City of Desert Hot Springs, Riverside County, California. Brian F. Smith and Associates, Inc.

2017 Phase I Cultural Resources Survey for TTM 37109, City of Jurupa Valley, County of Riverside. Brian F. Smith and Associates, Inc.

2017 A Phase I Cultural Resources Survey for the Jefferson & Ivy Project, City of Murrieta, California. Brian F. Smith and Associates, Inc.

2017 A Phase I Cultural Resources Assessment for the Nuevo Dollar General Store Project, Riverside County, California. Brian F. Smith and Associates, Inc.

2017 A Phase I Cultural Resource Study for the Westmont Project, Encinitas, California. Brian F. Smith and Associates, Inc.

2017 A Phase I Cultural Resources Assessment for the Winchester Dollar General Store Project, Riverside County, California. Brian F. Smith and Associates, Inc.

2017 Phase I Cultural Resource Assessment for TTM 31810 (42.42 acres) Predico Properties Olive Grove Project. Scientific Resource Surveys, Inc.

2016 John Wayne Airport Jet Fuel Pipeline and Tank Farm Archaeological Monitoring Plan. Scientific Resource Surveys, Inc. On file at the County of Orange, California.

2016 Phase I Cultural Resources Assessment: All Star Super Storage City of Menifee Project, 2015-156. Scientific Resource Surveys, Inc. On file at the Eastern Information Center, University of California, Riverside.

2016 Historic Resource Assessment for 220 South Batavia Street, Orange, CA 92868 Assessor's Parcel Number 041-064-4. Scientific Resource Surveys, Inc. Submitted to the City of Orange as part of Mills Act application.

2015 Historic Resource Report: 807-813 Harvard Boulevard, Los Angeles. Scientific Resource Surveys, Inc. On file at the South Central Coastal Information Center, California State University, Fullerton.

2015 Exploring a Traditional Rock Cairn: Test Excavation at CA-SDI-13/RBLI-26: The Rincon Indian Reservation, San Diego County, California. Scientific Resource Surveys, Inc.

2015 Class III Scientific Resource Surveys, Inc. Survey for The Lynx Cat Granite Quarry and Water Valley Road Widening Project County of San Bernardino, California, Near the Community of Hinkley. Scientific Resource Surveys, Inc. On file at the South Central Coastal Information Center, California State University, Fullerton.

2014 Archaeological Phase I: Cultural Resource Survey of the South West Quadrant of Fairview Park, Costa Mesa. Scientific Resource Surveys, Inc. On file at the South Central Coastal Information Center, California State University, Fullerton.

2014 Archaeological Monitoring Results: The New Los Angeles Federal Courthouse. Scientific Resource Surveys, Inc. On file at the South Central Coastal Information Center, California State University, Fullerton.

2012 Bolsa Chica Archaeological Project Volume 7, Technological Analysis of Stone Tools, Lithic Technology at Bolsa Chica: Reduction Maintenance and Experimentation. Scientific Resource Surveys, Inc.

2010 Phase II Cultural Resources Report Site CA=RIV-2160 PM No. 35164. Scientific Resource Surveys, Inc. On file at the Eastern Information Center, University of California, Riverside.

2009 Riverside Modernism Context Survey, contributing author. Available online at the City of Riverside.

Presentations

2017 "Repair and Replace: Lithic Production Behavior as Indicated by the Debitage Assemblage from CA-MRP-283 the Hackney Site." Presented at the Society for California Archaeology Annual Meeting, Fish Camp, California.

2016 "Bones, Stones, and Shell at Bolsa Chica: A Ceremonial Relationship?" Presented at the Society for California Archaeology Annual Meeting, Ontario, California.

2016 "Markers of Time: Exploring Transitions in the Bolsa Chica Assemblage." Presented at the Society for California Archaeology Annual Meeting, Ontario, California.

2016 "Dating Duress: Understanding Prehistoric Climate Change at Bolsa Chica." Presented at the Society for California Archaeology Annual Meeting, Ontario, California.

2015 "Successive Cultural Phasing Of Prehistoric Northern Orange County, California." Presented at the Society for California Archaeology Annual Meeting, Redding, California.

2015 "Southern California Cogged Stone Replication: Experimentation and Results." Presented at the Society for California Archaeology Annual Meeting, Redding, California.

2015 "Prehistoric House Keeping: Lithic Analysis of an Intermediate Horizon House Pit." Presented at the Society for California Archaeology Annual Meeting, Redding, California.

2015 "Pits and Privies: The Use and Disposal of Artifacts from Historic Los Angeles." Presented at the Society for California Archaeology Annual Meeting, Redding, California.

2015 "Grooving in the Past: A Demonstration of the Manufacturing of OGR beads and a look at Past SRS, Inc. Replicative Studies." Demonstration of experimental manufacturing techniques at the January meeting of The Pacific Coast Archaeological Society, Irvine, California.

2014 "From Artifact to Replication: Examining *Olivella* Grooved Bead Manufacturing." Presented at the Society for California Archaeology Annual Meeting, Visalia, California.

2014 "New Discoveries from an Old Collection: Comparing Recently Identified OGR Beads to Those Previously Analyzed from the Encino Village Site." Presented at the Society for California Archaeology Annual Meeting, Visalia, California.

2012 Bolsa Chica Archaeology: Part Seven: Culture and Chronology. Lithic demonstration of experimental manufacturing techniques at the April meeting of The Pacific Coast Archaeological Society, Irvine, California.

2012 "Expedient Flaked Tools from Bolsa Chica: Exploring the Lithic Technological Organization." Presented at the Society for California Archaeology Annual Meeting, San Diego, California.

2012 "Utilitarian and Ceremonial Ground Stone Production at Bolsa Chica Identified Through Production Tools." Presented at the Society for California Archaeology Annual Meeting, San Diego, California.

2012 "Connecting Production Industries at Bolsa Chica: Lithic Reduction and Bead Manufacturing." Presented at the Society for California Archaeology Annual Meeting, San Diego, California.

2011 Bolsa Chica Archaeology: Part Four: Mesa Production Industries. Co-presenter at the April meeting of The Pacific Coast Archaeological Society, Irvine, California.

2011 "Hammerstones from Bolsa Chica and Their Relationship towards Site Interpretation." Presented at the Society for California Archaeology Annual Meeting, Rohnert Park, California.

2011 "Exploring Bipolar Reduction at Bolsa Chica: Debitage Analysis and Replication." Presented at the Society for California Archaeology Annual Meeting, Rohnert Park, California.

APPENDIX B

Archaeological Records Search Results

(Deleted for Public Review; Bound Separately)

APPENDIX C

NAHC Sacred Lands File Search Results

(Deleted for Public Review; Bound Separately)

Appendix G – Traffic Impact Study

VEHICLE MILES TRAVELLED SCREENING & FOCUSED TRAFFIC IMPACT STUDY

Go Fresh Gas Station

At SEC of Sunnymead Blvd and Graham St

Moreno Valley

Date: July 13, 2020

Prepared For:

Go Fresh, LLC

1835 Mount Langley St,

Fountain Valley, CA 92708

Prepared By:

K2 Traffic Engineering, Inc.

1442 Irvine Blvd, Suite 210

Tustin, CA 92780

(714) 832-2116

TABLE OF CONTENTS

LIST OF EXHIBITS

LIST OF TABLES

Focused Traffic Impact Study for Go Fresh Gas Station at SEC of Sunnymead Blvd and Graham St, Moreno Valley

APN: 292-100-012-3

REGISTERED PROFESSIONAL ENGINEER
JENDE KAY HSU
No. T2285
Exp. 6/30/22
TRAFFIC
STATE OF CALIFORNIA

Prepared under the supervision of

Jende Kay Hsu, P.E., T. E.

Lic. # T2285

EXECUTIVE SUMMARY

The project is located on an unimproved land at the southeast corner of Sunnymead Boulevard and Graham Street in the City of Moreno Valley. The proposed development includes a new gas station with convenient store (2,995 sq. ft.) and 16 fueling positions, express car wash (2,485 sq. ft.) and retail stores (6,685 sq. ft.).

With pass-by considerations, the project has a NET trip generation of 38 inbound and 34 outbound trips in the AM peak hour, and 57 inbound and 55 outbound trips in the PM peak hour, and 1,464 daily trips. All study intersections remain operating at acceptable Level of Service D or better in each study scenario. The project has no or less than significant traffic impact and mitigation measure is not required.

Queue analysis has revealed inadequate queue length as pre-existing conditions at the following turn pockets:

#1. Sunnymead Blvd at Frederick St: Northbound Right & Southbound Left
#2. Sunnymead Blvd at Graham St: Westbound Left
#3. Sunnymead Blvd at Heacock St: Eastbound, Westbound, Northbound and Southbound Left

Project trips are not expected to create any new location of inadequate queue length beyond those identified as pre-existing conditions. The subject development should contribute a fair share of 19% of the construction costs to increase queue length for the immediately adjacent intersection:

- Extend westbound left-turn pocket on Sunnymead Boulevard at Graham Street to provide at least 280 feet of storage length.

However, the city should evaluate all perspectives and determine whether or not to implement the above improvement which requires removal of the existing median landscape and may potentially affect traffic signal timing and operation. Other locations identified as pre-existing inadequacy of queue length appear impractical for pocket length extension due to existing constraints and limitations. Such pre-existing deficiencies should be further monitored and evaluated by the City for consideration of future major capital improvements and comprehensive transportation demand management to reduce traffic volumes.

The project is located within a low VMT generating TAZ and can be presumed to have less than significant VMT impact. Complete VMT analysis and forecasting through regional model is, therefore, not required for the project.

Site access is adequately and properly provided via a new right-in-right-out driveway on Sunnymead Boulevard and a full access driveway on Graham Street. A “One Way” sign (R6-1) is recommended on the existing median island facing the proposed driveway. With the presence of bike lane, parking should remain prohibited on both Sunnymead Boulevard and Graham Street in the project vicinity.

INTRODUCTION

The purpose of this study is to evaluate traffic impact of the proposed development located at the southeast corner of Sunnymead Boulevard and Graham Street in the City of Moreno Valley(APN: 292-100-012-3). Vicinity map is shown in **Exhibit 1**.

Project site is currently an unimproved and vacant land in Community Commercial (CC) Zoning. The proposed development includes a new gas station with convenient store (2,995 sq. ft.) and 16 fueling positions, express car wash (2,485 sq. ft.) and retail stores (6,685 sq. ft.). Site access will be provided by a new right-in-right-out (RIRO) driveway on Sunnymead Boulevard and a new full-access driveway on Graham Street.

The proposed site plan is shown in **Exhibit 2**.

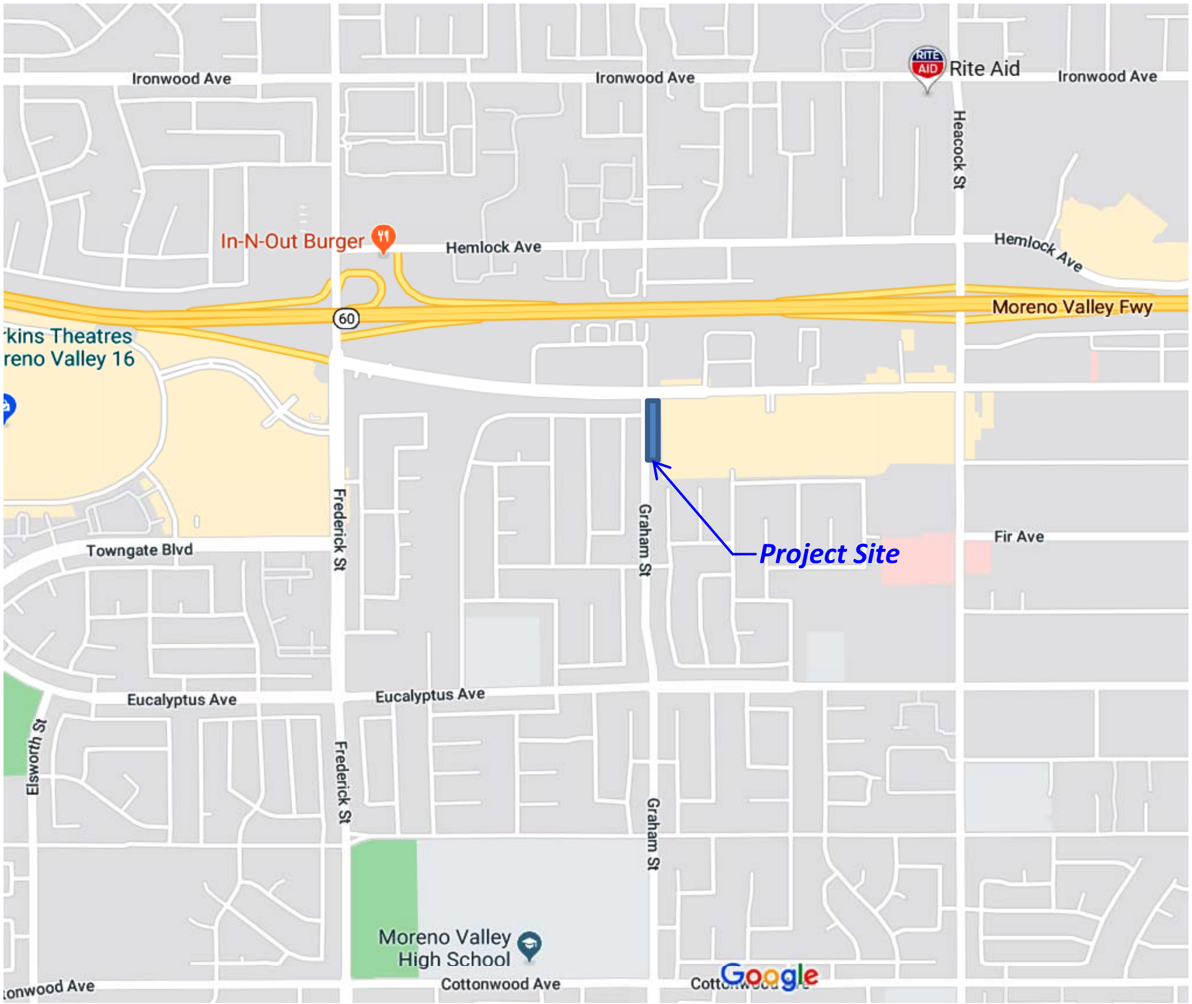


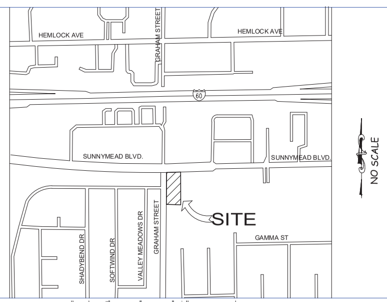
Exhibit 1. Vicinity Map
No Scale

GO FRESH GAS STATION
CAR WASH, C-STORE W/ DELI, & FUEL CANOPY
MORENO VALLEY, CA

ASSESSOR'S PARCEL No.

292-100-012-3

VICINITY MAP



PROJECT TEAM

OWNER
GO FRESH, LLC
1835 MOUNT LANGLEY STREET
FOUNTAIN VALLEY, CA 92708

PROJECT DESIGNER AND MANAGER:
RAMCAM ENGINEERING GROUP, INC.
670 E. PARKRIDGE AVE., SUITE 101
CORONA, CA 92879
PH: (951) 734-6330 EXT 202
ALEX IRSHAID
ALEX@RCGROUP.US

DRIVE THRU CAR STACKING

LOCATION	LENGTH	DESCRIPTION
EXPRESS CARWASH	260 FT	9 CAR STACKING MIN.

FLOOR AREA RATIO (F.A.R.)

BUILDABLE LAND AREA	PROPOSED BUILDINGS
94,814 SQ. FT.	12,165 SQ. FT. 0.13 F.A.R.

ZONING CODE

SP 204 CC THE VILLAGE COMMUNITY COMMERCIAL

SCOPE OF WORK

1. CONSTRUCTION OF 9,680 SQ. FT. C-STORE & RETAIL BUILDING, A 2, 485 SQ. FT. CAR WASH, AND A 4,572 SQ. FT. FUEL CANOPY.
2. NEW LANDSCAPE, PAVING AND STRIPPING.

TYPE OF CONSTRUCTION

CMU WALL, WOOD FRAMING, STUCCO WALLS, AND CONCRETE SLAB ON GRADE

LEGAL DESCRIPTION

REAL PROPERTY IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL 1:
THAT PORTION OF THE SOUTHWEST QUARTER OF SECTION 1 TOWNSHIP 3 SOUTH, RANGE 4 WEST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN BY UNITED STATES GOVERNMENT SURVEY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF THE SOUTHEAST QUARTER;
THENCE EAST ALONG THE NORTH LINE OF THE SOUTHEAST QUARTER 250 FEET;
THENCE SOUTH 500 FEET;
THENCE WEST 250 FEET TO THE WEST LINE OF THE SOUTHEAST QUARTER;
THENCE NORTH ALONG SAID WEST LINE 500 FEET TO THE POINT OF BEGINNING;

EXCEPTING THEREFROM THE NORTH 40 FEET CONVEYED TO THE STATE OF CALIFORNIA FOR HIGHWAY PURPOSES BY DEED RECORDED JULY 3, 1936 IN BOOK 284 PAGE 393 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

PARCEL 1A:
A NON-EXCLUSIVE EASEMENT FOR ROAD AND PUBLIC UTILITIES PURPOSES OVER THAT PORTION OF THE SOUTHEAST QUARTER OF SECTION 1, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN BY UNITED STATES GOVERNMENT SURVEY, AS DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF THE SOUTHWEST QUARTER;
THENCE EAST ALONG THE NORTH LINE OF THE SOUTHWEST QUARTER, 33 FEET;
THENCE SOUTH AN PARALLEL WITH THE WEST LINE OF SAID SOUTHWEST QUARTER, 620 FEET;
THENCE WEST 33 FEET TO A POINT ON THE WEST LINE OF THE SOUTHEAST QUARTER;
THENCE NORTH ALONG SAID WEST LINE OF THE SOUTHEAST QUARTER, 620 FEET TO THE POINT OF BEGINNING;

EXCEPTING THEREFROM THE NORTH 500 FEET THEREOF.

APN: 292-100-012-3

CITY RECORD NUMBER

PPA19-0006

TENANT LIST AND PARKING REQUIREMENTS

TENANT	CALCULATED AREA	PARKING RATIO USED	REQ'D SPACES	PROVIDED PARKING
C-STORE	4,000 SQ.FT.	1 SPACE/250 SQ.FT.	16 SPACES	16 SPACES
	CALCULATED AREA	PARKING RATIO USED	REQ'D SPACES	PROVIDED PARKING
RETAIL	5,680 SQ.FT.	1 SPACE/225 SQ.FT.	25 SPACES	25 SPACES
	CALCULATED AREA	PARKING RATIO USED	REQ'D SPACES	PROVIDED PARKING
EXPRESS CARWASH	2,485 SQ.FT.	10+2 SPACES	12 SPACES	12 SPACES
TOTALS			53 SPACES	53 SPACES

PARKING COUNT	PROVIDED PARKING
STANDARD PARKING	45
FUEL EFFICIENT & CARPOOL/VANPOOL (8% OF REQ. PARKING)	4
ADA PARKING	2
EC CHARGING STATION (ADA/VAN ACCESSIBLE)	1
WATER & AIR	1

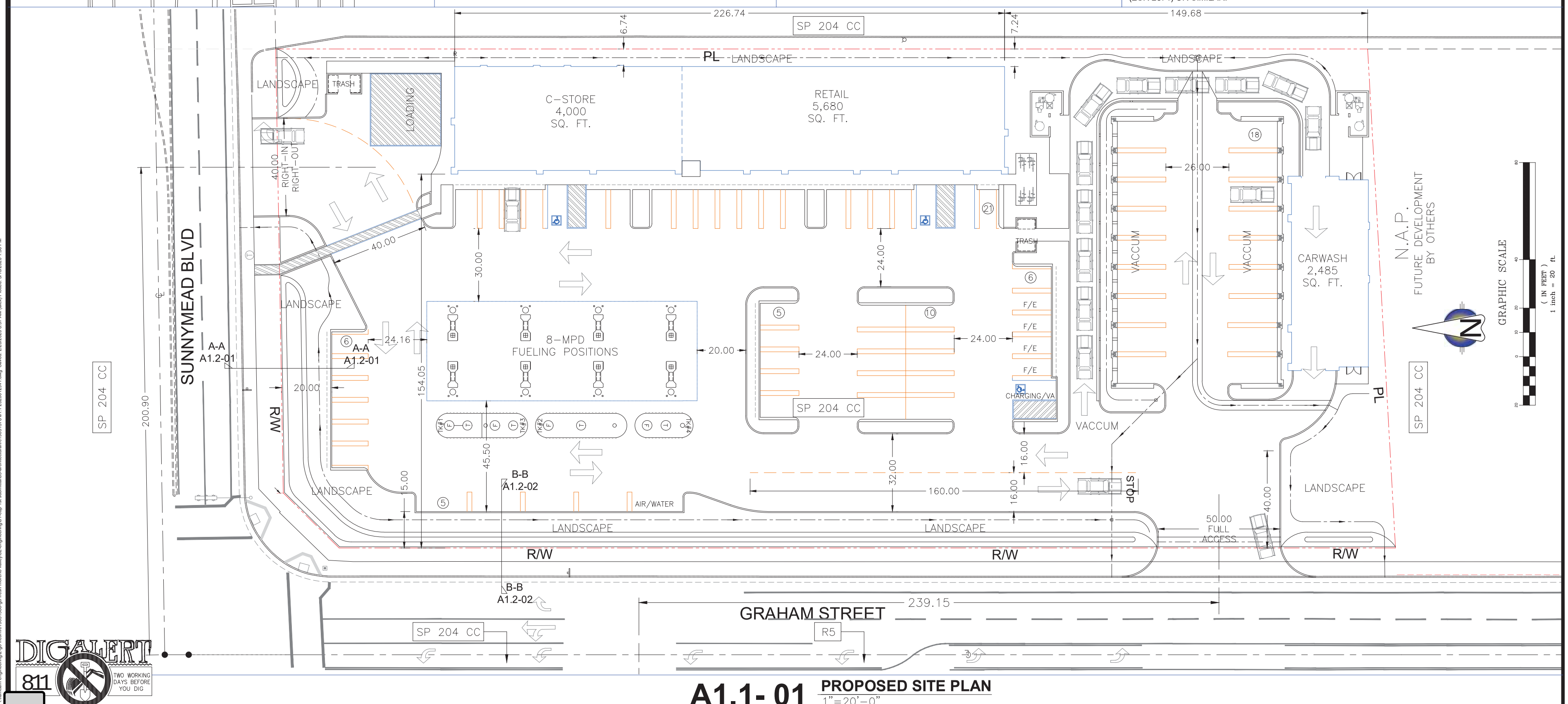
PROJECT SUMMARY

BUILDING USE	CALCULATED AREA	OCCUPANCY	CONST. TYPE
C-STORE & RETAIL	9,680 SQ.FT.(Gross)	M	V-B SPRINKLERED
CARWASH	2,485 SQ.FT.(Gross)	B	V-B NON-SPRINKLERED
FUEL CANOPY	4,572 SQ.FT.(Gross)	M	V-B NON-SPRINKLERED

	TOTAL AREA	LOT COVERAGE
TOTAL PROJECT AREA	2.18 AC (94,814 SQ.FT.)	100 %
TOTAL BUILDING AREA (BLDG FOOTPRINT)	12,165 SQ. FT.	12.8 %
TOTAL LANDSCAPE AREA	20,676 SQ. FT.	21.8 %
TOTAL PAVED AREAS	61,306 SQ. FT.	64.7 %
TRASH & VACUUM ENCLOSURES	667 SQ. FT.	.7 %

ROOFING SPECIFICATIONS

CLASS "A," 3-PLY REINFORCED ACRYLIC EMBEDDED SYSTEM MEMBRANE BY WESTERN COLLOID (ESR-2871) OR SIMILAR.



A1.1- 01 PROPOSED SITE PLAN
1"=20'-0"

RamCam
RAMCAM ENGINEERING GROUP, INC.
PLANNING & ENGINEERING
670 E. PARKRIDGE AVENUE, SUITE 101
CORONA, CA 92819
951.734.6330

GO FRESH, LLC
1835 MOUNT LANGLEY STREET
FOUNTAIN VALLEY, CA 92708

GO FRESH GAS
SEC OF SUNNYMEAD BLVD AND GRAHAM ST
MORENO VALLEY, CALIFORNIA

02.05.2020

PROPOSED SITE PLAN

A1.1

HIBIT 2. SITE PLAN

STUDY SCENARIOS

Based on the scoping agreement approved by the City of Moreno Valley, this study includes the following study scenarios:

i. Existing: Year 2020
ii. Existing: Year 2020 plus Project
iii. Pre-Project Conditions: Year 2025
iv. Post-Project Conditions: Year 2025 plus Project

According to the approved scoping agreement, the following intersections were included in this study:

1. Sunnymead Boulevard at Frederick Street
2. Sunnymead Boulevard at Graham Street
3. Sunnymead Boulevard at Heacock Street
4. Eucalyptus Avenue at Graham Street
5. Driveway “A” at Sunnymead Boulevard
6. Driveway “B” at Graham Street

EXISTING CONDITIONS

Project site is an unimproved and vacant lot situated at the southeast corner of Sunnymead Boulevard at Graham Street. Sunnymead Boulevard is an east-west divided arterial with two lanes in each direction and left-turn lanes at major intersections in the project vicinity. The posted speed limit is 35 mph. On-street parking is generally prohibited along Sunnymead Boulevard.

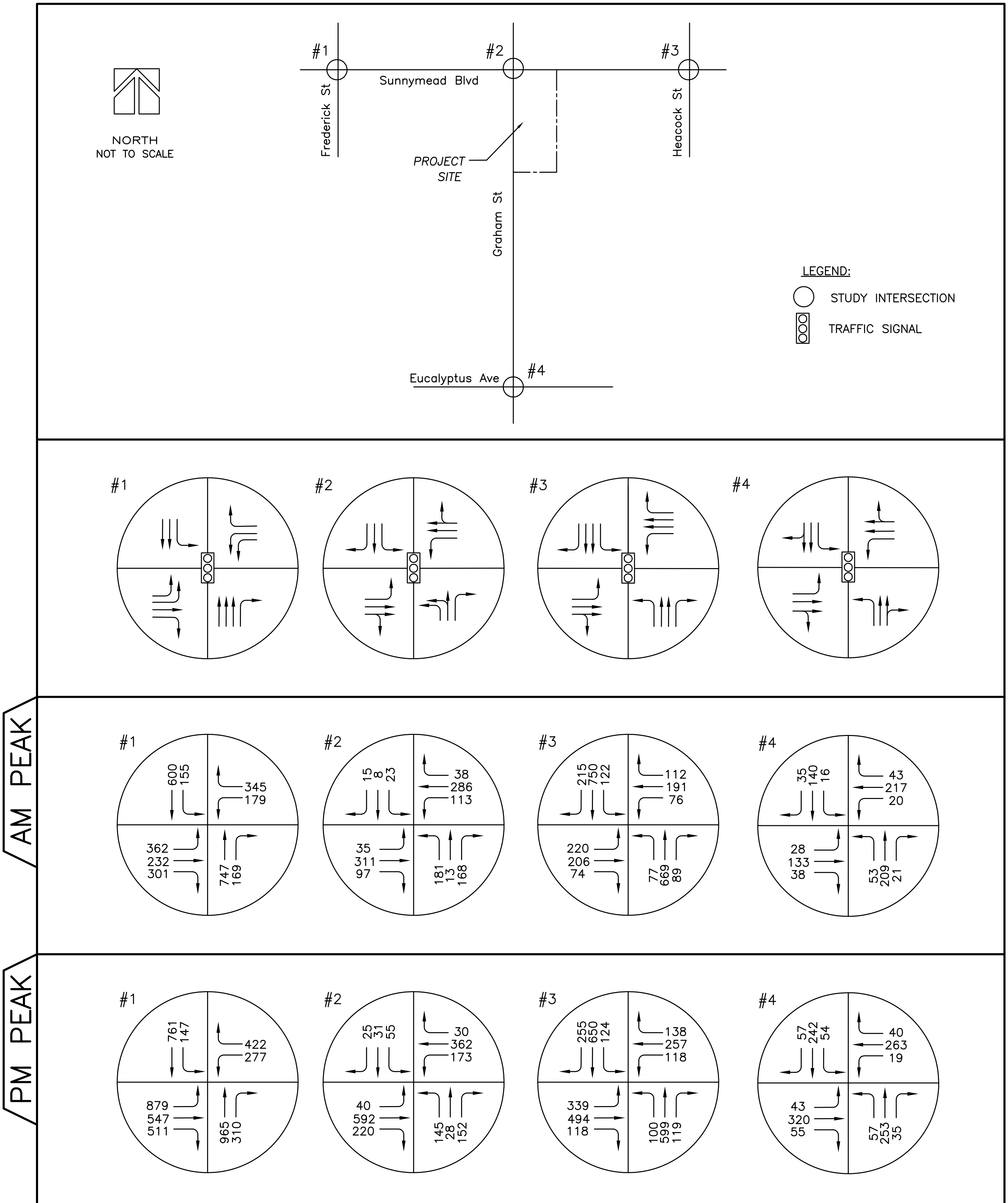
Graham Street is a north-south undivided arterial with two lanes in each direction and a two-way-left-turn lane in the middle. The intersection of Sunnymead Boulevard and Graham Street is controlled by traffic signals. The posted speed limit is 40 mph. On-street parking is generally prohibited along Graham Street.

Traffic counts of AM and PM peak hour turning movements were collected Thursday, June 15, 2020. Being in the COVID-19 pandemic, these data have been applied with an adjustment factor derived from historical count data collected prior to the pandemic for intersection #3, Sunnymead Boulevard at Heacock Street, with 2% annual growth. The adjusted existing traffic volumes and lane configurations are shown in **Exhibit 3**. Complete traffic count data and adjustment calculation can be found in **Appendix A**.

All study intersections operate at LOS "C" or better for both AM and PM peak hours in this scenario. The analysis worksheets can be found in **Appendix B**.

Table 1. Existing Level of Service

No.	Intersection	AM		PM	
		LOS	Delay	LOS	Delay
1	Sunnymead Blvd at Fredrick St	B	15.5	C	26.5
2	Sunnymead Blvd at Graham St	B	15.9	C	20.9
3	Sunnymead Blvd at Heacock St	C	22.1	C	29.4
4	Eucalyptus Ave at Graham St	B	16.6	B	18.1



Go Fresh Gas Station
SEC of Sunnymead Blvd and Graham St, Moreno Valley

EXISTING LANE CONFIGURATIONS AND TRAFFIC VOLUMES

K2 TRAFFIC ENGINEERING

EXHIBIT 3

TRIP GENERATION

Passenger vehicle trips are estimated using the rates and methodologies outlined in *Trip Generation, 10th Edition*, published by the Institute of Transportation Engineers (ITE). Applicable trip generation rates are shown in **Table 2**.

Table 2. Trip Generation Rate

Land Use	Unit	Daily	AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out
Super Convenience Market/Gas Station (945)	Veh Fueling Position	205.36	12.47	51%	49%	13.99	51%	49%
Shopping Center (820)	1000 Sq. Ft.	37.75	0.94	62%	38%	3.81	48%	52%
Automated Car Wash (948)	1000 Sq. Ft.	142.00	6.31	50%	50%	14.20	50%	50%

Based on the methodology described in ITE's *Trip Generation Handbook, Third Edition* and SANDAG's *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, the study applies pass-by rates applicable for the proposed uses. The project has a NET trip generation of 38 inbound and 34 outbound trips in the AM peak hour, and 57 inbound and 55 outbound trips in the PM peak hour, and 1,464 daily trips. The projected trips associated with the project are provided in **Table 3**.

Table 3. Project Trip Generation

Land Use	Unit	Quantity	AM Peak Hour			PM Peak Hour			Daily
			Total	In	Out	Total	In	Out	
Super Convenience Market/Gas Station (945)	Veh Fueling Station	16	200	102	98	224	114	110	3,286
	Pass-by Trip Deduction[1]	AM 62%, PM 56% Daily 50%	-124	-63	-61	-125	-64	-62	-1,939
	Sub-Total		76	39	37	99	50	48	1,347
Automated Car Wash (948)	1000 Sq. Ft.	2.485	16	8	8	35	18	17	353
	Pass-by Trip Deduction[2]	28%	-4	-2	-2	-10	-5	-5	-99
	Sub-Total		12	6	6	25	13	12	254
Shopping Center (820)	1000 Sq. Ft.	6.685	6	4	2	25	12	13	252
	Pass-by Trip Deduction[1]	PM 34%	0	0	0	-9	-4	-4	0
	Sub-Total		6	4	2	16	8	9	252
Gross Trip Generation (without Pass-By Deduction)			222	114	108	284	144	140	3,891
Trip Generation with Pass-By Deduction			94	49	45	140	71	69	1,853
Internal Trip Deduction		10%	-22	-11	-11	-28	-14	-14	-389
Trip Generation (NET)			**72**	38	34	**112**	57	55	**1,464**

1. Per *Trip Generation Handbook, 3rd Edition*
2. Per SANDAG's *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*

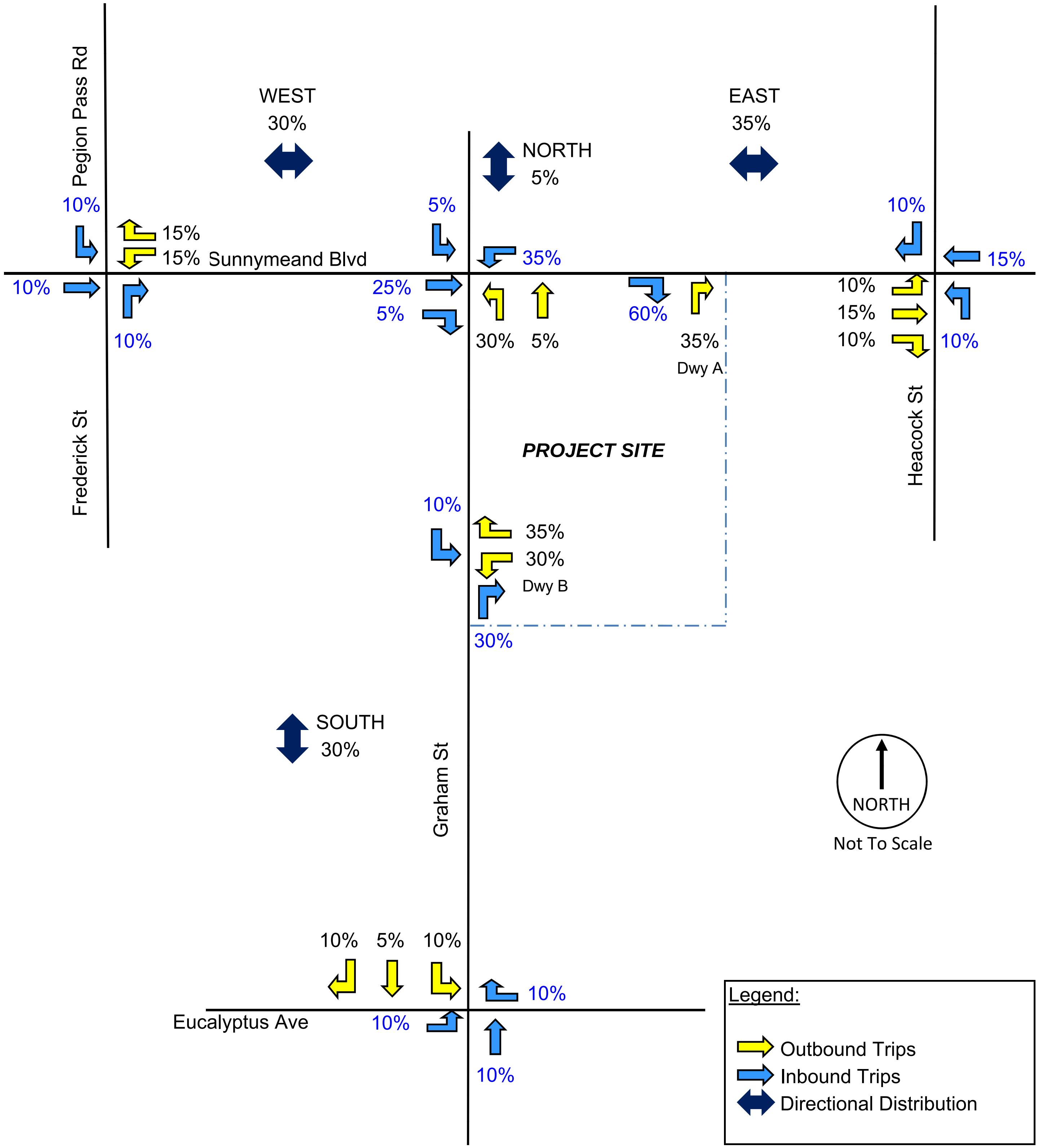
TRIP DISTRIBUTION

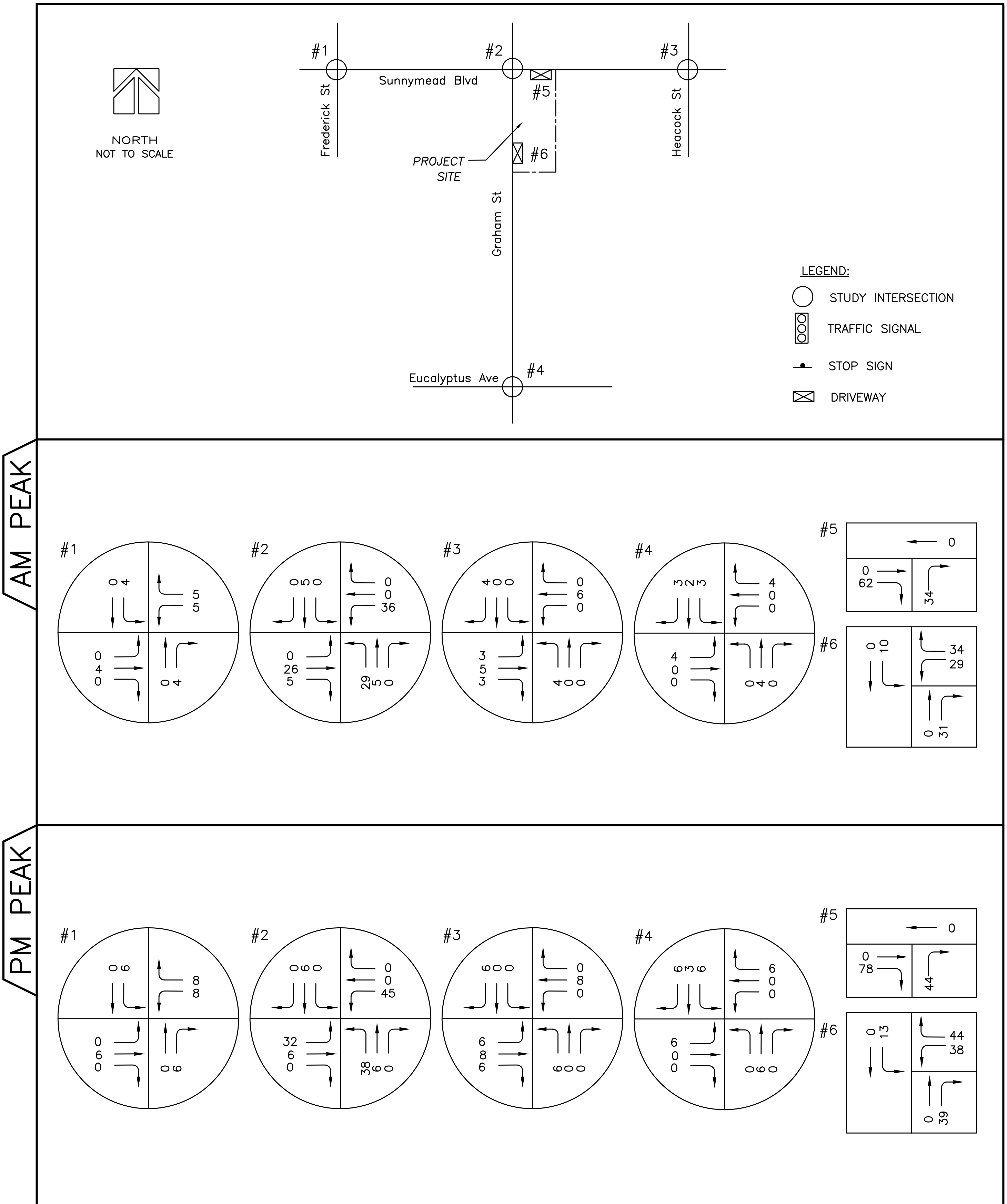
Trip distribution represents the directional orientation of traffic to and from the proposed project. Directional orientation is largely influenced by the geographical location of the site, among many other factors. The trip distribution pattern for the project is illustrated on **Exhibit 4**.

TRAFFIC ASSIGNMENT

The traffic assignment to and from the site has been based upon the results of trip generation, trip distribution, and access layouts. Consistent with the general practice, project trips for the immediate adjacent intersection have been shown without pass-by deduction. **Exhibit 5** illustrates the traffic assignment of the proposed project in the AM and PM peak hours.

EXHIBIT 4. TRIP DISTRIBUTION





Go Fresh Gas Station
SEC of Sunnymead Blvd and Graham St, Moreno Valley

TRAFFIC ASSIGNMENT

K2 TRAFFIC ENGINEERING

EXHIBIT 5

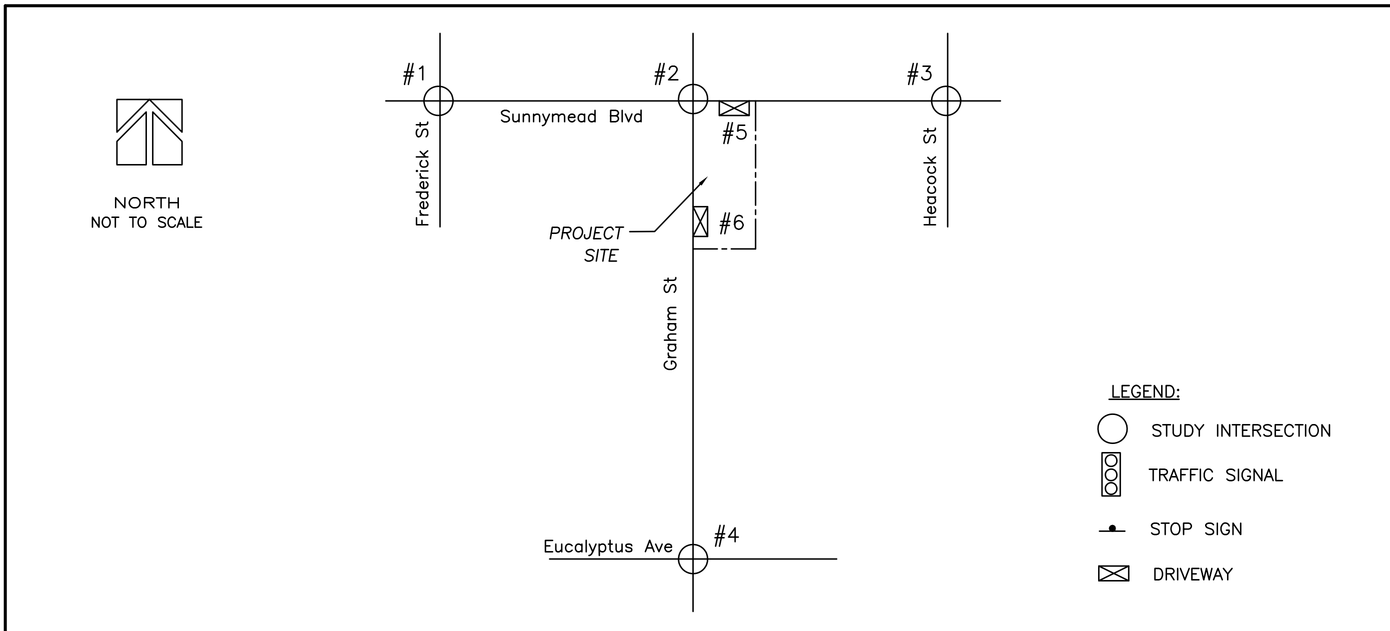
EXISTING CONDITIONS PLUS PROJECT

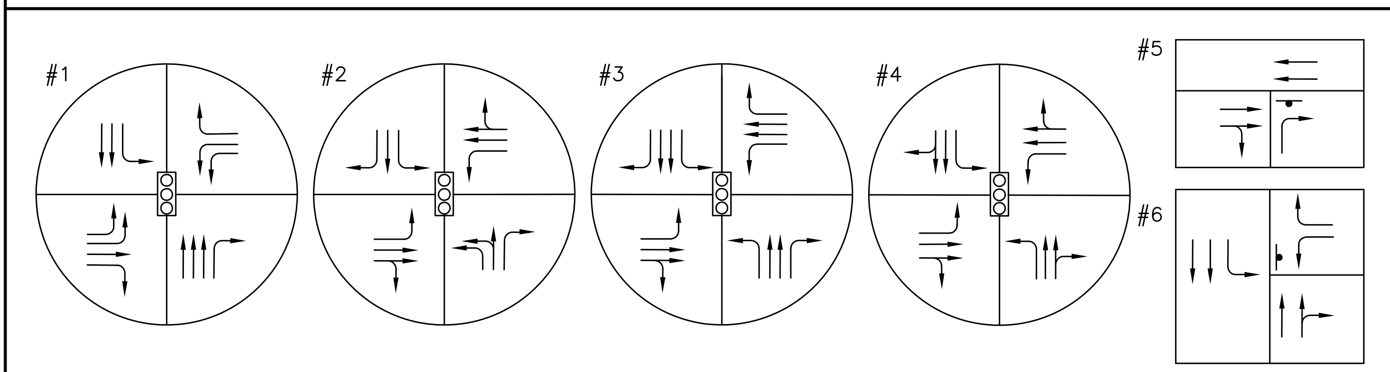
Traffic volumes for existing conditions plus project traffic are shown in **Exhibits 6**.

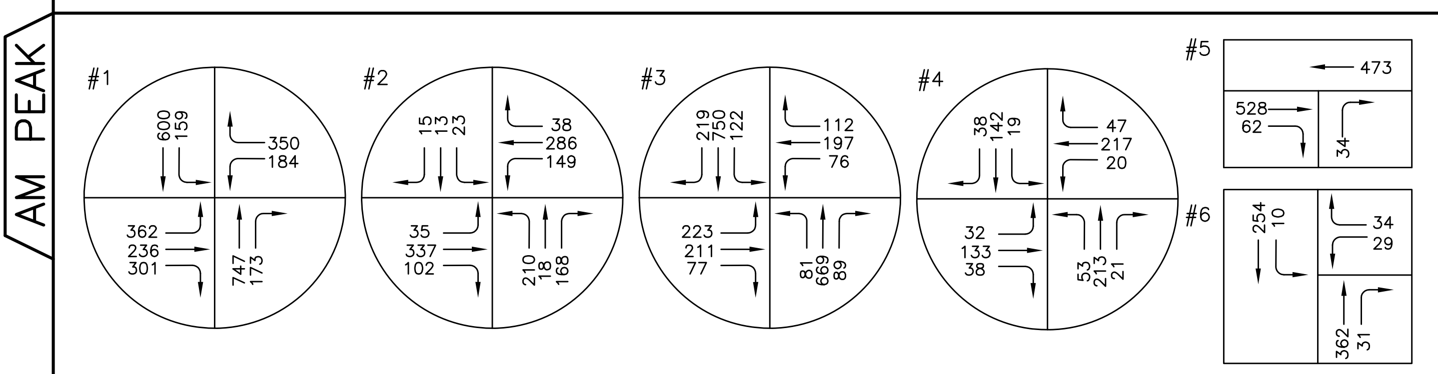
The level of services in the AM and PM peak hour in this scenario are shown in **Table 4**. All studied intersections will maintain level of service "C" or better for this scenario.

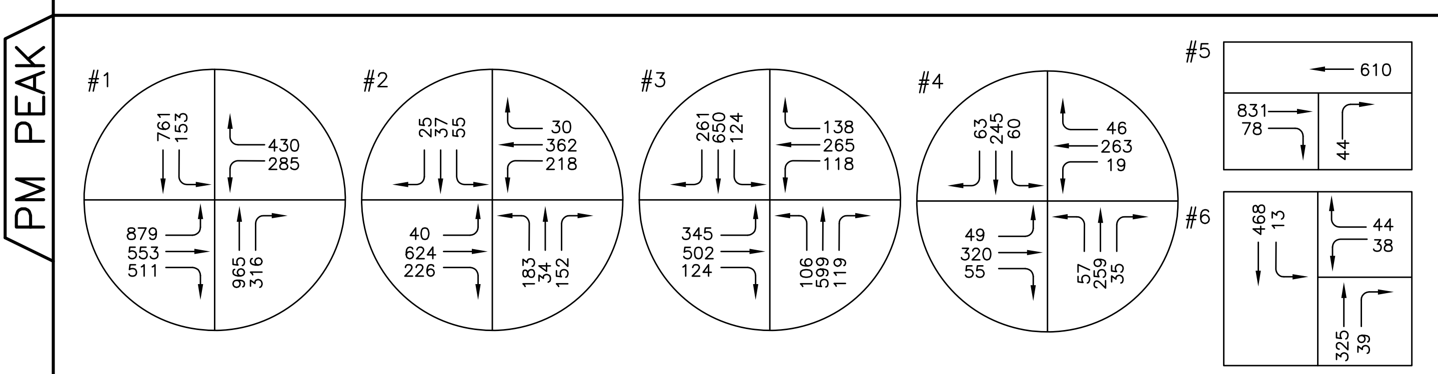
Table 4. Existing plus Project Level of Service

No.	Intersection	AM		PM	
		LOS	Delay	LOS	Delay
1	Sunnymead Blvd at Fredrick St	B	15.6	C	26.9
2	Sunnymead Blvd at Graham St	B	17.1	C	28.6
3	Sunnymead Blvd at Heacock St	C	22.4	C	30.2
4	Eucalyptus Ave at Graham St	B	16.8	B	18.3
5	Driveway "A" at Sunnymead Blvd	B	10.6	B	12.6
6	Driveway "B" at Graham St	B	11.6	B	12.2









EXISTING PLUS PROJECT TRAFFIC VOLUMES

Go Fresh Gas Station
SEC of Sunnymead Blvd and Graham St, Moreno Valley

K2 TRAFFIC ENGINEERING

EXHIBIT 6

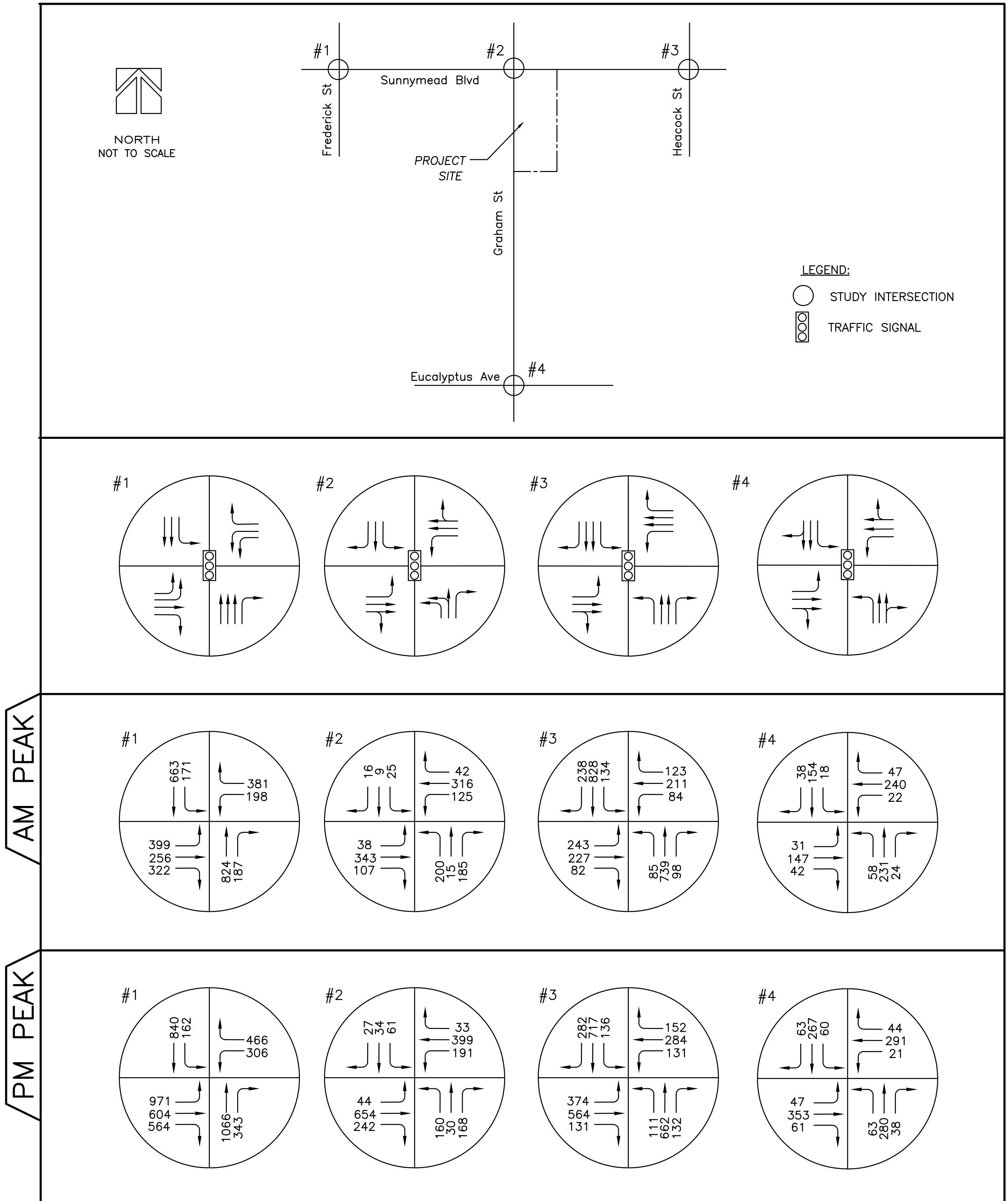
PRE-PROJECT COMPLETION

Year 2025 baseline traffic conditions prior to project completion is estimated by applying an annual growth rate of two percent (2%) over existing traffic counts. Pre-project completion traffic volumes are illustrated in **Exhibit 7**. The level of services and intersection delays are shown in **Table 5.** Analysis worksheets can be found in **Appendix B**.

All studied intersections will maintain level of service "D" or better.

Table 5. Pre-Project Completion (2025) Level of Service

No.	Intersection	AM		PM	
		LOS	Delay	LOS	Delay
1	Sunnymead Blvd at Fredrick St	B	16.8	D	35.3
2	Sunnymead Blvd at Graham St	B	16.5	C	23.5
3	Sunnymead Blvd at Heacock St	C	25.0	D	36.2
4	Eucalyptus Ave at Graham St	B	17.0	B	18.6



Go Fresh Gas Station
SEC of Sunnymead Blvd and Graham St, Moreno Valley

OPENING YEAR TRAFFIC VOLUMES

K2 TRAFFIC ENGINEERING

EXHIBIT 7

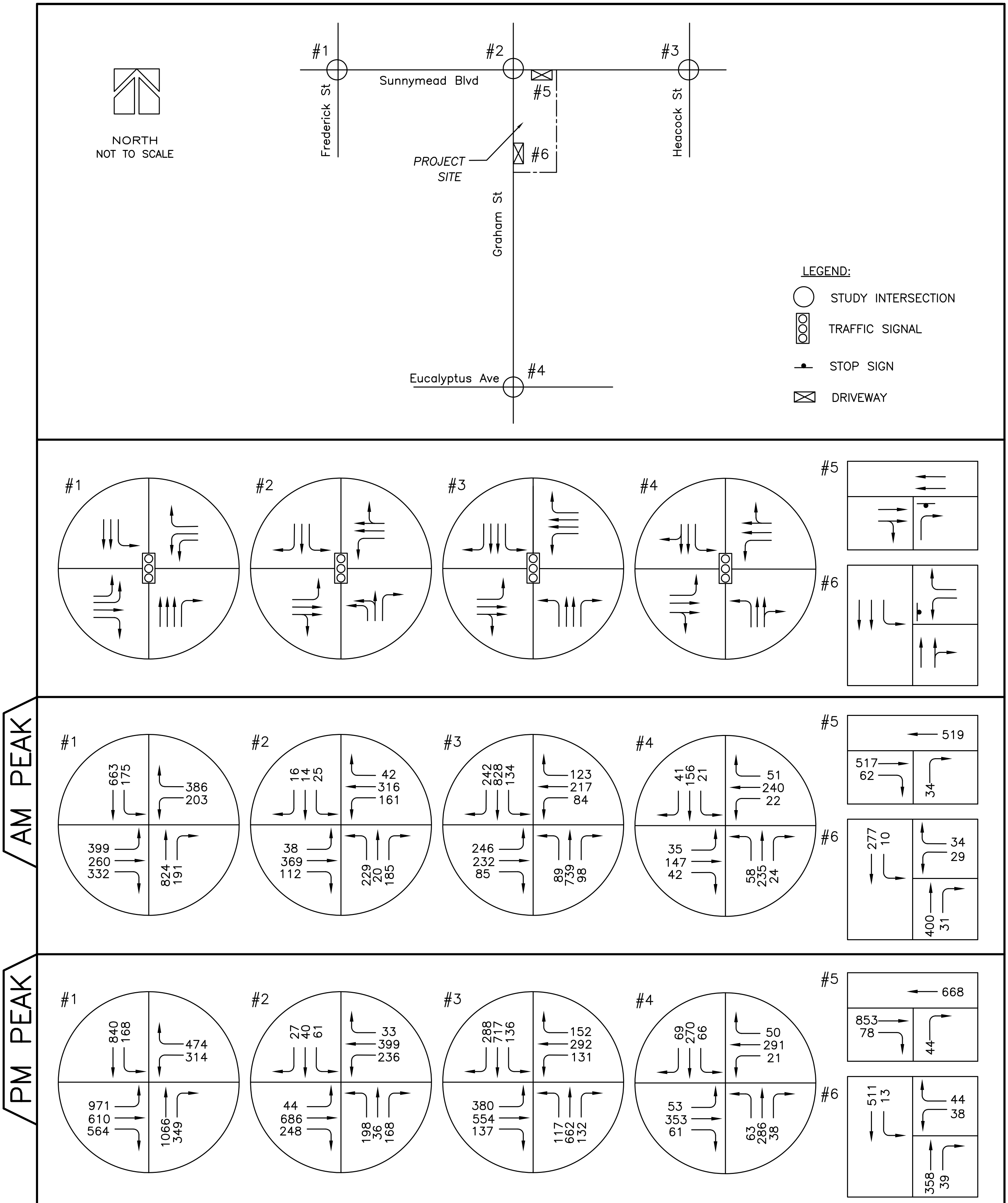
POST-PROJECT COMPLETION

Year 2025 traffic volumes after project completion are illustrated in **Exhibit 8**. The level of services and intersection delays are shown in **Table 6**. Analysis worksheets can be found in **Appendix B**.

Table 6. Post-Project Completion (2025) Level of Service

No.	Intersection	AM		PM	
		LOS	Delay	LOS	Delay
1	Sunnymead Blvd at Fredrick St	B	16.9	D	36.0
2	Sunnymead Blvd at Graham St	B	17.9	C	32.4
3	Sunnymead Blvd at Heacock St	C	25.4	D	37.7
4	Eucalyptus Ave at Graham St	B	17.1	B	18.9
5	Driveway “A” at Sunnymead Blvd	B	10.6	B	12.8
6	Driveway “B” at Graham St	B	12.0	B	12.9

All studied intersections will maintain level of service "D" or better.



OPENING YEAR PLUS PROJECT TRAFFIC VOLUMES

Go Fresh Gas Station
SEC of Sunnymead Blvd and Graham St, Moreno Valley

K2 TRAFFIC ENGINEERING

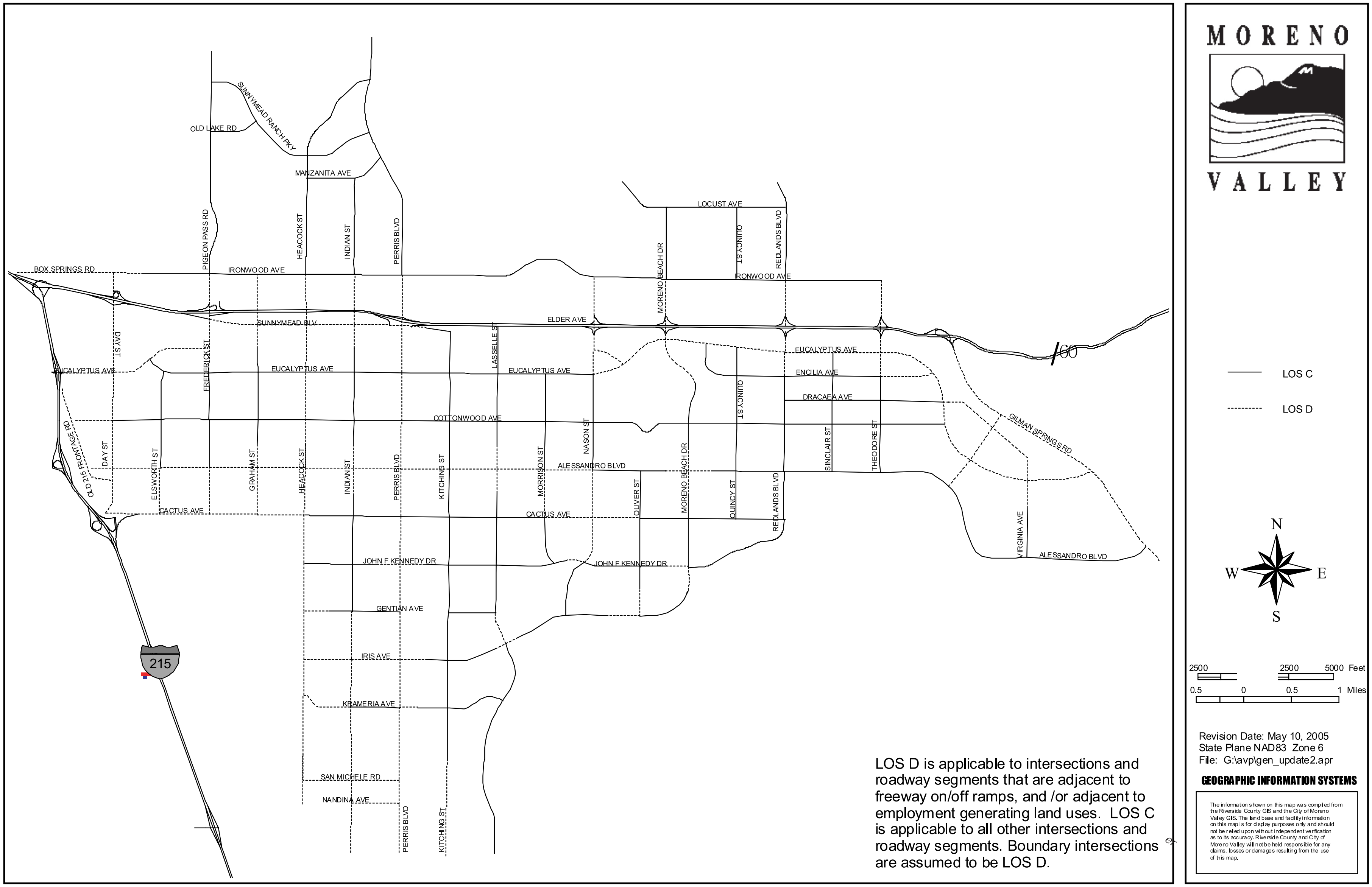
EXHIBIT 8

THRESHOLD OF SIGNIFICANT IMPACT

The City's Level of Service standards, as published in the City's General Plan, as shown in **Exhibit 9**, indicate that LOS D is acceptable for all study intersections.

According to the City of Moreno Valley *Traffic Impact Preparation Guide, June 2020,* signalized intersection operating requirements includes:

- Any signalized study intersection operating at acceptable LOS without project traffic in which the addition of project traffic causes the intersection to degrade to unacceptable LOS shall identify improvements to provide acceptable LOS.
- Any signalized study intersection that is operating at unacceptable LOS without project traffic where the project increases delay by 5.0 or more seconds shall indentify improvements to offset the increase in delay.



Source: Urban Crossroads, June 2004.

Figure 5.2-7
LOS Standards

EXHIBIT 9. LOS Standards

With consideration of the proposed project, the combined traffic impacts for year 2020 are shown in **Table 7**. All study intersections will operate at acceptable level of services. The project has no or less than significant traffic impact in year 2020. Mitigation measure is, therefore, not required.

Table 7. Year 2020 Project Impact Analysis

Intersection	Pre-Project Conditions		Post Project Conditions		Acceptable LOS D or better	Significant Impact
	LOS	Delay	LOS	Delay		
AM PEAK						
1. Sunnymead Blvd at Fredrick St	B	15.5	B	15.6	Yes	No
2. Sunnymead Blvd at Graham St	B	15.9	B	17.1	Yes	No
3. Sunnymead Blvd at Heacock St	C	22.1	C	22.4	Yes	No
4. Eucalyptus Ave at Graham St	B	16.6	B	16.8	Yes	No
PM PEAK						
1. Sunnymead Blvd at Fredrick St	C	26.5	C	26.9	Yes	No
2. Sunnymead Blvd at Graham St	C	20.9	C	28.6	Yes	No
3. Sunnymead Blvd at Heacock St	C	29.4	C	30.2	Yes	No
4. Eucalyptus Ave at Graham St	B	18.1	B	18.3	Yes	No

With consideration of the proposed project, the combined traffic impacts for opening year 2025 are shown in **Table 8**. All study intersections will operate at acceptable level of services. The project has no or less than significant traffic impact in year 2025. Mitigation measure is, therefore, not required.

Table 8. Year 2025 Project Impact Analysis

Intersection	Pre-Project Conditions		Post Project Conditions		Acceptable LOS D Or Better	Significant Impact
	LOS	Delay	LOS	Delay		
AM PEAK						
1. Sunnymead Blvd at Fredrick St	B	16.8	B	16.9	Yes	No
2. Sunnymead Blvd at Graham St	B	16.5	B	17.9	Yes	No
3. Sunnymead Blvd at Heacock St	C	25.0	C	25.4	Yes	No
4. Eucalyptus Ave at Graham St	B	17.0	B	17.1	Yes	No
PM PEAK						
1. Sunnymead Blvd at Fredrick St	D	35.3	D	36.0	Yes	No
2. Sunnymead Blvd at Graham St	C	23.5	C	32.4	Yes	No
3. Sunnymead Blvd at Heacock St	D	36.2	D	37.7	Yes	No
4. Eucalyptus Ave at Graham St	B	18.6	B	18.9	Yes	No

QUEUE ANALYSIS

The study examined each turn pocket at study intersections for the sufficiency of queuing capacity. The results of queue analysis based on existing traffic conditions are shown in **Table 9**. Worksheets of queue analysis can be found in **Appendix C.**

Table 9. Queue Analysis – Existing Conditions

Intersection	Turning Movement	95th Percentile Queue (ft)		Turn Pocket Length (ft)	Exceeds Capacity
		AM Peak	PM Peak		
1. Sunnymead Blvd at Frederick St	EBR	151	410	590	No
	WBL	72	105	145	No
	NBR	32	**135**	75	**Yes**
	SBL	**170**	**195**	95	**Yes**
2. Sunnymead Blvd at Graham St	EBL	39	44	145	No
	WBL	106	**189**	130	**Yes**
	NBL	76	74	100	No
	SBL	28	52	75	No
	SBR	0	0	75	No
3. Sunnymead Blvd at Heacock St	**EBL**	194	**352**	220	**Yes**
	WBL	70	**127**	120	**Yes**
	WBR	42	32	75	No
	NBL	91	**141**	100	**Yes**
	NBR	13	5	100	No
	SBL	**129**	**173**	120	**Yes**
	SBR	27	47	95	No
4. Eucalyptus Ave at Graham St	EBL	32	46	200	No
	WBL	26	27	200	No
	NBL	50	57	190	No
	SBL	22	54	200	No

As pre-existing conditions, the following turn pockets have inadequate queue length:

#1. Sunnymead Blvd at Frederick St: Northbound Right & Southbound Left

#2. Sunnymead Blvd at Graham St: Westbound Left

#3. Sunnymead Blvd at Heacock St: Eastbound, Westbound, Northbound and Southbound Left

The results of queue analysis based at project opening year with project traffic are shown in **Table 10**.

Table 10 . Queue Analysis – Project Opening

Intersection	Turning Movement	95th Percentile Queue (ft)		Turn Bay Length (ft)	Exceeds Capacity
		AM Peak	PM Peak		
1. Sunnymead Blvd at Frederick St	EBR	208	476	590	No
	WBL	80	118	145	No
	NBR	34	**160**	75	**Yes**
	SBL	**197**	**223**	95	**Yes**
2. Sunnymead Blvd at Graham St	EBL	42	48	145	No
	WBL	**176**	**277**	130	**Yes**
	NBL	97	96	100	No
	SBL	31	58	75	No
	SBR	0	0	75	No
3. Sunnymead Blvd at Heacock St	EBL	**227**	**405**	220	**Yes**
	WBL	76	**145**	120	**Yes**
	WBR	46	38	75	No
	NBL	**110**	**165**	100	**Yes**
	NBR	18	12	100	No
	SBL	**146**	**191**	120	**Yes**
	SBR	31	75	95	No
4. Eucalyptus Ave at Graham St	EBL	38	55	200	No
	WBL	27	29	200	No
	NBL	54	62	190	No
	SBL	27	69	200	No

Project trips are not expected to create any new location of inadequate queue length beyond those identified as pre-existing conditions. The study recommends increasing queue length for the immediately adjacent intersection:

- Extend westbound left-turn pocket on Sunnymead Boulevard at Graham Street to provide at least 280 feet of storage length.

However, the city should evaluate all perspectives and determine whether or not to implement the above improvement which requires removal of the existing median landscape and may potentially affect traffic signal timing and operation. Other locations identified as pre-existing inadequacy of queue length appear impractical for pocket length extension due to existing constraints and limitations. Such pre-existing deficiencies should be further monitored and evaluated by the City for consideration of future major capital improvements and comprehensive transportation demand management to reduce traffic volumes.

FAIR SHARE CONTRIBUTION

Fair share contribution represents the percentage of construction cost that the proposed development is expected to contribute toward the aforementioned mitigation measures. The fair share contribution is calculated based on the sum of project trips in the PM peak hour at project opening year plus project as a percentage of total trips during the same period, as shown in **Table 11**.

Table 11. Calculation of Fair Share Contribution

Location	Project Trip	Overall Trip	Project Contribution
2. Sunnymead Blvd at Graham St	45	236	**19%**

The subject development should contribute a fair share of 19% of the construction costs, for the aforementioned queue length extension.

VEHICLE MILES TRAVELED (VMT) ASSESSMENT

In accordance with the VMT analysis methodology recommended in the City of Moreno Valley *Traffic Impact Preparation Guide, June 2020,* the study conducted the "Low VMT Area Screening" from project-level assessment.

The proposed commercial developments including retail stores, gas station and express car wash are consistent with the approved land uses in Community Commercial Zoning within the Traffic Analysis Zones (TAZ). The project is apparently suitable for the Western Riverside Council of Governments (WRCOG) screening tool. WRCOG screening output, as shown in the **Appendix D**, has shown that the project is located within a low VMT generating TAZ and can be presumed to have less than significant VMT impact. Complete VMT analysis and forecasting through regional model is, therefore, not required for the project.

SITE ACCESS

The project provides a new driveway on Sunnymead Boulevard for right-in-right-out access. A “One Way” sign (R6-1) is recommended on the existing median island facing the proposed driveway. Another new driveway is provided on Graham Street for two-way access. With a two-way-left-turn lane in the middle of Graham Street, site access is apparently adequate and proper.

According to Highway Design Manual (Index 405.1(d)), the sight distance requirement does not apply for urban driveways unless signalized. With the presence of bike lane, parking should remain prohibited on both Sunnymead Boulevard and Graham Street in the project vicinity.

ON-SITE CIRCULATION

The site provides drive aisles of 24 feet wide for two way circulation. Adequate throat length is provided to ensure parking maneuvers contained on site without affecting traffic on public streets. On-site circulation appears efficient and safe without bottleneck. Nonetheless, site plan is subject to review and approval by the Fire Department, Planning Department and Traffic Engineer.

PEDESTRIAN, BICYCLE, PUBLIC TRANSIT

Sidewalks are present and in good conditions along Sunnymead Boulevard and Graham Street in the project vicinity. The intersection of Sunnymead Boulevard and Graham Street provides crosswalk at each approach with accessible ramps and pedestrian push buttons to activate pedestrian crossing phases. However, ADA-compliant access ramp should be provided at each new driveway.

Bike lanes are present and in good conditions along Sunnymead Boulevard and Graham Street. The site is within 400 feet from existing bus stops of Route #19 operated by Riverside Transit Agency's (RTA) which runs along Sunnymead Boulevard.

APPENDIX A

TURNING MOVEMENT COUNT DATA

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

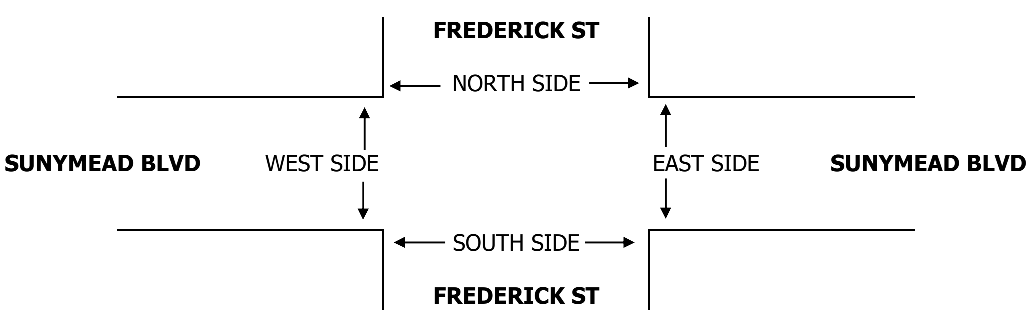
DATE: 6/11/20 THURSDAY	LOCATION:	MORENO VALLEY	PROJECT #:	
	NORTH & SOUTH:	FREDERICK ST	LOCATION #:	1
	EAST & WEST:	SUNYMEAD BLVD	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

N ▲ ◄ W E ► S ▼

		NORTHBOUND FREDERICK ST			SOUTHBOUND FREDERICK ST			EASTBOUND SUNYMEAD BLVD			WESTBOUND SUNYMEAD BLVD		
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	X	3	1	1	2	X	2	1	1	2	X	1	
AM	7:00 AM		83	8	14	46		46	15	32	11		41	296
AM	7:15 AM		83	12	12	66		89	38	72	23		82	477
AM	7:30 AM		86	20	12	79		62	29	46	20		54	408
AM	7:45 AM		110	26	20	100		77	26	38	23		77	497
AM	8:00 AM		119	23	30	90		46	33	39	23		64	467
AM	8:15 AM		112	21	19	83		73	27	49	29		41	454
AM	8:30 AM		104	30	24	76		53	30	34	21		53	425
AM	8:45 AM		119	29	21	116		48	51	61	36		52	533
AM	VOLUMES	0	816	169	152	656	0	494	249	371	186	0	464	3,557
AM	APPROACH %	0%	83%	17%	19%	81%	0%	44%	22%	33%	29%	0%	71%	
AM	APP/DEPART	985	/	1,774	808	/	1,213	1,114	/	570	650	/	0	0
AM	BEGIN PEAK HR		8:00 AM											
AM	VOLUMES	0	454	103	94	365	0	220	141	183	109	0	210	1,879
AM	APPROACH %	0%	82%	18%	20%	80%	0%	40%	26%	34%	34%	0%	66%	
AM	PEAK HR FACTOR		0.941			0.838			0.850			0.906		0.881
AM	APP/DEPART	557	/	884	459	/	657	544	/	338	319	/	0	0
PM	4:00 PM		201	71	26	174		163	114	121	61		107	1,038
PM	4:15 PM		209	74	27	184		166	127	137	60		116	1,100
PM	4:30 PM		232	70	34	156		190	119	121	75		71	1,068
PM	4:45 PM		258	78	31	184		201	136	125	67		93	1,173
PM	5:00 PM		229	73	39	182		213	131	136	68		111	1,182
PM	5:15 PM		201	67	43	190		238	125	117	57		91	1,129
PM	5:30 PM		257	86	31	189		209	144	122	79		118	1,235
PM	5:45 PM		239	79	28	177		168	104	131	55		113	1,094
PM	VOLUMES	0	1,826	598	259	1,436	0	1,548	1,000	1,010	522	0	820	9,019
PM	APPROACH %	0%	75%	25%	15%	85%	0%	44%	28%	28%	39%	0%	61%	
PM	APP/DEPART	2,424	/	4,194	1,695	/	2,968	3,558	/	1,857	1,342	/	0	0
PM	BEGIN PEAK HR		4:45 PM											
PM	VOLUMES	0	945	304	144	745	0	861	536	500	271	0	413	4,719
PM	APPROACH %	0%	76%	24%	16%	84%	0%	45%	28%	26%	40%	0%	60%	
PM	PEAK HR FACTOR		0.910			0.954			0.988			0.868		0.955
PM	APP/DEPART	1,249	/	2,219	889	/	1,516	1,897	/	984	684	/	0	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE: 6/11/20 THURSDAY	LOCATION:	MORENO VALLEY	PROJECT #:	
	NORTH & SOUTH:	GRAHAM ST	LOCATION #:	2
	EAST & WEST:	SUNNYMEAD BLVD	CONTROL:	SIGNAL

NOTES:

AM PM MD OTHER OTHER

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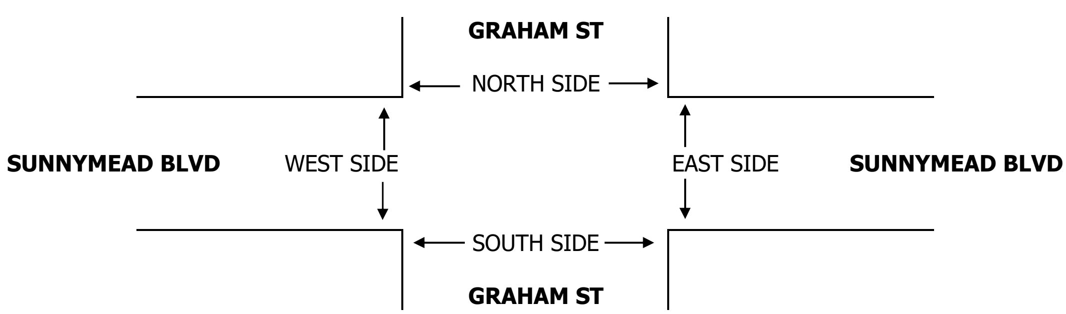
		NORTHBOUND GRAHAM ST			SOUTHBOUND GRAHAM ST			EASTBOUND SUNNYMEAD BLVD			WESTBOUND SUNNYMEAD BLVD			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	1.5	0.5	1	0	1	1	1	2	0	1	2	0	
AM	7:00 AM	31	0	12	0	1	0	1	20	12	9	19	1	106
AM	7:15 AM	26	1	12	3	0	1	1	24	10	20	33	3	134
AM	7:30 AM	29	5	16	3	1	2	3	33	16	24	36	4	172
AM	7:45 AM	34	3	21	1	3	1	3	39	14	21	33	3	176
AM	8:00 AM	32	0	23	1	2	0	4	43	13	17	35	5	175
AM	8:15 AM	22	2	22	4	0	8	4	44	13	19	38	4	180
AM	8:30 AM	34	4	25	2	1	1	6	55	11	14	46	4	203
AM	8:45 AM	22	2	32	7	2	0	7	47	22	19	55	10	225
AM	VOLUMES	230	17	163	21	10	13	29	305	111	143	295	34	1,371
AM	APPROACH %	56%	4%	40%	48%	23%	30%	7%	69%	25%	30%	63%	7%	
AM	APP/DEPART	410	/	80	44	/	264	445	/	489	472	/	538	0
AM	BEGIN PEAK HR		8:00 AM											
AM	VOLUMES	110	8	102	14	5	9	21	189	59	69	174	23	783
AM	APPROACH %	50%	4%	46%	50%	18%	32%	8%	70%	22%	26%	65%	9%	
AM	PEAK HR FACTOR		0.873			0.583			0.885			0.792		0.870
AM	APP/DEPART	220	/	52	28	/	133	269	/	305	266	/	293	0
PM	4:00 PM	41	9	36	16	4	3	9	141	50	44	93	8	454
PM	4:15 PM	31	8	34	17	8	6	13	151	57	39	83	8	455
PM	4:30 PM	36	8	41	11	6	6	11	135	36	43	97	4	434
PM	4:45 PM	34	2	38	10	12	9	6	153	72	43	81	9	469
PM	5:00 PM	28	1	40	7	7	7	5	140	47	34	80	5	401
PM	5:15 PM	33	9	44	5	6	4	6	138	56	37	94	15	447
PM	5:30 PM	25	4	44	15	6	11	7	138	44	46	92	10	442
PM	5:45 PM	26	2	39	12	8	4	4	123	41	37	85	10	391
PM	VOLUMES	254	43	316	93	57	50	61	1,119	403	323	705	69	3,493
PM	APPROACH %	41%	7%	52%	47%	29%	25%	4%	71%	25%	29%	64%	6%	
PM	APP/DEPART	613	/	173	200	/	783	1,583	/	1,528	1,097	/	1,009	0
PM	BEGIN PEAK HR		4:00 PM											
PM	VOLUMES	142	27	149	54	30	24	39	580	215	169	354	29	1,812
PM	APPROACH %	45%	8%	47%	50%	28%	22%	5%	70%	26%	31%	64%	5%	
PM	PEAK HR FACTOR		0.924			0.871			0.903			0.952		0.966
PM	APP/DEPART	318	/	95	108	/	414	834	/	783	552	/	520	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE:	LOCATION:	MORENO VALLEY	PROJECT #:	
6/11/20	NORTH & SOUTH:	HEACOCK ST	LOCATION #:	3
THURSDAY	EAST & WEST:	SUNNYMEAD BLVD	CONTROL:	SIGNAL

NOTES:

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PM
MD
OTHER
OTHER

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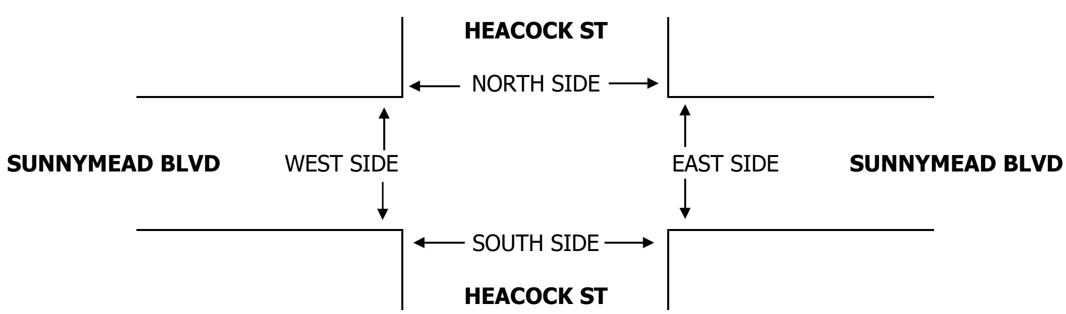
		NORTHBOUND HEACOCK ST			SOUTHBOUND HEACOCK ST			EASTBOUND SUNNYMEAD BLVD			WESTBOUND SUNNYMEAD BLVD			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	1	2	1	1	2	1	1	2	0	1	2	1	
AM	7:00 AM	3	93	6	3	77	14	18	12	4	4	14	8	256
AM	7:15 AM	13	91	2	7	90	32	16	11	3	7	15	10	297
AM	7:30 AM	8	123	4	7	103	27	38	15	6	9	29	17	386
AM	7:45 AM	12	123	17	20	112	24	17	15	5	7	26	9	387
AM	8:00 AM	11	102	11	18	102	27	31	17	14	7	24	13	377
AM	8:15 AM	12	113	5	18	120	33	28	30	6	18	26	22	431
AM	8:30 AM	10	95	20	15	102	35	25	38	11	4	27	16	398
AM	8:45 AM	14	97	18	23	132	36	50	40	14	17	39	17	497
AM	VOLUMES	83	837	83	111	838	228	223	178	63	73	200	112	3,029
AM	APPROACH %	8%	83%	8%	9%	71%	19%	48%	38%	14%	19%	52%	29%	
AM	APP/DEPART	1,003	/	1,172	1,177	/	974	464	/	372	385	/	511	0
AM	BEGIN PEAK HR		8:00 AM											
AM	VOLUMES	47	407	54	74	456	131	134	125	45	46	116	68	1,703
AM	APPROACH %	9%	80%	11%	11%	69%	20%	44%	41%	15%	20%	50%	30%	
AM	PEAK HR FACTOR		0.977			0.865			0.731			0.788		0.857
AM	APP/DEPART	508	/	609	661	/	547	304	/	253	230	/	294	0
PM	4:00 PM	19	134	21	24	190	46	83	96	22	22	66	34	757
PM	4:15 PM	21	124	35	34	182	72	82	123	32	29	63	30	827
PM	4:30 PM	35	142	18	19	164	59	76	94	31	32	60	25	755
PM	4:45 PM	21	171	25	32	150	65	76	130	29	32	78	32	841
PM	5:00 PM	21	150	39	36	140	54	98	137	24	23	51	48	821
PM	5:15 PM	23	164	19	18	175	55	74	115	25	11	51	30	760
PM	5:30 PM	23	146	26	29	155	66	66	99	35	17	39	35	736
PM	5:45 PM	18	129	20	21	137	54	74	101	25	21	56	24	680
PM	VOLUMES	181	1,160	203	213	1,293	471	629	895	223	187	464	258	6,177
PM	APPROACH %	12%	75%	13%	11%	65%	24%	36%	51%	13%	21%	51%	28%	
PM	APP/DEPART	1,544	/	2,047	1,977	/	1,703	1,747	/	1,311	909	/	1,116	0
PM	BEGIN PEAK HR		4:15 PM											
PM	VOLUMES	98	587	117	121	636	250	332	484	116	116	252	135	3,244
PM	APPROACH %	12%	73%	15%	12%	63%	25%	36%	52%	12%	23%	50%	27%	
PM	PEAK HR FACTOR		0.924			0.874			0.900			0.886		0.964
PM	APP/DEPART	802	/	1,054	1,007	/	868	932	/	722	503	/	600	0



INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: PACIFIC TRAFFIC DATA SERVICES

DATE:	LOCATION:	MORENO VALLEY	PROJECT #:	
6/11/20	NORTH & SOUTH:	GRAHAM ST	LOCATION #:	4
THURSDAY	EAST & WEST:	EUCALYPTUS AVE	CONTROL:	SIGNAL

NOTES:

AM
PM
MD
OTHER
OTHER

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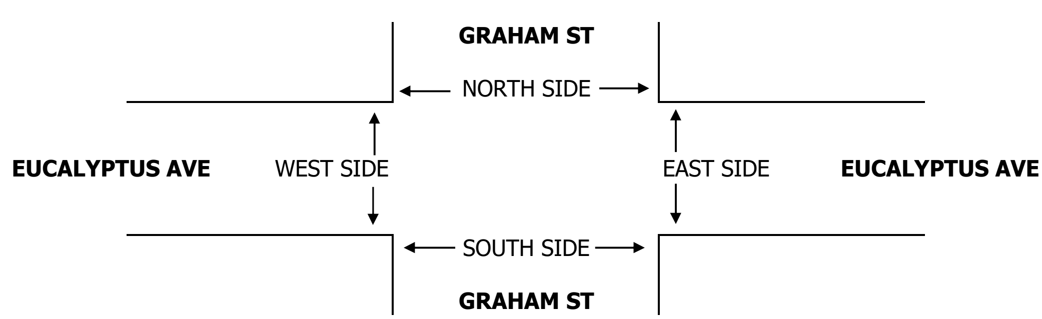
		NORTHBOUND GRAHAM ST			SOUTHBOUND GRAHAM ST			EASTBOUND EUCALYPTUS AVE			WESTBOUND EUCALYPTUS AVE			
		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	LANES:	X	X	X	X	X	X	X	X	X	X	X	X	
AM	7:00 AM	5	14	1	3	12	6	1	12	1	3	27	5	90
	7:15 AM	2	21	1	2	20	4	3	14	2	1	20	3	93
	7:30 AM	6	21	0	2	27	6	3	17	3	2	28	8	123
	7:45 AM	20	27	4	2	30	3	5	13	1	3	44	8	160
	8:00 AM	6	24	4	3	21	5	2	16	9	2	23	7	122
	8:15 AM	9	29	1	2	23	4	4	24	3	1	34	10	144
	8:30 AM	7	35	2	3	21	5	2	19	6	5	39	5	149
	8:45 AM	10	39	6	2	20	7	9	22	5	4	36	4	164
	VOLUMES	65	210	19	19	174	40	29	137	30	21	251	50	1,045
	APPROACH %	22%	71%	6%	8%	75%	17%	15%	70%	15%	7%	78%	16%	
	APP/DEPART	294	/	289	233	/	225	196	/	175	322	/	356	0
	BEGIN PEAK HR		8:00 AM											
	VOLUMES	32	127	13	10	85	21	17	81	23	12	132	26	579
	APPROACH %	19%	74%	8%	9%	73%	18%	14%	67%	19%	7%	78%	15%	
	PEAK HR FACTOR		0.782			1.000			0.840			0.867		0.883
	APP/DEPART	172	/	170	116	/	120	121	/	104	170	/	185	0
PM	4:00 PM	17	65	8	10	57	18	9	84	5	8	67	10	358
	4:15 PM	13	54	12	18	54	11	12	77	16	3	53	11	334
	4:30 PM	14	65	8	14	60	6	11	81	21	4	71	9	364
	4:45 PM	12	64	6	11	66	21	10	71	12	4	67	9	353
	5:00 PM	17	47	9	11	57	16	10	73	17	4	62	5	328
	5:15 PM	11	45	8	8	55	11	8	74	26	2	67	5	320
	5:30 PM	14	55	3	11	41	18	14	76	9	2	55	12	310
	5:45 PM	8	56	7	12	56	16	13	79	18	2	73	7	347
	VOLUMES	106	451	61	95	446	117	87	615	124	29	515	68	2,714
	APPROACH %	17%	73%	10%	14%	68%	18%	11%	74%	15%	5%	84%	11%	
	APP/DEPART	618	/	606	658	/	599	826	/	771	612	/	738	0
	BEGIN PEAK HR		4:00 PM											
	VOLUMES	56	248	34	53	237	56	42	313	54	19	258	39	1,409
	APPROACH %	17%	73%	10%	15%	68%	16%	10%	77%	13%	6%	82%	12%	
	PEAK HR FACTOR		0.939			0.883			0.905			0.929		0.968
	APP/DEPART	338	/	329	346	/	310	409	/	400	316	/	370	0



Appendix A. 2020 Traffic Count Adjustment

New traffic counts were collected on Thursday, June 15, 2020 for all study intersections as shown in Table 1. Current traffic has been affected by the COVID-19 pandemic. To reflect more reliable traffic volume data, historical data of intersection #3 (collected on Thursday, April 18, 2019),as shown in Table 2, were used to adjust the new traffic counts. The calculation steps are as follows,

1. 2% annual growth is added to the historical data of 2019. Total volume is 2,746 and 3,248 for AM and PM, respectively.

2. Total volume for intersection #3 calculated in step 1 is compared with total volume of new count for intersection #3 (1,703 and 3,244 for AM and PM as shown in Table 1) to obtain adjustment factors for AM and PM, respectively.

3. New count of 2020 is multiplying by the adjustment factors.

The adjusted new count of 2020, as shown in Table 3, were used in this report as the existing conditions data.

Table 1. New Count of 2020

Intersection	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Total
AM													
#1 Sunnymead Blvd at Frederick St	220	141	183	109	0	210	0	454	103	94	365	0	-
#2 Sunnymead Blvd at Graham St	21	189	59	69	174	23	110	8	102	14	5	9	-
#3 Sunnymead Blvd at Heacock St	134	125	45	46	116	68	47	407	54	74	456	131	**1,703**
#4 Eucalyptus Ave at Graham St	17	81	23	12	132	26	32	127	13	10	85	21	-
PM													
#1 Sunnymead Blvd at Frederick St	861	536	500	271	0	413	0	945	304	144	745	0	-
#2 Sunnymead Blvd at Graham St	39	580	215	169	354	29	142	27	149	54	30	24	-
#3 Sunnymead Blvd at Heacock St	332	484	116	116	252	135	98	587	117	121	636	250	**3,244**
#4 Eucalyptus Ave at Graham St	42	313	54	19	258	39	56	248	34	53	237	56	-

Table 2. Historical Data of 2019 of Intersection #3

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	Total
Historical Data AM Peak (2019)	178	181	61	75	283	63	99	495	78	74	799	360	**2,746**
Historica Data PM Peak (2019)	333	563	110	127	264	136	94	609	120	102	573	217	**3,248**

	AM	PM	
(a). Historical Peak Hour Total Volume:	2,746	3,248	
(b). Calculated 2020 Peak Hour Total Volume = Historical Data * (100%+2%) =	2,801	3,313	**(Step 1)**
(c). New count Peak Hour Total Volume:	1,703	3,244	
(d). Peak Hour Adjustment Factor = (b) / (c) =	**1.64**	**1.02**	**(Step 2)**

Multiplying Table 1 by adjustment factors, adjusted new count of 2020 are shown in the Table 3 below, **(Step 3)**

Table 3. Adjusted New Count of 2020

Intersection	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
AM												
#1 Sunnymead Blvd at Frederick St	362	232	301	179	0	345	0	747	169	155	600	0
#2 Sunnymead Blvd at Graham St	35	311	97	113	286	38	181	13	168	23	8	15
#3 Sunnymead Blvd at Heacock St	220	206	74	76	191	112	77	669	89	122	750	215
#4 Eucalyptus Ave at Graham St	28	133	38	20	217	43	53	209	21	16	140	35
PM												
#1 Sunnymead Blvd at Frederick St	879	547	511	277	0	422	0	965	310	147	761	0
#2 Sunnymead Blvd at Graham St	40	592	220	173	362	30	145	28	152	55	31	25
#3 Sunnymead Blvd at Heacock St	339	494	118	118	257	138	100	599	119	124	650	255
#4 Eucalyptus Ave at Graham St	43	320	55	19	263	40	57	253	35	54	242	57

Thursday - June 11, 2020 CITY: MORENO VALLEY PROJECT:

SUNNYMEAD BLVD BTWN FREDERICK ST & HEACOCK ST

AM Period	NB	SB	EB		WB			PM Period	NB	SB	EB		WB		
00:00			24		13			12:00			154		169		
00:15			14		18			12:15			144		171		
00:30			17		23			12:30			136		167		
00:45			10	65	10	64	129	12:45			149	583	182	689	1272
01:00			6		10			13:00			165		154		
01:15			12		11			13:15			141		164		
01:30			5		10			13:30			145		180		
01:45			9	32	8	39	71	13:45			135	586	161	659	1245
02:00			14		12			14:00			166		158		
02:15			10		13			14:15			153		141		
02:30			15		3			14:30			157		173		
02:45			1	40	8	36	76	14:45			158	634	150	622	1256
03:00			6		6			15:00			155		142		
03:15			8		6			15:15			131		162		
03:30			9		6			15:30			147		125		
03:45			8	31	11	29	60	15:45			156	589	150	579	1168
04:00			8		18			16:00			194		144		
04:15			10		12			16:15			183		148		
04:30			15		11			16:30			190		161		
04:45			8	41	14	55	96	16:45			185	752	162	615	1367
05:00			11		14			17:00			193		132		
05:15			27		26			17:15			199		146		
05:30			18		14			17:30			193		158		
05:45			21	77	31	85	162	17:45			202	787	161	597	1384
06:00			25		19			18:00			178		124		
06:15			28		23			18:15			138		133		
06:30			30		27			18:30			98		115		
06:45			35	118	35	104	222	18:45			104	518	109	481	999
07:00			17		46			19:00			114		102		
07:15			36		52			19:15			123		102		
07:30			35		77			19:30			94		95		
07:45			52	140	54	229	369	19:45			86	417	96	395	812
08:00			57		65			20:00			71		75		
08:15			59		72			20:15			66		80		
08:30			67		52			20:30			68		75		
08:45			84	267	88	277	544	20:45			63	268	82	312	580
09:00			80		96			21:00			64		56		
09:15			88		72			21:15			58		51		
09:30			69		106			21:30			51		63		
09:45			106	343	98	372	715	21:45			33	206	55	225	431
10:00			109		115			22:00			43		41		
10:15			106		113			22:15			31		33		
10:30			131		129			22:30			20		27		
10:45			116	462	134	491	953	22:45			28	122	41	142	264
11:00			142		152			23:00			32		28		
11:15			139		163			23:15			7		20		
11:30			147		146			23:30			21		28		
11:45			162	590	172	633	1223	23:45			20	80	21	97	177
Total Vol.				2206		2414	**4620**					5542		5413	**10955**

Daily Totals

NB	SB	EB	WB	Combined
		7748	7827	**15575**

	AM			PM		
	EB	WB	Combined	EB	WB	Combined
Split %	47.7%	52.3%	**29.7%**	50.6%	49.4%	**70.3%**
Peak Hour	11:30	11:45	**11:45**	17:00	12:00	**17:00**
Volume	607	679	**1275**	787	689	**1384**
P.H.F.	0.94	0.99	**0.95**	0.97	0.95	**0.95**

PACIFIC TRAFFIC & TRANSIT DATA SERVICES

Thursday - June 11, 2020 CITY: MORENO VALLEY PROJECT:

GRAHAM ST BTWN SUNNYMEAD BLVD & EUCALYPTUS AVE

AM Period	NB		SB		EB	WB		PM Period	NB		SB		EB	WB	
00:00	10		15					12:00	54		56				
00:15	12		14					12:15	54		54				
00:30	8		6					12:30	59		50				
00:45	10	40	10	45			85	12:45	57	224	65	225			449
01:00	2		11					13:00	58		68				
01:15	6		9					13:15	46		58				
01:30	4		3					13:30	38		64				
01:45	1	13	3	26			39	13:45	51	193	57	247			440
02:00	4		9					14:00	65		57				
02:15	3		4					14:15	61		46				
02:30	4		2					14:30	53		65				
02:45	1	12	2	17			29	14:45	72	251	64	232			483
03:00	3		4					15:00	59		64				
03:15	6		9					15:15	70		45				
03:30	2		6					15:30	79		84				
03:45	5	16	3	22			38	15:45	100	308	74	267			575
04:00	10		6					16:00	73		84				
04:15	11		5					16:15	97		82				
04:30	14		11					16:30	70		80				
04:45	17	52	15	37			89	16:45	92	332	85	331			663
05:00	18		14					17:00	95		94				
05:15	22		17					17:15	75		73				
05:30	16		18					17:30	84		75				
05:45	25	81	31	80			161	17:45	64	318	80	322			640
06:00	17		11					18:00	77		70				
06:15	21		14					18:15	59		61				
06:30	18		20					18:30	76		54				
06:45	25	81	21	66			147	18:45	86	298	70	255			553
07:00	31		26					19:00	81		58				
07:15	28		29					19:15	76		38				
07:30	38		32					19:30	67		46				
07:45	33	130	38	125			255	19:45	75	299	51	193			492
08:00	48		30					20:00	78		36				
08:15	33		27					20:15	70		48				
08:30	43		30					20:30	46		33				
08:45	40	164	26	113			277	20:45	41	235	35	152			387
09:00	38		36					21:00	29		36				
09:15	35		25					21:15	28		33				
09:30	36		40					21:30	23		26				
09:45	33	142	43	144			286	21:45	21	101	24	119			220
10:00	48		28					22:00	20		24				
10:15	47		36					22:15	19		16				
10:30	62		43					22:30	19		24				
10:45	54	211	48	155			366	22:45	15	73	22	86			159
11:00	57		44					23:00	14		19				
11:15	54		73					23:15	18		11				
11:30	67		49					23:30	14		21				
11:45	44	222	58	224			446	23:45	17	63	15	66			129
Total Vol.		1164		1054			**2218**			2695		2495			**5190**

Daily Totals

NB	SB	EB	WB	Combined
3859	3549			**7408**

	AM NB	AM SB	AM Total	PM NB	PM SB	PM Total
Split %	52.5%	47.5%	**29.9%**	51.9%	48.1%	**70.1%**
Peak Hour	10:45	11:15	**11:15**	16:15	16:15	**16:15**
Volume	232	236	**455**	354	341	**695**
P.H.F.	0.87	0.81	**0.90**	0.90	0.91	**0.92**

APPENDIX B

LEVEL OF SERVICE ANALYSIS

HCM 2010 Signalized Intersection Summary

1: Frederick St & SR-60 EB Off Ramp/Sunnymead Blvd

06/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	362	232	301	179	0	345	0	747	169	155	600	0
Future Volume (veh/h)	362	232	301	179	0	345	0	747	169	155	600	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	0	1863	0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	393	252	327	195	0	375	0	812	184	168	652	0
Adj No. of Lanes	2	1	1	2	0	1	0	3	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	912	493	419	0	0	0	0	1897	591	213	2031	0
Arrive On Green	0.26	0.26	0.26	0.00	0.00	0.00	0.00	0.37	0.37	0.12	0.57	0.00
Sat Flow, veh/h	3442	1863	1583		0		0	5253	1583	1774	3632	0
Grp Volume(v), veh/h	393	252	327		0.0		0	812	184	168	652	0
Grp Sat Flow(s),veh/h/ln	1721	1863	1583				0	1695	1583	1774	1770	0
Q Serve(g_s), s	5.3	6.4	10.7				0.0	6.6	4.6	5.1	5.4	0.0
Cycle Q Clear(g_c), s	5.3	6.4	10.7				0.0	6.6	4.6	5.1	5.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	912	493	419				0	1897	591	213	2031	0
V/C Ratio(X)	0.43	0.51	0.78				0.00	0.43	0.31	0.79	0.32	0.00
Avail Cap(c_a), veh/h	1111	601	511				0	1897	591	302	2031	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.0	17.4	19.0				0.0	13.0	12.4	23.9	6.2	0.0
Incr Delay (d2), s/veh	0.3	0.8	6.2				0.0	0.7	1.4	8.8	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	3.4	5.4				0.0	3.2	2.2	3.0	2.7	0.0
LnGrp Delay(d),s/veh	17.3	18.2	25.2				0.0	13.8	13.8	32.7	6.6	0.0
LnGrp LOS	B	B	C					B	B	C	A	
Approach Vol, veh/h		972						996			820	
Approach Delay, s/veh		20.2						13.8			12.0	
Approach LOS		C						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.2	25.3		19.3		36.5		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	9.5	18.0		18.0		32.0		
Max Q Clear Time (g_c+I1), s	7.1	8.6		12.7		7.4		
Green Ext Time (p_c), s	0.1	4.0		2.1		4.3		

Intersection Summary	
HCM 2010 Ctrl Delay	15.5
HCM 2010 LOS	B

HCM Signalized Intersection Capacity Analysis
2: Graham St & Sunnymead Blvd

06/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	311	97	113	286	38	181	13	168	23	8	15
Future Volume (vph)	35	311	97	113	286	38	181	13	168	23	8	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3413		1770	3477		1681	1696	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3413		1770	3477		1681	1696	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	338	105	123	311	41	197	14	183	25	9	16
RTOR Reduction (vph)	0	34	0	0	10	0	0	0	130	0	0	15
Lane Group Flow (vph)	38	409	0	123	342	0	104	107	53	25	9	1
Turn Type	Prot	NA		Prot	NA		Split	NA	pm+ov	Split	NA	Perm
Protected Phases	7	4		3	8		2	2	3	6	6	
Permitted Phases									2			6
Actuated Green, G (s)	2.0	15.4		8.3	21.7		6.8	6.8	15.1	3.4	3.4	3.4
Effective Green, g (s)	2.0	15.4		8.3	21.7		6.8	6.8	15.1	3.4	3.4	3.4
Actuated g/C Ratio	0.04	0.30		0.16	0.42		0.13	0.13	0.29	0.07	0.07	0.07
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	68	1012		283	1453		220	222	460	115	122	103
v/s Ratio Prot	0.02	c0.12		c0.07	0.10		0.06	c0.06	0.02	c0.01	0.00	
v/s Ratio Perm									0.02			0.00
v/c Ratio	0.56	0.40		0.43	0.24		0.47	0.48	0.12	0.22	0.07	0.01
Uniform Delay, d1	24.5	14.6		19.7	9.7		20.9	20.9	13.5	23.0	22.8	22.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.6	0.3		1.1	0.1		1.6	1.6	0.1	1.0	0.3	0.0
Delay (s)	34.1	14.9		20.8	9.8		22.5	22.6	13.6	23.9	23.0	22.7
Level of Service	C	B		C	A		C	C	B	C	C	C
Approach Delay (s)		16.4			12.7			18.4			23.4	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	51.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 computation does not support turning movement with shared and exclusive lanes. Therefore, intersection #2 was analyzed using HCM 2000.

HCM 2010 Signalized Intersection Summary
3: Heacock St & Sunnymead Blvd

06/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	220	206	74	76	191	112	77	669	89	122	750	215
Future Volume (veh/h)	220	206	74	76	191	112	77	669	89	122	750	215
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	239	224	80	83	208	122	84	727	97	133	815	234
Adj No. of Lanes	1	2	0	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	291	575	200	112	432	345	113	1098	491	170	1211	802
Arrive On Green	0.16	0.22	0.22	0.06	0.12	0.12	0.06	0.31	0.31	0.10	0.34	0.34
Sat Flow, veh/h	1774	2579	896	1774	3539	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	239	152	152	83	208	122	84	727	97	133	815	234
Grp Sat Flow(s),veh/h/ln	1774	1770	1705	1774	1770	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	7.6	4.3	4.5	2.7	3.2	3.8	2.7	10.4	2.6	4.3	11.5	5.0
Cycle Q Clear(g_c), s	7.6	4.3	4.5	2.7	3.2	3.8	2.7	10.4	2.6	4.3	11.5	5.0
Prop In Lane	1.00		0.53	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	291	395	380	112	432	345	113	1098	491	170	1211	802
V/C Ratio(X)	0.82	0.38	0.40	0.74	0.48	0.35	0.74	0.66	0.20	0.78	0.67	0.29
Avail Cap(c_a), veh/h	379	678	653	276	1150	666	167	1098	491	228	1211	802
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.6	19.3	19.4	26.9	23.9	19.4	26.9	17.5	14.8	25.8	16.4	8.4
Incr Delay (d2), s/veh	10.5	0.6	0.7	9.1	0.8	0.6	9.5	3.2	0.9	11.9	3.0	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	2.1	2.1	1.6	1.6	1.7	1.6	5.5	1.3	2.7	6.1	2.3
LnGrp Delay(d),s/veh	34.1	19.9	20.1	36.0	24.8	20.0	36.3	20.7	15.7	37.8	19.4	9.3
LnGrp LOS	C	B	C	D	C	B	D	C	B	D	B	A
Approach Vol, veh/h		543			413			908			1182	
Approach Delay, s/veh		26.2			25.6			21.6			19.5	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	22.6	8.2	17.5	8.2	24.5	14.1	11.6
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.5	18.0	9.1	22.4	5.5	20.0	12.5	19.0
Max Q Clear Time (g_c+I1), s	6.3	12.4	4.7	6.5	4.7	13.5	9.6	5.8
Green Ext Time (p_c), s	0.0	2.4	0.1	1.5	0.0	3.3	0.2	1.3

Intersection Summary		
HCM 2010 Ctrl Delay		22.1
HCM 2010 LOS		C

HCM 2010 Signalized Intersection Summary
4: Graham St & Eucalyptus Ave

06/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	28	133	38	20	217	43	53	209	21	16	140	35
Future Volume (veh/h)	28	133	38	20	217	43	53	209	21	16	140	35
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	30	145	41	22	236	47	58	227	23	17	152	38
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	61	411	113	47	418	82	100	1378	138	38	1099	267
Arrive On Green	0.03	0.15	0.15	0.03	0.14	0.14	0.06	0.42	0.42	0.02	0.39	0.39
Sat Flow, veh/h	1774	2746	753	1774	2952	578	1774	3249	326	1774	2824	687
Grp Volume(v), veh/h	30	92	94	22	140	143	58	123	127	17	94	96
Grp Sat Flow(s),veh/h/ln	1774	1770	1730	1774	1770	1761	1774	1770	1805	1774	1770	1741
Q Serve(g_s), s	0.8	2.2	2.3	0.6	3.5	3.6	1.5	2.0	2.1	0.5	1.6	1.7
Cycle Q Clear(g_c), s	0.8	2.2	2.3	0.6	3.5	3.6	1.5	2.0	2.1	0.5	1.6	1.7
Prop In Lane	1.00		0.44	1.00		0.33	1.00		0.18	1.00		0.39
Lane Grp Cap(c), veh/h	61	265	259	47	251	249	100	751	766	38	689	678
V/C Ratio(X)	0.49	0.35	0.36	0.47	0.56	0.57	0.58	0.16	0.17	0.45	0.14	0.14
Avail Cap(c_a), veh/h	187	670	655	187	670	667	205	751	766	187	689	678
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.5	18.1	18.2	22.8	19.0	19.1	21.9	8.5	8.5	23.0	9.4	9.4
Incr Delay (d2), s/veh	6.0	0.8	0.9	7.1	1.9	2.1	5.3	0.5	0.5	8.3	0.4	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	1.1	1.2	0.4	1.8	1.9	0.9	1.1	1.1	0.3	0.9	0.9
LnGrp Delay(d),s/veh	28.6	18.9	19.0	29.9	21.0	21.1	27.1	8.9	8.9	31.3	9.8	9.8
LnGrp LOS	C	B	B	C	C	C	C	A	A	C	A	A
Approach Vol, veh/h		216			305			308			207	
Approach Delay, s/veh		20.3			21.7			12.4			11.6	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.5	24.7	5.8	11.6	7.2	23.0	6.1	11.2
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.5	4.1	2.6	4.3	3.5	3.7	2.8	5.6
Green Ext Time (p_c), s	0.0	1.1	0.0	0.7	0.0	0.8	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	16.6
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
1: Frederick St & SR-60 EB Off Ramp/Sunnymead Blvd

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	362	236	301	184	0	350	0	747	173	159	600	0
Future Volume (veh/h)	362	236	301	184	0	350	0	747	173	159	600	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	0	1863	0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	393	257	327	200	0	380	0	812	188	173	652	0
Adj No. of Lanes	2	1	1	2	0	1	0	3	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	912	494	420	0	0	0	0	1880	585	219	2030	0
Arrive On Green	0.27	0.27	0.27	0.00	0.00	0.00	0.00	0.37	0.37	0.12	0.57	0.00
Sat Flow, veh/h	3442	1863	1583		0		0	5253	1583	1774	3632	0
Grp Volume(v), veh/h	393	257	327		0.0		0	812	188	173	652	0
Grp Sat Flow(s),veh/h/ln	1721	1863	1583				0	1695	1583	1774	1770	0
Q Serve(g_s), s	5.3	6.6	10.7				0.0	6.7	4.7	5.3	5.4	0.0
Cycle Q Clear(g_c), s	5.3	6.6	10.7				0.0	6.7	4.7	5.3	5.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	912	494	420				0	1880	585	219	2030	0
V/C Ratio(X)	0.43	0.52	0.78				0.00	0.43	0.32	0.79	0.32	0.00
Avail Cap(c_a), veh/h	1110	601	511				0	1880	585	302	2030	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.0	17.5	19.0				0.0	13.2	12.6	23.8	6.2	0.0
Incr Delay (d2), s/veh	0.3	0.9	6.2				0.0	0.7	1.4	9.4	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	3.5	5.4				0.0	3.2	2.3	3.2	2.7	0.0
LnGrp Delay(d),s/veh	17.3	18.3	25.2				0.0	13.9	14.0	33.1	6.6	0.0
LnGrp LOS	B	B	C					B	B	C	A	
Approach Vol, veh/h		977						1000			825	
Approach Delay, s/veh		20.2						13.9			12.2	
Approach LOS		C						B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.4	25.1		19.3		36.5		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	9.5	18.0		18.0		32.0		
Max Q Clear Time (g_c+I1), s	7.3	8.7		12.7		7.4		
Green Ext Time (p_c), s	0.1	4.0		2.1		4.3		

Intersection Summary	
HCM 2010 Ctrl Delay	15.6
HCM 2010 LOS	B

HCM Signalized Intersection Capacity Analysis
2: Graham St & Sunnymead Blvd

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	337	102	149	286	38	210	18	168	23	13	15
Future Volume (vph)	35	337	102	149	286	38	210	18	168	23	13	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3416		1770	3477		1681	1698	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3416		1770	3477		1681	1698	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	366	111	162	311	41	228	20	183	25	14	16
RTOR Reduction (vph)	0	32	0	0	10	0	0	0	129	0	0	15
Lane Group Flow (vph)	38	445	0	162	342	0	123	125	54	25	14	1
Turn Type	Prot	NA		Prot	NA		Split	NA	pm+ov	Split	NA	Perm
Protected Phases	7	4		3	8		2	2	3	6	6	
Permitted Phases									2			6
Actuated Green, G (s)	2.0	16.4		8.5	22.9		7.4	7.4	15.9	3.4	3.4	3.4
Effective Green, g (s)	2.0	16.4		8.5	22.9		7.4	7.4	15.9	3.4	3.4	3.4
Actuated g/C Ratio	0.04	0.31		0.16	0.43		0.14	0.14	0.30	0.06	0.06	0.06
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	65	1043		280	1482		231	233	468	112	117	100
v/s Ratio Prot	0.02	c0.13		c0.09	0.10		0.07	c0.07	0.02	c0.01	0.01	
v/s Ratio Perm									0.02			0.00
v/c Ratio	0.58	0.43		0.58	0.23		0.53	0.54	0.12	0.22	0.12	0.01
Uniform Delay, d1	25.4	14.9		20.9	9.8		21.5	21.6	13.8	23.9	23.7	23.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.7	0.3		2.9	0.1		2.4	2.4	0.1	1.0	0.5	0.0
Delay (s)	38.1	15.2		23.8	9.9		23.9	23.9	13.9	24.9	24.2	23.6
Level of Service	D	B		C	A		C	C	B	C	C	C
Approach Delay (s)		16.9			14.3			19.7			24.4	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	53.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 computation does not support turning movement with shared and exclusive lanes. Therefore, intersection #2 was analyzed using HCM 2000.

HCM 2010 Signalized Intersection Summary
3: Heacock St & Sunnymead Blvd

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	223	211	77	76	197	112	81	669	89	122	750	219
Future Volume (veh/h)	223	211	77	76	197	112	81	669	89	122	750	219
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	242	229	84	83	214	122	88	727	97	133	815	238
Adj No. of Lanes	1	2	0	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	294	576	205	112	433	345	115	1096	490	170	1205	802
Arrive On Green	0.17	0.22	0.22	0.06	0.12	0.12	0.06	0.31	0.31	0.10	0.34	0.34
Sat Flow, veh/h	1774	2559	913	1774	3539	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	242	156	157	83	214	122	88	727	97	133	815	238
Grp Sat Flow(s),veh/h/ln	1774	1770	1702	1774	1770	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	7.7	4.4	4.6	2.7	3.3	3.8	2.9	10.5	2.6	4.3	11.6	5.1
Cycle Q Clear(g_c), s	7.7	4.4	4.6	2.7	3.3	3.8	2.9	10.5	2.6	4.3	11.6	5.1
Prop In Lane	1.00		0.54	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	294	398	383	112	433	345	115	1096	490	170	1205	802
V/C Ratio(X)	0.82	0.39	0.41	0.74	0.49	0.35	0.76	0.66	0.20	0.78	0.68	0.30
Avail Cap(c_a), veh/h	378	675	649	275	1145	664	166	1096	490	227	1205	802
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.7	19.3	19.4	27.0	24.1	19.5	27.0	17.6	14.9	26.0	16.6	8.4
Incr Delay (d2), s/veh	10.9	0.6	0.7	9.2	0.9	0.6	12.0	3.2	0.9	12.1	3.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	2.2	2.2	1.6	1.7	1.7	1.8	5.5	1.3	2.7	6.2	2.4
LnGrp Delay(d),s/veh	34.6	20.0	20.1	36.2	24.9	20.1	39.0	20.8	15.8	38.0	19.6	9.4
LnGrp LOS	C	B	C	D	C	C	D	C	B	D	B	A
Approach Vol, veh/h		555			419			912			1186	
Approach Delay, s/veh		26.4			25.8			22.0			19.6	
Approach LOS		C			C			C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.1	22.7	8.2	17.7	8.3	24.5	14.2	11.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.5	18.0	9.1	22.4	5.5	20.0	12.5	19.0
Max Q Clear Time (g_c+I1), s	6.3	12.5	4.7	6.6	4.9	13.6	9.7	5.8
Green Ext Time (p_c), s	0.0	2.4	0.1	1.5	0.0	3.2	0.2	1.4

Intersection Summary		
HCM 2010 Ctrl Delay		22.4
HCM 2010 LOS		C

HCM 2010 Signalized Intersection Summary
4: Graham St & Eucalyptus Ave

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑		↰	↑↑		↰	↑↑		↰	↑↑	
Traffic Volume (veh/h)	32	133	38	20	217	47	53	213	21	19	142	38
Future Volume (veh/h)	32	133	38	20	217	47	53	213	21	19	142	38
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	35	145	41	22	236	51	58	232	23	21	154	41
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	69	426	117	47	415	88	100	1358	133	45	1076	278
Arrive On Green	0.04	0.16	0.16	0.03	0.14	0.14	0.06	0.42	0.42	0.03	0.39	0.39
Sat Flow, veh/h	1774	2746	753	1774	2906	617	1774	3256	320	1774	2784	721
Grp Volume(v), veh/h	35	92	94	22	142	145	58	125	130	21	96	99
Grp Sat Flow(s),veh/h/ln	1774	1770	1730	1774	1770	1754	1774	1770	1806	1774	1770	1736
Q Serve(g_s), s	0.9	2.2	2.3	0.6	3.6	3.7	1.5	2.1	2.2	0.6	1.7	1.8
Cycle Q Clear(g_c), s	0.9	2.2	2.3	0.6	3.6	3.7	1.5	2.1	2.2	0.6	1.7	1.8
Prop In Lane	1.00		0.44	1.00		0.35	1.00		0.18	1.00		0.42
Lane Grp Cap(c), veh/h	69	275	269	47	253	251	100	738	753	45	684	670
V/C Ratio(X)	0.51	0.33	0.35	0.47	0.56	0.58	0.58	0.17	0.17	0.47	0.14	0.15
Avail Cap(c_a), veh/h	185	665	650	185	665	659	204	738	753	185	684	670
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.6	18.0	18.1	23.0	19.1	19.2	22.1	8.8	8.8	23.0	9.5	9.6
Incr Delay (d2), s/veh	5.7	0.7	0.8	7.1	2.0	2.1	5.3	0.5	0.5	7.3	0.4	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.1	1.2	0.4	1.9	1.9	0.9	1.1	1.2	0.4	0.9	0.9
LnGrp Delay(d),s/veh	28.2	18.7	18.9	30.1	21.1	21.3	27.3	9.3	9.3	30.3	10.0	10.0
LnGrp LOS	C	B	B	C	C	C	C	A	A	C	A	B
Approach Vol, veh/h		221			309			313			216	
Approach Delay, s/veh		20.3			21.8			12.6			12.0	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	24.5	5.8	11.9	7.2	23.0	6.4	11.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.6	4.2	2.6	4.3	3.5	3.8	2.9	5.7
Green Ext Time (p_c), s	0.0	1.1	0.0	0.7	0.0	0.8	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	16.8
HCM 2010 LOS	B

HCM 2010 TWSC
5: Driveway A & Sunnymead Blvd

06/22/2020

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	528	62	0	473	0	34
Future Vol, veh/h	528	62	0	473	0	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	574	67	0	514	0	37

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	321
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	675
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	675
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	675	-	-	-
HCM Lane V/C Ratio	0.055	-	-	-
HCM Control Delay (s)	10.6	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	34	362	31	10	254
Future Vol, veh/h	29	34	362	31	10	254
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	40	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	37	393	34	11	276

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	570	214	0	0	427	0
Stage 1	410	-	-	-	-	-
Stage 2	160	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	452	791	-	-	1129	-
Stage 1	638	-	-	-	-	-
Stage 2	852	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	447	791	-	-	1129	-
Mov Cap-2 Maneuver	447	-	-	-	-	-
Stage 1	632	-	-	-	-	-
Stage 2	852	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.6	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	447	791	1129	-
HCM Lane V/C Ratio	-	-	0.071	0.047	0.01	-
HCM Control Delay (s)	-	-	13.7	9.8	8.2	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0	-

HCM 2010 Signalized Intersection Summary
1: Frederick St & SR-60 EB Off Ramp/Sunnymead Blvd

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	399	256	332	198	0	381	0	824	187	171	663	0
Future Volume (veh/h)	399	256	332	198	0	381	0	824	187	171	663	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	0	1863	0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	434	278	361	215	0	414	0	896	203	186	721	0
Adj No. of Lanes	2	1	1	2	0	1	0	3	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	963	521	443	0	0	0	0	1790	557	232	1989	0
Arrive On Green	0.28	0.28	0.28	0.00	0.00	0.00	0.00	0.35	0.35	0.13	0.56	0.00
Sat Flow, veh/h	3442	1863	1583		0		0	5253	1583	1774	3632	0
Grp Volume(v), veh/h	434	278	361		0.0		0	896	203	186	721	0
Grp Sat Flow(s),veh/h/ln	1721	1863	1583				0	1695	1583	1774	1770	0
Q Serve(g_s), s	5.9	7.2	12.1				0.0	7.9	5.4	5.8	6.4	0.0
Cycle Q Clear(g_c), s	5.9	7.2	12.1				0.0	7.9	5.4	5.8	6.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	963	521	443				0	1790	557	232	1989	0
V/C Ratio(X)	0.45	0.53	0.81				0.00	0.50	0.36	0.80	0.36	0.00
Avail Cap(c_a), veh/h	1088	589	501				0	1790	557	296	1989	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.9	17.4	19.1				0.0	14.5	13.7	24.0	6.9	0.0
Incr Delay (d2), s/veh	0.3	0.8	9.1				0.0	1.0	1.8	11.5	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	3.8	6.3				0.0	3.8	2.6	3.6	3.2	0.0
LnGrp Delay(d),s/veh	17.2	18.2	28.2				0.0	15.5	15.5	35.5	7.4	0.0
LnGrp LOS	B	B	C					B	B	D	A	
Approach Vol, veh/h		1073						1099			907	
Approach Delay, s/veh		21.2						15.5			13.1	
Approach LOS		C						B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	12.0	24.5		20.4		36.5						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	9.5	18.0		18.0		32.0						
Max Q Clear Time (g_c+I1), s	7.8	9.9		14.1		8.4						
Green Ext Time (p_c), s	0.1	4.0		1.8		4.8						
Intersection Summary												
HCM 2010 Ctrl Delay			16.8									
HCM 2010 LOS			B									

HCM Signalized Intersection Capacity Analysis
2: Graham St & Sunnymead Blvd

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	343	107	125	316	42	200	15	185	25	9	16
Future Volume (vph)	38	343	107	125	316	42	200	15	185	25	9	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3413		1770	3476		1681	1696	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3413		1770	3476		1681	1696	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	373	116	136	343	46	217	16	201	27	10	17
RTOR Reduction (vph)	0	33	0	0	10	0	0	0	142	0	0	16
Lane Group Flow (vph)	41	456	0	136	379	0	117	116	59	27	10	1
Turn Type	Prot	NA		Prot	NA		Split	NA	pm+ov	Split	NA	Perm
Protected Phases	7	4		3	8		2	2	3	6	6	
Permitted Phases									2			6
Actuated Green, G (s)	2.0	16.4		8.5	22.9		7.2	7.2	15.7	3.4	3.4	3.4
Effective Green, g (s)	2.0	16.4		8.5	22.9		7.2	7.2	15.7	3.4	3.4	3.4
Actuated g/C Ratio	0.04	0.31		0.16	0.43		0.13	0.13	0.29	0.06	0.06	0.06
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	66	1046		281	1487		226	228	464	112	118	100
v/s Ratio Prot	0.02	c0.13		c0.08	0.11		c0.07	0.07	0.02	c0.02	0.01	
v/s Ratio Perm									0.02			0.00
v/c Ratio	0.62	0.44		0.48	0.26		0.52	0.51	0.13	0.24	0.08	0.01
Uniform Delay, d1	25.4	14.8		20.5	9.8		21.5	21.5	13.9	23.8	23.6	23.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.8	0.3		1.3	0.1		2.0	1.8	0.1	1.1	0.3	0.0
Delay (s)	42.2	15.1		21.8	9.9		23.5	23.3	14.0	24.9	23.9	23.5
Level of Service	D	B		C	A		C	C	B	C	C	C
Approach Delay (s)		17.2			13.0			19.1			24.3	
Approach LOS		B			B			B			C	

Intersection Summary			
HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	53.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 computation does not support turning movement with shared and exclusive lanes. Therefore, intersection #2 was analyzed using HCM 2000.

HCM 2010 Signalized Intersection Summary
3: Heacock St & Sunnymead Blvd

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	243	227	82	84	211	123	85	739	98	134	828	238
Future Volume (veh/h)	243	227	82	84	211	123	85	739	98	134	828	238
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	264	247	89	91	229	134	92	803	107	146	900	259
Adj No. of Lanes	1	2	0	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	314	613	215	117	452	367	118	1046	468	184	1180	808
Arrive On Green	0.18	0.24	0.24	0.07	0.13	0.13	0.07	0.30	0.30	0.10	0.33	0.33
Sat Flow, veh/h	1774	2570	903	1774	3539	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	264	168	168	91	229	134	92	803	107	146	900	259
Grp Sat Flow(s),veh/h/ln	1774	1770	1703	1774	1770	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	8.8	4.9	5.1	3.1	3.7	4.3	3.1	12.6	3.1	4.9	13.8	5.8
Cycle Q Clear(g_c), s	8.8	4.9	5.1	3.1	3.7	4.3	3.1	12.6	3.1	4.9	13.8	5.8
Prop In Lane	1.00		0.53	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	314	422	406	117	452	367	118	1046	468	184	1180	808
V/C Ratio(X)	0.84	0.40	0.41	0.77	0.51	0.37	0.78	0.77	0.23	0.79	0.76	0.32
Avail Cap(c_a), veh/h	364	651	627	265	1105	659	160	1046	468	219	1180	808
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.2	19.5	19.6	28.0	24.8	19.6	28.0	19.5	16.2	26.6	18.1	8.7
Incr Delay (d2), s/veh	14.3	0.6	0.7	10.3	0.9	0.6	15.7	5.4	1.1	15.3	4.7	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	2.5	2.5	1.8	1.8	2.0	2.0	6.9	1.5	3.2	7.5	2.7
LnGrp Delay(d),s/veh	38.6	20.1	20.3	38.3	25.6	20.2	43.7	24.9	17.3	41.9	22.8	9.8
LnGrp LOS	D	C	C	D	C	C	D	C	B	D	C	A
Approach Vol, veh/h		600			454			1002			1305	
Approach Delay, s/veh		28.3			26.6			25.8			22.4	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.8	22.5	8.5	19.0	8.5	24.8	15.3	12.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.5	18.0	9.1	22.4	5.5	20.0	12.5	19.0
Max Q Clear Time (g_c+I1), s	6.9	14.6	5.1	7.1	5.1	15.8	10.8	6.3
Green Ext Time (p_c), s	0.0	1.8	0.1	1.6	0.0	2.5	0.1	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	25.0
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
4: Graham St & Eucalyptus Ave

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑		↰	↑↑		↰	↑↑		↰	↑↑	
Traffic Volume (veh/h)	31	147	42	22	240	47	58	231	24	18	154	38
Future Volume (veh/h)	31	147	42	22	240	47	58	231	24	18	154	38
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	34	160	46	24	261	51	63	251	26	20	167	41
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	67	437	122	51	446	86	105	1349	138	43	1081	259
Arrive On Green	0.04	0.16	0.16	0.03	0.15	0.15	0.06	0.42	0.42	0.02	0.38	0.38
Sat Flow, veh/h	1774	2734	763	1774	2962	570	1774	3241	333	1774	2834	679
Grp Volume(v), veh/h	34	102	104	24	154	158	63	136	141	20	103	105
Grp Sat Flow(s),veh/h/ln	1774	1770	1728	1774	1770	1762	1774	1770	1804	1774	1770	1743
Q Serve(g_s), s	0.9	2.5	2.6	0.6	3.9	4.0	1.7	2.4	2.4	0.5	1.8	1.9
Cycle Q Clear(g_c), s	0.9	2.5	2.6	0.6	3.9	4.0	1.7	2.4	2.4	0.5	1.8	1.9
Prop In Lane	1.00		0.44	1.00		0.32	1.00		0.18	1.00		0.39
Lane Grp Cap(c), veh/h	67	283	276	51	266	265	105	736	751	43	675	665
V/C Ratio(X)	0.51	0.36	0.38	0.47	0.58	0.59	0.60	0.18	0.19	0.46	0.15	0.16
Avail Cap(c_a), veh/h	183	657	641	183	657	654	201	736	751	183	675	665
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.9	18.2	18.2	23.2	19.2	19.2	22.3	9.0	9.0	23.3	9.8	9.9
Incr Delay (d2), s/veh	5.8	0.8	0.8	6.8	2.0	2.1	5.5	0.6	0.6	7.5	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.3	1.3	0.4	2.1	2.1	1.0	1.2	1.3	0.4	1.0	1.0
LnGrp Delay(d),s/veh	28.7	18.9	19.1	30.0	21.2	21.3	27.7	9.5	9.5	30.9	10.3	10.4
LnGrp LOS	C	B	B	C	C	C	C	A	A	C	B	B
Approach Vol, veh/h		240			336			340			228	
Approach Delay, s/veh		20.4			21.9			12.9			12.2	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	24.7	5.9	12.3	7.4	23.0	6.3	11.8
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.5	4.4	2.6	4.6	3.7	3.9	2.9	6.0
Green Ext Time (p_c), s	0.0	1.2	0.0	0.8	0.0	0.8	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	17.0
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
1: Frederick St & SR-60 EB Off Ramp/Sunnymead Blvd

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	399	260	332	203	0	386	0	824	191	175	663	0
Future Volume (veh/h)	399	260	332	203	0	386	0	824	191	175	663	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	0	1863	0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	434	283	361	221	0	420	0	896	208	190	721	0
Adj No. of Lanes	2	1	1	2	0	1	0	3	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	963	521	443	0	0	0	0	1777	553	237	1989	0
Arrive On Green	0.28	0.28	0.28	0.00	0.00	0.00	0.00	0.35	0.35	0.13	0.56	0.00
Sat Flow, veh/h	3442	1863	1583		0		0	5253	1583	1774	3632	0
Grp Volume(v), veh/h	434	283	361		0.0		0	896	208	190	721	0
Grp Sat Flow(s),veh/h/ln	1721	1863	1583				0	1695	1583	1774	1770	0
Q Serve(g_s), s	5.9	7.3	12.1				0.0	7.9	5.6	5.9	6.4	0.0
Cycle Q Clear(g_c), s	5.9	7.3	12.1				0.0	7.9	5.6	5.9	6.4	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	963	521	443				0	1777	553	237	1989	0
V/C Ratio(X)	0.45	0.54	0.81				0.00	0.50	0.38	0.80	0.36	0.00
Avail Cap(c_a), veh/h	1088	589	501				0	1777	553	296	1989	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	16.9	17.4	19.1				0.0	14.6	13.9	23.9	6.9	0.0
Incr Delay (d2), s/veh	0.3	0.9	9.1				0.0	1.0	1.9	11.9	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	3.9	6.3				0.0	3.8	2.7	3.7	3.2	0.0
LnGrp Delay(d),s/veh	17.2	18.3	28.2				0.0	15.6	15.8	35.9	7.4	0.0
LnGrp LOS	B	B	C					B	B	D	A	
Approach Vol, veh/h		1078						1104			911	
Approach Delay, s/veh		21.2						15.7			13.3	
Approach LOS		C						B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	12.1	24.4		20.4		36.5						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	9.5	18.0		18.0		32.0						
Max Q Clear Time (g_c+I1), s	7.9	9.9		14.1		8.4						
Green Ext Time (p_c), s	0.1	4.0		1.8		4.8						
Intersection Summary												
HCM 2010 Ctrl Delay			16.9									
HCM 2010 LOS			B									

HCM Signalized Intersection Capacity Analysis
2: Graham St & Sunnymead Blvd

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	369	112	161	316	42	229	20	185	25	14	16
Future Volume (vph)	38	369	112	161	316	42	229	20	185	25	14	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00	1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3415		1770	3476		1681	1698	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.96	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3415		1770	3476		1681	1698	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	41	401	122	175	343	46	249	22	201	27	15	17
RTOR Reduction (vph)	0	32	0	0	10	0	0	0	141	0	0	16
Lane Group Flow (vph)	41	491	0	175	379	0	134	137	60	27	15	1
Turn Type	Prot	NA		Prot	NA		Split	NA	pm+ov	Split	NA	Perm
Protected Phases	7	4		3	8		2	2	3	6	6	
Permitted Phases									2			6
Actuated Green, G (s)	2.0	17.2		8.6	23.8		7.8	7.8	16.4	3.5	3.5	3.5
Effective Green, g (s)	2.0	17.2		8.6	23.8		7.8	7.8	16.4	3.5	3.5	3.5
Actuated g/C Ratio	0.04	0.31		0.16	0.43		0.14	0.14	0.30	0.06	0.06	0.06
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	64	1066		276	1501		237	240	471	112	118	100
v/s Ratio Prot	0.02	c0.14		c0.10	0.11		0.08	c0.08	0.02	c0.02	0.01	
v/s Ratio Perm									0.02			0.00
v/c Ratio	0.64	0.46		0.63	0.25		0.57	0.57	0.13	0.24	0.13	0.01
Uniform Delay, d1	26.2	15.2		21.8	10.0		22.1	22.1	14.1	24.5	24.4	24.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	19.8	0.3		4.7	0.1		3.1	3.3	0.1	1.1	0.5	0.0
Delay (s)	46.0	15.5		26.5	10.1		25.1	25.3	14.2	25.7	24.8	24.2
Level of Service	D	B		C	B		C	C	B	C	C	C
Approach Delay (s)		17.8			15.2			20.6			25.0	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	55.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 computation does not support turning movement with shared and exclusive lanes. Therefore, intersection #2 was analyzed using HCM 2000.

HCM 2010 Signalized Intersection Summary
3: Heacock St & Sunnymead Blvd

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	246	232	85	84	217	123	89	739	98	134	828	242
Future Volume (veh/h)	246	232	85	84	217	123	89	739	98	134	828	242
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	267	252	92	91	236	134	97	803	107	146	900	263
Adj No. of Lanes	1	2	0	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	317	615	219	117	453	367	124	1043	467	184	1163	803
Arrive On Green	0.18	0.24	0.24	0.07	0.13	0.13	0.07	0.29	0.29	0.10	0.33	0.33
Sat Flow, veh/h	1774	2560	911	1774	3539	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	267	172	172	91	236	134	97	803	107	146	900	263
Grp Sat Flow(s),veh/h/ln	1774	1770	1702	1774	1770	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	8.9	5.0	5.2	3.1	3.8	4.3	3.3	12.6	3.1	4.9	14.0	6.0
Cycle Q Clear(g_c), s	8.9	5.0	5.2	3.1	3.8	4.3	3.3	12.6	3.1	4.9	14.0	6.0
Prop In Lane	1.00		0.54	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	317	425	409	117	453	367	124	1043	467	184	1163	803
V/C Ratio(X)	0.84	0.40	0.42	0.77	0.52	0.36	0.78	0.77	0.23	0.79	0.77	0.33
Avail Cap(c_a), veh/h	363	649	624	264	1101	657	160	1043	467	218	1163	803
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.3	19.5	19.6	28.1	24.9	19.7	27.9	19.6	16.3	26.7	18.5	8.9
Incr Delay (d2), s/veh	14.8	0.6	0.7	10.3	0.9	0.6	17.1	5.5	1.1	15.4	5.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	2.5	2.5	1.9	1.9	2.0	2.2	6.9	1.5	3.2	7.6	2.8
LnGrp Delay(d),s/veh	39.0	20.1	20.3	38.4	25.8	20.3	45.0	25.1	17.4	42.1	23.5	10.0
LnGrp LOS	D	C	C	D	C	C	D	C	B	D	C	A
Approach Vol, veh/h		611			461			1007			1309	
Approach Delay, s/veh		28.4			26.7			26.2			22.9	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.8	22.5	8.5	19.2	8.8	24.6	15.4	12.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	7.5	18.0	9.1	22.4	5.5	20.0	12.5	19.0
Max Q Clear Time (g_c+I1), s	6.9	14.6	5.1	7.2	5.3	16.0	10.9	6.3
Green Ext Time (p_c), s	0.0	1.8	0.1	1.7	0.0	2.4	0.1	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	25.4
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
4: Graham St & Eucalyptus Ave

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	35	147	42	22	240	51	58	235	24	21	156	41
Future Volume (veh/h)	35	147	42	22	240	51	58	235	24	21	156	41
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	38	160	46	24	261	55	63	255	26	23	170	45
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	73	450	126	50	443	92	104	1333	135	49	1057	272
Arrive On Green	0.04	0.16	0.16	0.03	0.15	0.15	0.06	0.41	0.41	0.03	0.38	0.38
Sat Flow, veh/h	1774	2734	763	1774	2920	606	1774	3246	328	1774	2787	718
Grp Volume(v), veh/h	38	102	104	24	157	159	63	138	143	23	106	109
Grp Sat Flow(s),veh/h/ln	1774	1770	1728	1774	1770	1756	1774	1770	1805	1774	1770	1736
Q Serve(g_s), s	1.0	2.5	2.6	0.6	4.0	4.1	1.7	2.4	2.5	0.6	1.9	2.0
Cycle Q Clear(g_c), s	1.0	2.5	2.6	0.6	4.0	4.1	1.7	2.4	2.5	0.6	1.9	2.0
Prop In Lane	1.00		0.44	1.00		0.34	1.00		0.18	1.00		0.41
Lane Grp Cap(c), veh/h	73	291	284	50	268	266	104	727	741	49	671	658
V/C Ratio(X)	0.52	0.35	0.37	0.48	0.58	0.60	0.60	0.19	0.19	0.47	0.16	0.17
Avail Cap(c_a), veh/h	182	653	638	182	653	648	200	727	741	182	671	658
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.9	18.1	18.1	23.3	19.3	19.3	22.4	9.2	9.2	23.4	10.0	10.0
Incr Delay (d2), s/veh	5.6	0.7	0.8	6.8	2.0	2.2	5.5	0.6	0.6	6.9	0.5	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.6	1.3	1.3	0.4	2.1	2.2	1.0	1.3	1.4	0.4	1.0	1.1
LnGrp Delay(d),s/veh	28.5	18.8	18.9	30.1	21.3	21.5	27.9	9.8	9.8	30.3	10.5	10.6
LnGrp LOS	C	B	B	C	C	C	C	A	A	C	B	B
Approach Vol, veh/h		244			340			344			238	
Approach Delay, s/veh		20.4			22.0			13.1			12.4	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	24.5	5.9	12.5	7.4	23.0	6.5	11.9
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.0	19.0	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	2.6	4.5	2.6	4.6	3.7	4.0	3.0	6.1
Green Ext Time (p_c), s	0.0	1.2	0.0	0.8	0.0	0.9	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	17.1
HCM 2010 LOS	B

HCM 2010 TWSC
5: Driveway A & Sunnymead Blvd

06/22/2020

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	517	62	0	519	0	34
Future Vol, veh/h	517	62	0	519	0	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	562	67	0	564	0	37

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	315
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	681
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	681
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	10.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	681	-	-	-
HCM Lane V/C Ratio	0.054	-	-	-
HCM Control Delay (s)	10.6	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.2	-	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	29	34	400	31	10	277
Future Vol, veh/h	29	34	400	31	10	277
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	40	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	32	37	435	34	11	301

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	625	235	0	0	469	0
Stage 1	452	-	-	-	-	-
Stage 2	173	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	417	767	-	-	1089	-
Stage 1	608	-	-	-	-	-
Stage 2	840	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	413	767	-	-	1089	-
Mov Cap-2 Maneuver	413	-	-	-	-	-
Stage 1	602	-	-	-	-	-
Stage 2	840	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	413	767	1089	-
HCM Lane V/C Ratio	-	-	0.076	0.048	0.01	-
HCM Control Delay (s)	-	-	14.4	9.9	8.3	-
HCM Lane LOS	-	-	B	A	A	-
HCM 95th %tile Q(veh)	-	-	0.2	0.2	0	-

HCM 2010 Signalized Intersection Summary
1: Frederick St & SR-60 EB Off Ramp/Sunnymead Blvd

06/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	879	547	511	277	0	422	0	965	310	147	761	0
Future Volume (veh/h)	879	547	511	277	0	422	0	965	310	147	761	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	0	1863	0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	955	595	555	301	0	459	0	1049	337	160	827	0
Adj No. of Lanes	2	1	1	2	0	1	0	3	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	1206	653	555	0	0	0	0	1565	487	197	1754	0
Arrive On Green	0.35	0.35	0.35	0.00	0.00	0.00	0.00	0.31	0.31	0.11	0.50	0.00
Sat Flow, veh/h	3442	1863	1583		0		0	5253	1583	1774	3632	0
Grp Volume(v), veh/h	955	595	555		0.0		0	1049	337	160	827	0
Grp Sat Flow(s),veh/h/ln	1721	1863	1583				0	1695	1583	1774	1770	0
Q Serve(g_s), s	14.6	17.8	20.5				0.0	10.5	11.0	5.2	9.0	0.0
Cycle Q Clear(g_c), s	14.6	17.8	20.5				0.0	10.5	11.0	5.2	9.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1206	653	555				0	1565	487	197	1754	0
V/C Ratio(X)	0.79	0.91	1.00				0.00	0.67	0.69	0.81	0.47	0.00
Avail Cap(c_a), veh/h	1206	653	555				0	1565	487	197	1754	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.1	18.1	19.0				0.0	17.7	17.8	25.4	9.7	0.0
Incr Delay (d2), s/veh	3.7	17.1	38.3				0.0	2.3	7.8	22.0	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	12.2	14.7				0.0	5.2	5.8	3.7	4.6	0.0
LnGrp Delay(d),s/veh	20.8	35.2	57.3				0.0	20.0	25.7	47.4	10.6	0.0
LnGrp LOS	C	D	F					B	C	D	B	
Approach Vol, veh/h		2105						1386			987	
Approach Delay, s/veh		34.5						21.4			16.6	
Approach LOS		C						C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.0	22.5		25.0		33.5		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	6.5	18.0		20.5		29.0		
Max Q Clear Time (g_c+I1), s	7.2	13.0		22.5		11.0		
Green Ext Time (p_c), s	0.0	3.3		0.0		5.2		

Intersection Summary	
HCM 2010 Ctrl Delay	26.5
HCM 2010 LOS	C

HCM Signalized Intersection Capacity Analysis
2: Graham St & Sunnymead Blvd

06/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	592	220	173	362	30	145	28	152	55	31	25
Future Volume (vph)	40	592	220	173	362	30	145	28	152	55	31	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3395		1770	3498		1681	1711	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3395		1770	3498		1681	1711	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	643	239	188	393	33	158	30	165	60	34	27
RTOR Reduction (vph)	0	39	0	0	5	0	0	0	125	0	0	24
Lane Group Flow (vph)	43	843	0	188	421	0	93	95	40	60	34	3
Turn Type	Prot	NA		Prot	NA		Split	NA	pm+ov	Split	NA	Perm
Protected Phases	7	4		3	8		2	2	3	6	6	
Permitted Phases									2			6
Actuated Green, G (s)	2.5	22.7		7.9	28.1		6.9	6.9	14.8	5.9	5.9	5.9
Effective Green, g (s)	2.5	22.7		7.9	28.1		6.9	6.9	14.8	5.9	5.9	5.9
Actuated g/C Ratio	0.04	0.37		0.13	0.46		0.11	0.11	0.24	0.10	0.10	0.10
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	72	1255		227	1600		188	192	381	170	179	152
v/s Ratio Prot	0.02	c0.25		c0.11	0.12		0.06	c0.06	0.01	c0.03	0.02	
v/s Ratio Perm									0.01			0.00
v/c Ratio	0.60	0.67		0.83	0.26		0.49	0.49	0.10	0.35	0.19	0.02
Uniform Delay, d1	29.0	16.2		26.1	10.3		25.6	25.6	18.1	26.0	25.5	25.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.6	1.4		21.3	0.1		2.0	2.0	0.1	1.3	0.5	0.0
Delay (s)	41.6	17.7		47.4	10.4		27.7	27.6	18.3	27.2	26.1	25.2
Level of Service	D	B		D	B		C	C	B	C	C	C
Approach Delay (s)		18.8			21.7			23.3			26.4	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	61.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 computation does not support turning movement with shared and exclusive lanes. Therefore, intersection #2 was analyzed using HCM 2000.

HCM 2010 Signalized Intersection Summary
3: Heacock St & Sunnymead Blvd

06/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	339	494	118	118	257	138	100	599	119	124	650	255
Future Volume (veh/h)	339	494	118	118	257	138	100	599	119	124	650	255
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	368	537	128	128	279	150	109	651	129	135	707	277
Adj No. of Lanes	1	2	0	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	396	765	182	163	490	353	139	980	438	150	1002	802
Arrive On Green	0.22	0.27	0.27	0.09	0.14	0.14	0.08	0.28	0.28	0.08	0.28	0.28
Sat Flow, veh/h	1774	2839	674	1774	3539	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	368	334	331	128	279	150	109	651	129	135	707	277
Grp Sat Flow(s),veh/h/ln	1774	1770	1744	1774	1770	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	13.2	11.0	11.1	4.6	4.8	5.3	3.9	10.6	4.2	4.9	11.6	6.8
Cycle Q Clear(g_c), s	13.2	11.0	11.1	4.6	4.8	5.3	3.9	10.6	4.2	4.9	11.6	6.8
Prop In Lane	1.00		0.39	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	396	477	470	163	490	353	139	980	438	150	1002	802
V/C Ratio(X)	0.93	0.70	0.70	0.78	0.57	0.42	0.78	0.66	0.29	0.90	0.71	0.35
Avail Cap(c_a), veh/h	396	675	665	237	1035	597	145	980	438	150	1002	802
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.7	21.4	21.4	28.9	26.2	21.7	29.4	20.8	18.5	29.5	20.9	9.6
Incr Delay (d2), s/veh	28.3	1.9	1.9	10.0	1.0	0.8	23.3	3.5	1.7	45.2	4.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.5	5.6	5.6	2.7	2.4	2.4	2.8	5.6	2.0	4.3	6.2	3.2
LnGrp Delay(d),s/veh	53.0	23.3	23.4	38.9	27.2	22.5	52.7	24.4	20.2	74.6	25.0	10.8
LnGrp LOS	D	C	C	D	C	C	D	C	C	E	C	B
Approach Vol, veh/h		1033			557			889			1119	
Approach Delay, s/veh		33.9			28.6			27.2			27.5	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	22.5	10.5	22.0	9.6	22.9	19.0	13.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	18.0	8.7	24.8	5.3	18.2	14.5	19.0
Max Q Clear Time (g_c+I1), s	6.9	12.6	6.6	13.1	5.9	13.6	15.2	7.3
Green Ext Time (p_c), s	0.0	2.2	0.1	3.1	0.0	2.3	0.0	1.7

Intersection Summary	
HCM 2010 Ctrl Delay	29.4
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
4: Graham St & Eucalyptus Ave

06/17/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	320	55	19	263	40	57	253	35	54	242	57
Future Volume (veh/h)	43	320	55	19	263	40	57	253	35	54	242	57
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	47	348	60	21	286	43	62	275	38	59	263	62
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	85	547	93	45	488	73	103	1173	160	100	1065	247
Arrive On Green	0.05	0.18	0.18	0.03	0.16	0.16	0.06	0.37	0.37	0.06	0.37	0.37
Sat Flow, veh/h	1774	3025	516	1774	3091	460	1774	3129	428	1774	2854	661
Grp Volume(v), veh/h	47	202	206	21	162	167	62	154	159	59	161	164
Grp Sat Flow(s),veh/h/ln	1774	1770	1772	1774	1770	1782	1774	1770	1787	1774	1770	1746
Q Serve(g_s), s	1.3	5.2	5.3	0.6	4.2	4.3	1.7	3.0	3.0	1.6	3.1	3.2
Cycle Q Clear(g_c), s	1.3	5.2	5.3	0.6	4.2	4.3	1.7	3.0	3.0	1.6	3.1	3.2
Prop In Lane	1.00		0.29	1.00		0.26	1.00		0.24	1.00		0.38
Lane Grp Cap(c), veh/h	85	320	320	45	280	281	103	663	670	100	660	651
V/C Ratio(X)	0.55	0.63	0.64	0.47	0.58	0.59	0.60	0.23	0.24	0.59	0.24	0.25
Avail Cap(c_a), veh/h	179	642	643	179	642	647	197	663	670	197	660	651
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	18.8	18.8	23.8	19.4	19.4	22.8	10.6	10.6	22.9	10.7	10.8
Incr Delay (d2), s/veh	5.5	2.1	2.2	7.4	1.9	2.0	5.6	0.8	0.8	5.5	0.9	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.7	2.8	0.4	2.2	2.3	1.0	1.6	1.6	0.9	1.7	1.7
LnGrp Delay(d),s/veh	28.5	20.9	21.0	31.2	21.3	21.4	28.4	11.4	11.5	28.4	11.6	11.7
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		455			350			375			384	
Approach Delay, s/veh		21.7			21.9			14.3			14.2	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.3	23.1	5.8	13.5	7.4	23.0	6.9	12.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	18.5	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	3.6	5.0	2.6	7.3	3.7	5.2	3.3	6.3
Green Ext Time (p_c), s	0.0	1.3	0.0	1.6	0.0	1.4	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	18.1
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
1: Frederick St & SR-60 EB Off Ramp/Sunnymead Blvd

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	879	553	511	285	0	430	0	965	316	153	761	0
Future Volume (veh/h)	879	553	511	285	0	430	0	965	316	153	761	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	0	1863	0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	955	601	555	310	0	467	0	1049	343	166	827	0
Adj No. of Lanes	2	1	1	2	0	1	0	3	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	1206	653	555	0	0	0	0	1565	487	197	1754	0
Arrive On Green	0.35	0.35	0.35	0.00	0.00	0.00	0.00	0.31	0.31	0.11	0.50	0.00
Sat Flow, veh/h	3442	1863	1583		0		0	5253	1583	1774	3632	0
Grp Volume(v), veh/h	955	601	555		0.0		0	1049	343	166	827	0
Grp Sat Flow(s),veh/h/ln	1721	1863	1583				0	1695	1583	1774	1770	0
Q Serve(g_s), s	14.6	18.1	20.5				0.0	10.5	11.2	5.4	9.0	0.0
Cycle Q Clear(g_c), s	14.6	18.1	20.5				0.0	10.5	11.2	5.4	9.0	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1206	653	555				0	1565	487	197	1754	0
V/C Ratio(X)	0.79	0.92	1.00				0.00	0.67	0.70	0.84	0.47	0.00
Avail Cap(c_a), veh/h	1206	653	555				0	1565	487	197	1754	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.1	18.2	19.0				0.0	17.7	17.9	25.5	9.7	0.0
Incr Delay (d2), s/veh	3.7	18.5	38.3				0.0	2.3	8.3	26.7	0.9	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	12.5	14.7				0.0	5.2	5.9	4.1	4.6	0.0
LnGrp Delay(d),s/veh	20.8	36.7	57.3				0.0	20.0	26.2	52.2	10.6	0.0
LnGrp LOS	C	D	F					B	C	D	B	
Approach Vol, veh/h		2111						1392			993	
Approach Delay, s/veh		34.9						21.5			17.6	
Approach LOS		C						C			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	11.0	22.5		25.0		33.5						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	6.5	18.0		20.5		29.0						
Max Q Clear Time (g_c+I1), s	7.4	13.2		22.5		11.0						
Green Ext Time (p_c), s	0.0	3.1		0.0		5.2						
Intersection Summary												
HCM 2010 Ctrl Delay			26.9									
HCM 2010 LOS			C									

HCM Signalized Intersection Capacity Analysis
2: Graham St & Sunnymead Blvd

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	624	226	218	362	30	183	34	152	55	37	25
Future Volume (vph)	40	624	226	218	362	30	183	34	152	55	37	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3398		1770	3498		1681	1711	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3398		1770	3498		1681	1711	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	678	246	237	393	33	199	37	165	60	40	27
RTOR Reduction (vph)	0	38	0	0	5	0	0	0	124	0	0	24
Lane Group Flow (vph)	43	886	0	237	421	0	117	119	41	60	40	3
Turn Type	Prot	NA		Prot	NA		Split	NA	pm+ov	Split	NA	Perm
Protected Phases	7	4		3	8		2	2	3	6	6	
Permitted Phases									2			6
Actuated Green, G (s)	2.5	22.8		7.9	28.2		7.7	7.7	15.6	5.9	5.9	5.9
Effective Green, g (s)	2.5	22.8		7.9	28.2		7.7	7.7	15.6	5.9	5.9	5.9
Actuated g/C Ratio	0.04	0.37		0.13	0.45		0.12	0.12	0.25	0.09	0.09	0.09
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	71	1243		224	1583		207	211	396	167	176	149
v/s Ratio Prot	0.02	c0.26		c0.13	0.12		c0.07	0.07	0.01	c0.03	0.02	
v/s Ratio Perm									0.01			0.00
v/c Ratio	0.61	0.71		1.06	0.27		0.57	0.56	0.10	0.36	0.23	0.02
Uniform Delay, d1	29.4	16.9		27.2	10.6		25.7	25.7	18.0	26.4	26.1	25.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.7	2.0		76.3	0.1		3.5	3.4	0.1	1.3	0.7	0.0
Delay (s)	43.1	18.9		103.5	10.7		29.2	29.1	18.1	27.8	26.8	25.6
Level of Service	D	B		F	B		C	C	B	C	C	C
Approach Delay (s)		20.0			43.9			24.6			27.0	
Approach LOS		B			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	28.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	62.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 computation does not support turning movement with shared and exclusive lanes. Therefore, intersection #2 was analyzed using HCM 2000.

HCM 2010 Signalized Intersection Summary
3: Heacock St & Sunnymead Blvd

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	345	502	124	118	265	138	106	599	119	124	650	261
Future Volume (veh/h)	345	502	124	118	265	138	106	599	119	124	650	261
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	375	546	135	128	288	150	115	651	129	135	707	284
Adj No. of Lanes	1	2	0	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	395	760	187	163	492	354	145	979	438	150	990	796
Arrive On Green	0.22	0.27	0.27	0.09	0.14	0.14	0.08	0.28	0.28	0.08	0.28	0.28
Sat Flow, veh/h	1774	2816	694	1774	3539	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	375	342	339	128	288	150	115	651	129	135	707	284
Grp Sat Flow(s),veh/h/ln	1774	1770	1740	1774	1770	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	13.5	11.4	11.5	4.6	5.0	5.3	4.1	10.6	4.2	4.9	11.7	7.1
Cycle Q Clear(g_c), s	13.5	11.4	11.5	4.6	5.0	5.3	4.1	10.6	4.2	4.9	11.7	7.1
Prop In Lane	1.00		0.40	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	395	478	470	163	492	354	145	979	438	150	990	796
V/C Ratio(X)	0.95	0.72	0.72	0.78	0.59	0.42	0.80	0.66	0.29	0.90	0.71	0.36
Avail Cap(c_a), veh/h	395	675	664	237	1034	596	145	979	438	150	990	796
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.9	21.5	21.5	28.9	26.2	21.7	29.3	20.8	18.5	29.5	21.1	9.8
Incr Delay (d2), s/veh	32.2	2.1	2.3	10.0	1.1	0.8	25.7	3.6	1.7	45.3	4.4	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	5.8	5.8	2.7	2.5	2.4	3.0	5.6	2.0	4.3	6.3	3.3
LnGrp Delay(d),s/veh	57.1	23.6	23.8	38.9	27.4	22.5	55.1	24.4	20.2	74.8	25.5	11.0
LnGrp LOS	E	C	C	D	C	C	E	C	C	E	C	B
Approach Vol, veh/h		1056			566			895			1126	
Approach Delay, s/veh		35.6			28.7			27.7			27.7	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	22.5	10.5	22.1	9.8	22.7	19.0	13.5
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	18.0	8.7	24.8	5.3	18.2	14.5	19.0
Max Q Clear Time (g_c+I1), s	6.9	12.6	6.6	13.5	6.1	13.7	15.5	7.3
Green Ext Time (p_c), s	0.0	2.2	0.1	3.2	0.0	2.3	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	30.2
HCM 2010 LOS	C

HCM 2010 Signalized Intersection Summary
4: Graham St & Eucalyptus Ave

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑		↰	↑↑		↰	↑↑		↰	↑↑	
Traffic Volume (veh/h)	49	320	55	19	263	46	57	259	35	60	245	63
Future Volume (veh/h)	49	320	55	19	263	46	57	259	35	60	245	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	53	348	60	21	286	50	62	282	38	65	266	68
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	93	555	95	45	472	82	103	1165	155	106	1045	262
Arrive On Green	0.05	0.18	0.18	0.03	0.16	0.16	0.06	0.37	0.37	0.06	0.37	0.37
Sat Flow, veh/h	1774	3025	516	1774	3019	521	1774	3140	419	1774	2804	704
Grp Volume(v), veh/h	53	202	206	21	166	170	62	158	162	65	166	168
Grp Sat Flow(s),veh/h/ln	1774	1770	1772	1774	1770	1771	1774	1770	1789	1774	1770	1739
Q Serve(g_s), s	1.5	5.3	5.4	0.6	4.4	4.5	1.7	3.1	3.1	1.8	3.2	3.3
Cycle Q Clear(g_c), s	1.5	5.3	5.4	0.6	4.4	4.5	1.7	3.1	3.1	1.8	3.2	3.3
Prop In Lane	1.00		0.29	1.00		0.29	1.00		0.23	1.00		0.40
Lane Grp Cap(c), veh/h	93	324	325	45	277	277	103	656	664	106	659	648
V/C Ratio(X)	0.57	0.62	0.63	0.47	0.60	0.61	0.60	0.24	0.24	0.62	0.25	0.26
Avail Cap(c_a), veh/h	178	639	639	178	639	639	196	656	664	196	659	648
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	18.8	18.8	24.0	19.6	19.6	22.9	10.8	10.9	22.9	10.8	10.9
Incr Delay (d2), s/veh	5.5	2.0	2.0	7.4	2.1	2.2	5.6	0.9	0.9	5.7	0.9	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	2.7	2.8	0.4	2.3	2.3	1.0	1.6	1.7	1.0	1.7	1.8
LnGrp Delay(d),s/veh	28.6	20.7	20.9	31.4	21.7	21.8	28.6	11.7	11.7	28.6	11.7	11.8
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		461			357			382			399	
Approach Delay, s/veh		21.7			22.3			14.4			14.5	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	23.0	5.8	13.6	7.4	23.1	7.1	12.3
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	18.5	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	3.8	5.1	2.6	7.4	3.7	5.3	3.5	6.5
Green Ext Time (p_c), s	0.0	1.4	0.0	1.6	0.0	1.4	0.0	1.3

Intersection Summary	
HCM 2010 Ctrl Delay	18.3
HCM 2010 LOS	B

HCM 2010 TWSC
5: Driveway A & Sunnymead Blvd 06/22/2020

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↱
Traffic Vol, veh/h	831	78	0	610	0	44
Future Vol, veh/h	831	78	0	610	0	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	903	85	0	663	0	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	494
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	521
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	521
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	521	-	-	-
HCM Lane V/C Ratio	0.092	-	-	-
HCM Control Delay (s)	12.6	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

HCM 2010 TWSC
6: Graham St & Driveway B

06/22/2020

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	38	44	325	39	13	468
Future Vol, veh/h	38	44	325	39	13	468
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	40	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	48	353	42	14	509

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	657	198	0	0	395	0
Stage 1	374	-	-	-	-	-
Stage 2	283	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	398	810	-	-	1160	-
Stage 1	666	-	-	-	-	-
Stage 2	740	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	393	810	-	-	1160	-
Mov Cap-2 Maneuver	393	-	-	-	-	-
Stage 1	658	-	-	-	-	-
Stage 2	740	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.2	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	393	810	1160	-
HCM Lane V/C Ratio	-	-	0.105	0.059	0.012	-
HCM Control Delay (s)	-	-	15.2	9.7	8.1	-
HCM Lane LOS	-	-	C	A	A	-
HCM 95th %tile Q(veh)	-	-	0.3	0.2	0	-

HCM 2010 Signalized Intersection Summary
1: Frederick St & SR-60 EB Off Ramp/Sunnymead Blvd

06/19/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	971	604	564	306	0	466	0	1066	343	162	840	0
Future Volume (veh/h)	971	604	564	306	0	466	0	1066	343	162	840	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	0	1863	0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	1055	657	613	333	0	507	0	1159	373	176	913	0
Adj No. of Lanes	2	1	1	2	0	1	0	3	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	1206	653	555	0	0	0	0	1565	487	197	1754	0
Arrive On Green	0.35	0.35	0.35	0.00	0.00	0.00	0.00	0.31	0.31	0.11	0.50	0.00
Sat Flow, veh/h	3442	1863	1583		0		0	5253	1583	1774	3632	0
Grp Volume(v), veh/h	1055	657	613		0.0		0	1159	373	176	913	0
Grp Sat Flow(s),veh/h/ln	1721	1863	1583				0	1695	1583	1774	1770	0
Q Serve(g_s), s	16.8	20.5	20.5				0.0	12.0	12.5	5.7	10.3	0.0
Cycle Q Clear(g_c), s	16.8	20.5	20.5				0.0	12.0	12.5	5.7	10.3	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1206	653	555				0	1565	487	197	1754	0
V/C Ratio(X)	0.87	1.01	1.10				0.00	0.74	0.77	0.89	0.52	0.00
Avail Cap(c_a), veh/h	1206	653	555				0	1565	487	197	1754	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.8	19.0	19.0				0.0	18.2	18.3	25.7	10.0	0.0
Incr Delay (d2), s/veh	7.4	36.8	70.2				0.0	3.2	10.9	36.2	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	17.0	19.6				0.0	6.0	6.9	4.8	5.2	0.0
LnGrp Delay(d),s/veh	25.2	55.9	89.2				0.0	21.4	29.3	61.8	11.1	0.0
LnGrp LOS	C	F	F					C	C	E	B	
Approach Vol, veh/h		2325						1532			1089	
Approach Delay, s/veh		50.7						23.3			19.3	
Approach LOS		D						C			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4		6		
Phs Duration (G+Y+Rc), s	11.0	22.5		25.0		33.5		
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5		
Max Green Setting (Gmax), s	6.5	18.0		20.5		29.0		
Max Q Clear Time (g_c+I1), s	7.7	14.5		22.5		12.3		
Green Ext Time (p_c), s	0.0	2.6		0.0		5.6		

Intersection Summary	
HCM 2010 Ctrl Delay	35.3
HCM 2010 LOS	D

HCM Signalized Intersection Capacity Analysis
2: Graham St & Sunnymead Blvd

06/19/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	654	242	191	399	33	160	30	168	61	34	27
Future Volume (vph)	44	654	242	191	399	33	160	30	168	61	34	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3396		1770	3499		1681	1711	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3396		1770	3499		1681	1711	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	711	263	208	434	36	174	33	183	66	37	29
RTOR Reduction (vph)	0	40	0	0	6	0	0	0	138	0	0	26
Lane Group Flow (vph)	48	934	0	208	464	0	103	104	45	66	37	3
Turn Type	Prot	NA		Prot	NA		Split	NA	pm+ov	Split	NA	Perm
Protected Phases	7	4		3	8		2	2	3	6	6	
Permitted Phases									2			6
Actuated Green, G (s)	3.8	21.9		7.9	26.0		7.2	7.2	15.1	6.1	6.1	6.1
Effective Green, g (s)	3.8	21.9		7.9	26.0		7.2	7.2	15.1	6.1	6.1	6.1
Actuated g/C Ratio	0.06	0.36		0.13	0.43		0.12	0.12	0.25	0.10	0.10	0.10
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	110	1217		228	1488		198	201	391	176	185	158
v/s Ratio Prot	0.03	c0.28		c0.12	c0.13		c0.06	0.06	0.01	c0.04	0.02	
v/s Ratio Perm									0.01			0.00
v/c Ratio	0.44	0.77		0.91	0.31		0.52	0.52	0.12	0.38	0.20	0.02
Uniform Delay, d1	27.6	17.3		26.3	11.6		25.3	25.3	17.8	25.7	25.3	24.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	3.0		36.5	0.1		2.5	2.2	0.1	1.3	0.5	0.0
Delay (s)	30.4	20.3		62.8	11.7		27.8	27.6	18.0	27.1	25.8	24.8
Level of Service	C	C		E	B		C	C	B	C	C	C
Approach Delay (s)		20.8			27.4			23.1			26.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	61.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 computation does not support turning movement with shared and exclusive lanes. Therefore, intersection #2 was analyzed using HCM 2000.

HCM 2010 Signalized Intersection Summary
3: Heacock St & Sunnymead Blvd

06/19/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	374	546	131	131	284	152	111	662	132	136	717	282
Future Volume (veh/h)	374	546	131	131	284	152	111	662	132	136	717	282
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	407	593	142	142	309	165	121	720	143	148	779	307
Adj No. of Lanes	1	2	0	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	389	771	184	179	545	375	142	963	431	147	973	782
Arrive On Green	0.22	0.27	0.27	0.10	0.15	0.15	0.08	0.27	0.27	0.08	0.27	0.27
Sat Flow, veh/h	1774	2835	677	1774	3539	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	407	370	365	142	309	165	121	720	143	148	779	307
Grp Sat Flow(s),veh/h/ln	1774	1770	1743	1774	1770	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	14.5	12.7	12.8	5.2	5.4	5.9	4.5	12.3	4.8	5.5	13.5	8.1
Cycle Q Clear(g_c), s	14.5	12.7	12.8	5.2	5.4	5.9	4.5	12.3	4.8	5.5	13.5	8.1
Prop In Lane	1.00		0.39	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	389	481	474	179	545	375	142	963	431	147	973	782
V/C Ratio(X)	1.05	0.77	0.77	0.79	0.57	0.44	0.85	0.75	0.33	1.00	0.80	0.39
Avail Cap(c_a), veh/h	389	663	653	233	1016	586	142	963	431	147	973	782
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.8	22.2	22.2	29.1	26.0	21.5	30.1	22.0	19.3	30.3	22.3	10.5
Incr Delay (d2), s/veh	58.5	3.7	3.8	12.9	0.9	0.8	36.2	5.3	2.1	75.1	6.9	1.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	13.3	6.6	6.6	3.2	2.7	2.6	3.6	6.7	2.3	5.7	7.5	3.8
LnGrp Delay(d),s/veh	84.4	25.8	26.0	42.0	26.9	22.3	66.3	27.3	21.3	105.5	29.2	12.0
LnGrp LOS	F	C	C	D	C	C	E	C	C	F	C	B
Approach Vol, veh/h		1142			616			984			1234	
Approach Delay, s/veh		46.8			29.1			31.2			34.1	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	22.5	11.2	22.5	9.8	22.7	19.0	14.7
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	18.0	8.7	24.8	5.3	18.2	14.5	19.0
Max Q Clear Time (g_c+I1), s	7.5	14.3	7.2	14.8	6.5	15.5	16.5	7.9
Green Ext Time (p_c), s	0.0	1.8	0.0	3.2	0.0	1.6	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	36.2
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
4: Graham St & Eucalyptus Ave

06/19/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	47	353	61	21	291	44	63	280	38	60	267	63
Future Volume (veh/h)	47	353	61	21	291	44	63	280	38	60	267	63
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	51	384	66	23	316	48	68	304	41	65	290	68
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	90	582	99	48	522	79	108	1150	154	105	1042	240
Arrive On Green	0.05	0.19	0.19	0.03	0.17	0.17	0.06	0.37	0.37	0.06	0.36	0.36
Sat Flow, veh/h	1774	3026	516	1774	3086	464	1774	3139	419	1774	2857	659
Grp Volume(v), veh/h	51	223	227	23	180	184	68	170	175	65	178	180
Grp Sat Flow(s),veh/h/ln	1774	1770	1772	1774	1770	1781	1774	1770	1789	1774	1770	1746
Q Serve(g_s), s	1.4	5.9	6.0	0.6	4.8	4.9	1.9	3.4	3.5	1.8	3.6	3.7
Cycle Q Clear(g_c), s	1.4	5.9	6.0	0.6	4.8	4.9	1.9	3.4	3.5	1.8	3.6	3.7
Prop In Lane	1.00		0.29	1.00		0.26	1.00		0.23	1.00		0.38
Lane Grp Cap(c), veh/h	90	341	341	48	300	301	108	648	655	105	645	637
V/C Ratio(X)	0.57	0.66	0.66	0.48	0.60	0.61	0.63	0.26	0.27	0.62	0.28	0.28
Avail Cap(c_a), veh/h	175	628	629	175	628	632	192	648	655	192	645	637
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.5	18.9	19.0	24.3	19.5	19.5	23.3	11.3	11.3	23.3	11.4	11.4
Incr Delay (d2), s/veh	5.6	2.1	2.2	7.1	1.9	2.0	6.0	1.0	1.0	5.8	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.8	3.1	3.1	0.4	2.5	2.5	1.1	1.8	1.9	1.1	1.9	1.9
LnGrp Delay(d),s/veh	29.1	21.1	21.2	31.4	21.4	21.5	29.2	12.3	12.3	29.2	12.4	12.5
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		501			387			413			423	
Approach Delay, s/veh		21.9			22.1			15.1			15.0	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.5	23.1	5.9	14.3	7.6	23.0	7.1	13.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	18.5	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	3.8	5.5	2.6	8.0	3.9	5.7	3.4	6.9
Green Ext Time (p_c), s	0.0	1.5	0.0	1.8	0.0	1.5	0.0	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	18.6
HCM 2010 LOS	B

HCM 2010 Signalized Intersection Summary
1: Frederick St & SR-60 EB Off Ramp/Sunnymead Blvd

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	971	610	564	314	0	474	0	1066	349	168	840	0
Future Volume (veh/h)	971	610	564	314	0	474	0	1066	349	168	840	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	0	1863	0	1863	1863	1863	1863	0
Adj Flow Rate, veh/h	1055	663	613	341	0	515	0	1159	379	183	913	0
Adj No. of Lanes	2	1	1	2	0	1	0	3	1	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	0	2	0	2	2	2	2	0
Cap, veh/h	1206	653	555	0	0	0	0	1565	487	197	1754	0
Arrive On Green	0.35	0.35	0.35	0.00	0.00	0.00	0.00	0.31	0.31	0.11	0.50	0.00
Sat Flow, veh/h	3442	1863	1583		0		0	5253	1583	1774	3632	0
Grp Volume(v), veh/h	1055	663	613		0.0		0	1159	379	183	913	0
Grp Sat Flow(s),veh/h/ln	1721	1863	1583				0	1695	1583	1774	1770	0
Q Serve(g_s), s	16.8	20.5	20.5				0.0	12.0	12.7	6.0	10.3	0.0
Cycle Q Clear(g_c), s	16.8	20.5	20.5				0.0	12.0	12.7	6.0	10.3	0.0
Prop In Lane	1.00		1.00				0.00		1.00	1.00		0.00
Lane Grp Cap(c), veh/h	1206	653	555				0	1565	487	197	1754	0
V/C Ratio(X)	0.87	1.02	1.10				0.00	0.74	0.78	0.93	0.52	0.00
Avail Cap(c_a), veh/h	1206	653	555				0	1565	487	197	1754	0
HCM Platoon Ratio	1.00	1.00	1.00				1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00				0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	17.8	19.0	19.0				0.0	18.2	18.4	25.8	10.0	0.0
Incr Delay (d2), s/veh	7.4	39.2	70.2				0.0	3.2	11.6	44.3	1.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0				0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	17.4	19.6				0.0	6.0	7.1	5.3	5.2	0.0
LnGrp Delay(d),s/veh	25.2	58.2	89.2				0.0	21.4	30.0	70.0	11.1	0.0
LnGrp LOS	C	F	F					C	C	E	B	
Approach Vol, veh/h		2331						1538			1096	
Approach Delay, s/veh		51.4						23.5			21.0	
Approach LOS		D						C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	11.0	22.5		25.0		33.5						
Change Period (Y+Rc), s	4.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	6.5	18.0		20.5		29.0						
Max Q Clear Time (g_c+I1), s	8.0	14.7		22.5		12.3						
Green Ext Time (p_c), s	0.0	2.4		0.0		5.6						
Intersection Summary												
HCM 2010 Ctrl Delay			36.0									
HCM 2010 LOS			D									

HCM Signalized Intersection Capacity Analysis
2: Graham St & Sunnymead Blvd

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	686	248	236	399	33	198	36	168	61	40	27
Future Volume (vph)	44	686	248	236	399	33	198	36	168	61	40	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		0.95	0.95	1.00	1.00	1.00	1.00
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3398		1770	3499		1681	1710	1583	1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.95	0.97	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3398		1770	3499		1681	1710	1583	1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	746	270	257	434	36	215	39	183	66	43	29
RTOR Reduction (vph)	0	39	0	0	6	0	0	0	136	0	0	26
Lane Group Flow (vph)	48	977	0	257	464	0	127	127	47	66	43	3
Turn Type	Prot	NA		Prot	NA		Split	NA	pm+ov	Split	NA	Perm
Protected Phases	7	4		3	8		2	2	3	6	6	
Permitted Phases									2			6
Actuated Green, G (s)	3.8	21.9		8.0	26.1		8.0	8.0	16.0	6.1	6.1	6.1
Effective Green, g (s)	3.8	21.9		8.0	26.1		8.0	8.0	16.0	6.1	6.1	6.1
Actuated g/C Ratio	0.06	0.35		0.13	0.42		0.13	0.13	0.26	0.10	0.10	0.10
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	108	1200		228	1472		216	220	408	174	183	155
v/s Ratio Prot	0.03	c0.29		c0.15	c0.13		c0.08	0.07	0.01	c0.04	0.02	
v/s Ratio Perm									0.01			0.00
v/c Ratio	0.44	0.81		1.13	0.32		0.59	0.58	0.12	0.38	0.23	0.02
Uniform Delay, d1	28.1	18.2		27.0	12.0		25.4	25.4	17.6	26.2	25.8	25.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.9	4.4		98.1	0.1		4.0	3.6	0.1	1.4	0.7	0.0
Delay (s)	31.0	22.6		125.1	12.1		29.5	29.0	17.7	27.6	26.5	25.3
Level of Service	C	C		F	B		C	C	B	C	C	C
Approach Delay (s)		22.9			52.0			24.4			26.7	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	62.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 computation does not support turning movement with shared and exclusive lanes. Therefore, intersection #2 was analyzed using HCM 2000.

HCM 2010 Signalized Intersection Summary
3: Heacock St & Sunnymead Blvd

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	554	137	131	292	152	117	662	132	136	717	288
Future Volume (veh/h)	380	554	137	131	292	152	117	662	132	136	717	288
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	413	602	149	142	317	165	127	720	143	148	779	313
Adj No. of Lanes	1	2	0	1	2	1	1	2	1	1	2	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	386	776	192	179	563	383	141	957	428	147	967	777
Arrive On Green	0.22	0.28	0.28	0.10	0.16	0.16	0.08	0.27	0.27	0.08	0.27	0.27
Sat Flow, veh/h	1774	2815	695	1774	3539	1583	1774	3539	1583	1774	3539	1583
Grp Volume(v), veh/h	413	378	373	142	317	165	127	720	143	148	779	313
Grp Sat Flow(s),veh/h/ln	1774	1770	1740	1774	1770	1583	1774	1770	1583	1774	1770	1583
Q Serve(g_s), s	14.5	13.1	13.2	5.2	5.5	5.9	4.7	12.4	4.8	5.5	13.7	8.4
Cycle Q Clear(g_c), s	14.5	13.1	13.2	5.2	5.5	5.9	4.7	12.4	4.8	5.5	13.7	8.4
Prop In Lane	1.00		0.40	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	386	488	480	179	563	383	141	957	428	147	967	777
V/C Ratio(X)	1.07	0.77	0.78	0.79	0.56	0.43	0.90	0.75	0.33	1.01	0.81	0.40
Avail Cap(c_a), veh/h	386	659	648	232	1010	582	141	957	428	147	967	777
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.1	22.2	22.2	29.2	25.9	21.4	30.4	22.3	19.5	30.6	22.6	10.8
Incr Delay (d2), s/veh	65.4	4.0	4.2	13.2	0.9	0.8	47.1	5.5	2.1	77.1	7.1	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
%ile BackOfQ(50%),veh/ln	14.0	7.0	6.9	3.2	2.8	2.6	4.1	6.7	2.3	5.8	7.6	4.0
LnGrp Delay(d),s/veh	91.5	26.2	26.4	42.4	26.7	22.1	77.5	27.7	21.6	107.7	29.7	12.3
LnGrp LOS	F	C	C	D	C	C	E	C	C	F	C	B
Approach Vol, veh/h		1164			624			990			1240	
Approach Delay, s/veh		49.5			29.1			33.2			34.6	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.0	22.5	11.2	22.9	9.8	22.7	19.0	15.1
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	18.0	8.7	24.8	5.3	18.2	14.5	19.0
Max Q Clear Time (g_c+I1), s	7.5	14.4	7.2	15.2	6.7	15.7	16.5	7.9
Green Ext Time (p_c), s	0.0	1.7	0.0	3.2	0.0	1.5	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	37.7
HCM 2010 LOS	D

HCM 2010 Signalized Intersection Summary
4: Graham St & Eucalyptus Ave

06/22/2020

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↑↑		↰	↑↑		↰	↑↑		↰	↑↑	
Traffic Volume (veh/h)	53	353	61	21	291	50	63	286	38	66	270	69
Future Volume (veh/h)	53	353	61	21	291	50	63	286	38	66	270	69
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	58	384	66	23	316	54	68	311	41	72	293	75
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	97	587	100	48	504	85	108	1143	149	111	1023	258
Arrive On Green	0.05	0.19	0.19	0.03	0.17	0.17	0.06	0.36	0.36	0.06	0.37	0.37
Sat Flow, veh/h	1774	3026	516	1774	3030	512	1774	3148	411	1774	2802	706
Grp Volume(v), veh/h	58	223	227	23	183	187	68	174	178	72	183	185
Grp Sat Flow(s),veh/h/ln	1774	1770	1772	1774	1770	1772	1774	1770	1790	1774	1770	1738
Q Serve(g_s), s	1.6	5.9	6.0	0.7	4.9	5.0	1.9	3.5	3.6	2.0	3.7	3.8
Cycle Q Clear(g_c), s	1.6	5.9	6.0	0.7	4.9	5.0	1.9	3.5	3.6	2.0	3.7	3.8
Prop In Lane	1.00		0.29	1.00		0.29	1.00		0.23	1.00		0.41
Lane Grp Cap(c), veh/h	97	343	344	48	294	295	108	642	650	111	646	634
V/C Ratio(X)	0.60	0.65	0.66	0.48	0.62	0.63	0.63	0.27	0.27	0.65	0.28	0.29
Avail Cap(c_a), veh/h	174	625	626	174	625	626	191	642	650	191	646	634
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.5	18.9	19.0	24.4	19.8	19.8	23.4	11.5	11.5	23.3	11.5	11.5
Incr Delay (d2), s/veh	5.7	2.1	2.2	7.1	2.2	2.3	6.0	1.0	1.0	6.2	1.1	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	3.1	3.1	0.4	2.6	2.6	1.1	1.9	1.9	1.2	2.0	2.1
LnGrp Delay(d),s/veh	29.2	21.0	21.2	31.5	21.9	22.1	29.4	12.5	12.5	29.5	12.6	12.7
LnGrp LOS	C	C	C	C	C	C	C	B	B	C	B	B
Approach Vol, veh/h		508			393			420			440	
Approach Delay, s/veh		22.0			22.5			15.2			15.4	
Approach LOS		C			C			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.7	23.0	5.9	14.4	7.6	23.1	7.3	13.0
Change Period (Y+Rc), s	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Max Green Setting (Gmax), s	5.5	18.5	5.0	18.0	5.5	18.5	5.0	18.0
Max Q Clear Time (g_c+I1), s	4.0	5.6	2.7	8.0	3.9	5.8	3.6	7.0
Green Ext Time (p_c), s	0.0	1.5	0.0	1.8	0.0	1.6	0.0	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	18.9
HCM 2010 LOS	B

Intersection	
Int Delay, s/veh	0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	853	78	0	668	0	44
Future Vol, veh/h	853	78	0	668	0	44
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	927	85	0	726	0	48

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	506
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.32
Pot Cap-1 Maneuver	-	-	0	-	0	512
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	512
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	512	-	-	-
HCM Lane V/C Ratio	0.093	-	-	-
HCM Control Delay (s)	12.8	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.3	-	-	-

HCM 2010 TWSC
6: Graham St & Driveway B 06/22/2020

Intersection	
Int Delay, s/veh	1.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	38	44	358	39	13	511
Future Vol, veh/h	38	44	358	39	13	511
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	40	-	-	-	40	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	48	389	42	14	555

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	716	216	0	0	431	0
Stage 1	410	-	-	-	-	-
Stage 2	306	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	365	789	-	-	1125	-
Stage 1	638	-	-	-	-	-
Stage 2	720	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	361	789	-	-	1125	-
Mov Cap-2 Maneuver	361	-	-	-	-	-
Stage 1	630	-	-	-	-	-
Stage 2	720	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	361	789	1125	-
HCM Lane V/C Ratio	-	-	0.114	0.061	0.013	-
HCM Control Delay (s)	-	-	16.3	9.9	8.2	-
HCM Lane LOS	-	-	C	A	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.2	0	-

APPENDIX C

QUEUE ANALYSIS

Queues
1: Frederick St & SR-60 EB Off Ramp/Sunnymead Blvd

06/22/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	362	232	301	179	0	345	0	747	169	155	600	0
Future Volume (vph)	362	232	301	179	0	345	0	747	169	155	600	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	393	252	327	195	0	375	0	812	184	168	652	0
v/c Ratio	0.52	0.61	0.69	0.41		0.82		0.62	0.22	0.74	0.41	
Control Delay	27.2	32.4	20.9	31.4		24.8		26.5	2.9	52.2	14.9	
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	
Total Delay	27.2	32.4	20.9	31.4		24.8		26.5	2.9	52.2	14.9	
Queue Length 50th (ft)	80	103	64	42		40		125	0	77	108	
Queue Length 95th (ft)	121	175	151	72		#169		166	32	#170	151	
Internal Link Dist (ft)		756			2568			662			555	
Turn Bay Length (ft)			590	145					75	95		
Base Capacity (vph)	872	473	524	557		492		1318	863	237	1598	
Starvation Cap Reductn	0	0	0	0		0		0	0	0	0	
Spillback Cap Reductn	0	0	0	0		0		0	0	0	0	
Storage Cap Reductn	0	0	0	0		0		0	0	0	0	
Reduced v/c Ratio	0.45	0.53	0.62	0.35		0.76		0.62	0.21	0.71	0.41	

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
2: Graham St & Sunnymead Blvd

06/22/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	35	311	97	113	286	38	181	13	168	23	8	15
Future Volume (vph)	35	311	97	113	286	38	181	13	168	23	8	15
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)							47%					
Lane Group Flow (vph)	38	443	0	123	352	0	104	107	183	25	9	16
v/c Ratio	0.14	0.49		0.39	0.20		0.31	0.32	0.27	0.09	0.03	0.04
Control Delay	25.0	17.0		27.8	12.4		22.8	22.8	2.7	24.0	23.4	0.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.0	17.0		27.8	12.4		22.8	22.8	2.7	24.0	23.4	0.2
Queue Length 50th (ft)	11	56		35	30		29	30	0	7	2	0
Queue Length 95th (ft)	39	104		#106	85		76	77	20	28	14	0
Internal Link Dist (ft)		2568			2596			2518			413	
Turn Bay Length (ft)	145			130			100			75		75
Base Capacity (vph)	287	1603		331	1779		756	762	686	796	838	790
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.28		0.37	0.20		0.14	0.14	0.27	0.03	0.01	0.02

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues

3: Heacock St & Sunnymead Blvd

06/22/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	220	206	74	76	191	112	77	669	89	122	750	215
Future Volume (vph)	220	206	74	76	191	112	77	669	89	122	750	215
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	239	304	0	83	208	122	84	727	97	133	815	234
v/c Ratio	0.73	0.35		0.39	0.42	0.21	0.56	0.74	0.18	0.65	0.67	0.23
Control Delay	40.5	18.2		32.1	28.1	7.3	45.6	27.1	2.1	45.6	23.1	1.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	18.2		32.1	28.1	7.3	45.6	27.1	2.1	45.6	23.1	1.8
Queue Length 50th (ft)	90	42		31	40	9	33	137	0	52	151	0
Queue Length 95th (ft)	#194	75		70	69	42	#91	#206	13	#129	224	27
Internal Link Dist (ft)		2596			678			626			486	
Turn Bay Length (ft)	220			120		75	100		100	120		95
Base Capacity (vph)	343	1225		249	1042	576	151	987	552	205	1213	1052
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.25		0.33	0.20	0.21	0.56	0.74	0.18	0.65	0.67	0.22

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
4: Graham St & Eucalyptus Ave

06/22/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	28	133	38	20	217	43	53	209	21	16	140	35
Future Volume (vph)	28	133	38	20	217	43	53	209	21	16	140	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	186	0	22	283	0	58	250	0	17	190	0
v/c Ratio	0.14	0.22		0.11	0.39		0.25	0.15		0.08	0.12	
Control Delay	24.7	12.8		24.4	16.9		25.1	8.7		24.2	9.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.7	12.8		24.4	16.9		25.1	8.7		24.2	9.4	
Queue Length 50th (ft)	5	12		4	21		10	10		3	6	
Queue Length 95th (ft)	32	46		26	70		50	54		22	40	
Internal Link Dist (ft)		1426			1358			568			2518	
Turn Bay Length (ft)	200			200			190			200		
Base Capacity (vph)	209	1507		209	1493		230	1710		209	1569	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.14	0.12		0.11	0.19		0.25	0.15		0.08	0.12	

Intersection Summary

Queues
1: Frederick St & SR-60 EB Off Ramp/Sunnymead Blvd

06/22/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	399	260	332	203	0	386	0	824	191	175	663	0
Future Volume (vph)	399	260	332	203	0	386	0	824	191	175	663	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	434	283	361	221	0	420	0	896	208	190	721	0
v/c Ratio	0.57	0.68	0.77	0.43		0.90		0.71	0.25	0.82	0.46	
Control Delay	28.4	35.2	27.2	31.4		37.4		29.0	2.9	61.8	16.0	
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	
Total Delay	28.4	35.2	27.2	31.4		37.4		29.0	2.9	61.8	16.0	
Queue Length 50th (ft)	90	118	87	48		67		141	1	88	122	
Queue Length 95th (ft)	133	197	#208	80		#234		184	34	#197	168	
Internal Link Dist (ft)		756			2568			662			555	
Turn Bay Length (ft)			590	145					75	95		
Base Capacity (vph)	852	463	508	545		477		1267	853	232	1563	
Starvation Cap Reductn	0	0	0	0		0		0	0	0	0	
Spillback Cap Reductn	0	0	0	0		0		0	0	0	0	
Storage Cap Reductn	0	0	0	0		0		0	0	0	0	
Reduced v/c Ratio	0.51	0.61	0.71	0.41		0.88		0.71	0.24	0.82	0.46	

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
2: Graham St & Sunnymead Blvd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	38	369	112	161	316	42	229	20	185	25	14	16
Future Volume (vph)	38	369	112	161	316	42	229	20	185	25	14	16
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)							46%					
Lane Group Flow (vph)	41	523	0	175	389	0	134	137	201	27	15	17
v/c Ratio	0.17	0.54		0.57	0.21		0.38	0.39	0.29	0.11	0.06	0.05
Control Delay	27.1	18.0		36.2	12.8		24.4	24.4	2.8	25.9	25.3	0.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	18.0		36.2	12.8		24.4	24.4	2.8	25.9	25.3	0.2
Queue Length 50th (ft)	13	72		57	36		42	43	0	8	5	0
Queue Length 95th (ft)	42	129		#176	97		97	98	22	31	21	0
Internal Link Dist (ft)		2568			153			329			413	
Turn Bay Length (ft)	145			130			100			75		75
Base Capacity (vph)	267	1493		308	1849		702	710	692	739	778	744
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.35		0.57	0.21		0.19	0.19	0.29	0.04	0.02	0.02

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
3: Heacock St & Sunnymead Blvd

06/22/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	246	232	85	84	217	123	89	739	98	134	828	242
Future Volume (vph)	246	232	85	84	217	123	89	739	98	134	828	242
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	267	344	0	91	236	134	97	803	107	146	900	263
v/c Ratio	0.80	0.38		0.43	0.45	0.23	0.66	0.83	0.20	0.72	0.76	0.25
Control Delay	46.1	18.8		33.3	28.5	7.9	53.4	31.9	2.6	51.5	26.3	2.0
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	18.8		33.3	28.5	7.9	53.4	31.9	2.6	51.5	26.3	2.0
Queue Length 50th (ft)	103	50		34	46	13	39	157	0	58	174	2
Queue Length 95th (ft)	#227	85		76	77	46	#110	#263	18	#146	#288	31
Internal Link Dist (ft)		2363			678			626			486	
Turn Bay Length (ft)	220			120		75	100		100	120		95
Base Capacity (vph)	337	1222		245	1025	580	148	972	545	202	1192	1045
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.28		0.37	0.23	0.23	0.66	0.83	0.20	0.72	0.76	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
4: Graham St & Eucalyptus Ave

06/22/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	35	147	42	22	240	51	58	235	24	21	156	41
Future Volume (vph)	35	147	42	22	240	51	58	235	24	21	156	41
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	38	206	0	24	316	0	63	281	0	23	215	0
v/c Ratio	0.19	0.25		0.12	0.44		0.29	0.16		0.12	0.15	
Control Delay	26.4	13.4		25.8	18.1		27.1	8.7		25.7	10.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	26.4	13.4		25.8	18.1		27.1	8.7		25.7	10.1	
Queue Length 50th (ft)	10	19		6	34		16	12		6	14	
Queue Length 95th (ft)	38	50		27	77		54	62		27	45	
Internal Link Dist (ft)		1426			1358			568			2109	
Turn Bay Length (ft)	200			200			190			200		
Base Capacity (vph)	199	1446		199	1421		219	1760		199	1476	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.19	0.14		0.12	0.22		0.29	0.16		0.12	0.15	

Intersection Summary

Queues
1: Frederick St & SR-60 EB Off Ramp/Sunnymead Blvd

06/22/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	879	547	511	277	0	422	0	965	310	147	761	0
Future Volume (vph)	879	547	511	277	0	422	0	965	310	147	761	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	955	595	555	301	0	459	0	1049	337	160	827	0
v/c Ratio	1.02	1.17	1.02	0.55		1.18		0.86	0.43	1.05	0.60	
Control Delay	63.2	123.8	66.9	33.3		125.4		36.1	12.0	123.4	20.7	
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	
Total Delay	63.2	123.8	66.9	33.3		125.4		36.1	12.0	123.4	20.7	
Queue Length 50th (ft)	~235	~336	~208	67		~191		171	72	~82	157	
Queue Length 95th (ft)	#359	#524	#410	105		#367		#240	135	#195	215	
Internal Link Dist (ft)		756			2568			662			555	
Turn Bay Length (ft)			590	145					75	95		
Base Capacity (vph)	938	509	543	549		390		1220	775	153	1368	
Starvation Cap Reductn	0	0	0	0		0		0	0	0	0	
Spillback Cap Reductn	0	0	0	0		0		0	0	0	0	
Storage Cap Reductn	0	0	0	0		0		0	0	0	0	
Reduced v/c Ratio	1.02	1.17	1.02	0.55		1.18		0.86	0.43	1.05	0.60	

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
2: Graham St & Sunnymead Blvd

06/22/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	40	592	220	173	362	30	145	28	152	55	31	25
Future Volume (vph)	40	592	220	173	362	30	145	28	152	55	31	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)							41%					
Lane Group Flow (vph)	43	882	0	188	426	0	93	95	165	60	34	27
v/c Ratio	0.20	0.73		0.76	0.23		0.36	0.36	0.31	0.25	0.13	0.08
Control Delay	28.3	22.7		51.2	13.4		27.8	27.7	3.5	27.3	25.5	0.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.3	22.7		51.2	13.4		27.8	27.7	3.5	27.3	25.5	0.5
Queue Length 50th (ft)	15	142		68	40		32	33	0	20	11	0
Queue Length 95th (ft)	44	#273		#189	109		74	75	20	52	35	0
Internal Link Dist (ft)		2568			2596			2518			413	
Turn Bay Length (ft)	145			130			100			75		75
Base Capacity (vph)	238	1216		248	1837		566	576	538	596	628	628
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.73		0.76	0.23		0.16	0.16	0.31	0.10	0.05	0.04

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
3: Heacock St & Sunnymead Blvd

06/22/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	339	494	118	118	257	138	100	599	119	124	650	255
Future Volume (vph)	339	494	118	118	257	138	100	599	119	124	650	255
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	368	665	0	128	279	150	109	651	129	135	707	277
v/c Ratio	0.99	0.60		0.60	0.42	0.24	0.80	0.70	0.22	0.96	0.76	0.29
Control Delay	75.8	22.3		43.4	26.4	4.0	75.1	28.9	1.3	104.1	30.7	3.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.8	22.3		43.4	26.4	4.0	75.1	28.9	1.3	104.1	30.7	3.2
Queue Length 50th (ft)	155	124		52	55	0	46	130	0	58	143	8
Queue Length 95th (ft)	#352	176		#127	87	32	#141	207	5	#173	#248	47
Internal Link Dist (ft)		2596			678			626			486	
Turn Bay Length (ft)	220			120		75	100		100	120		95
Base Capacity (vph)	372	1284		223	976	627	136	925	574	141	935	962
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.52		0.57	0.29	0.24	0.80	0.70	0.22	0.96	0.76	0.29

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
4: Graham St & Eucalyptus Ave

06/22/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	43	320	55	19	263	40	57	253	35	54	242	57
Future Volume (vph)	43	320	55	19	263	40	57	253	35	54	242	57
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	408	0	21	329	0	62	313	0	59	325	0
v/c Ratio	0.24	0.45		0.11	0.42		0.29	0.22		0.27	0.23	
Control Delay	28.1	16.5		26.6	18.0		28.1	12.3		27.8	11.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	28.1	16.5		26.6	18.0		28.1	12.3		27.8	11.6	
Queue Length 50th (ft)	12	48		5	38		16	27		15	26	
Queue Length 95th (ft)	46	101		27	82		57	74		54	73	
Internal Link Dist (ft)		1426			1358			568			2518	
Turn Bay Length (ft)	200			200			190			200		
Base Capacity (vph)	195	1430		195	1394		215	1434		215	1431	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.24	0.29		0.11	0.24		0.29	0.22		0.27	0.23	

Intersection Summary

Queues

1: Frederick St & SR-60 EB Off Ramp/Sunnymead Blvd

06/22/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	971	610	564	314	0	474	0	1066	349	168	840	0
Future Volume (vph)	971	610	564	314	0	474	0	1066	349	168	840	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1055	663	613	341	0	515	0	1159	379	183	913	0
v/c Ratio	1.12	1.30	1.13	0.62		1.33		0.95	0.49	1.20	0.67	
Control Delay	98.2	177.1	102.0	35.0		187.8		45.7	13.2	169.7	22.0	
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	
Total Delay	98.2	177.1	102.0	35.0		187.8		45.7	13.2	169.7	22.0	
Queue Length 50th (ft)	~297	~403	~281	77		~250		194	87	~105	179	
Queue Length 95th (ft)	#413	#597	#476	118		#435		#282	160	#223	243	
Internal Link Dist (ft)		756			2568			662			555	
Turn Bay Length (ft)			590	145					75	95		
Base Capacity (vph)	938	509	543	549		387		1220	775	153	1368	
Starvation Cap Reductn	0	0	0	0		0		0	0	0	0	
Spillback Cap Reductn	0	0	0	0		0		0	0	0	0	
Storage Cap Reductn	0	0	0	0		0		0	0	0	0	
Reduced v/c Ratio	1.12	1.30	1.13	0.62		1.33		0.95	0.49	1.20	0.67	

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
2: Graham St & Sunnymead Blvd

06/22/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	44	686	248	236	399	33	198	36	168	61	40	27
Future Volume (vph)	44	686	248	236	399	33	198	36	168	61	40	27
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)							41%					
Lane Group Flow (vph)	48	1016	0	257	470	0	127	127	183	66	43	29
v/c Ratio	0.23	0.85		1.06	0.28		0.44	0.43	0.32	0.27	0.17	0.09
Control Delay	29.8	30.1		107.8	16.2		28.8	28.6	3.3	28.4	26.6	0.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.8	30.1		107.8	16.2		28.8	28.6	3.3	28.4	26.6	0.5
Queue Length 50th (ft)	17	183		~120	71		46	46	0	23	15	0
Queue Length 95th (ft)	48	#362		#277	127		96	96	21	58	42	0
Internal Link Dist (ft)		2568			155			325			413	
Turn Bay Length (ft)	145			130			100			75		75
Base Capacity (vph)	233	1193		243	1677		555	565	569	585	615	618
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.85		1.06	0.28		0.23	0.22	0.32	0.11	0.07	0.05

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
3: Heacock St & Sunnymead Blvd

06/22/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	380	554	137	131	292	152	117	662	132	136	717	288
Future Volume (vph)	380	554	137	131	292	152	117	662	132	136	717	288
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	413	751	0	142	317	165	127	720	143	148	779	313
v/c Ratio	1.14	0.72		0.68	0.43	0.25	0.95	0.80	0.25	1.08	0.85	0.34
Control Delay	120.4	25.5		49.3	26.0	4.6	106.7	33.7	2.1	137.0	37.2	5.5
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	120.4	25.5		49.3	26.0	4.6	106.7	33.7	2.1	137.0	37.2	5.5
Queue Length 50th (ft)	~220	145		61	63	3	57	157	0	~75	173	27
Queue Length 95th (ft)	#405	203		#145	98	38	#165	#258	12	#191	#289	75
Internal Link Dist (ft)		2361			678			626			486	
Turn Bay Length (ft)	220			120		75	100		100	120		95
Base Capacity (vph)	363	1234		218	953	650	133	903	566	137	912	923
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	0.61		0.65	0.33	0.25	0.95	0.80	0.25	1.08	0.85	0.34

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
4: Graham St & Eucalyptus Ave

06/22/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Traffic Volume (vph)	53	353	61	21	291	50	63	286	38	66	270	69
Future Volume (vph)	53	353	61	21	291	50	63	286	38	66	270	69
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	58	450	0	23	370	0	68	352	0	72	368	0
v/c Ratio	0.31	0.44		0.12	0.46		0.33	0.26		0.35	0.27	
Control Delay	30.8	15.8		28.2	19.1		30.4	13.8		30.9	12.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	30.8	15.8		28.2	19.1		30.4	13.8		30.9	12.9	
Queue Length 50th (ft)	20	55		8	56		23	44		24	43	
Queue Length 95th (ft)	55	111		29	91		#62	85		#69	84	
Internal Link Dist (ft)		1426			1358			568			2113	
Turn Bay Length (ft)	200			200			190			200		
Base Capacity (vph)	187	1409		187	1336		206	1376		206	1372	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.31	0.32		0.12	0.28		0.33	0.26		0.35	0.27	

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX D

VMT WORKSHEETS

APN:292100012; TAZ:3,745

Within a Transit Priority Area (TPA)?

No (Fail)

Within a low VMT generating TAZ based on Total VMT?

Yes (Pass)

Jurisdictional average 2012 daily total VMT per service population = 24.49

Project TAZ 2012 daily total VMT per service population = 21.61

Within a low VMT generating TAZ based on Residential Home-Based VMT?

Yes (Pass)

Jurisdictional average 2012 daily residential home-based VMT per capita = 12.79

Project TAZ 2012 daily residential home-based VMT per capita = 10.89

Within a low VMT generating TAZ based on Home-Based Work VMT?

Yes (Pass)

Jurisdictional average 2012 daily home-based work VMT per worker = 11.01

Project TAZ 2012 daily home-based work VMT per worker = 10.41

Notes:

- TPA designation is based on October 2018 conditions.
- Screening results are based on location of parcel centroids. If results are desired considering the full parcel, please refer to the associated map layers to visually review parcel and TAZ boundary relationship.
- If VMT screening is desired for current baseline conditions, contact WRCOG for 2012 and 2040 VMT data. Interpolated VMT results can be obtained using the complete data set.
- VMT results do not account for full length of trips that occur beyond the SCAG region.

Not secure | gis.fehrandpeers.com/wrcogvmt/

Apps | Chapter 4 - Signaliz... | Tools | National Ce... | Guidelines | VMT

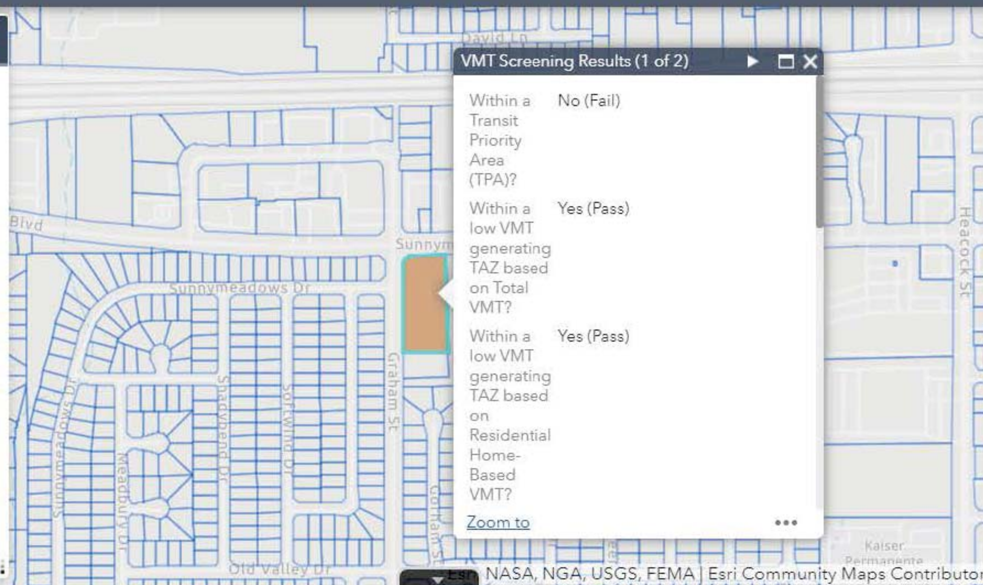
WRCOG VMT Screening Tool

Find address or place

Input | Output

Output Layer

The result is drawn on the map.



-117.256 33.935 Degrees

Layer List

All results based on RIVTAM Model.

- Output Layer
- Western Riverside County Parcels (Zoom in to view)
- Transit Priority Area
- RIVTAM TAZs with total VMT per service population below jurisdictional average under 2012 base year model
- RIVTAM TAZs with Home-based VMT per resident below jurisdictional average under 2012 base year model

Western Riverside County Parcels (Zoom in to view) | City Boundaries | TUMF Zone Boundaries | Output Layer

Options | Filter by map extent | Zoom to | Clear selection | Refresh

OBJECTID_12_13	Within a Transit Priority Area (TPA)?	Within a low VMT generating TAZ based on Total VMT?	Within a low VMT generating TAZ based on Residential Home-Based VMT?	Within a low VMT generating TAZ based on Home-Based Work VMT?	Addtional Details	SHAPE_Length	SHAPE_Area
1	No (Fail)	Yes (Pass)	Yes (Pass)	Yes (Pass)	• TPA designation is based on October 2018 conditions. • Screening results are based on location of parcel centroids. If results		

1 features 0 selected

1.b

Appendix H – Water Quality Management Plan

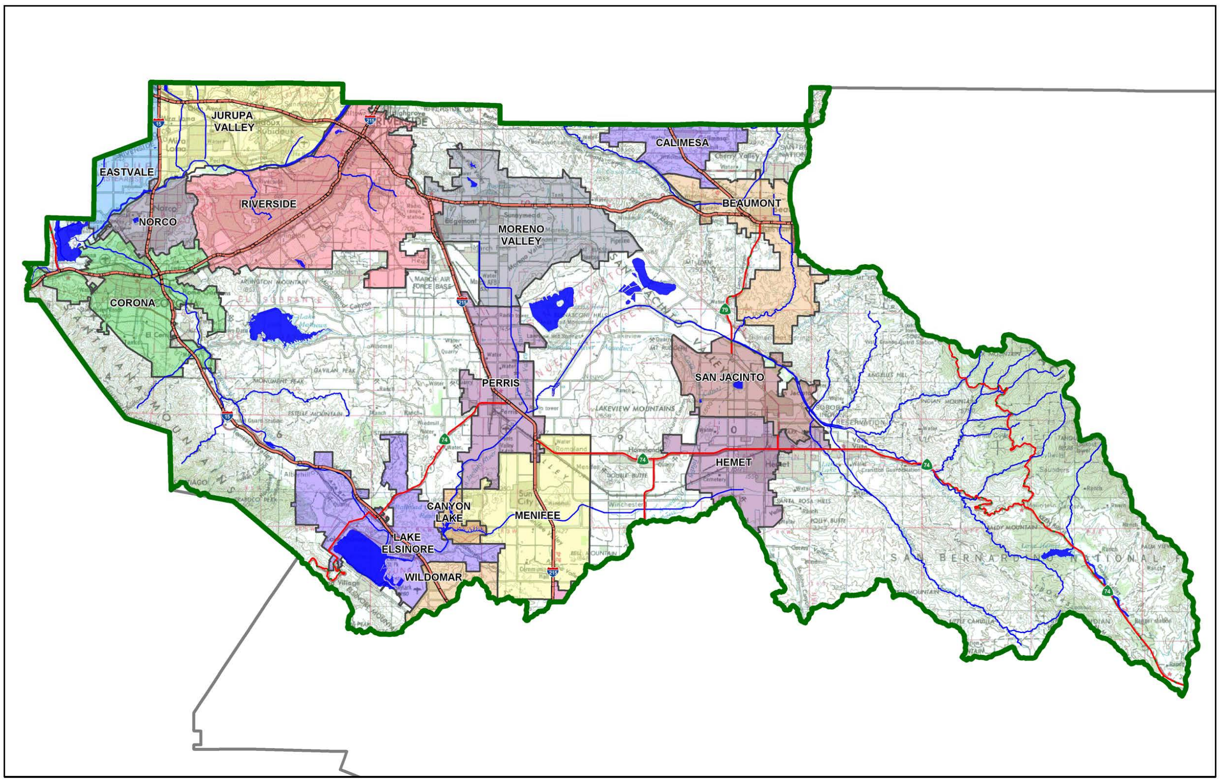
Project Specific Water Quality Management Plan

A Template for Projects located within the ***Santa Ana Watershed*** *Region of Riverside County*

Project Title: GO FRESH GAS

Development No: APN: 292-100-012-1

Design Review/Case No:



☒ **Preliminary**
☐ **Final**

Original Date Prepared: 3/28/2020

Revision Date(s):

Prepared for Compliance with
Regional Board Order No. **R8-2010-0033**

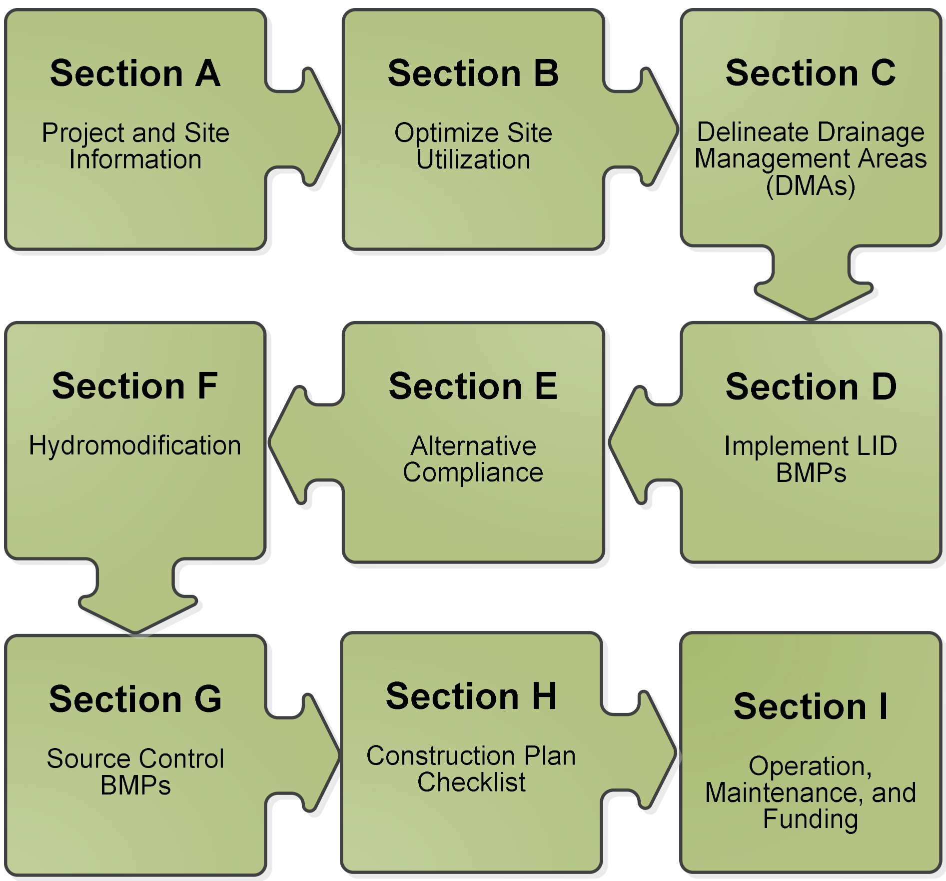
Contact Information:

Prepared for:
Go Fresh, LLC
Go Fresh Gas
1835 Mount Langley Street,
Fountain Valley, CA 92708
Phone: (951) 280-3833

Prepared by:
RAMCAM ENGINEERING GROUP, INC.
670 E. PARKRIDGE AVENUE, SUITE 101
CORONA, CA 92819
(909) 734-6330

A Brief Introduction

This Project-Specific WQMP Template for the **Santa Ana Region** has been prepared to help guide you in documenting compliance for your project. Because this document has been designed to specifically document compliance, you will need to utilize the WQMP Guidance Document as your "how-to" manual to help guide you through this process. Both the Template and Guidance Document go hand-in-hand and will help facilitate a well-prepared Project-Specific WQMP. Below is a flowchart for the layout of this Template that will provide the steps required to document compliance.



OWNER'S CERTIFICATION

This Project-Specific Water Quality Management Plan (WQMP) has been prepared for **GO FRRESH LLC.** by RAMCAM Engineering Group, Inc. for the **GO FRRESH GAS** project.

This WQMP is intended to comply with the requirements of the City of Moreno Valley for Water Quality Ordinance, which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater BMPs until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under the City of Moreno Valley Water Quality Ordinance (Municipal Code Section R8-2010-0033).

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

Owner's Signature	Date
Go Fresh, LLC	.
Owner's Printed Name	Owner's Title/Position

PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control measures in this plan meet the requirements of Regional Water Quality Control Board Order No. **R8-2010-0033** and any subsequent amendments thereto."

	3/28/2020
Preparer's Signature	Date
Imad Abu-Gharbieh	Principal Engineer
Preparer's Printed Name	Preparer's Title/Position

Preparer's Licensure: C52001

Table of Contents

List of Tables

List of Appendices

Section A: Project Site and Site Information

PROJECT INFORMATION	
Type of Project:	Commercial Development
Planning Area:	General Commercial – SP 204 CC
Community Name:	N/A
Development Name:	GO FRESH GAS
	The proposed project is to develop a gas station, retail shops, and car wash. Associated improvements include asphalt and concrete pavement, curb, gutter and sidewalk, landscaping, and underground utilities. The proposed grading directs runoff to Graham Street and to an existing storm drain system due south.

PROJECT LOCATION
Latitude & Longitude (DMS): 33°56'18.3"N 117°15'08.5"W
Project Watershed and Sub-Watershed: San Jacinto Watershed
Gross Acres: 2.18 Acres
APN(s): 292-100-012
Map Book and Page No.: Map BK292 PG.10 in the City of Moreno Valley, County of Riverside, State of California

PROJECT CHARACTERISTICS		
Proposed or Potential Land Use(s)	Commercial	
Proposed or Potential SIC Code(s)	4225, 5399, 5541, 5812, 7542	
Area of Impervious Project Footprint (SF) – Existing condition (onsite)	0.0	
Total Area of <u>proposed</u> Impervious Surfaces within the Project Limits (SF)/or Replacement	93,142	
Does the project consist of offsite road improvements?	☐ Y	☒ N
Does the project propose to construct unpaved roads?	☐ Y	☒ N
Is the project part of a larger common plan of development (phased project)?	☐ Y	☒ N

EXISTING SITE CHARACTERISTICS		
Total area of <u>existing</u> Impervious Surfaces within the project limits (SF)	0.0	
Is the project located within any MSHCP Criteria Cell?	☐ Y	☒ N
If so, identify the Cell number:	N/A	
Are there any natural hydrologic features on the project site?	☐ Y	☒ N
Is a Geotechnical Report attached?	☐ Y	☒ N
If no Geotech. Report, list the NRCS soils type(s) present on the site (A, B, C and/or D) C		
What is the Water Quality Design Storm Depth for the project?	0.65	

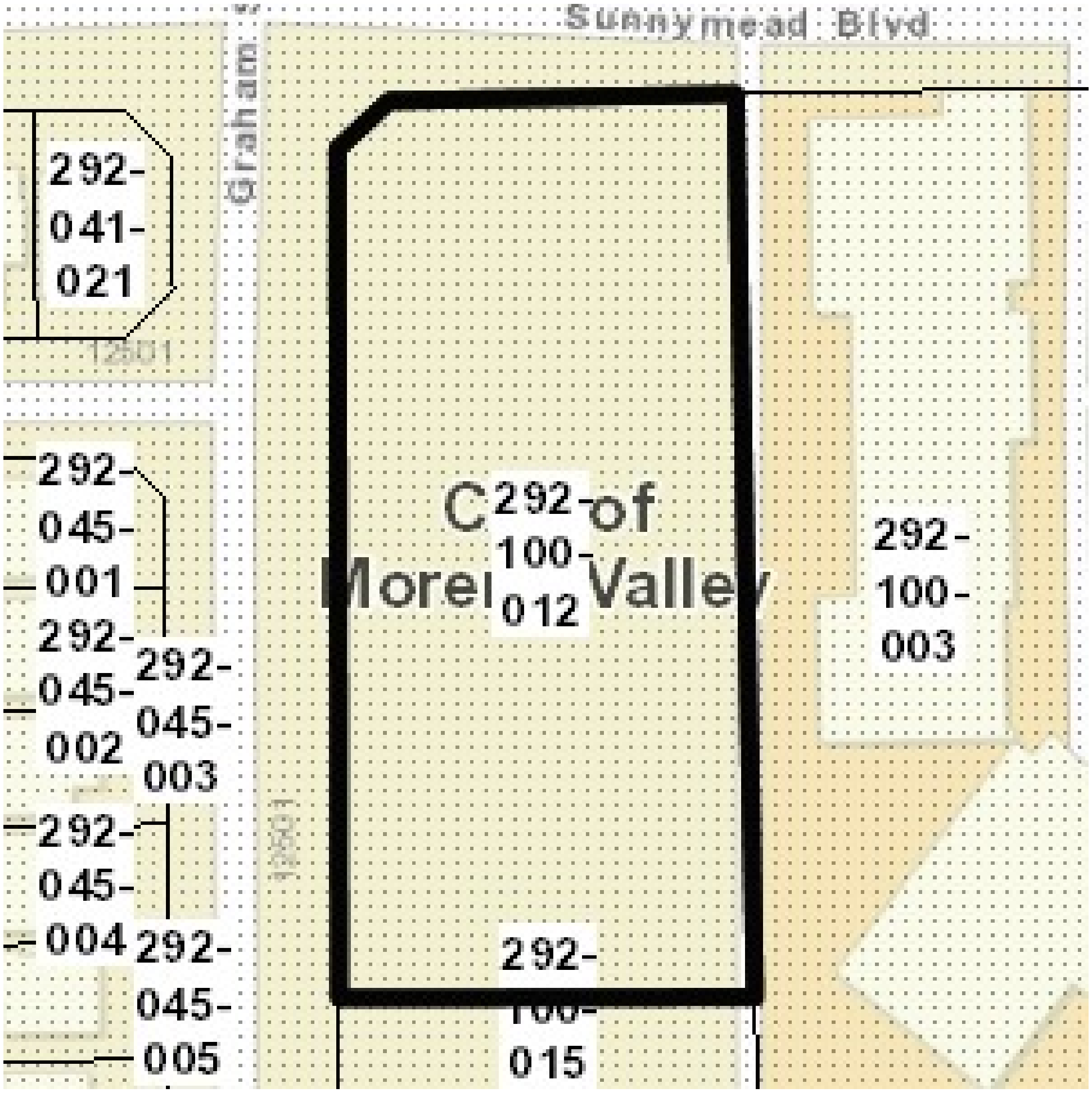
A.1 Maps and Site Plans

Appendix 1 includes maps showing Vicinity, Location, Watershed, latitude and longitude of the project site, Soil, existing and proposed Hydrology Maps, and water quality site plan that shows DMA (Drainage Management Area) areas, drainage paths, locations of the drainage facilities as well as the layout of the proposed development.

The existing site is approximately 2.18 acres gross (2.14 acre net). It is vacant with sparse vegetation and weeds. It is located on the southeast corner of Sunnymead Blvd. and Graham Street . The proposed project is to develop a gas station, retail shops, and car wash. Associated improvements include asphalt and concrete pavement, curb, gutter and sidewalk, landscaping, and underground utilities. The proposed grading directs runoff to Graham Street and to an existing storm drain system. The project is a portion of Sections 1, T. 3 S., R. 4 W., SBM.

The site has no offsite flow impact. The pre-developed conditions show that the storm water runoff is draining onto Graham Street.

The proposed development flow a is a mix of swale flow and a piped flow through the property. The average measured infiltration rate is approximately 0.94 in/hr., per the geotechnical report. Since infiltration rates do not meet the required rate of 1.6 in/hr., Biotreatment (Vegetated Swales), BMP's will be used throughout the site. treat storm water runoff prior to discharging to the existing storm drain system.



APN
316210057
Tract 0
Acreage 4.77
Old APN Previous APN 316210021
Roughstep 3
HMU SAN JACINTO
AP Subunit
Cellgroup Not in a Cellgroup
Criteria Cell Not in a Criteria Cell

A.2 Identify Receiving Waters

Using Table A.1 below, list in order of upstream to downstream, the receiving waters that the project site is tributary to. Continue to fill each row with the Receiving Water's 303(d) listed impairments (if any), designated beneficial uses, and proximity, if any, to a RARE beneficial use. Include a map of the receiving waters in Appendix 1.

Table A.1 Identification of Receiving Waters

Receiving Waters	EPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
PERRIS VALLEY STORM DRAIN CHANNEL	N/A		
SAN JACINTO RIVER, REACH 3 - HU#802.11	N/A	MUN, AGR, GWR, REC1, REC2, WARM, WILD	NOT DESIGNATED AS RARE
CANYON LAKE HU#802.12	NUTRIENTS, PATHOGENS	MUN, AGR, GWR, REC1, REC2, WARM, WILD	NOT DESIGNATED AS RARE
SAN JACINTO RIVER, REACH 1 HU#802.32	N/A	MUN, AGR, GWR, RECI, REC2, WARM, WILD	NOT DESIGNATED AS RARE
LAKE ELSINOR HU#802.31	NUTRIENTS, ORGANIC, LOW DISSOLVED OXYGEN, SEDIMENT/SILTATION, TOXICITY	MUN, RECI, REC2, WARM, WILD	NOT DESIGNATED AS RARE

A.3 Additional Permits/Approvals required for the Project:

Table A.2 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	☐ Y	☒ N
US Army Corps of Engineers, CWA Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☒ Y	☐ N
Statewide Industrial General Permit Coverage	☐ Y	☒ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☐ Y	☒ N
Other *(please list in the space below as required)* City of Moreno Valley Building & Grading Permits	☒ Y	☐ N

If yes is answered to any of the questions above, the Co-Permittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

Section B: Optimize Site Utilization (LID Principles)

Constraints: The major constraints for this project are low permeability of the soil and flat terrain. No exiting storm drain system adjoining the property to connect any proposed underdrain pipes from proposed Bioretention system.

Opportunities: The landscape amenities including open space and buffers from vegetated swales.

LID BMPS were implemented in the development of the site. Due to the regulations implemented by the City of Moreno Valley, the site was designed for biotreatment .

Site Optimization

The following questions are based upon Section 3.2 of the WQMP Guidance Document. Review of the WQMP Guidance Document will help you determine how best to optimize your site and subsequently identify opportunities and/or constraints, and document compliance.

Did you identify and preserve existing drainage patterns? If so, how? If not, why?

Yes - During the post-developed condition the drainage patterns of the project site will remain the same.

Did you identify and protect existing vegetation? If so, how? If not, why?

Existing seasonal vegetation on site will be removed as the whole site will be graded..

Did you identify and preserve natural infiltration capacity? If so, how? If not, why?

No, the infiltration rates for the site are minimal (Type C Soil.). Therefore, biotreatment was included in the proposed design.

Did you identify and minimize impervious area? If so, how? If not, why?

Yes, the impervious areas have been identified and minimum dimensions were used for the parking aisles and slots. The development will propose biotreatment BMPs.

Did you identify and disperse runoff to adjacent pervious areas? If so, how? If not, why?

Yes, the site was graded to direct runoff to pervious areas as biotreatment (Vegetated Swales) were placed to capture the runoff.

Section C: Delineate Drainage Management Areas (DMAs)

Utilizing the procedure in Section 3.3 of the WQMP Guidance Document which discusses the methods of delineating and mapping your project site into individual DMAs, complete Table C.1 below to appropriately categorize the types of classification (e.g., Type A, Type B, etc.) per DMA for your project site. Upon completion of this table, this information will then be used to populate and tabulate the corresponding tables for their respective DMA classifications.

Table C.1 DMA Classifications

DMA Name or ID	Surface Type(s)[1]	Area (Sq. Ft.)	DMA Type
DMA-1	Roof, Concrete and Natural	67975.9	Type D
DMA-2	Concrete, and Natural	7,493.8	Type D
DMA-3	Roof, Concrete and Natural	16,498.9	Type D

Table C.2 Type 'A', Self-Treating Areas

DMA Name or ID	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)
ST-1	807	Ground cover	Sprinkler

Table C.3 Type 'B', Self-Retaining Areas

Self-Retaining Area				Type 'C' DMAs that are draining to the Self-Retaining Area		
DMA Name/ ID	Post-project surface type	Area (square feet) [A]	Storm Depth (inches) [B]	DMA Name / ID	[C] from Table C.4 = [C]	Required Retention Depth (inches) [D]

$$[D] = [B] + \frac{[B] \cdot [C]}{[A]}$$

<u>Not applicable</u>

Table C.4 Type 'C', Areas that Drain to Self-Retaining Areas

DMA					Receiving Self-Retaining DMA		
DMA Name/ ID	Area (square feet)	Post-project surface type	Impervious fraction	Product	DMA name /ID	Area (square feet)	Ratio
	[A]		[B]	[C] = [A] x [B]		[D]	[C]/[D]

Not applicable

Table C.5 Type 'D', Areas Draining to BMPs

DMA Name or ID	BMP Name or ID
DMA-1	Biotreatment
DMA-2	Biotreatment
DMA-3	Biotreatment

The infiltration tests from the geotechnical report show infiltration to be infeasible. Due to the location of the property, where there is no adjacent storm drain system to tie in to, no underdrain installation is feasible for a bioretention treatment. Therefore, Biotreatment is proposed for DMA-1, DMA-2 and DMA-3.

Section D: Implement LID BMPs

D.1 Infiltration Applicability

Is there an approved downstream 'Highest and Best Use' for stormwater runoff (see discussion in Chapter 2.4.4 of the WQMP Guidance Document for further details)? ☒ Y ☐ N

If yes has been checked, Infiltration BMPs shall not be used for the site. If no, continue working through this section to implement your LID BMPs. It is recommended that you contact your Co-Permittee to verify whether your project discharges to an approved downstream 'Highest and Best Use' feature.

Geotechnical Report

A Geotechnical Report or Phase I Environmental Site Assessment may be required by the Copermittee to confirm present and past site characteristics that may affect the use of Infiltration BMPs. In addition, the Co-Permittee, at their discretion, may not require a geotechnical report for small projects as described in Chapter 2 of the WQMP Guidance Document. If a geotechnical report has been prepared, include it in Appendix 3. In addition, if a Phase I Environmental Site Assessment has been prepared, include it in Appendix 4.

Is this project classified as a small project consistent with the requirements of Chapter 2 of the WQMP Guidance Document? ☐ Y ☒ N

Infiltration Feasibility

Table D.1 below is meant to provide a simple means of assessing which DMAs on your site support Infiltration BMPs and is discussed in the WQMP Guidance Document in Chapter 2.4.5. Check the appropriate box for each question and then list affected DMAs as applicable. If additional space is needed, add a row below the corresponding answer.

Table D.1 Infiltration Feasibility

Does the project site…	YES	NO
…have any DMAs with a seasonal high groundwater mark shallower than 10 feet?		X
If Yes, list affected DMAs:		
…have any DMAs located within 100 feet of a water supply well?		X
If Yes, list affected DMAs:		
…have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact?		X
If Yes, list affected DMAs:		
…have measured in-situ infiltration rates of less than 1.6 inches / hour?	X	
If Yes, list affected DMAs: All (Measured average infiltration rate is 0.94 in/hr		
…have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface?		X
If Yes, list affected DMAs:		
… geotechnical report identifies other site-specific factors that would preclude effective and safe infiltration?		X
Describe here:		

If you answered "Yes" to any of the questions above for any DMA, Infiltration BMPs should not be used for those DMAs and you should proceed to the assessment for Harvest and Use below.

D.2 Harvest and Use Assessment

Please check what applies*:*

☐ Reclaimed water will be used for the non-potable water demands for the project.

☐Downstream water rights may be impacted by Harvest and Use as approved by the Regional Board (verify with the Copermittee).

☐The Design Capture Volume will be addressed using Infiltration Only BMPs. In such a case, Harvest and Use BMPs are still encouraged, but it would not be required if the Design Capture Volume will be infiltrated or evapotranspired.

☐None of the above

If any of the above boxes have been checked, Harvest and Use BMPs need not be assessed for the site. If neither of the above criteria applies, follow the steps below to assess the feasibility of irrigation use, toilet use and other non-potable uses (e.g., Industrial use).

Irrigation Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for Irrigation Use BMPs on your site:

Step 1: Identify the total area of irrigated landscape on the site, and the type of landscaping used.

Total Area of Irrigated Landscape: 0.44 AC

Type of Landscaping (Conservation Design or Active Turf): *Conservation Design*

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for irrigation use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: 1.70 AC

Step 3: Cross reference the Design Storm depth for the project site (see Exhibit A of the WQMP Guidance Document) with the left column of Table 2-3 in Chapter 2 to determine the minimum area of Effective Irrigated Area per Tributary Impervious Area (EIATIA).

Enter your EIATIA factor: 1.05

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum irrigated area that would be required.

Minimum required irrigated area: 1.79 AC

Step 5: Determine if harvesting stormwater runoff for irrigation use is feasible for the project by comparing the total area of irrigated landscape (Step 1) to the minimum required irrigated area (Step 4).

Minimum required irrigated area (Step 4)	Available Irrigated Landscape (Step 1)
1.79	0.44

Toilet Use Feasibility

Complete the following steps to determine the feasibility of harvesting stormwater runoff for toilet flushing uses on your site:

Step 1: Identify the projected total number of daily toilet users during the wet season, and account for any periodic shut downs or other lapses in occupancy:

Projected Number of Daily Toilet Users:

Project Type: Commercial

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for toilet use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces:

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-1 in Chapter 2 to determine the minimum number or toilet users per tributary impervious acre (TUTIA).

Enter your TUTIA factor:

Step 4: Multiply the unit value obtained from Step 3 by the total of impervious areas from Step 2 to develop the minimum number of toilet users that would be required.

Minimum number of toilet users:

Step 5: Determine if harvesting stormwater runoff for toilet flushing use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required Toilet Users (Step 4)	**Projected number of toilet users (Step 1)**

Other Non-Potable Use Feasibility

Are there other non-potable uses for stormwater runoff on the site (e.g. industrial use)? See Chapter 2 of the Guidance for further information. If yes, describe below. If no, write N/A.

Not Applicable

Step 1: Identify the projected average daily non-potable demand, in gallons per day, during the wet season and accounting for any periodic shut downs or other lapses in occupancy or operation.

Average Daily Demand: N/A

Step 2: Identify the planned total of all impervious areas on the proposed project from which runoff might be feasibly captured and stored for the identified non-potable use. Depending on the configuration of buildings and other impervious areas on the site, you may consider the site as a whole, or parts of the site, to evaluate reasonable scenarios for capturing and storing runoff and directing the stored runoff to the potential use(s) identified in Step 1 above.

Total Area of Impervious Surfaces: N/A

Step 3: Enter the Design Storm depth for the project site (see Exhibit A) into the left column of Table 2-3 in Chapter 2 to determine the minimum demand for non-potable uses per tributary impervious acre.

Enter the factor from Table 2-3: N/A

Step 4: Multiply the unit value obtained from Step 4 by the total of impervious areas from Step 3 to develop the minimum number of gallons per day of non-potable use that would be required.

Minimum required use: N/A

Step 5: Determine if harvesting stormwater runoff for other non-potable use is feasible for the project by comparing the Number of Daily Toilet Users (Step 1) to the minimum required number of toilet users (Step 4).

Minimum required non-potable use (Step 4)	**Projected average daily use (Step 1)**
N/A	N/A

If Irrigation, Toilet and Other Use feasibility anticipated demands are less than the applicable minimum values, Harvest and Use BMPs are not required and you should proceed to utilize LID Bioretention and Biotreatment, unless a site-specific analysis has been completed that demonstrates technical infeasibility as noted in D.3 below.

D.3 Bioretention and Biotreatment Assessment

Other LID Bioretention and Biotreatment BMPs as described in Chapter 2.4.7 of the WQMP Guidance Document are feasible on nearly all development sites with sufficient advance planning.

Select one of the following:

☒ LID Bioretention/Biotreatment BMPs will be used for some or all DMAs of the project as noted below in Section D.4 (note the requirements of Section 3.4.2 in the WQMP Guidance Document).

☐ A site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Copermittee to discuss this option. Proceed to Section E to document your alternative compliance measures.

D.4 Feasibility Assessment Summaries

From the Infiltration, Harvest and Use, Bioretention and Biotreatment Sections above, complete Table D.2 below to summarize which LID BMPs are technically feasible, and which are not, based upon the established hierarchy.

Table D.2 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy				No LID (Alternative Compliance)
	1. Infiltration	2. Harvest and use	3. Bioretention	4. Biotreatment	
DMA-1	☐	☐	☐	☒	☐
DMA-2	☐	☐	☐	☒	☐
DMA-3	☐	☐	☐	☒	☐
DMA-4	☐	☐	☐	☒	☐

For those DMAs where LID BMPs are not feasible, provide a brief narrative below summarizing why they are not feasible, include your technical infeasibility criteria in Appendix 5, and proceed to Section E below to document Alternative Compliance measures for those DMAs. Recall that each proposed DMA must pass through the LID BMP hierarchy before alternative compliance measures may be considered.

All DMA will be treated either via biotreatment. The infiltration tests from the geotechnical report show infiltration to be infeasible. All BMPs will route the filtered stormwater into offsite.

D.5 LID BMP Sizing

Each LID BMP must be designed to ensure that the Design Capture Volume will be addressed by the selected BMPs. First, calculate the Design Capture Volume for each LID BMP using the V_{BMP} worksheet in Appendix F of the LID BMP Design Handbook. Second, design the LID BMP to meet the required V_{BMP} using a method approved by the Copermittee. Utilize the worksheets found in the LID BMP Design Handbook or consult with your Copermittee to assist you in correctly sizing your LID BMPs. Complete Table D.3 below to document the Design Capture Volume and the Proposed Volume for each LID BMP. Provide the completed design procedure sheets for each LID BMP in Appendix 6. You may add additional rows to the table below as needed.

Section E: Alternative Compliance (LID Waiver Program)

LID BMPs are expected to be feasible on virtually all projects. Where LID BMPs have been demonstrated to be infeasible as documented in Section D, other Treatment Control BMPs must be used (subject to LID waiver approval by the Copermittee). Check one of the following Boxes:

☒ LID Principles and LID BMPs have been incorporated into the site design to fully address all Drainage Management Areas. No alternative compliance measures are required for this project and thus this Section is not required to be completed.

- *Or* -

☐ The following Drainage Management Areas are unable to be addressed using LID BMPs. A site-specific analysis demonstrating technical infeasibility of LID BMPs has been approved by the Co-Permittee and included in Appendix 5. Additionally, no downstream regional and/or sub-regional LID BMPs exist or are available for use by the project. The following alternative compliance measures on the following pages are being implemented to ensure that any pollutant loads expected to be discharged by not incorporating LID BMPs, are fully mitigated.

Not Applicable

E-1 Identify Pollutants of Concern

Utilizing Table A.1 from Section A above which noted your project's receiving waters and their associated EPA approved 303(d) listed impairments, cross reference this information with that of your selected Priority Development Project Category in Table E.1 below. If the identified General Pollutant Categories are the same as those listed for your receiving waters, then these will be your Pollutants of Concern and the appropriate box or boxes will be checked on the last row. The purpose of this is to document compliance and to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs.

Table E.1 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)	General Pollutant Categories							
	Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease
☐ Detached Residential Development	P	N	P	P	N	P	P	P
☐ Attached Residential Development	P	N	P	P	N	P	P	P(2)
☒ Commercial/Industrial Development	P(3)	P	P(1)	P(1)	P(5)	P(1)	P	P
☐ Automotive Repair Shops	N	P	N	N	P(4, 5)	N	P	P
☐ Restaurants (>5,000 ft^2)	P	N	N	N	N	N	P	P
☐ Hillside Development (>5,000 ft^2)	P	N	P	P	N	P	P	P
☒ Parking Lots (>5,000 ft^2)	P(6)	P	P(1)	P(1)	P(4)	P(1)	P	P
☒ Retail Gasoline Outlets	N	P	N	N	P	N	P	P
Project Priority Pollutant(s) of Concern	☒	☒	☒	☒	☒	☒	☒	☒

P = Potential
N = Not Potential
(1) A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected
(2) A potential Pollutant if the project includes uncovered parking areas; otherwise not expected
(3) A potential Pollutant is land use involving animal waste
(4) Specifically, petroleum hydrocarbons
(5) Specifically solvents
(6) Bacterial indicators are routinely detected in pavement runoff

E.2 Stormwater Credits

Projects that cannot implement LID BMPs but nevertheless implement smart growth principles are potentially eligible for Stormwater Credits. Utilize Table 3-8 within the WQMP Guidance Document to identify your Project Category and its associated Water Quality Credit. If not applicable, write N/A.

NOT APPLICABLE

Table E.2 Water Quality Credits

Qualifying Project Categories	Credit Percentage[2]
N/A	
Total Credit Percentage[1]	

[1]Cannot Exceed 50%
[2]Obtain corresponding data from Table 3-8 in the WQMP Guidance Document

E.3 Sizing Criteria

After you appropriately considered Stormwater Credits for your project, utilize Table E.3 below to appropriately size them to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.2 of the WQMP Guidance Document for further information.

NOT APPLICABLE

Table E.3 Treatment Control BMP Sizing

DMA Type/ID	DMA Area (square feet) [A]	Post-Project Surface Type	Effective Impervious Fraction, I_f [B]	DMA Runoff Factor [C]	DMA Area x Runoff Factor [A] x [C]		*Enter BMP Name / Identifier Here*		
						Design Storm Depth (in)	*Minimum Design Capture Volume or Design Flow Rate (cubic feet or cfs)*	*Total Storm Water Credit % Reduction*	*Proposed Volume or Flow on Plans (cubic feet or cfs)*
	$A_T = \Sigma[A]$				$\Sigma = [D]$	[E]	$[F] = \frac{[D]x[E]}{[G]}$	[F] X (1-[H])	[I]

[B], [C] is obtained as described in Section 2.3.1 from the WQMP Guidance Document
[E] is obtained from Exhibit A in the WQMP Guidance Document
[G] is for Flow-Based Treatment Control BMPs [G] = 43,560, for Volume-Based Control Treatment BMPs, [G] = 12
[H] is from the Total Credit Percentage as Calculated from Table E.2 above
[I] as obtained from a design procedure sheet from the BMP manufacturer and should be included in Appendix 6

E.4 Treatment Control BMP Selection

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must have a removal efficiency of a medium or high effectiveness as quantified below:

- **High**: equal to or greater than 80% removal efficiency
- **Medium**: between 40% and 80% removal efficiency

Such removal efficiency documentation (e.g., studies, reports, etc.) as further discussed in Chapter 3.5.2 of the WQMP Guidance Document, must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1.

Table E.4 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID[1]	Priority Pollutant(s) of Concern to Mitigate[2]	Removal Efficiency Percentage[3]
N/A		

[1] Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.
[2] Cross Reference Table E.1 above to populate this column.

Section F: Hydromodification

F.1 Hydrologic Conditions of Concern (HCOC) Analysis

Once you have determined that the LID design is adequate to address water quality requirements, you will need to assess if the proposed LID Design may still create a HCOC. Review Chapters 2 and 3 (including Figure 3-7) of the WQMP Guidance Document to determine if your project must mitigate for Hydromodification impacts. If your project meets one of the following criteria which will be indicated by the check boxes below, you do not need to address Hydromodification at this time. However, if the project does not qualify for Exemptions 1, 2 or 3, then additional measures must be added to the design to comply with HCOC criteria. This is discussed in further detail below in Section F.2.

HCOC EXEMPTION 1: The Priority Development Project disturbs less than one acre. The Copermittee has the discretion to require a Project-Specific WQMP to address HCOCs on projects less than one acre on a case by case basis. The disturbed area calculation should include all disturbances associated with larger common plans of development.

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, HCOC criteria do not apply.

HCOC EXEMPTION 2: The volume and time of concentration[1] of storm water runoff for the post-development condition is not significantly different from the pre-development condition for a 2-year return frequency storm (a difference of 5% or less is considered insignificant) using one of the following methods to calculate:

- Riverside County Hydrology Manual
- Technical Release 55 (TR-55): Urban Hydrology for Small Watersheds (NRCS 1986), or derivatives thereof, such as the Santa Barbara Urban Hydrograph Method
- Other methods acceptable to the Co-Permittee

Does the project qualify for this HCOC Exemption? ☐ Y ☒ N

If Yes, report results in Table F.1 below and provide your substantiated hydrologic analysis in Appendix 7.

Table F.1 Hydrologic Conditions of Concern Summary

	2 year – 24 hour		
	Pre-condition	**Post-condition**	**% Difference**
Time of Concentration	N/A		
Volume (Ac-ft.)			

[1] Time of concentration is defined as the time after the beginning of the rainfall when all portions of the drainage basin are contributing to flow at the outlet.

HCOC EXEMPTION 3: All downstream conveyance channels to an adequate sump (for example, Prado Dam, Lake Elsinore, Canyon Lake, Santa Ana River, or other lake, reservoir or naturally erosion resistant feature) that will receive runoff from the project are engineered and regularly maintained to ensure design flow capacity; no sensitive stream habitat areas will be adversely affected; or are not identified on the Co-Permittees Hydromodification Sensitivity Maps.

Does the project qualify for this HCOC Exemption? ☒ Y ☐ N

If Yes, HCOC criteria do not apply and note below which adequate sump applies to this HCOC qualifier:

The flow from the Site is directed south along Graham Street to be intercepted by G-1 Line of the "Sunnymead ADP" of the RCFCWD. Then goes thru Lines G, B and Line until it meets Parris Valley Storm Drain Channel. The Channel terminates at San Jacinto River. Then to Canyon Lake. All flow leaving the property is conveyed thru hardened drainage structures.

F.2 HCOC Mitigation

If none of the above HCOC Exemption Criteria are applicable, HCOC criteria is considered mitigated if they meet one of the following conditions:

a. Additional LID BMPS are implemented onsite or offsite to mitigate potential erosion or habitat impacts as a result of HCOCs. This can be conducted by an evaluation of site-specific conditions utilizing accepted professional methodologies published by entities such as the California Stormwater Quality Association (CASQA), the Southern California Coastal Water Research Project (SCCRWP), or other Co-Permittee approved methodologies for site-specific HCOC analysis.

b. The project is developed consistent with an approved Watershed Action Plan that addresses HCOC in Receiving Waters.

c. Mimicking the pre-development hydrograph with the post-development hydrograph, for a 2-year return frequency storm. Generally, the hydrologic conditions of concern are not significant, if the post-development hydrograph is no more than 10% greater than pre-development hydrograph. In cases where excess volume cannot be infiltrated or captured and reused, discharge from the site must be limited to a flow rate no greater than 110% of the pre-development 2-year peak flow.

Be sure to include all pertinent documentation used in your analysis of the items a, b or c in Appendix 7.

Section G: Source Control BMPs

Source control BMPs include permanent, structural features that may be required in your project plans — such as roofs over and berms around trash and recycling areas — and Operational BMPs, such as regular sweeping and "housekeeping", that must be implemented by the site's occupant or user. The MEP standard typically requires both types of BMPs. In general, Operational BMPs cannot be substituted for a feasible and effective permanent BMP. Using the Pollutant Sources/Source Control Checklist in Appendix 8, review the following procedure to specify Source Control BMPs for your site:

1. ***Identify Pollutant Sources***: Review Column 1 in the Pollutant Sources/Source Control Checklist. Check off the potential sources of Pollutants that apply to your site.

2. ***Note Locations on Project-Specific WQMP Exhibit***: Note the corresponding requirements listed in Column 2 of the Pollutant Sources/Source Control Checklist. Show the location of each Pollutant source and each permanent Source Control BMP in your Project-Specific WQMP Exhibit located in Appendix 1.

3. ***Prepare a Table and Narrative***: Check off the corresponding requirements listed in Column 3 in the Pollutant Sources/Source Control Checklist. In the left column of Table G.1 below, list each potential source of runoff Pollutants on your site (from those that you checked in the Pollutant Sources/Source Control Checklist). In the middle column, list the corresponding permanent, Structural Source Control BMPs (from Columns 2 and 3 of the Pollutant Sources/Source Control Checklist) used to prevent Pollutants from entering runoff. **Add additional narrative** in this column that explains any special features, materials or methods of construction that will be used to implement these permanent, Structural Source Control BMPs.

4. ***Identify Operational Source Control BMPs:*** To complete your table, refer once again to the Pollutant Sources/Source Control Checklist. List in the right column of your table the Operational BMPs that should be implemented as long as the anticipated activities continue at the site. Copermittee stormwater ordinances require that applicable Source Control BMPs be implemented; the same BMPs may also be required as a condition of a use permit or other revocable Discretionary Approval for use of the site.

Table G.1 Permanent and Operational Source Control Measures

Potential Sources of Runoff pollutants	Permanent Structural Source Control BMPs	Operational Source Control BMPs
On-site drain inlets Storm Drain System Stenciling and Signage	• All onsite inlets including inlets in biotreatment swales are shown on Water Quality Site Plan • All inlets will be marked with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call	• Maintain and periodically repaint or replace inlet markings • Provide stormwater pollution prevention information to new site owners, lessees, or operators. • See applicable

	951.955.1200 to verify.	operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com • Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."
Interior floor drains.	Interior floor drains shall be drained to sanitary sewer.	Inspect and maintain drains to prevent blockage and overflow.
Need for future indoors & structural pest control.	Note building design features that discourage entry of pests.	Provide Integrated Pest Management information to owners, lessees, and operators.
Landscape/Outdoor Pesticide Use Efficient Irrigation System	• No existing native trees or shrubs onsite. • Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. • Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. • Consider using pest-resistant plants, especially adjacent to hardscape. • To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	• Maintain landscaping using minimum or no pesticides. • See applicable operational BMPs in "What you should know for… Landscape and Gardening" at http://www.rivcocob.org/ords/800/859.pdf • Provide IPM information to new owners, lessees and operators.

Pools, ponds, decorative fountains, and other water features.	No water features onsite	
Food Service	For restaurants, grocery stores, and other food service operations, floor sink(s) or are used for cleaning floor mats, containers, and equipment.	See the brochure, "The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries" at http://rcflood.org/stormwater. Provide this brochure to new site owners, lessees, and operators.
Refuse areas Maintain trash and waste storage areas	• State how site refuse will be handled and provide supporting detail to what is shown on plans. • State the signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.	Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
Vehicle / Equipment Repair and Maintenance	No Equipment repair or maintenance area are designated or permitted onsite.	By providing a sing onsite The property owner shall enforce that no Equipment repair or maintenance are permitted onsite.
Fuel Dispensing Areas	• Fueling areas shall impermeable floors (i.e., Portland cement Concrete or equivalent smooth	• The property owner / assigned maintenance crew shall dry sweep the

	impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by grade break that prevents run-on of storm water to the maximum extent practicable. • Fueling areas shall covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area.] the canopy [or cover] shall not drain onto the fueling area.	fueling area routinely. • See the Fact Sheet SD-30, "Fueling Areas" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
Fire Sprinkler Test Water	Provide a means to drain fire sprinkler test water o the sanitary sewer.	See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
Miscellaneous Drain, Wash Water or Other Sources Roofing, gutters and trim	• Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. • Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment. • Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water. • Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff. • Include Controls for other sources as	Collect debris from roof drains and entry into the storm drain system.

	specified by local reviewer.	
Plazas, sidewalks, and parking lots. Vacuum sweeping of private streets and parking lots	Plazas, Sidewalks, parking lots, Loading /Unloading Dock including pump station areas are shown on WQMP site plan Appendix 1, section A1-h	Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect wash water containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.
Biotreatment Systems	DMA'S 1-4	Inspect per county of Riverside vegetated swale facility fact sheets (provided in Appendix 10 of this report). Ongoing maintenance and inspection. The property owner or his contractor shall inspect all vegetated areas for erosion, dead vegetation soggy soils or standing water. The use of fertilizers and pesticides on the plans inside the egetated swales Facilities should be minimized, remove trash and debris, remove damaged grass and /or plants. Replace surface mulch layers as needed to maintain 2-3inch soil cover. After storm event, inspect areas for ponding. Inspect annually, clean inlets and outlets.

Section H: Construction Plan Checklist

Populate Table H.1 below to assist the plan checker in an expeditious review of your project. The first two columns will contain information that was prepared in previous steps, while the last column will be populated with the corresponding plan sheets. This table is to be completed with the submittal of your final Project-Specific WQMP.

Table H.1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)
DMA-1	Biotreatment (Vegetated Swale)	
DMA-2	Biotreatment (Vegetated Swale)	
DMA-3	Biotreatment (Vegetated Swale)	
ST-1	SELF TREATING	

Note that the updated table — or Construction Plan WQMP Checklist — is **only a reference tool** to facilitate an easy comparison of the construction plans to your Project-Specific WQMP. Co-Permittee staff can advise you regarding the process required to propose changes to the approved Project-Specific WQMP

Section I : Operation, Maintenance and Funding

The Copermittee will periodically verify that Stormwater BMPs on your site are maintained and continue to operate as designed. To make this possible, your Copermittee will require that you include in Appendix 9 of this Project-Specific WQMP:

1. A means to finance and implement facility maintenance in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred. A warranty covering a period following construction may also be required.
3. An outline of general maintenance requirements for the Stormwater BMPs you have selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility. Geo-locating the BMPs using a coordinate system of latitude and longitude is recommended to help facilitate a future statewide database system.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized O&M or inspections but will require typical landscape maintenance as noted in Chapter 5, pages 85-86, in the WQMP Guidance. Include a brief description of typical landscape maintenance for these areas.

Your local Co-Permittee will also require that you prepare and submit a detailed Stormwater BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the Stormwater BMPs built on your site. An agreement assigning responsibility for maintenance and providing for inspections and certification may also be required.

Details of these requirements and instructions for preparing a Stormwater BMP Operation and Maintenance Plan are in Chapter 5 of the WQMP Guidance Document.

Maintenance Mechanism: GO FRESH LLC. Management is responsible for BMP Operation and Maintenance

Will the proposed BMPs be maintained by a Home Owners' Association (HOA) or Property Owners Association (POA)?

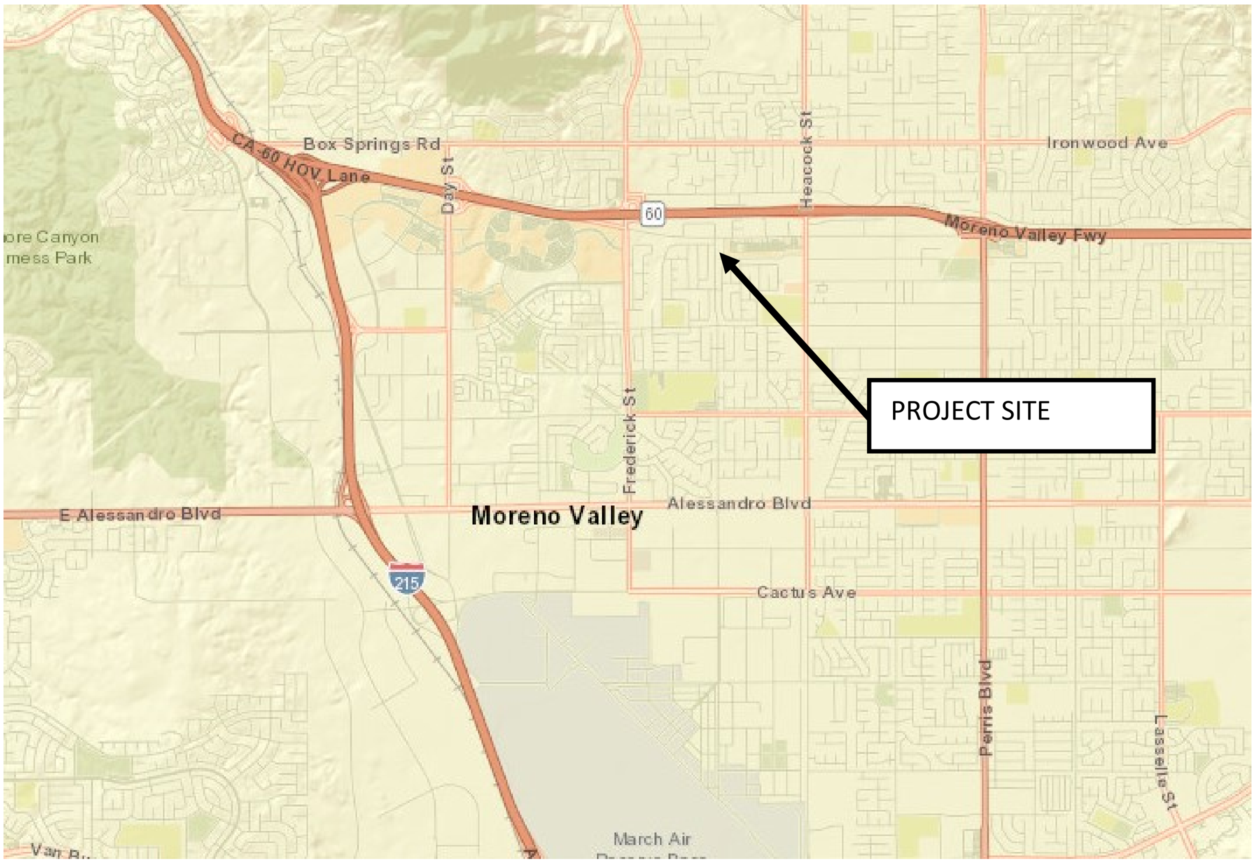
☐ Y ☒ N

Include your Operation and Maintenance Plan and Maintenance Mechanism in Appendix 9. Additionally, include all pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP in Appendix 10.

Appendix 1: Maps and Site Plans

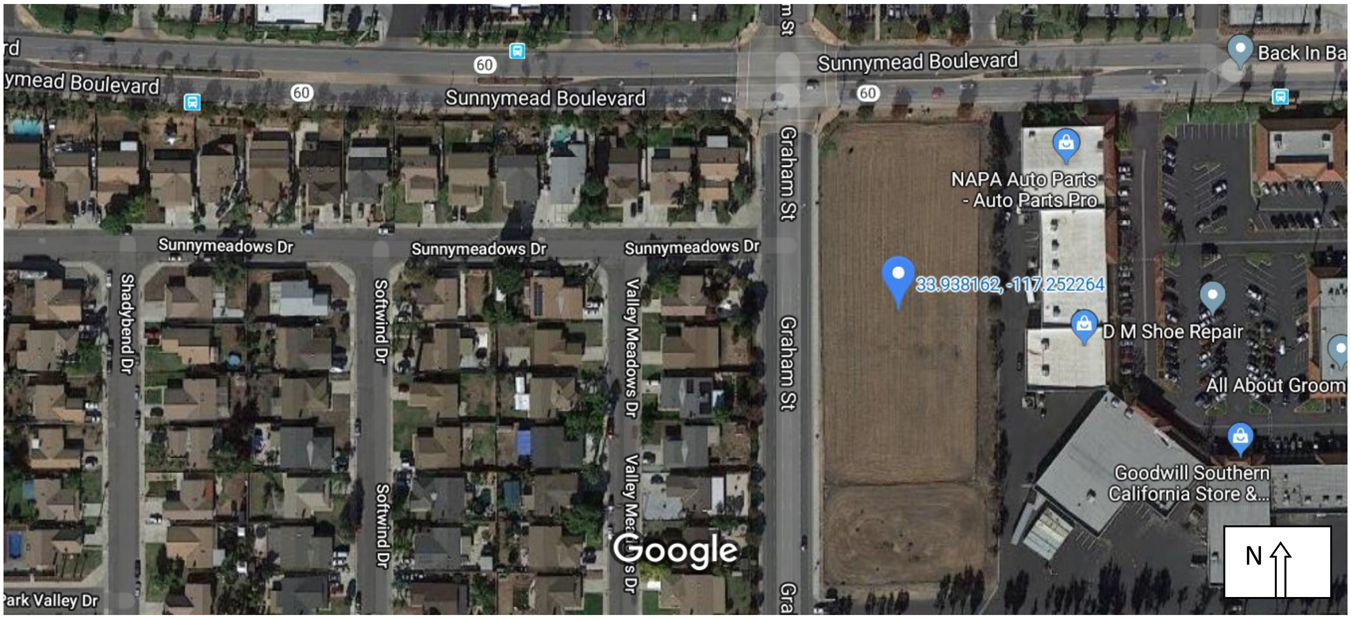
Location Map, WQMP Site Plan and Receiving Waters Map

A-1a VICINITY MAP



A-1b LOCATION MAP

A-1c L&L OF THE PROJECT SITE

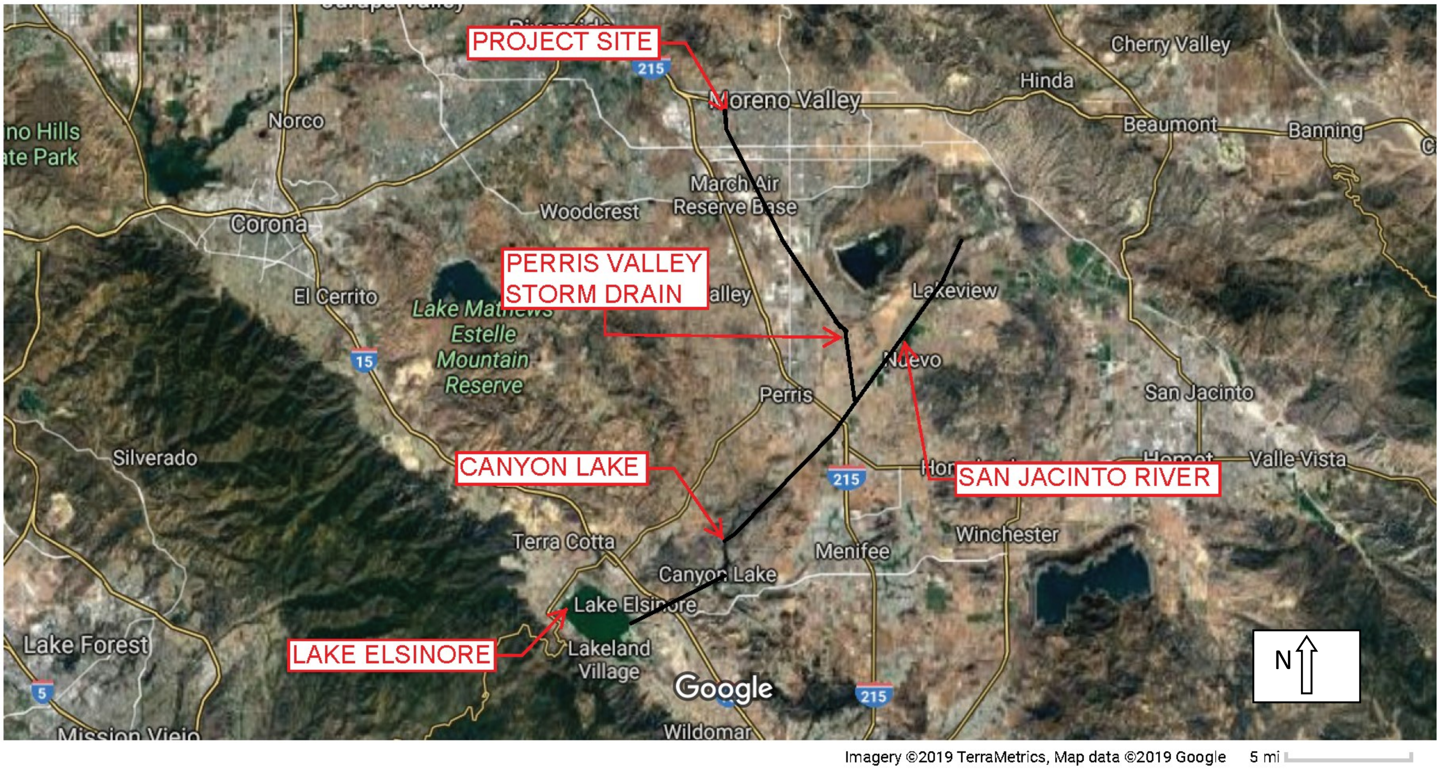


A-1d WATERSHED MAP

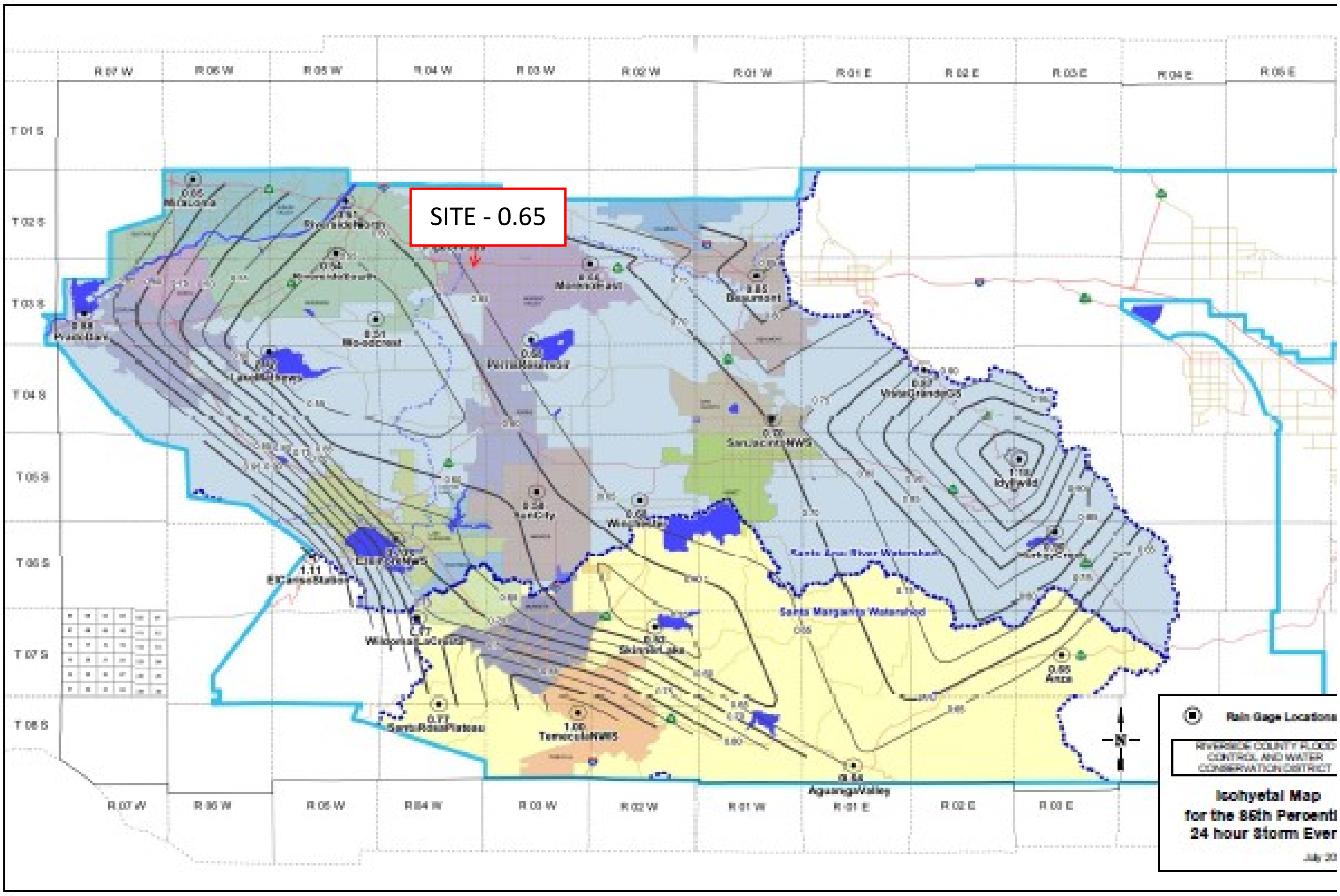
A-1d.1 WATERSHED MAP

WATERSHED MAP

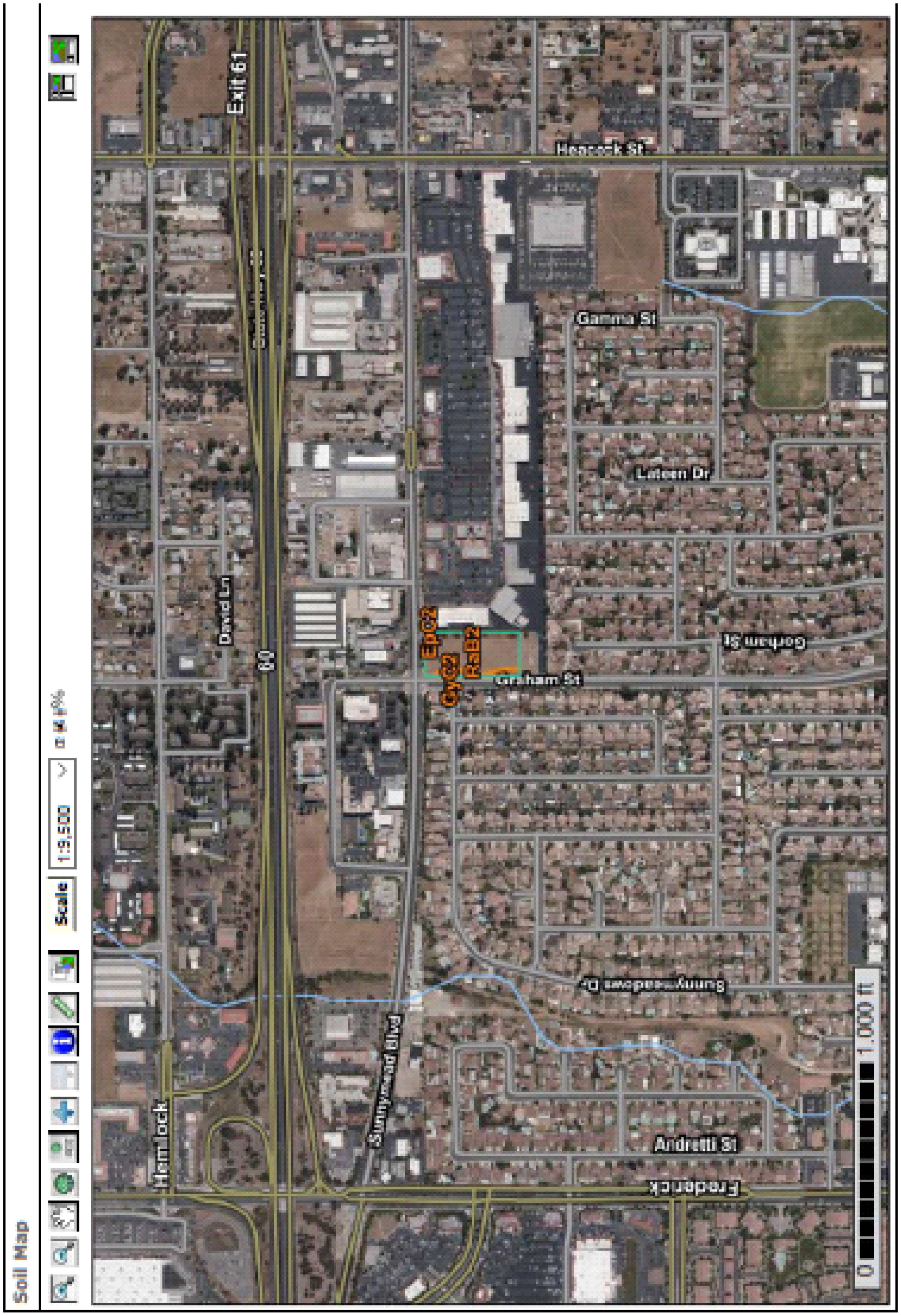
Go Fresh Gas



A-1e 85th PERCENTILE ISOHYETAL AREA MAP



A-1f SOIL MAP


Soil Map
Scale
1:9,500
Exit 61
Heacock St
Gamma St
Lateen Dr
Gorham St
Graham St
EpC2
GyC2
RsB2
David Ln
60
Sunnymead Blvd
Sunnymeadows Dr
Hemlock
Andretti St
Frederick
0
1,000 ft

A-1f.1 SOIL MAP

Map Unit Description: Ramona sandy loam, 2 to 5 percent slopes, eroded—Western Riverside Area, California

Western Riverside Area, California

RaB2—Ramona sandy loam, 2 to 5 percent slopes, eroded

Map Unit Setting

National map unit symbol: hcy5
Elevation: 250 to 3,500 feet
Mean annual precipitation: 10 to 20 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 230 to 320 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Ramona and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ramona

Setting

Landform: Alluvial fans, terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 14 inches: sandy loam
H2 - 14 to 23 inches: fine sandy loam
H3 - 23 to 68 inches: sandy clay loam
H4 - 68 to 74 inches: gravelly sandy loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Natural drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum in profile: 1 percent
Available water storage in profile: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: LOAMY (1975) (R019XD029CA)
Hydric soil rating: No

Project is within Soil Group type "C"

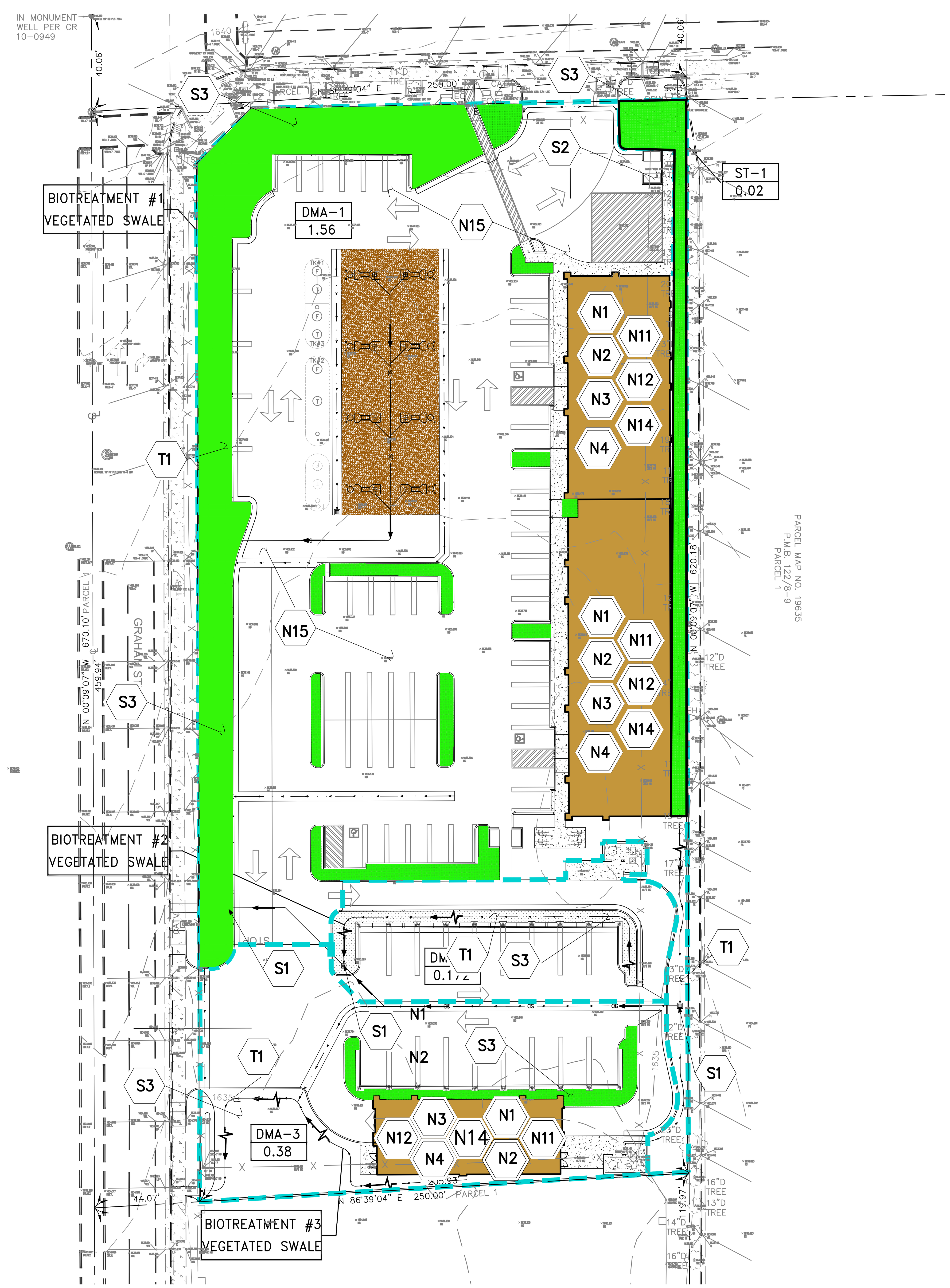
NOTES

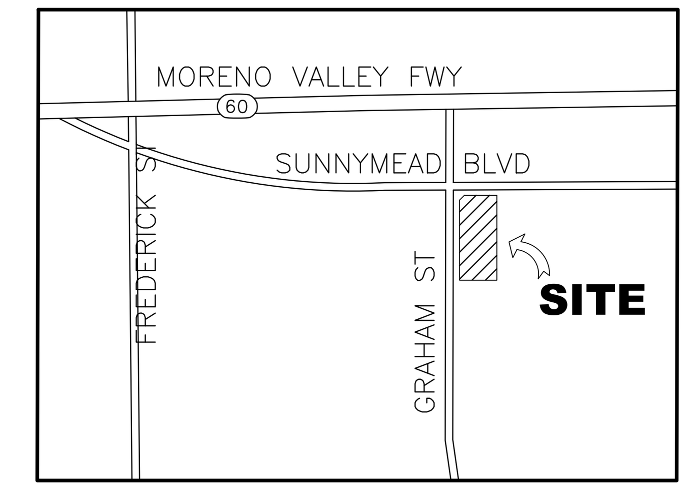
1. THIS PLAN IS TO BE USED FOR INFORMATION PERTAINING TO POST-CONSTRUCTION BMPS ONLY. REFER TO OTHER PLAN SHEETS FOR CONSTRUCTION OF IMPROVEMENTS.
2. USE THIS PLAN IN CONJUNCTION WITH THE PROJECT'S WATER QUALITY MANAGEMENT PLAN (WQMP).
3. IF THERE IS A CONFLICT BETWEEN DOCUMENTS, THE NARRATIVE BODY IN THE PROJECT'S WQMP WILL PREVAIL OVER THIS PLAN.

S1 STORM DRAIN SYSTEM STENCILING AND SIGNAGE

LEGEND

N_	DENOTES NON-STRUCTURAL BMPs
N1	EDUCATION FOR PROPERTY OWNERS
N2	ACTIVITY RESTRICTIONS
N3	COMMON AREA LANDSCAPE MANAGEMENT
N4	BMP MAINTENANCE (ALL BMPs)
N11	LITTER/DEBRIS CONTROL PROGRAM
N12	EMPLOYEE TRAINING
N14	CATCH BASIN INSPECTION PROGRAM
N15	STREET SWEEPING PRIVATE STREETS AND PARKING LOTS
S_	DENOTES ROUTINE STRUCTURAL SOURCE CONTROL BMPs
S1	STORM DRAIN SYSTEM STENCILING AND SIGNAGE
S2	DESIGN AND CONSTRUCT TRASH AND WASTE STORAGE AREAS
S3	EFFICIENT IRRIGATION SYSTEMS AND LANDSCAPE DESIGN
T_	DENOTES TREATMENT CONTROL BMPs
T1	BIOTREATMENT





VICINITY MAP
NOT TO SCALE

30 15 0 30 60 80
SCALE: 1"=30'

SYMBOLS

- PROPOSED BUILDING / IMPERVIOUS
- LANDSCAPED / PERVIOUS AREA
- PAVED / IMPERVIOUS AREA
- CATCH BASIN INSERT FILTER
- CANOPY GAS PUMP STATION AREA
- TRIBUTARY DRAINAGE SUBAREA
- TRIBUTARY DRAINAGE AREA
- PATTERN OF SURFACE FLOW
- STORM DRAIN FLOW PATH TO BIOTREATMENT

DMA-X — DMA-AREA
0.497 — AREA IN ACRES

NOTICE TO CONTRACTOR
THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

PLAN PREPARED FOR
GO FRESH, LLC
1835 MOUNT LANGLEY
STREET FOUNTAIN VALLEY,
CA 92708

PENXX-XXXX

NO.	REVISIONS	DATE

PREPARED BY:
670 E. Parkridge, Avenue, #101
Corona, California 92879
Tel 951-734-6330
ramcam@ramcamgroup.com

WQMP
PROPOSED COMMERCIAL DEVELOPMENT
23610 SUNNYMEAD BLVD
MORENO VALLEY, CA 92570

DATE 03-25-20
DRAWN BY IMAD A
CHECKED BY
JOB NO.
SHEET NO. 1
OF 2 SHEETS

GENERAL NOTES

A. EROSION CONTROL BMPS SHALL BE IMPLEMENTED AND MAINTAINED TO MINIMIZE AND/OR PREVENT THE ENTRAINMENT OF SOIL IN RUNOFF FROM DISTURBED SOIL AREAS ON CONSTRUCTION SITES.
B. SEDIMENT CONTROL BMPS SHALL BE IMPLEMENTED AND MAINTAINED TO PREVENT AND/OR MINIMIZE THE TRANSPORT OF SOIL FROM THE CONSTRUCTION SITE.
C. STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO ELIMINATE OR REDUCE SEDIMENT TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING, OR WIND.
D. APPROPRIATE BMPS FOR CONSTRUCTION-RELATED MATERIALS, WASTES, SPILLS OR RESIDUES SHALL BE IMPLEMENTED TO ELIMINATE OR REDUCE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTIES BY WIND OR RUNOFF.
E. RUNOFF FROM EQUIPMENT AND VEHICLE WASHING SHALL BE CONTAINED AT CONSTRUCTION SITES AND MUST NOT BE DISCHARGED TO RECEIVING WATERS OR THE LOCAL STORM DRAIN SYSTEM.
F. ALL CONSTRUCTION CONTRACTOR AND SUBCONTRACTOR PERSONNEL ARE TO BE MADE AWARE OF THE REQUIRED BEST MANAGEMENT PRACTICES AND GOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE AND ANY ASSOCIATED CONSTRUCTION STAGING AREAS.
G. AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND PROPERLY DISPOSED IN TRASH OR RECYCLE BINS.
H. CONSTRUCTION SITES SHALL BE MAINTAINED IN SUCH A CONDITION THAT A STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. DISCHARGES OTHER THAN STORMWATER (NON-STORMWATER DISCHARGES) ARE PROHIBITED, EXCEPT AS AUTHORIZED BY AN INDIVIDUAL NPDES PERMIT OR THE STATEWIDE GENERAL PERMIT FOR CONSTRUCTION ACTIVITY. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SOLID OR LIQUID CHEMICAL SPILLS; WASTES FROM PAINTS, STAINS, SEALANTS, SOLVENTS, DETERGENTS, GLUES, LIME, PESTICIDES, HERBICIDES, FERTILIZERS, WOOD PRESERVATIVES, AND ASBESTOS FIBERS, PAINT FLAKES OR STUCCO FRAGMENTS; FUELS, OILS, LUBRICANTS, AND HYDRAULIC, RADIATOR OR BATTERY FLUIDS; CONCRETE AND RELATED CUTTING OR CURING RESIDUES; FLOATABLE WASTES; WASTES FROM ENGINE/EQUIPMENT STEAM CLEANING OR CHEMICAL DEGREASING; WASTES FROM STREET CLEANING; AND SUPER-CHLORINATED POTABLE WATER FROM LINE FLUSHING AND TESTING. DURING CONSTRUCTION, DISPOSAL OF SUCH MATERIALS SHOULD OCCUR IN A SPECIFIED AND CONTROLLED TEMPORARY AREA ON-SITE PHYSICALLY SEPARATED FROM POTENTIAL STORMWATER RUNOFF, WITH ULTIMATE DISPOSAL IN ACCORDANCE WITH LOCAL, STATE, AND FEDERAL REQUIREMENTS.
I. DISCHARGING CONTAMINATED GROUNDWATER PRODUCED BY DEWATERING GROUNDWATER THAT HAS INFILTRATED INTO THE CONSTRUCTION SITE IS PROHIBITED. DISCHARGING OF CONTAMINATED SOILS VIA SURFACE EROSION IS ALSO PROHIBITED. DISCHARGING NON-CONTAMINATED GROUNDWATER PRODUCED BY DEWATERING ACTIVITIES MAY REQUIRE A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT ISSUED BY THE REGIONAL BOARD.
J. CONSTRUCTION SITES SHALL BE MANAGED TO MINIMIZE THE EXPOSURE TIME OF DISTURBED SOIL AREAS THROUGH PHASING AND SCHEDULING OF GRADING TO THE EXTENT FEASIBLE AND THE USE OF TEMPORARY AND PERMANENT SOIL STABILIZATION.
K. BMPS SHALL BE MAINTAINED AT ALL TIMES. IN ADDITION, BMPS SHALL BE INSPECTED PRIOR TO PREDICTED STORM EVENTS AND FOLLOWING STORM EVENTS.

DMA-1 (BIOTREATMENT # 1)

PROPOSED SITE, TRIBUTARY TO BIOTREATMENT AREA 67,975.9 SQ-FT. – 1.56 ACRES OF TRIBUTARY AREA				
SURFACE TYPE		AREA SF	AREA AC	%
IMPERVIOUS	ROOF, ASPH/CONC.	54,887	1.26	80.1
PERVIOUS	GRASS, SWALE AREA	13,089	0.30	19.9

PERVIOUS AREA = 0.30 Ac. = 19.9 %
IMPERVIOUS AREA = 1.26 Ac. = 80.1 %

DMA-2 (BIOTREATMENT # 2)

PROPOSED SITE, TRIBUTARY TO BIOTREATMENT AREA 7,493.8SQ-FT. – 0.17 ACRES OF TRIBUTARY AREA				
SURFACE TYPE		AREA SF	AREA AC	%
IMPERVIOUS	ASPHALT/CONCRETE	6,532.8	0.15	88.2
PERVIOUS	GRASS, SWALE AREA	961.0	0.02	11.8

PERVIOUS AREA = 0.02 Ac. = 11.8 %
IMPERVIOUS AREA = 0.15 Ac. = 88.2 %

DMA-3 (BIOTREATMENT # 3)

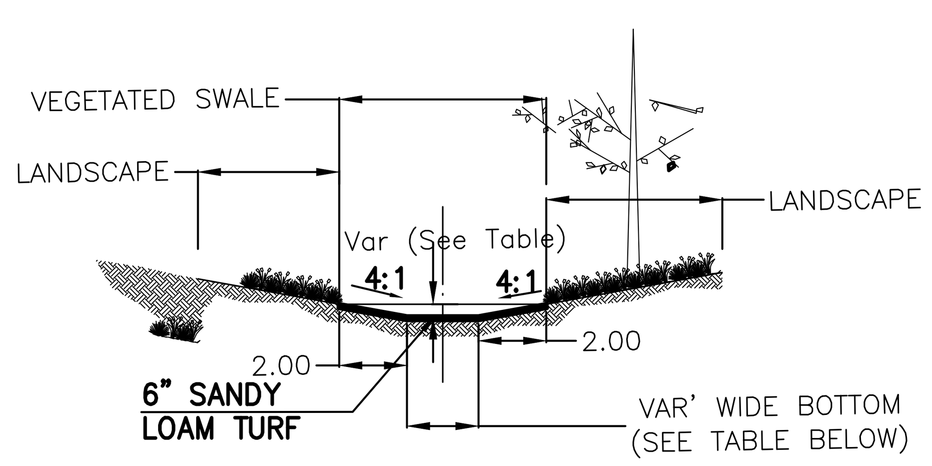
PROPOSED SITE, TRIBUTARY TO BIOTREATMENT AREA 16,498.9 SQ-FT. – 0.38 ACRES OF TRIBUTARY AREA				
SURFACE TYPE		AREA SF	AREA AC	%
IMPERVIOUS	ROOF, ASPH/CONC.	12,678.9	0.29	67.9
PERVIOUS	GRASS, SWALE AREA	3,820	0.09	23.1

PERVIOUS AREA = 0.02 Ac. = 11.8 %
IMPERVIOUS AREA = 0.15 Ac. = 88.2 %

TOTAL ONSITE TRIBUTARY AREAS (INCLUDING SELF TREATING)

PROPOSED SITE 93,265 SQ-FT. ~ 2.14 ACRES OF TRIBUTARY AREA				
SURFACE TYPE		AREA SF	AREA AC	%
IMPERVIOUS	PROPOSED ROOF AREA	12,243.4	0.28	13.1
	PAVED PARKING, CURB AND GUTTER	61,855.3	1.42	66.4
PERVIOUS	GRASS, DIRT AREA,	19,166.4	0.44	20.5

PERVIOUS AREA = 0.44 Ac. = 20.4 %
IMPERVIOUS AREA = 1.70 Ac. = 79.6 %



VEGETATED SWALE
NTS

TREATMENT CONTROL BMPs

DRAINAGE AREA	TOTAL DRAINAGE AREA SQ.FT.	BMP SURFACE AREA PROVIDED SQ.FT.	BMP LENGTH x WIDTH (FEET)	PONDING DEPTH (FEET)	BMP TYPE
DMA-1	67,975.9	N/A	AVERAGE 61.8 x 16.0	0.13	VEGETATED/GRASSED SWALE BIOTREATMENT
DMA-2	7,493.8	N/A	AVERAGE 75.6 x 2.0	0.21	VEGETATED/GRASSED SWALE BIOTREATMENT
DMA-3	16,498.9	N/A	AVERAGE 121.8 x 2.0	0.14	VEGETATED/GRASSED SWALE BIOTREATMENT

NOTICE TO CONTRACTOR
THE CONTRACTOR SHALL ASCERTAIN THE TRUE VERTICAL AND HORIZONTAL LOCATION AND SIZE OF ALL UTILITIES, PIPES, AND/OR STRUCTURES AND SHALL BE RESPONSIBLE FOR DAMAGE TO ANY PUBLIC OR PRIVATE UTILITIES, SHOWN OR NOT SHOWN HEREON.

PLAN PREPARED FOR
GO FRESH, LLC
1835 MOUNT LANGLEY
STREET FOUNTAIN VALLEY,
CA 92708

PENXX-XXXX

NO.	REVISIONS	DATE

PREPARED BY:
RamCam
670 E. Parkridge, Avenue, #101
Corona, California 92879
Tel 951-734-6330
ramcam@ramcamgroup.com

WQMP

PROPOSED COMMERCIAL DEVELOPMENT
23610 SUNNYMEAD BLVD
MORENO VALLEY, CA 92570

DATE 03-25-20
DRAWN BY IMAD A
CHECKED BY
JOB NO.
SHEET NO. 2 OF 2 SHEETS

A-2 WATER QUALITY PLANS

Appendix 2: Construction Plans

Grading and Drainage Plans

2-1 GRADING PLANS

PRELIMINARY GRADING PLAN
FOR
GO FRESH GAS
23610 SUNNYMEAD BLVD
MORENO VALLEY, CA 92570

GRADING NOTES:

1. ALL WORK SHALL CONFORM TO THE CITY OF MORENO VALLEY GRADING REGULATIONS, THE ADOPTED CALIFORNIA BUILDING CODE, AND THE LATEST EDITION OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
2. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THE LOCATION OF ALL UTILITIES OR STRUCTURES ABOVE OR BELOW GROUND, SHOWN OR NOT SHOWN ON THESE PLANS. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ALL DAMAGE TO ANY UTILITIES OR STRUCTURES CAUSED BY HIS/HER OPERATION.
3. ADJACENT STREETS ARE TO BE CLEANED DAILY OF ALL DIRT AND DEBRIS THAT ARE THE RESULT OF OPERATION.
4. DUST SHALL BE CONTROLLED BY WATERING OR OTHER APPROVED METHODS.
5. HOURS OF OPERATION ARE 7:00 AM–7:00 PM MONDAY–FRIDAY; 8:00 AM–4:00 AM PM (RESIDENTIAL). SATURDAY BY PRIOR APPOINTMENT ONLY. NO WORK ON SUNDAY OR PUBLIC HOLIDAY WITHOUT PRIOR CITY APPROVAL.
6. THE CITY PUBLIC WORKS DEPT SHALL BE CONTACTED AT (951) 413-3120 TO SCHEDULE A PRE-GRADING MEETING 48 HOURS PRIOR TO BEGINNING OF GRADING.
7. ALL GRADING SHALL BE COMPLETED UNDER THE SUPERVISION OF A REGISTERED SOILS ENGINEER OF RECORD IN CONFORMANCE WITH RECOMMENDATIONS OF THE PRELIMINARY SOILS INVESTIGATION BY________________ DATED ______________.
8. TWO SETS OF THE FINAL SOILS REPORT SHALL BE SUBMITTED TO THE ENGINEERING DEPT FOR REVIEW AND APPROVAL PRIOR TO THE ISSUANCE OF A BUILDING PERMIT. THE SOILS REPORT SHALL REFLECT THE FACT THAT THE COMPACTION HAS BEEN OBTAINED NOT ONLY IN THE BUILDING PAD LOCATIONS, BUT IN THE REMAINDER OF THE SITE, INCLUDING THE SLOPES. FINAL SOILS GRADING CERTIFICATION SHALL BE SUBMITTED BY THE SOILS ENGINEER OF RECORD THAT THE FINAL GRADING CONFORMS TO APPENDIX J OF THE CALIFORNIA BUILDING CODE (CBC) AND THE APPROVED GRADING PLAN.
9. ALL SLOPES SHALL BE A MAXIMUM OF 2:1, CUT OR FILL, UNLESS OTHERWISE RECOMMENDED BY REGISTERED SOILS ENGINEER AND APPROVED BY THE CITY ENGINEER.
10. ALL PADS AND SWALES SHALL DRAIN A MINIMUM OF 2%, ADJACENT TO AND WITHIN 10' OF A BUILDING, THEN A MINIMUM OF 1% TO THE STREET OR DRIVES.
11. ALL TRENCH BACKFILLS SHALL BE TESTED AND CERTIFIED BY THE SOILS ENGINEER OF RECORD TO NOT LESS THAN 90% MAXIMUM DENSITY AS DETERMINED BY ASTM SOIL COMPACTION TEST D1557. THE TOP 1.5 FT. OF SUBGRADE BELOW THE STREET PAVEMENT STRUCTURAL SECTION SHALL BE COMPACTED TO 95% RELATIVE COMPACTION.
12. SEPARATE PERMITS SHALL BE REQUIRED FOR ANY IMPROVEMENT WORK WITHIN THE PUBLIC RIGHT OF WAY.
13. CUT SLOPES GREATER THAN 5 FEET IN VERTICAL HEIGHT, AND FILL SLOPES GREATER THAN 3 FEET IN VERTICAL HEIGHT SHALL BE PLANTED WITH APPROVED GROUND COVER OR OTHER APPROVED SLOPE EROSION CONTROL METHOD TO PROTECT SLOPE FROM EROSION AND INSTABILITY IN ACCORDANCE WITH THE GRADING REGULATIONS.
14. SEPARATE PERMITS FROM THE BUILDING DEPT SHALL BE REQUIRED FOR ALL WALLS AND FENCES.
15. SEPARATE PERMITS FROM THE BUILDING DEPT SHALL BE REQUIRED FOR ALL ONSITE WATER AND SEWER INSTALLATIONS.
16. ALL SLOPES ADJACENT TO THE PUBLIC RIGHT OF WAY SHALL BE SET BACK 2 FEET IF HEIGHT IS LESS THAN 10 FEET, AND 3 FEET IF HEIGHT IS GREATER THAN 10 FEET.
17. DAMAGED OR ALTERED PUBLIC IMPROVEMENTS SHALL BE REPAIRED OR REPLACED AS REQUIRED BY THE CITY ENGINEER.
18. AN "AS-BUILT" GRADING PLAN SHALL BE SUBMITTED AT THE COMPLETION OF WORK, AND PRIOR TO THE ISSUANCE OF THE OCCUPANCY PERMIT.
19. CERTIFICATION BY THE RCE OF RECORD THAT THE ROUGH GRADING SOIL COMPACTION HAS BEEN COMPLETED PER ITEMS 7, 8 AND 11 AND THE SITE CONFORMS TO THIS PLAN AS TO LINE AND GRADE SHALL BE REQUIRED PRIOR TO ISSUANCE OF BUILDING PERMIT.
20. THE RCE OF RECORD SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE DESIGN HEREON. IN THE EVENT OF DISCREPANCIES ARISING DURING CONSTRUCTION, THE RCE OF RECORD SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR APPROVAL BY THE CITY ENGINEER.
21. ALL IMPORTED SOIL SHALL HAVE A CERTIFICATE GIVEN TO THE CITY OF ENGINEER STATING THAT THE SOIL IS FREE FROM CONTAMINANTS BEFORE SOIL IS UNLOADED.

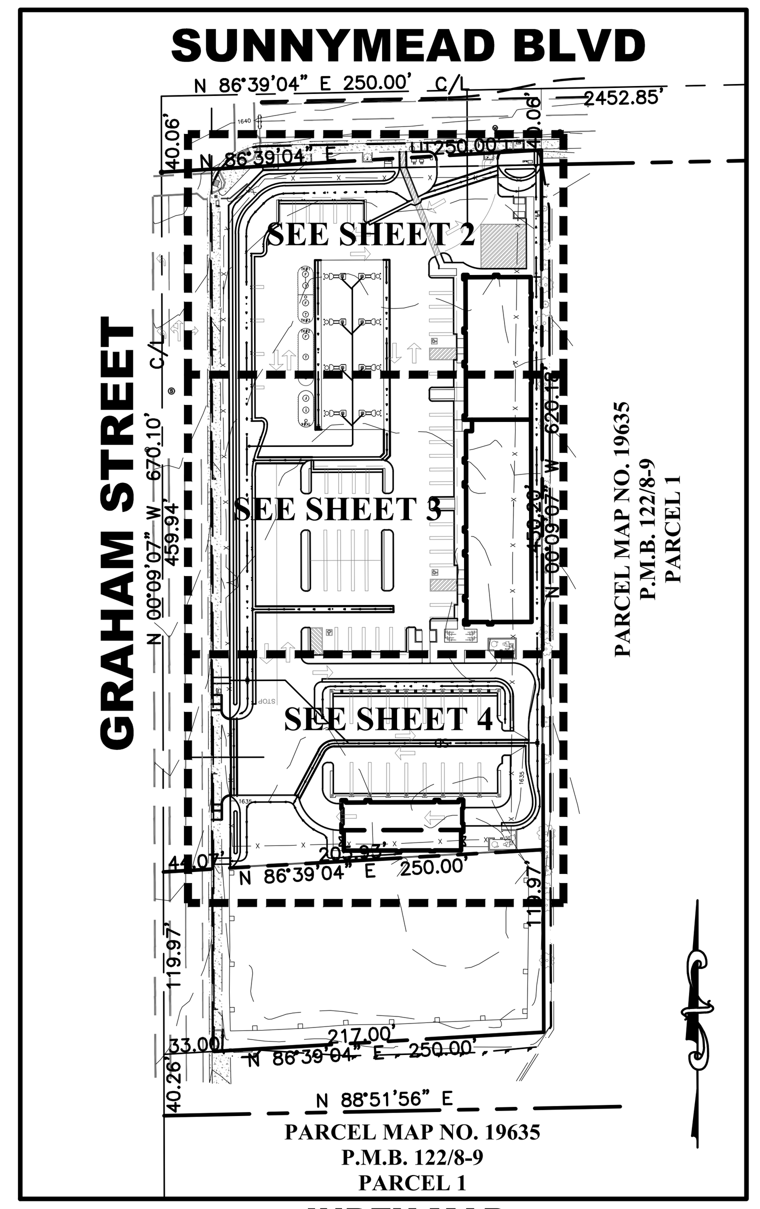
I HEREBY STATE THAT THIS PLAN WAS PREPARED UNDER MY SUPERVISION AND THAT IT CONFORMS TO THE LATEST EDITION OF THE CALIFORNIA BUILDING CODE (CBC) AS MODIFIED BY CITY OF MORENO VALLEY ORDINANCES, THE INTERIM GUIDELINES, AND THE PRELIMINARY SOILS REPORT PREPARED FOR THIS PROJECT.

NAME ______________ DATE ______________

RCE# ______________

GENERAL IMPROVEMENT NOTES:

1. ALL WORK CALLED FOR ON THE PLANS SHALL BE IN COMPLIANCE WITH CURRENT CITY STANDARD PLANS ADOPTED BY CITY COUNCIL.
2. A CONSTRUCTION PERMIT MUST BE OBTAINED FROM THE LAND DEVELOPMENT DIVISION COUNTER BY THE CONTRACTOR PRIOR TO GRADING AND/OR CONSTRUCTION WORK OF ANY TYPE WITHIN THE PUBLIC RIGHT-OF-WAY.
3. AN ENCROACHMENT PERMIT IS REQUIRED IN ALL CASES WHERE WORK WILL INTERFERE WITH EITHER VEHICULAR OR PEDESTRIAN TRAFFIC.
4. CITY INSPECTION OF THE WORK CALLED FOR ON THE PLANS SHALL NOT IN ANY WAY RELIEVE THE CONTRACTOR AND/OR THE DEVELOPER OF THEIR OBLIGATION TO PERFORM THE WORK IN COMPLIANCE WITH THE PLANS.
5. ANY ALTERATIONS OR VARIANCES FROM THE PLANS, EXCEPT MINOR ADJUSTMENTS IN THE FIELD TO MEET EXISTING CONDITIONS, SHALL BE REQUESTED IN WRITING AND MAY NOT BE INSTITUTED UNTIL APPROVED BY THE CITY ENGINEER OR DESIGNATED REPRESENTATIVE ACTING SPECIFICALLY ON HIS/HERS INSTRUCTIONS.
6. THE GRADING AND/OR IMPROVEMENT PLANS ARE APPROVED FOR A PERIOD OF TWO (2) YEARS FROM THE DATE SIGNED BY THE CITY ENGINEER. AFTER THE TWO (2) YEAR PERIOD HAS LAPSED, THE ENGINEER OF RECORD MAY BE REQUIRED TO SUBMIT AND PROCESS FOR THE CITY ENGINEER APPROVAL, UPDATED PLANS THAT COMPLY WITH THE MOST CURRENT CITY STANDARDS, PRACTICES AND POLICIES.
7. ALL ELEVATIONS SHOWN ON THE PLAN ARE ESTABLISHED BY LOCAL BENCH MARK. SURVEY MONUMENTS SHALL BE PROTECTED IN PLACE.
8. QUANTITIES AS SHOWN ON THE PLAN ARE ESTIMATED AND THE CONTRACTOR IS ADVISED THAT ALL FINAL QUANTITIES OF MATERIAL AND WORK IN PLACE MAY BE SOMEWHAT GREATER OR LESS THAN THOSE INDICATED PLANS.
9. CONCRETE GUTTERS, ALLEY APPROACHES, DRIVEWAYS AND OTHER CONCRETE ITEMS SUBJECT TO VEHICULAR TRAFFIC SHALL BE BARRICADED WITH NO VEHICULAR TRAFFIC PERMITTED FOR A PERIOD NO LESS THAN SEVEN DAYS FOLLOWING THE PLACEMENT OF SAID CONCRETE ITEM(S). WHEN THE GENERAL PROVISIONS CALL FOR THE USE OF SAID CONCRETE ITEM(S) FOR VEHICULAR TRAFFIC EARLIER THAN THE SEVENTH DAY FOR CONVENIENCE OF OPERATION OR WHEN THE CONTRACTOR DESIRES, CONCRETE CONTAINING EIGHT SACKS OF CEMENT PER CUBIC YARD SHALL BE USED UNDER THE DIRECTION OF THE CITY ENGINEER TO ALLOW TRAFFIC AFTER 72 HOURS OF PLACEMENT OF CONCRETE.
10. IRRIGATION LINE WITHIN ANY CITY STREET SHALL HAVE A THIRTY INCH MINIMUM COVER FROM FINISH SURFACE UNLESS SAID IRRIGATION LINE IS ENCASED IN CONCRETE OR BEDDED IN A SPECIAL CONCRETE CRADLE.
11. THE CONTRACTOR SHALL OPERATE IN A MANNER COMPLIANT WITH ALL APPLICABLE SECTIONS OF THE MUNICIPAL CODE AND COMPLIANT WITH ALL APPLICABLE CITY COUNCIL RESOLUTIONS.
12. THE LOCATION OF UNDERGROUND UTILITY OR IRRIGATION LINES AS SHOWN ON THE PLANS, IS APPROXIMATE, AND SINCE THE ACTUAL LOCATION MAY BE SOMEWHAT DIFFERENT FROM THAT SHOWN, THE CONTRACTOR IS REQUIRED TO CONTACT THE INTERESTED UTILITY OR WATER COMPANY BEFORE EXCAVATING IN THE VICINITY OF ANY SUCH LINES.
13. PARKWAY TREES INSTALLED BY THE DEVELOPER SHALL BE PLANTED AND MAINTAINED IN COMPLIANCE WITH THE APPROPRIATE CITY STANDARD.
14. ALL STREET NAME AND TRAFFIC REGULATORY SIGN INDICATED ON THE PLANS WILL BE INSTALLED BY THE DEVELOPER IN ACCORDANCE WITH THE APPROPRIATE CITY STANDARDS.
15. IF THE STREET LIGHTS INDICATED ON THE PLANS ARE SERVICED BY SOUTHERN CALIFORNIA EDISON (SCE), THE STREET LIGHTS SHALL BE INSTALLED BY SCE. IF THE STREET LIGHTS INDICATED ON THE PLANS ARE SERVICED BY MORENO VALLEY UTILITY (MVU), THE STREET LIGHTS SHALL BE INSTALLED BY THE DEVELOPER. THE DEVELOPER SHALL WORK DIRECTLY WITH THE CORRESPONDING UTILITY PURVEYOR WHEN THE LIGHTS ARE TO BE SERVED FROM AN UNDERGROUND SYSTEM.
16. AN APPROVED WEED KILLER SHALL BE APPLIED TO THE PREPARED BASE PRIOR TO ASPHALT PAVING IN ALL AREA WHERE THERE IS ANY EVIDENCE OF HUMUS OR ORGANIC MATERIAL PRESENT IN THE BASE (EITHER NATIVE OR IMPORTED) MATERIAL. ALL WEED KILLERS SHALL BE APPLIED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND INSTRUCTIONS.
17. PROVISIONS SHALL BE MADE BY THE CONTRACTOR FOR CONTRIBUTORY DRAINAGE AT ALL TIMES.
18. WHEN APPLICABLE, ALL ANTI-GRAFFTI COATING SHALL BE VITROCEM HI-BUILD GRAFFITI GLAZED COATING FOR CONCRETE BLOCK OR AN EQUAL APPROVED BY THE CITY ENGINEER.
19. HOURS OF OPERATION ARE 7:00 AM–7:00 PM MONDAY–FRIDAY; 8:00 AM–4:00 AM (RESIDENTIAL). SATURDAY BY PRIOR APPOINTMENT ONLY. NO WORK ON SUNDAY OR PUBLIC HOLIDAY WITHOUT PRIOR CITY APPROVAL.



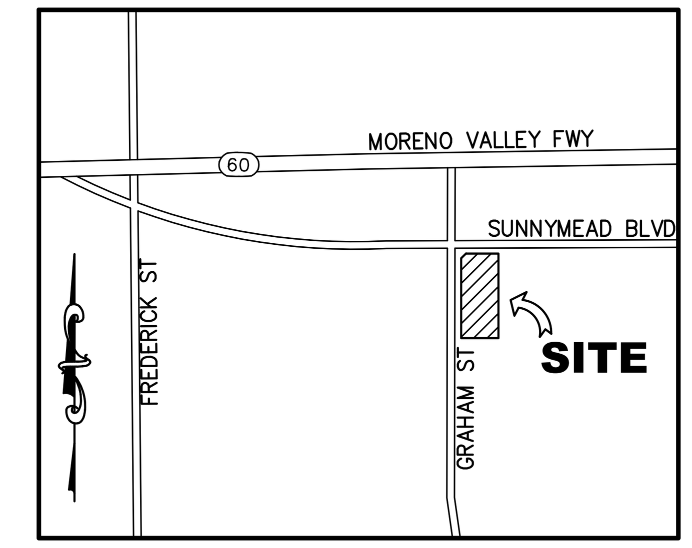
INDEX MAP
SCALE: 1'=100'

LEGENDS & ABBREVATIONS

PROPERTY LINE (℄)
EXISTING CONTOUR
EXISTING GROUND
FLOW LINE
EXISTING FENCE
CONCRETE PAVING
AC PAVING
PROPOSED BUILDING
AC PAVING

AB	– AGGREGATE BASE	P.M.	– PARCEL MAP
AC	– ASPHALTIC CONCRETE	P.S.	– PARKING STALLS
BFD	– BACKFLOW DEVICE	R.C.E.	– REGISTERED CIVIL ENGINEER
BLD	– BUILDING	R.	– RECORD
BMB	– BUS MAP BOX	R.O.W.	– RIGHT OF WAY
BSL	– BUILDING SETBACK LINES	RFL	– ROOF LADDER
BW	– BLOCK WALL	S.	– SOUTH
C.L.	– CENTERLINE	SCO	– SEWER CLEANOUT
CONC.	– CONCRETE	SD	– SLOT DRAIN
CP	– CARPORT	SG	– SUB GRADE (COMPACTED)
DI	– DRAIN INLET	SMH	– SEWER MANHOLE
E.	– EAST	SNB	– SIGNBOARD
EP	– EDGE OF PAVEMENT	SW	– SIDEWALK
EV	– ELECTRIC VAULT	TB	– TELEPHONE BOOTH
EX	– EXISTING	TC	– TOP OF CURB
FD.	– FOUND	TOI	– TOP OF ISLAND
FH	– FIRE HYDRANT	TP	– TRANSFORMER
GM	– GAS METER	T.E.	– TRASH ENCLOSURE
GP	– GUARD POST	(TYP)	– TYPICAL
GRS	– GRASS	UST	– UNDERGROUND STORAGE TANKS
HS	– HANDICAP SIGN	UV	– UTILITY VAULT
INV	– INVERT	W.	– WEST
LP	– LIGHTPOLE	WIF	– WROUGHT IRON FENCE
M.R.	– MISCELLANEOUS RECORDS	℄	– CENTERLINE
N.	– NORTH	TW	– TOP OF WALL
NO.	– NUMBER	TF	– TOP OF FOOTING
OH	– OVERHANG	TRW	– TOP OF RETAINING WALL
PA	– PLANTER AREA	C.F.	– CURB FACE
PGS.	– PAGES	P.C.C.	– PORTLAND CEMENT CONCRETE
P.L.	– PROPERTY LINE		

UTILITY COMPANIES	EMERGENCY NUMBERS
BOX SPRINGS MUTUAL WATER COMPANY	(951) 653-6419
CHARTER SPECTRUM	(877) 906-9121
EASTERN MUNICIPAL WATER DIST	(951) 928-3777
EDGEMONT COMMUNITY SERVICES DISTRICT	(951) 784-2632
FRONTIER COMMUNICATION	(800) 921-8101
SC EDISON COMPANY	(800) 655-4555
SC GAS COMPANY	(800) 427-2200
SUNESYS	(951) 278-0400
RIVERSIDE TRANSIT AGENCY	(951) 565-5164
UNDERGROUND SERVICE ALERT	(800) 227-2600
MORENO VALLEY UTILITY ADMINISTRATION	(951) 413-3500
SPECIAL DISTRICTS ADMINISTRATION	(951) 413-3480
TRAFFIC SIGNAL MAINTENANCE (CITY)	(951) 413-3140
VERIZON WIRELESS	(800) 922-0204



VICINITY MAP
N.T.S.

ACREAGE

–

TOPOGRAPHY SOURCE

FIELD SURVEY DATE: –
ATANACIO PAYAN, PLS 7796
2404 MARY CLARE STREET
CORONA, CA 92882

LEGAL DESCRIPTION

REAL PROPERTY IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL 1:

THAT PORTION OF THE SOUTHWEST QUARTER OF SECTION 1, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN BY UNITED STATES GOVERNMENT SURVEY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF THE SOUTHEAST QUARTER; THENCE EAST ALONG THE NORTH LINE OF THE SOUTHEAST QUARTER 250 FEET; THENCE SOUTH 500 FEET; THENCE WEST 250 FEET TO THE WEST LINE OF THE SOUTHEAST QUARTER; THENCE NORTH ALONG SAID WEST LINE 500 FEET TO THE POINT OF BEGINNING;

EXCEPTING THEREFROM THE NORTH 40 FEET CONVEYED TO THE STATE OF CALIFORNIA FOR HIGHWAY PURPOSES BY DEED RECORDED JULY 3, 1936 IN BOOK 284 PAGE 393 OF OFFICIAL RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

PARCEL 1A:

A NON-EXCLUSIVE EASEMENT FOR ROAD AND PUBLIC UTILITIES PURPOSES OVER THAT PORTION OF THE SOUTHEAST QUARTER OF SECTION 1, TOWNSHIP 3 SOUTH, RANGE 4 WEST, SAN BERNARDINO BASE AND MERIDIAN, AS SHOWN BY UNITED STATES GOVERNMENT SURVEY, DESCRIBED AS FOLLOWS:

BEGINNING AT THE NORTHWEST CORNER OF THE SOUTHEAST QUARTER; THENCE EAST ALONG THE NORTH LINE OF THE SOUTHEAST QUARTER, 33 FEET; THENCE SOUTH AND PARALLEL WITH THE WEST LINE OF SAID SOUTHEAST QUARTER, 620 FEET; THENCE WEST 33 FEET TO A POINT ON THE WEST LINE OF THE SOUTHEAST QUARTER; THENCE NORTH ALONG SAID WEST LINE OF THE SOUTHEAST QUARTER, 620 FEET TO THE POINT OF BEGINNING;

EXCEPTING THEREFROM THE NORTH 500 FEET THEREOF.

ASSESSOR'S PARCEL NUMBER: 292-100-012

AREA: 114,805.47 S.F. (2.636 ACRES)

FEMA FLOODZONE

–

SHEET INDEX

GEOTECH AND GEOLOGIST CERTIFICATION

THIS GRADING PLAN HAS BEEN REVIEWED BY THE UNDERSIGNED AND FOUND TO BE IN CONFORMANCE WITH THE RECOMMENDATIONS AS OUTLINED IN THE FOLLOWING SOILS AND GEOLOGICAL REPORT FOR THIS PROJECT.

REPORT TITLE: ______________

REPORT DATE: ______________

FIRM NAME: ______________

BY: ______________ GEOTECHNICAL ENGINEER DATE

OR

BY: ______________ ENGINEERING GEOLOGIST DATE

GEO SEAL

EARTHWORK	CUT	FILL
	QUANTITIES	
ROUGH GRADING	115 CY	5,147 CY
OVER-EXCAVATION WORK	___CY	___CY
REMEDIAL WORK	___CY	___CY
SHRINKAGE (___%)	___CY	___CY
SUBTOTAL PROJECT EARTHWORK QUANTITIES	115 CY	5,147 CY
IMPORT MATERIAL		5,032 CY
EXPORT MATERIAL	___CY	
TOTAL PROJECT EARTHWORK QUANTITIES	___CY	___CY

*EARTHWORK QUANTITIES SHOWN HEREON ARE FOR PERMIT PURPOSES ONLY. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THEIR OWN QUANTITIES FOR BIDDING PURPOSES.

WDID No. ___________

PAXX–XXXX OR PENXX–XXXX WQMP No. ___________

NO WORK SHALL BE DONE ON THIS SITE UNTIL BELOW AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE.

DIGALERT

CALL
811 or
1-800-422-4133
2 Working Days Before You Dig
WWW.CALL811.COM

DECLARATION OF ENGINEER OF RECORD

I HEREBY DECLARE THAT THE DESIGN OF THE IMPROVEMENTS AS SHOWN ON THESE PLANS COMPLIES WITH PROFESSIONAL ENGINEERING STANDARDS AND PRACTICES. AS THE ENGINEER IN RESPONSIBLE CHARGE OF DESIGN OF THESE IMPROVEMENTS, I ASSUME FULL RESPONSIBLE CHARGE FOR SUCH DESIGN. I UNDERSTAND AND ACKNOWLEDGE THAT THE PLAN CHECK OF THESE PLANS BY THE CITY OF MORENO VALLEY IS A REVIEW FOR THE LIMITED PURPOSE OF ENSURING THAT THE PLANS COMPLY WITH CITY PROCEDURES, APPLICABLE POLICIES, AND ORDINANCES. THE PLAN CHECK IS NOT A DETERMINATION OF THE TECHNICAL ADEQUACY OF THE DESIGN OF THE IMPROVEMENTS. SUCH PLAN CHECK DOES NOT, THEREFORE, RELIEVE ME OF MY RESPONSIBILITY FOR THE DESIGN OF THESE IMPROVEMENTS. AS ENGINEER OF RECORD (EOR), I AGREE TO INDEMNIFY AND HOLD THE CITY OF MORENO VALLEY, THE MORENO VALLEY HOUSING AUTHORITY, AND THE MORENO VALLEY COMMUNITY SERVICES DISTRICT (CSD), ITS OFFICERS, AGENTS, AND EMPLOYEES HARMLESS FROM ANY AND ALL LIABILITY OF CLAIMS, DAMAGES, OR INJURIES TO ANY PERSON OR PROPERTY WHICH MIGHT ARISE FROM THE NEGLIGENT ACTS, ERRORS, OR OMISSIONS OF THE ENGINEER OF RECORD. I HAVE READ AND INFORMED THE PROJECT APPLICANT/DEVELOPER THAT APPROVAL OF THESE PLANS DOES NOT RELIEVE THEM FROM THE REQUIREMENTS OF THE CONDITIONS OF APPROVAL (ATTACHED HEREIN OR IN OTHER APPROVED IMPROVEMENT PLANS).

ENGINEER'S NOTICE TO CONTRACTORS

THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. THESE LOCATIONS ARE APPROXIMATE AND SHALL BE CONFIRMED IN THE FIELD BY THE CONTRACTOR, SO THAT ANY NECESSARY ADJUSTMENT CAN BE MADE IN ALIGNMENT AND/OR GRADE OF THE PROPOSED IMPROVEMENTS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT ANY UTILITY FACILITIES SHOWN AND ANY OTHER FACILITIES NOT OF RECORD OR NOT SHOWN ON THESE PLANS.

THE GRADING AND/OR IMPROVEMENT PLANS ARE APPROVED FOR A PERIOD OF TWO (2) YEARS FROM THE DATE SIGNED BY THE CITY ENGINEER. AFTER THE TWO (2) YEAR PERIOD HAS LAPSED, THE ENGINEER OF RECORD MAY BE REQUIRED TO SUBMIT AND PROCESS FOR CITY ENGINEER APPROVAL, UPDATED PLANS THAT COMPLY WITH THE MOST CURRENT CITY STANDARDS, PRACTICES, AND POLICIES.

OWNER, APPLICANT, DEVELOPER, ENGINEERING FIRM

GO FRESH, LLC
COMPANY NAME CONTACT NAME
1835 MOUNT LANGLEY
STREET FOUNTAIN
VALLEY, CA 92708
ADDRESS PHONE
FAX E-MAIL

BENCHMARK

RIVERSIDE COUNTY BENCHMARK DESIGNATION: M-76
ELEVATION = 1588.292 FEET (NGVD 29) 1972 MARK IS SET ON SW CORNER OF COTTONWOOD AVE. AND PERRIS BLVD. 62.5 FEET WEST OF PERRIS BLVD 64 FEET SOUTH OF COTTONWOOD AVE. 4 FEET EAST OF THE NORTHEAST CORNER OF CONCRETE BUILDING OF EMWD PUMPING STATION A STANDARD DISK SET IN A CONCRETE POST 1 FOOT SOUTH OF A MARKER POST AND 4 INCHES ABOVE GROUND MARKED M-76 RESET 1972.

BASIS OF BEARING

THE BEARINGS SHOWN HEREON ARE BASED UPON THE CENTER LINE OF GRAHAM STREET, BEING N 00° 09' 07" W AS SHOWN ON PARCEL MAP NO. 19635, FILED IN BOOK 8, PAGES 8 AND 9, OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY.

REVIEW BY CITY STAFF

OFFICE	INITIAL	DATE
ENGINEERING DIVISION MANAGER		
LAND DEVELOPMENT		
PLANNING		
TRANSPORTATION		
PARKS AND COMMUNITY SERVICES		
SPECIAL DISTRICTS		
STORM WATER MANAGEMENT PRGM		

MARK	DATE	INITIAL	DESCRIPTION	REC	APPR	DATE
		EOR	REVISION			

CITY OF MORENO VALLEY APPROVALS

RECOMMENDED:
MICHAEL D. LLOYD, PE — DATE
ENGINEERING DIVISION MANAGER/ ASSISTANT CITY ENGINEER
RCE 69563

APPROVED:
MICHAEL L. WOLFE, PE — DATE
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE 65623

ENGINEER OF RECORD'S SEAL

REGISTERED PROFESSIONAL ENGINEER
R. SAMMY SALEM
No. RCE 52762
EXP. 12-31-20
CIVIL
STATE OF CALIFORNIA

PREPARED BY:
RamCam
670 E. Parkridge, Avenue, #101
Corona, California 92879
Tel 951-734-6330
ramcam@ramcamgroup.com

UNDER THE SUPERVISION OF:
R. SAMMY SALEM — DATE
RCE 52762

CITY OF MORENO VALLEY

PRELIMINARY GRADING PLAN

23610 SUNNYMEAD BLVD MORENO VALLEY, CA 92570

TITLE SHEET

SHEET 1 OF 5

CITY ID No

CONSTRUCTION NOTES & QUANTITIES

1	CONSTRUCT X" AC PAVING OVER X" CLASS II AGGREGATE BASE (COMPACT SUBGRADE TO 90%).	34,702 S.F.
2	CONSTRUCT 6" CONCRETE CURB "TYPE 6A CURB" PER CITY OF MORENO VALLEY PUBLIC WORKS DEPARTMENT-CAPITAL PROJECTS DIVISION STD. PLAN MVSI-121A-0.	2,092 L.F.
3	CONSTRUCT 6" CONCRETE CURB AND GUTTER PER CITY OF MORENO VALLEY PUBLIC WORKS DEPARTMENT-CAPITAL PROJECTS DIVISION STD. PLAN MVSI-120A-0.	840 L.F.
4	CONSTRUCT X" THICK CONCRETE WITH #4 BARS AT 16" ON CENTER, EACH WAY.	3,298 S.F.
5	CONSTRUCT X" P.C.C. PAVING OVER X" CLASS II AGGREGATE BASE OVER 12" COMPACTED SUBGRADE (90% MIN. COMPACTION) PER GEOTECHNICAL RECOMMENDATIONS.	4,570 S.F.
6	CONSTRUCT ACCESSIBLE RAMP.	2 EA
7	CONSTRUCT TRASH ENCLOSURE.	3 EA
8	PAINT ACCESSIBLE EMBLEM AND STRIPING.	1 L.S.
9	PAINT 4" WIDE WHITE TRAFFIC BEARING STRIPE (BLUE AT ACCESSIBILITY STALLS) (2 COATS MIN.)	1 L.S.
10	CONSTRUCT RETAINING WALL.	628 L.F.
11	INSTALL 6" NDS POP-UP EMITTER.	1 EA
12	CONSTRUCT PARKWAY CULVERT PER CITY OF MORENO VALLEY PUBLIC WORKS DEPARTMENT-CAPITAL PROJECTS DIVISION STD. PLAN MVSI-150A-0.	3 EA
13	CONSTRUCT 48" WIDE VALLEY GUTTER.	604 L.F.
14	CONSTRUCT BIO-SWALE.	1,231 L.F.
15	CONSTRUCT 12" WIDE "STEP-OFF" CONCRETE.	369 S.F.
16	INSTALL 18"x18" PRECAST CATCH BASIN (BROOKS #1818 OR APPROVED EQUAL).	3 EA
17	CONSTRUCT 18" WIDE CURB OPENING.	50 L.F.
18	CONSTRUCT X" AC PAVING OVER X" CLASS II AGGREGATE BASE (COMPACT SUBGRADE TO 90%).	11,846 S.F.
19	CONSTRUCT COMMERCIAL DRIVEWAY APPROACH: TYPE IV PER CITY OF MORENO VALLEY PUBLIC WORKS DEPARTMENT-CAPITAL PROJECTS DIVISION STD. PLAN MVSI-112D-0	2,362 S.F.
20	INSTALL 12"x12" PRECAST CATCH BASIN (BROOKS #1212 OR APPROVED EQUAL).	1 EA
21	INSTALL 6" DIA. ADS N12 STORM DRAIN LINE.	250 L.F.
22	INSTALL 8" DIA. ADS N12 STORM DRAIN LINE.	214 L.F.
23	CONSTRUCT 72" WIDE VALLEY GUTTER.	51 L.F.

NOTE:
SEE SHEET 5 FOR SECTIONS A-A, B-B, AND C-C.

GRAPHIC SCALE
(IN FEET)
1 inch = 10 ft.

NOTICE TO CONTRACTOR:
CONSTRUCTION QUANTITIES SHOWN ON THESE PLANS ARE PROVIDED FOR THE CONTRACTOR'S REFERENCE ONLY. CONTRACTOR SHALL TAKE OFF THEIR OWN QUANTITIES FOR BIDDING PURPOSES. PAYMENT FOR ALL ITEMS WILL BE BASED UPON CONTRACTOR'S NUMBERS AND NOT THE QUANTITIES ON THESE PLANS.

NO WORK SHALL BE DONE ON THIS SITE UNTIL BELOW AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE.
DIGALERT
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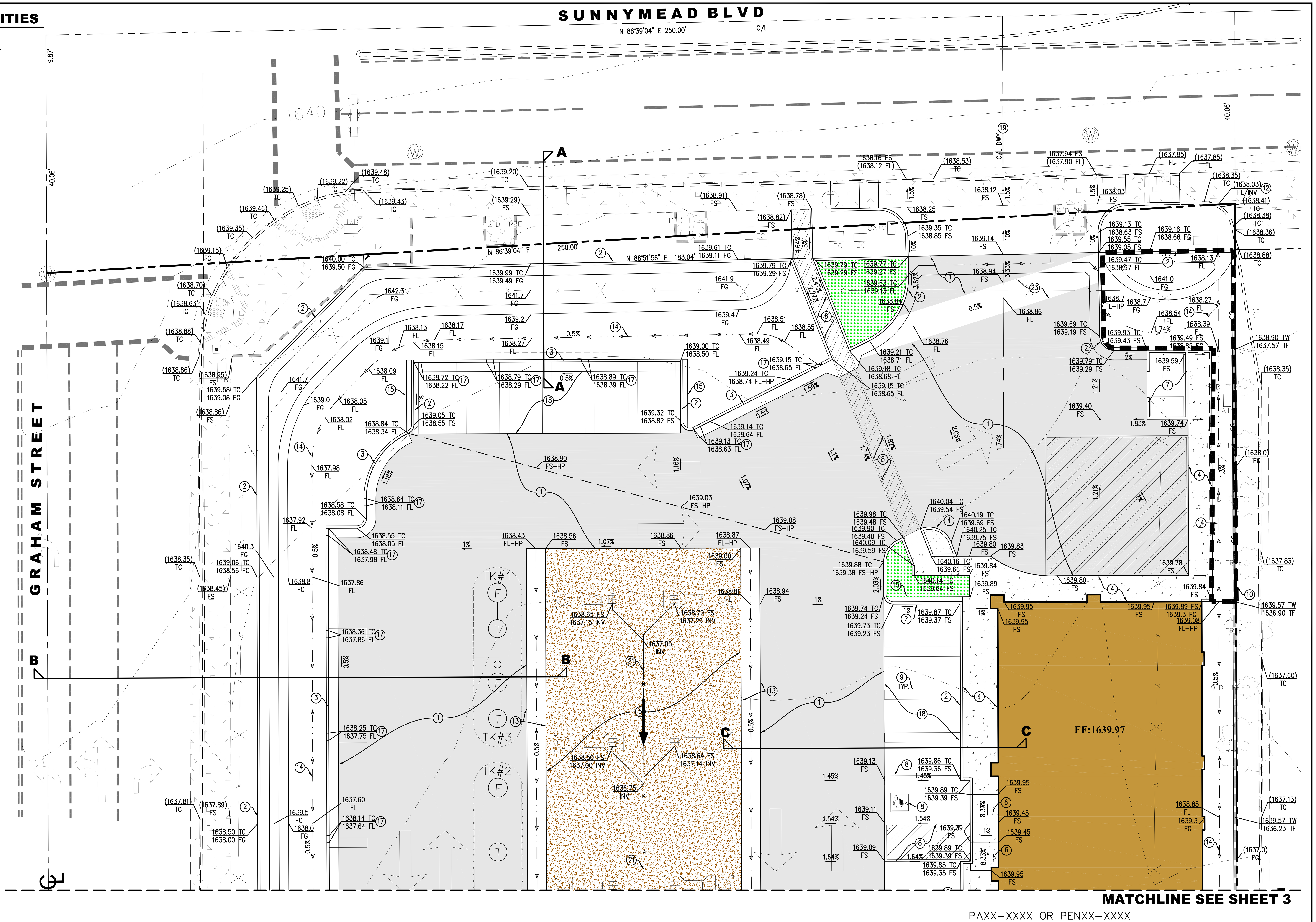

PAXX-XXXX OR PENXX-XXXX

BENCHMARK
RIVERSIDE COUNTY BENCHMARK DESIGNATION: M-76
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RCE 65623

ENGINEER OF RECORD'S SEAL
REGISTERED PROFESSIONAL ENGINEER
R. SAMMY SALEM
No. RCE 52762
EXP. 12-31-20
CIVIL
STATE OF CALIFORNIA

PREPARED BY:
RamCam
670 E. Parkridge, Avenue, #101
Corona, California 92879
Tel 951-734-6330
ramcam@ramcamgroup.com
UNDER THE SUPERVISION OF:
R. SAMMY SALEM — DATE
RCE 52762

CITY OF MORENO VALLEY
PRELIMINARY GRADING PLAN
23610 SUNNYMEAD BLVD MORENO VALLEY, CA 92570
GRADING PLAN
SHEET 2 OF 5
CITY ID No

CONSTRUCTION NOTES

1. CONSTRUCT X" AC PAVING OVER X" CLASS II AGGREGATE BASE (COMPACT SUBGRADE TO 90%).
2. CONSTRUCT 6" CONCRETE CURB "TYPE 6A CURB" PER CITY OF MORENO VALLEY PUBLIC WORKS DEPARTMENT–CAPITAL PROJECTS DIVISION STD. PLAN MVSI–121A–0.
3. CONSTRUCT 6" CONCRETE CURB AND GUTTER PER CITY OF MORENO VALLEY PUBLIC WORKS DEPARTMENT–CAPITAL PROJECTS DIVISION STD. PLAN MVSI–120A–0.
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9. PAINT 4" WIDE WHITE TRAFFIC BEARING STRIPE (BLUE AT ACCESSIBILITY STALLS) (2 COATS MIN.)
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23. CONSTRUCT 72" WIDE VALLEY GUTTER.

NOTE:
SEE SHEET 5 FOR SECTIONS D–D, E–E, AND F–F.

GRAPHIC SCALE

(IN FEET)
1 inch = 10 ft.

NO WORK SHALL BE DONE ON THIS SITE UNTIL BELOW AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE.

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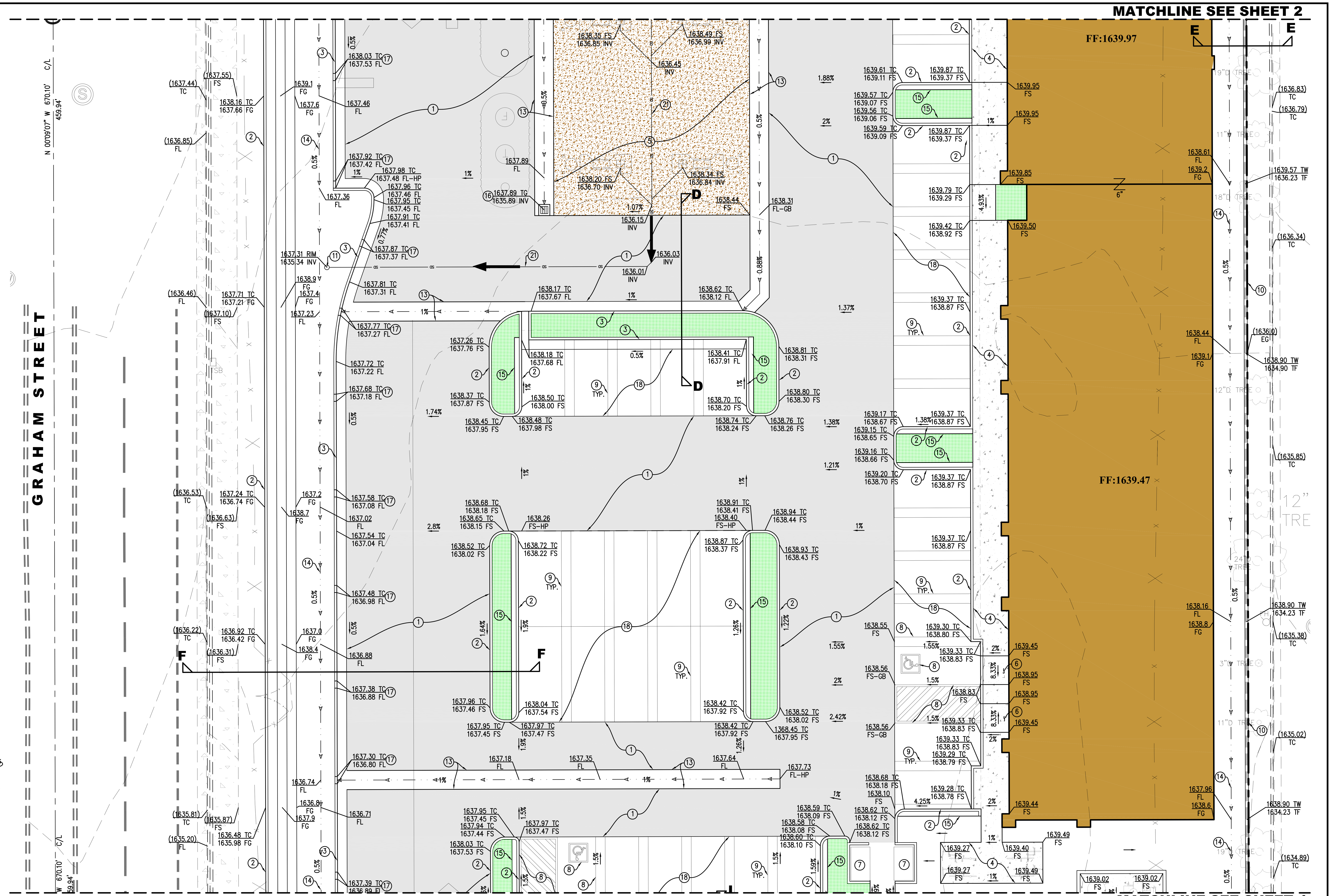

PAXX–XXXX OR PENXX–XXXX

BENCHMARK	BASIS OF BEARING
RIVERSIDE COUNTY BENCHMARK DESIGNATION: M–76 ELEVATION = 1588.292 FEET (NGVD 29) 1972 MARK IS SET ON SW CORNER OF COTTONWOOD AVE. AND PERRIS BLVD. 62.5 FEET WEST OF PERRIS BLVD 64 FEET SOUTH OF COTTONWOOD AVE. 4 FEET EAST OF THE NORTHEAST CORNER OF CONCRETE BUILDING OF EMWD PUMPING STATION A STANDARD DISK SET IN A CONCRETE POST 1 FOOT SOUTH OF A MARKER POST AND 4 INCHES ABOVE GROUND MARKED M–76 RESET 1972.	THE BEARINGS SHOWN HEREON ARE BASED UPON THE CENTER LINE OF GRAHAM STREET, BEING N 00° 09' 07" W AS SHOWN ON PARCEL MAP NO. 19635, FILED IN BOOK 8, PAGES 8 AND 9, OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY.

REVIEW BY CITY STAFF

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STORM WATER MANAGEMENT PRGM		

MARK	DATE	INITIAL	DESCRIPTION	REC	APPR	DATE
		EOR	REVISION			

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RECOMMENDED:
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ENGINEERING DIVISION MANAGER/ ASSISTANT CITY ENGINEER
RCE 69563
APPROVED:
MICHAEL L. WOLFE, PE — DATE
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE 65623

ENGINEER OF RECORD'S SEAL
REGISTERED PROFESSIONAL ENGINEER — R. SAMMY SALEM — No. RCE 52762 — EXP. 12–31–20 — CIVIL — STATE OF CALIFORNIA

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R. SAMMY SALEM — DATE
RCE 52762

CITY OF MORENO VALLEY
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GRADING PLAN
SHEET 3 OF 5
CITY ID No

Attachment: Exhibit A - Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program [Revision 1] (4469 : PEN20-0141 Plot Plan & PEN20-0142 Conditional Use Permit)

BENCHMARK

RIVERSIDE COUNTY BENCHMARK DESIGNATION: M-76
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CITY OF MORENO VALLEY

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CROSS SECTIONS

SHEET 5 OF 5

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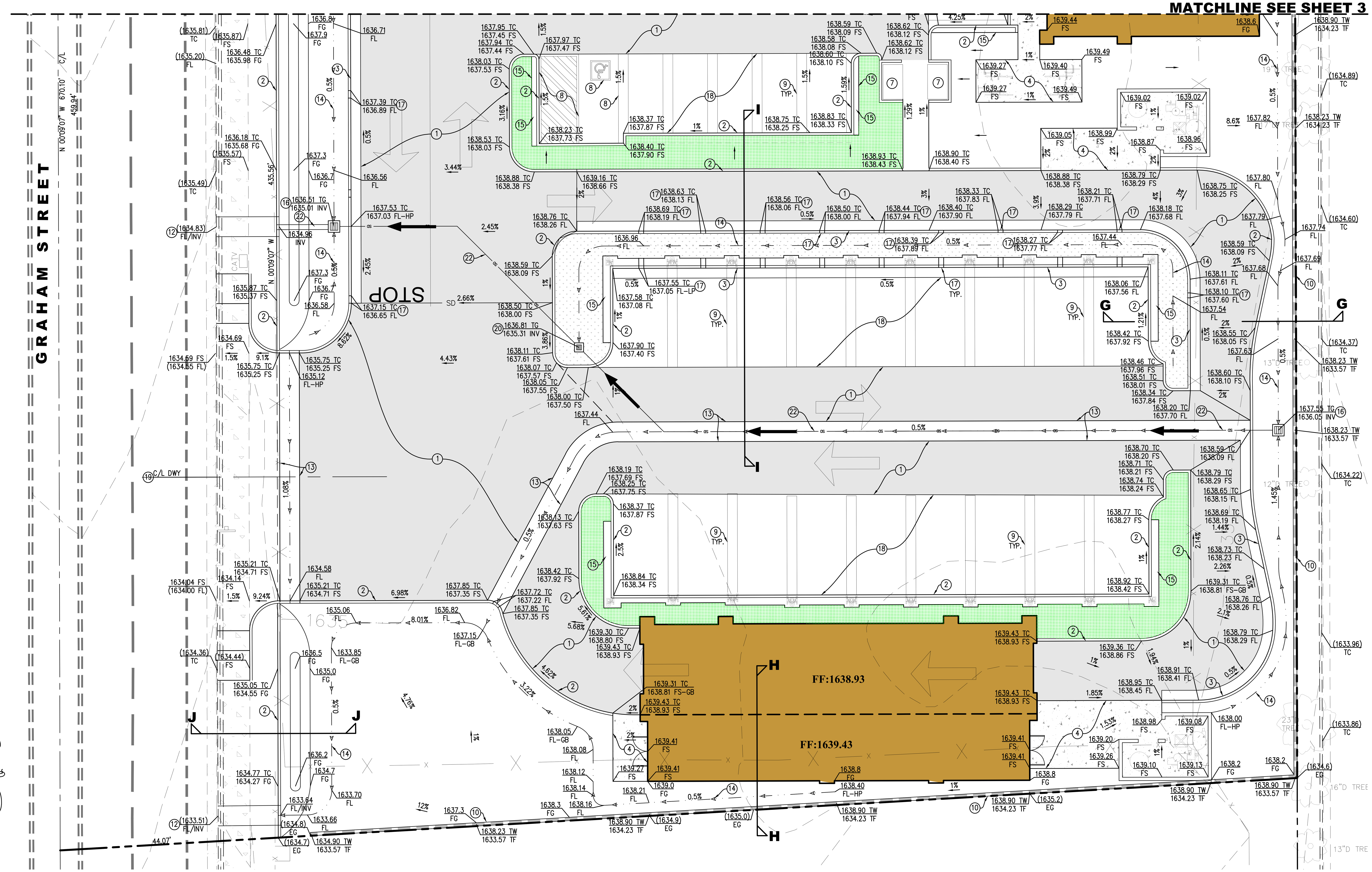

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GRADING PLAN

SHEET 4 OF 5

CITY ID No

Appendix 3: Soils Information

Geotechnical Study and Other Infiltration Testing Data

SALEM engineering group, inc.

GEOTECHNICAL ENGINEERING INVESTIGATION

GO FRESH GAS STATION
SUNNYMEAD BOULEVARD & GRAHAM STREET
MORENO VALLEY, CALIFORNIA

SALEM PROJECT NO. 3-219-1018
DECEMBER 23, 2019

PREPARED FOR:

MR. ALEX A. IRSHAID
RAMCAM ENGINEERING GROUP, INC.
670 E. PARKRIDGE AVENUE, SUITE 101
CORONA, CA 92879

PREPARED BY:

SALEM ENGINEERING GROUP, INC.
8711 MONROE COURT, SUITE A
RANCHO CUCAMONGA, CA 91730
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SALEM engineering group, inc.

8711 Monroe Court, Suite A
Rancho Cucamonga, CA 91730
Phone (909) 980-6455
Fax (909) 980-6435

December 23, 2019 Project No. 3-219-1018

Mr. Alex A. Irshaid
RAMCAM Engineering Group, Inc.
670 Parkridge Avenue, Suite 101
Corona, CA 92879

SUBJECT: **GEOTECHNICAL ENGINEERING INVESTIGATION**
GO FRESH GAS STATION
SUNNYMEAD BOULEVARD & GRAHAM STREET
MORENO VALLEY, CALIFORNIA

Dear Mr. Irshaid:

At your request and authorization, SALEM Engineering Group, Inc. (SALEM) has prepared this Geotechnical Engineering Investigation report for the Go Fresh Gas Station to be located at the subject site.

The accompanying report presents our findings, conclusions, and recommendations regarding the geotechnical aspects of designing and constructing the project as presently proposed. In our opinion, the proposed project is feasible from a geotechnical viewpoint provided our recommendations are incorporated into the design and construction of the project.

We appreciate the opportunity to assist you with this project. Should you have questions regarding this report or need additional information, please contact the undersigned at (909) 980-6455.

Respectfully Submitted,

SALEM ENGINEERING GROUP, INC.

Clarence Jiang, GE
Geotechnical Division Manager
RGE 2477

R. Sammy Salem, MS, PE, GE
Principal Engineer
RCE 52762 / RGE 2549

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8711 Monroe Court, Suite A
Rancho Cucamonga, CA 91730
Phone (909) 980-6455
Fax (909) 980-6435

GEOTECHNICAL ENGINEERING INVESTIGATION
GO FRESH GAS STATION
SEC OF SUNNYMEAD BOULEVARD & GRAHAM STREET
MORENO VALLEY, CALIFORNIA

1. PURPOSE AND SCOPE

This report presents the results of our Geotechnical Engineering Investigation for the site of the Go Fresh Gas Station to be located at the southeast corner of Sunnymead Boulevard and Graham Street in Moreno Valley, California (see Figure 1, Vicinity Map).

The purpose of our geotechnical engineering investigation was to observe and sample the subsurface conditions encountered at the site, and provide conclusions and recommendations relative to the geotechnical aspects of constructing the project as presently proposed.

The scope of this investigation included a field exploration, percolation testing, laboratory testing, engineering analysis and the preparation of this report. Our field exploration was performed on December 12, 2019 and included the drilling of ten (10) small-diameter soil borings to a maximum depth of 46½ feet at the site. Additionally, two (2) percolation tests were performed at depths of approximately 5 and 10 feet below existing grade for the determination of the percolation rate. The locations of the soil borings and percolation tests are depicted on Figure 2, Site Plan. A detailed discussion of our field investigation, percolation tests, and exploratory boring logs are presented in Appendix A.

Laboratory tests were performed on selected soil samples obtained during the investigation to evaluate pertinent physical properties for engineering analyses. Appendix B presents the laboratory test results in tabular and graphic format.

The recommendations presented herein are based on analysis of the data obtained during the investigation and our experience with similar soil and geologic conditions. If project details vary significantly from those described herein, SALEM should be contacted to determine the necessity for review and possible revision of this report. Earthwork and Pavement Specifications are presented in Appendix C. If text of the report conflict with the specifications in Appendix C, the recommendations in the text of the report have precedence.

2. PROJECT DESCRIPTION

Based on the information provided to us, we understand that the proposed development will include construction of a 3,850 square-foot convenience store, a 2,241 square-foot express carwash, and an 8,325 square-foot 2-story retail/medical office building on a 2.18-acre vacant land. Underground storage tanks, parking, and landscaping are also planned to be associated with the proposed development. Maximum wall load is expected to be on the order of 4 kips per linear foot. Maximum column load is expected to be on the order of 80 kips. Floor slab soil bearing pressure is expected to be on the order of 150 psf.

A site grading plan was not available at the time of preparation of this report. As the existing project area is sloping to west and south, we anticipate that cuts and fills during earthwork will be moderate. In the event that changes occur in the nature or design of the project, the conclusions and recommendations contained in this report will not be considered valid unless the changes are reviewed and the conclusions of our report are modified. The site configuration and locations of proposed improvements are shown on the Site Plan, Figure 2.

3. SITE LOCATION AND DESCRIPTION

The subject site is located at the southeast corner of Sunnymead Boulevard and Graham Street in the City of Moreno Valley, California (see Vicinity Map, Figure 1). The subject site is rectangular in shape and encompasses approximately 2.18 acres.

At the time of our field exploration, the subject site was a vacant land with seasonal grasses and weeds throughout the site. The site is bound by Sunnymead Boulevard to the north, commercial development to the east, residential development to the south, and Graham Street to the west. The site is relatively flat within no major changes in grade. The average elevation is approximately 1,637 feet above mean sea level based on Google Earth imagery.

4. FIELD EXPLORATION

Our field exploration consisted of site surface reconnaissance and subsurface exploration. The exploratory test borings (B-1 through B-10) were drilled on December 12, 2019 in the areas shown on the Site Plan, Figure 2. The test borings were advanced with a 4-inch diameter solid flight auger rotated by truck-mounted CME 45 drill rig. The test borings were extended to a maximum depth of 46½ feet below existing grade.

The materials encountered in the test borings were visually classified in the field, and logs were recorded by a field engineer and stratification lines were approximated on the basis of observations made at the time of drilling. Visual classification of the materials encountered in the test borings were generally made in accordance with the Unified Soil Classification System (ASTM D2487). A soil classification chart and key to sampling is presented on the Unified Soil Classification Chart, in Appendix "A." The logs of the test borings are presented in Appendix "A." The Boring Logs include the soil type, color, moisture content, dry density, and the applicable Unified Soil Classification System symbol.

The location of the test borings were determined by measuring from features shown on the Site Plan, provided to us. Hence, accuracy can be implied only to the degree that this method warrants. The actual boundaries between different soil types may be gradual and soil conditions may vary. For a more detailed description of the materials encountered, the Boring Logs in Appendix "A" should be consulted.

Soil samples were obtained from the test borings at the depths shown on the logs of borings. The MCS samples were recovered and capped at both ends to preserve the samples at their natural moisture content; SPT samples were recovered and placed in a sealed bag to preserve their natural moisture content. The borings were backfilled with soil cuttings after completion of the drilling.

5. LABORATORY TESTING

Laboratory tests were performed on selected soil samples to evaluate their physical characteristics and engineering properties. The laboratory-testing program was formulated with emphasis on the evaluation of natural moisture, in-situ density, shear strength, consolidation potential, expansion index, maximum density and optimum moisture determination, and gradation of the materials encountered.

In addition, chemical tests were performed to evaluate the corrosivity of the soils to buried concrete and metal. Details of the laboratory test program and the results of laboratory test are summarized in Appendix "B." This information, along with the field observations, was used to prepare the final boring logs in Appendix "A."

6. GEOLOGIC SETTING

The subject site is located within the Peninsular Range Geomorphic Province, an area characterized by active northeast trending strike slip faults, including the San Jacinto to the northwest, and the Elsinore to the southwest. The project site is situated between the Santa Rosa Mountains and the San Jacinto Mountains to the east; and Santa Ana Mountains to the west and south. The near-surface deposits in the vicinity of the subject site are comprised of recent alluvium consisting of unconsolidated sands, silt, and clays derived from erosion of local mountain ranges. Deposits encountered on the subject site during exploratory drilling are discussed in detail in this report.

7. GEOLOGIC HAZARDS

7.1 Faulting and Seismicity

The Peninsular Range has historically been a province of relatively high seismic activity. The nearest faults to the project site are associated with the San Jacinto Fault system located approximately 4.6 miles from the site. There are no known active fault traces in the project vicinity. Based on mapping and historical seismicity, the seismicity of the Peninsular Range has been generally considered high by the scientific community.

The project area is not within an Alquist-Priolo Earthquake Fault (Special Studies) Zone and will not require a special site investigation by an Engineering Geologist. Soils on site are classified as Site Class D in accordance with Chapter 16 of the California Building Code. The proposed structures are determined to be in Seismic Design Category D.

To determine the distance of known active faults within 100 miles of the site, we used the United States Geological Survey (USGS) web-based application *2008 National Seismic Hazard Maps - Fault Parameters*. Site latitude is 33.9382° North; site longitude is 117.2523° West. The ten closest active faults are summarized in Table 7.1 on the next page.

TABLE 7.1
REGIONAL FAULT SUMMARY

Fault Name	Distance to Site (miles)	Max. Earthquake Magnitude, M_w
San Jacinto; SBV+SJV+A+CC+B+SM	4.6	7.9
San Jacinto; SBV	5.5	7.1
San Jacinto; A+CC+B+SM	8.9	7.6
S. San Andreas; PK+CH+CC+BB+NM+SM+NSB+SSB+BG+CO	14.0	8.2
S. San Andreas; PK+CH+CC+BB+NM+SM+NSB	14.7	8.0
Elsinore; W+GI+T+J+CM	18.0	7.8
Chino, alt 2	19.7	6.8
Cucamonga	19.9	6.7
Elsinore; T+J+CM	20.3	7.5
Chino, alt 1	20.7	6.7

The faults tabulated above and numerous other faults in the region are sources of potential ground motion. However, earthquakes that might occur on other faults throughout California are also potential generators of significant ground motion and could subject the site to intense ground shaking.

7.2 Surface Fault Rupture

The site is not within a currently established State of California Earthquake Fault Zone for surface fault rupture hazards. No active faults with the potential for surface fault rupture are known to pass directly beneath the site. Therefore, the potential for surface rupture due to faulting occurring beneath the site during the design life of the proposed development is considered low.

7.3 Ground Shaking

Based on the 2016 CBC, a Site Class D was selected for the site based on soil conditions encountered and our experience in the vicinity of the subject site. Table 9.2.1 includes design seismic coefficients and spectral response parameters, based on the 2016 California Building Code (CBC) for the project foundation design. Based on the Office of Statewide Health Planning and Development (OSHPD) Seismic Design Maps, the estimated design peak ground acceleration adjusted for site class effects (PGA_M) was determined to be 0.62g (based on both probabilistic and deterministic seismic ground motion).

7.4 Liquefaction

Soil liquefaction is a state of soil particles suspension caused by a complete loss of strength when the effective stress drops to zero. Liquefaction normally occurs under saturated conditions in soils such as sand in which the strength is purely frictional. Primary factors that trigger liquefaction are: moderate to strong ground shaking (seismic source), relatively clean, loose granular soils (primarily poorly graded sands and silty sands), and saturated soil conditions (shallow groundwater). Due to the increasing overburden pressure with depth, liquefaction of granular soils is generally limited to the upper 50 feet of a soil profile. However, liquefaction has occurred in soils other than clean sand.

The soils encountered within the depth of 50 feet on the project site consisted predominately of loose to very dense silty sand. Groundwater was not encountered during this investigation. Low to very low cohesion strength is commonly associated with the sandy soil profile at the site. A seismic hazard, which could cause damage to the proposed development during seismic shaking, is the post-liquefaction settlement of liquefied sands. The Riverside County Office of Information Technology GIS website shows the subject site is located within a low liquefaction potential area. The site was evaluated for liquefaction potential. The liquefaction analysis indicated that the soils had a low potential for liquefaction under seismic conditions. Therefore, no mitigation measures are warranted.

7.5 Seismic Densification

One of the most common phenomena during seismic shaking accompanying any earthquake is the induced settlement of loose unconsolidated soils. Based on site subsurface conditions and the seismicity of the region, any loose granular materials at the site could be vulnerable to this potential hazard. Our analysis of dynamic densification of "dry" soil in the upper 50 feet of existing soil profile was performed.

For the analysis, a maximum earthquake magnitude of 8.2 M_w and a peak horizontal ground surface acceleration of 0.624g (with a 2 percent probability of exceedance in 50 years) were considered appropriate for the analysis. The seismic densification of dry to damp alluvial sandy soils due to onsite seismic activity is calculated to have a total settlement of approximately 0.15 inch. The corresponding differential settlement should be less than 0.08 inch. The seismic settlement analysis is included in Appendix A.

7.6 Lateral Spreading

Lateral spreading is a phenomenon in which soils move laterally during seismic shaking and is often associated with liquefaction. The amount of movement depends on the soil strength, duration and intensity of seismic shaking, topography, and free face geometry. Due to the relatively flat site topography and low liquefaction potential, we judge the likelihood of lateral spreading to be low.

7.7 Subsidence

The Riverside County Office of Information Technology GIS website shows the site to be in a susceptible subsidence potential area. Based on the existence of loose to very dense silty sand, subsidence potential is considered minimal.

7.8 Collapsible or Hydroconsolidatable Soils

Test data in this geotechnical report show that soil samples consolidated from approximately 7 to 8 percent after a maximum 12.8 ksf load. Hydroconsolidation (collapse upon wetting) at a load of 1.6 ksf was approximately 0.2 to ½ percent.

7.9 Flood and Dam Inundation

The FEMA Flood Zone Hazard Map website shows that the subject site is not located in a flood zone.

7.10 Landslides/Slope Instability/Debris Flow

The subject site is on a gently (<5%) sloping grade, over 1/4 mile from the nearest significant topographic change. As such, landslide/ slope instability/rock fall issues pose a very low risk. Due to the site's distance from significant topography, topography-related debris flows are a low risk.

7.11 Wind and Water Erosion

Based on SALEM's soil boring logs for the subject site, surface soils consist predominately of loose to very dense silty sand. Soil of this consistency have been shown to possess good resistance to wind and water erosion. The site is essentially flat, minimizing the potential for water erosion. The site will be completely covered by buildings, pavement, or landscaping after development, minimizing long-term wind erosion potential.

7.12 Tsunamis and Seiches

The site is not located within a coastal area. Therefore, tsunamis (seismic sea waves) are not considered a significant hazard at the site. Seiches are large waves generated in enclosed bodies of water in response to ground shaking. No major water-retaining structures are located immediately up gradient from the project site. Flooding from a seismically-induced seiche is considered unlikely.

8. SOIL AND GROUNDWATER CONDITIONS

8.1 Subsurface Conditions

The subsurface conditions encountered appear typical of those found in the geologic region of the site. In general, the soils within the depth of exploration consisted of loose to very dense silty sand. Fill soils may be present on site between our test boring locations. Verification of the extent of fill should be determined during site grading. Field and laboratory tests suggest that the deeper native soils are moderately strong and slightly compressible.

The soils were classified in the field during the drilling and sampling operations. The stratification lines were approximated by the field engineer on the basis of observations made at the time of drilling. The actual boundaries between different soil types may be gradual and soil conditions may vary. For a more detailed description of the materials encountered, the Boring Logs in Appendix "A" should be consulted. The Boring Logs include the soil type, color, moisture content, dry density, and the applicable Unified Soil Classification System symbol. The locations of the test borings were determined by measuring from feature shown on the Site Plan, provided to us. Hence, accuracy can be implied only to the degree that this method warrants.

8.2 Groundwater

The test boring locations were checked for the presence of groundwater during and after the drilling operations. Free groundwater was not encountered during this investigation. It should be recognized that water table elevations may fluctuate with time, being dependent upon seasonal precipitation, irrigation, land use, localized pumping, and climatic conditions as well as other factors. Therefore, water level observations at the time of the field investigation may vary from those encountered during the construction phase of the project. The evaluation of such factors is beyond the scope of this report.

8.3 Soil Corrosion Screening

Excessive sulfate in either the soil or native water may result in an adverse reaction between the cement in concrete and the soil. The 2014 Edition of ACI 318 (ACI 318) has established criteria for evaluation of sulfate and chloride levels and how they relate to cement reactivity with soil and/or water. A soil sample was obtained from the project site and was tested for the evaluation of the potential for concrete deterioration or steel corrosion due to attack by soil-borne soluble salts and soluble chloride. The water-soluble sulfate concentration in the saturation extract from the soil sample was detected to be 50 mg/kg. ACI 318 Tables 19.3.1.1 and 19.3.2.1 outline exposure categories, classes, and concrete requirements by exposure class. ACI 318 requirements for site concrete based upon soluble sulfate are summarized in Table 8.3 below.

TABLE 8.3
WATER SOLUBLE SULFATE EXPOSURE REQUIREMENTS

Water Soluble Sulfate (SO_4) in Soil, % by Weight	Exposure Severity	Exposure Class	Maximum w/cm Ratio	Min. Concrete Compressive Strength	Cementitious Materials Type
0.0050	Not Applicable	S0	N/A	2,500 psi	No Restriction

The water-soluble chloride concentration detected in saturation extract from the soil samples was 129 mg/kg. This level of chloride concentration is considered to be mildly corrosive. It is recommended that a qualified corrosion engineer be consulted regarding protection of buried steel or ductile iron piping and conduit or, at a minimum, applicable manufacturer's recommendations for corrosion protection of buried metal pipe be closely followed.

8.4 Percolation Testing

Two percolation tests (P-1 and P-2) were performed within assumed infiltration areas and were conducted in accordance with the guidelines established by the County of Riverside. The approximate percolation test locations are shown on the Site Plan, Figure 2. The boreholes were advanced to the depths shown on the percolation tests worksheets. Percolation rates were measured by filling the test holes with clean water and measuring the water drops at a certain time interval. The percolation rate data are presented in tabular format attached to this report. The difference in the percolation rates are reflected by the varied type of soil materials at the bottom of the test holes. The test results are shown on the table below.

Test No.	Depth (Feet)	Measured Percolation Rate (min/inch)	Infiltration Rate* (inch/hour)	Soil Type
P-1	10	6.9	**0.62**	Silty SAND (SM)
P-2	5	6.4	**1.26**	Silty SAND (SM)

*** Tested infiltration Rate = (ΔH 60 r) / (Δt(r + 2H_{avg}))**

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Additional percolation tests should be conducted at bottom of the drainage system during construction to verify the design infiltration/percolation rate. The soil infiltration rate is based on test conducted with clear water. The infiltration rate may vary with time as a result of soil clogging from water impurities. The infiltration rate will deteriorate over time due to the soil conditions and an appropriate factor of safety (FS) should be applied. The soils may also become less permeable to impermeable if the soil is compacted. Thus, periodic maintenance consisting of clearing the bottom of the drainage system of clogged soils should be expected.

The infiltration rate may become slower if the surrounding soil is wet or saturated due to prolonged rainfalls. Additional infiltration tests should be conducted at bottom of the drainage system during construction to verify the infiltration rate. Groundwater, if closer to the bottom of the drainage system, will also reduce the infiltration rate.

The scope of our services did not include a groundwater study and was limited to the performance of infiltration testing and soil profile description, and the submitted data only. Our services did not include those associated with septic system design. Neither did services include an Environmental Site Assessment for the presence or absence of hazardous and/or toxic materials in the soil, groundwater, or atmosphere; or the presence of wetlands.

Any statements, or absence of statements, in this report or on any boring logs regarding odors, unusual or suspicious items, or conditions observed, are strictly for descriptive purposes and are not intended to convey engineering judgment regarding potential hazardous and/or toxic assessment. The geotechnical engineering information presented herein is based upon professional interpretation utilizing standard engineering practices. The work conducted through the course of this investigation, including the preparation of this report, has been performed in accordance with the generally accepted standards of geotechnical engineering practice, which existed in the geographic area at the time the report was written. No other warranty, express or implied, is made.

Please be advised that when performing infiltration testing services in relatively small areas (double rings) that the testing may not fully model the actual full scale long term performance of a given site. This is particularly true where infiltration test data is to be used in the design of large infiltration areas such as those proposed for the site. Subsurface conditions, including infiltration rates, can change over time as fine-grained soils migrate. It is not warranted that such information and interpretation cannot be superseded by future geotechnical engineering developments. We emphasize that this report is valid for the project outlined above and should not be used for any other sites.

9. CONCLUSIONS AND RECOMMENDATIONS

9.1 General

9.1.1 Based upon the data collected during this investigation, and from a geotechnical engineering standpoint, it is our opinion that the site is suitable for the proposed construction of improvements at the site as planned, provided the recommendations contained in this report are incorporated into the project design and construction. Conclusions and recommendations provided in this report are based on our review of available literature, analysis of data obtained from our field exploration and laboratory testing program, and our understanding of the proposed development at this time.

9.1.2 The primary geotechnical constraints identified in our investigation is the presence of potentially compressible (collapsible) material at the site. Recommendations to mitigate the effects of these soils are provided in this report.

9.1.3 Fill materials may be present onsite between our boring locations. Undocumented fill materials are not suitable to support any future structures and should be replaced with Engineered Fill. The extent and consistency of the fills should be verified during site construction. Prior to fill placement, Salem Engineering Group, Inc. should inspect the bottom of the excavation to verify the fill condition.

9.1.4 Site demolition activities shall include removal of all surface obstructions not intended to be incorporated into final site design. In addition, underground buried structures and/or utility lines encountered during demolition and construction should be properly removed and the resulting excavations backfilled with Engineered Fill. It is suspected that possible demolition activities of the existing structures may disturb the upper soils. After demolition activities, it is recommended that disturbed soils be removed and/or recompacted.

9.1.5 Surface vegetation consisting of grasses and other similar vegetation should be removed by stripping to a sufficient depth to remove organic-rich topsoil. The upper 4 to 8 inches of the soils containing, vegetation, roots and other objectionable organic matter encountered at the time of grading should be stripped and removed from the surface. Deeper stripping may be required in localized areas. The stripped vegetation, will not be suitable for use as Engineered Fill or within 5 feet of building pads or within pavement areas. However, stripped topsoil may be stockpiled and reused in landscape or non-structural areas or exported from the site.

9.1.6 The near-surface onsite soils are moisture-sensitive and are moderately to highly compressible (collapsible soil) under saturated conditions. Proposed structures may experience excessive post-construction settlement, when the foundation soils become near saturated. The collapsible or weak soils should be removed and recompacted according to the recommendations in the Grading section of this report (Section 9.5).

9.1.7 Based on the subsurface conditions at the site and the anticipated structural loading, we anticipate that the proposed buildings may be supported using conventional shallow foundations provided that the recommendations presented herein are incorporated in the design and construction of the project.

9.1.8 Provided the site is graded in accordance with the recommendations of this report and foundations constructed as described herein, we estimate that total settlement due to static load utilizing conventional shallow foundations for the proposed buildings will be within 1 inch and corresponding differential settlement will be less than ½ inch over 20 feet.

9.1.9 SALEM shall review the project grading and foundation plans prior to final design submittal to assess whether our recommendations have been properly implemented and evaluate if additional analysis and/or recommendations are required. If SALEM is not provided plans and specifications for review, we cannot assume any responsibility for the future performance of the project.

9.1.10 SALEM shall be present at the site during site demolition and preparation to observe site clearing/demolition, preparation of exposed surfaces after clearing, and placement, treatment and compaction of fill material.

9.1.11 SALEM's observations should be supplemented with periodic compaction tests to establish substantial conformance with these recommendations. Moisture content of footings and slab subgrade should be tested immediately prior to concrete placement. SALEM should observe foundation excavations prior to placement of reinforcing steel or concrete to assess whether the actual bearing conditions are compatible with the conditions anticipated during the preparation of this report.

9.2 Seismic Design Criteria

9.2.1 For seismic design of the structures, and in accordance with the seismic provisions of the 2016 CBC, our recommended parameters are shown below. These parameters were determined using California's Office of Statewide Health Planning and Development (OSHPD) (https://seismicmaps.org/) in accordance with the 2016 CBC. The Site Class was determined based on the soils encountered during our field exploration.

TABLE 9.2.1
SEISMIC DESIGN PARAMETERS

Seismic Item	Symbol	Value
Site Coordinates (Datum = NAD 83)		33.9382 Lat -117.2523 Lon
Site Class	--	D
Soil Profile Name	--	Stiff Soil
Risk Category	--	II
Site Coefficient for PGA	F_{PGA}	1.000
Peak Ground Acceleration (adjusted for Site Class effects)	PGA_M	0.624 g
Seismic Design Category	SDC	D
Mapped Spectral Acceleration (Short period - 0.2 sec)	S_S	1.583 g
Mapped Spectral Acceleration (1.0 sec. period)	S_1	0.686 g
Site Class Modified Site Coefficient	F_a	1.000
Site Class Modified Site Coefficient	F_v	1.500
MCE Spectral Response Acceleration (Short period - 0.2 sec) $S_{MS} = F_a\ S_S$	S_{MS}	1.583 g
MCE Spectral Response Acceleration (1.0 sec. period) $S_{M1} = F_v\ S_1$	S_{M1}	1.029 g
Design Spectral Response Acceleration $S_{DS}=⅔S_{MS}$ (short period - 0.2 sec)	S_{DS}	1.056 g
Design Spectral Response Acceleration $S_{D1}=⅔S_{M1}$ (1.0 sec. period)	S_{D1}	0.686 g

9.2.2 Conformance to the criteria in the above table for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

9.3 Soil and Excavation Characteristics

9.3.1 Based on the soil conditions encountered in our soil borings, the onsite soils can be excavated with moderate to laborious effort using conventional heavy-duty or special excavation and earthmoving equipment.

9.3.2 It is the responsibility of the contractor to ensure that all excavations and trenches are properly shored and maintained in accordance with applicable Occupational Safety and Health Administration (OSHA) rules and regulations to maintain safety and maintain the stability of adjacent existing improvements. Temporary excavations are further discussed in a later Section of this report.

9.3.3 The upper soils are moisture-sensitive and moderately to highly collapsible under saturated conditions. These soils, in their present condition, possess moderate risk to construction in terms of possible post-construction movement of the foundations and floor systems if no mitigation measures are employed. Accordingly, measures are considered necessary to reduce anticipated collapse potential. Mitigation measures will not eliminate post-construction soil movement, but will reduce the soil movement. Success of the mitigation measures will depend on the thoroughness of the contractor in dealing with the soil conditions.

9.3.4 The near surface soils identified as part of our investigation are, generally, slightly moist to moist due to the absorption characteristics of the soil. Earthwork operations may encounter very moist unstable soils which may require removal to a stable bottom. Exposed native soils exposed as part of site grading operations shall not be allowed to dry out and should be kept continuously moist prior to placement of subsequent fill.

9.4 Materials for Fill

9.4.1 Excavated soils generated from cut operations at the site are suitable for use as general Engineered Fill in structural areas, provided they do not contain deleterious matter, organic material, or rock material larger than 3 inches in maximum dimension.

9.4.2 The preferred materials specified for Engineered Fill are suitable for most applications with the exception of exposure to erosion. Project site winterization and protection of exposed soils during the construction phase should be the sole responsibility of the Contractor, since they have complete control of the project site.

9.4.3 Import soil shall be well-graded, slightly cohesive silty fine sand or sandy silt, with relatively impervious characteristics when compacted. A clean sand or very sandy soil is not acceptable for this purpose. This material should be approved by the Engineer prior to use and should typically possess the soil characteristics summarized below in Table 9.4.3.

TABLE 9.4.3
IMPORT FILL REQUIREMENTS

Minimum Percent Passing No. 200 Sieve	20
Maximum Percent Passing No. 200 Sieve	50
Minimum Percent Passing No. 4 Sieve	80
Maximum Particle Size	3"
Maximum Plasticity Index	12
Maximum CBC Expansion Index	20

9.4.4 Environmental characteristics and corrosion potential of import soil materials should also be considered.

9.4.5 Proposed import materials should be sampled, tested, and approved by SALEM prior to its transportation to the site.

9.5 Grading

9.5.1 A representative of our firm should be present during all site clearing and grading operations to test and observe earthwork construction. This testing and observation is an integral part of our service as acceptance of earthwork construction is dependent upon compaction of the material and the stability of the material. The Geotechnical Engineer may reject any material that does not meet compaction and stability requirements. Further recommendations of this report are predicated upon the assumption that earthwork construction will conform to recommendations set forth in this section as well as other portions of this report.

9.5.2 A preconstruction conference should be held at the site prior to the beginning of grading operations with the owner, contractor, civil engineer and geotechnical engineer in attendance.

9.5.3 Site preparation should begin with removal of existing surface/subsurface structures, underground utilities (as required), any existing uncertified fill, and debris. Excavations or depressions resulting from site clearing operations, or other existing excavations or depressions, should be restored with Engineered Fill in accordance with the recommendations of this report.

9.5.4 Surface vegetation consisting of grasses and other similar vegetation should be removed by stripping to a sufficient depth to remove organic-rich topsoil. The upper 4 to 8 inches of the soils containing, vegetation, roots and other objectionable organic matter encountered at the time of grading should be stripped and removed from the surface. Deeper stripping may be required in localized areas. The stripped vegetation, will not be suitable for use as Engineered Fill or within 5 feet of building pads or within pavement areas. However, stripped topsoil may be stockpiled and reused in landscape or non-structural areas or exported from the site.

9.5.5 Tree root systems in proposed improvement areas should be removed to a minimum depth of 3 feet and to such an extent which would permit removal of all roots greater than ½ inch in diameter. Tree roots removed in parking areas may be limited to the upper 1½ feet of the ground surface. Backfill of tree root excavations is not permitted until all exposed surfaces have been inspected and the Soils Engineer is present for the proper control of backfill placement and compaction. Burning in areas which are to receive fill materials shall not be permitted.

9.5.6 Any fill materials encountered during grading should be removed and replaced with engineered fill. The actual depth of the overexcavation and recompaction should be determined by our field representative during construction.

9.5.7 To minimize post-construction soil movement and provide uniform support for the proposed buildings, overexcavation and recompaction within the proposed buildings' areas should be performed to a minimum depth of **four (4) feet** below existing grade or **three (3) foot** below proposed footing bottom, whichever is deeper. The overexcavation and recompaction should also extend laterally to a minimum of 5 feet beyond the outer edges of the proposed footings.

9.5.8 Prior to placement of fill soils, the upper 8 to 10 inches of native subgrade soils should be scarified, moisture-conditioned to no less than the optimum moisture content and recompacted to a minimum of 95% of the maximum dry density based on ASTM D1557-07 Test Method.

9.5.9 All Engineered Fill (including scarified ground surfaces and backfill) should be placed in thin lifts to allow for adequate bonding and compaction (typically 6 to 8 inches in loose thickness).

9.5.10 All Engineered Fill soils should be placed, moisture conditioned to near optimum moisture content, and compacted to at least 95% relative compaction.

9.5.11 An integral part of satisfactory fill placement is the stability of the placed lift of soil. If placed materials exhibit excessive instability as determined by a SALEM field representative, the lift will be considered unacceptable and shall be remedied prior to placement of additional fill material. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

9.5.12 Within pavement, it is recommended that scarification, moisture conditioning and recompaction be performed to at least 12 inches below existing grade or finish grade, whichever is deeper. The upper 12 inches of final pavement subgrade, whether completed at-grade, by excavation, or by filling, should be uniformly moisture-conditioned to no less than the optimum moisture content and compacted to at least 95% relative compaction.

9.5.13 Final pavement subgrade should be finished to a smooth, unyielding surface. We further recommend proof-rolling the subgrade with a loaded water truck (or similar equipment with high contact pressure) to verify the stability of the subgrade prior to placing aggregate base.

9.5.14 The most effective site preparation alternatives will depend on site conditions prior to grading. We should evaluate site conditions and provide supplemental recommendations immediately prior to grading, if necessary.

9.5.15 We do not anticipate groundwater or seepage to adversely affect construction if conducted during the drier months of the year (typically summer and fall). However, groundwater and soil moisture conditions could be significantly different during the wet season (typically winter and spring) as surface soil becomes wet; perched groundwater conditions may develop. Grading during this time period will likely encounter wet materials resulting in possible excavation and fill placement difficulties. Project site winterization consisting of placement of aggregate base and protecting exposed soils during construction should be performed. If the construction schedule requires grading operations during the wet season, we can provide additional recommendations as conditions warrant.

9.5.16 The wet soils may become non conducive to site grading as the upper soils yield under the weight of the construction equipment. Therefore, mitigation measures should be performed for stabilization. Typical remedial measures include: discing and aerating the soil during dry weather; mixing the soil with dryer materials; removing and replacing the soil with an approved fill material or placement of crushed rocks or aggregate base material; or mixing the soil with an approved lime or cement product.

The most common remedial measure of stabilizing the bottom of the excavation due to wet soil condition is to reduce the moisture of the soil to near the optimum moisture content by having the subgrade soils scarified and aerated or mixed with drier soils prior to compacting. However, the drying process may require an extended period of time and delay the construction operation. To expedite the stabilizing process, crushed rock may be utilized for stabilization provided this method is approved by the owner for the cost purpose. If the use of crushed rock is considered, it is recommended that the upper soft and wet soils be replaced by 6 to 24 inches of ¾-inch to 1-inch crushed rocks. The thickness of the rock layer depends on the severity of the soil instability. The recommended 6 to 24 inches of crushed rock material will provide a stable platform. It is further recommended that lighter compaction equipment be utilized for compacting the crushed rock. A layer of geofabric is recommended to be placed on top of the compacted crushed rock to minimize migration of soil particles into the voids of the crushed rock, resulting in soil movement. Although it is not required, the use of geogrid (e.g. Tensar TX 140) below the crushed rock will enhance stability and reduce the required thickness of crushed rock necessary for stabilization.

Our firm should be consulted prior to implementing remedial measures to provide appropriate recommendations.

9.6 Shallow Foundations

9.6.1 The site is suitable for use of conventional shallow foundations consisting of continuous footings and isolated pad footings bearing in properly compacted Engineered Fill.

9.6.2 The bearing wall footings considered for the structure should be continuous with a minimum width of 15 inches and extend to a minimum depth of 18 inches below the lowest adjacent grade. Isolated column footings should have a minimum width of 24 inches and extend a minimum depth of 18 inches below the lowest adjacent grade.

9.6.3 The bottom of footing excavations should be maintained free of loose and disturbed soil. Footing concrete should be placed into a neat excavation.

9.6.4 For design purposes, total settlement due to static loading on the order of 1 inch may be assumed for shallow footings. Differential settlement due to static loading, along a 20-foot exterior wall footing or between adjoining column footings, should be ½ inch, producing an angular distortion of 0.002. Most of the settlement is expected to occur during construction as the loads are applied. However, additional post-construction settlement may occur if the foundation soils are flooded or saturated. The footing excavations should not be allowed to dry out any time prior to pouring concrete.

9.6.5 Footings proportioned as recommended above may be designed for the maximum allowable soil bearing pressures shown in the table below.

Loading Condition	Allowable Bearing
Dead Load Only	2,000 psf
Dead-Plus-Live Load	2,500 psf
Total Load, Including Wind or Seismic Loads	3,325 psf

9.6.6 Resistance to lateral footing displacement can be computed using an allowable coefficient of friction factor of 0.38 acting between the base of foundations and the supporting subgrade.

9.6.7 Lateral resistance for footings can alternatively be developed using an allowable equivalent fluid passive pressure of 350 pounds per cubic foot acting against the appropriate vertical native footing faces. The frictional and passive resistance of the soil may be combined without reduction in determining the total lateral resistance. An increase of one-third is permitted when using the alternate load combination in Section 1605.3.2 of the 2015 IBC/2016 CBC that includes wind or earthquake loads.

9.6.8 Underground utilities running parallel to footings should not be constructed in the zone of influence of footings. The zone of influence may be taken to be the area beneath the footing and within a 1:1 plane extending out and down from the bottom edge of the footing.

9.6.9 The foundation subgrade should be sprinkled as necessary to maintain a moist condition without significant shrinkage cracks as would be expected in any concrete placement. Prior to placing rebar reinforcement, foundation excavations should be evaluated by a representative of SALEM for appropriate support characteristics and moisture content. Moisture conditioning may be required for the materials exposed at footing bottom, particularly if foundation excavations are left open for an extended period.

9.7 Concrete Slabs-on-Grade

9.7.1 Slab thickness and reinforcement should be determined by the structural engineer based on the anticipated loading. We recommend that non-structural slabs-on-grade be at least 4 inches thick and underlain by six (6) inches of compacted granular aggregate subbase material compacted to at least 95% relative compaction.

9.7.2 Granular aggregate subbase material shall conform to ASTM D-2940, Latest Edition (Table 1, bases) with at least 95 percent passing a 1½-inch sieve and not more than 8% passing a No. 200 sieve or its approved equivalent to prevent capillary moisture rise.

9.7.3 <u>The use of processed asphalt in the granular aggregate subbase material (i.e. recycled or miscellaneous base) will have to be approved by the owner.</u> Asphalt is a petroleum hydrocarbon with numerous components, including naphthalene and other semi-volatile constituents that are regulated by California. This material in the subsurface could become a potential vapor intrusion risk (naphthalene is a recent risk-driver that DTSC is actively pursuing).

9.7.4 We recommend reinforcing slabs, at a minimum, with No. 3 reinforcing bars placed 18 inches on center, each way.

9.7.5 Slabs subject to structural loading may be designed utilizing a modulus of subgrade reaction K of 150 pounds per square inch per inch. The K value was approximated based on inter-relationship of soil classification and bearing values (Portland Cement Association, Rocky Mountain Northwest).

9.7.6 The spacing of crack control joints should be designed by the project structural engineer. In order to regulate cracking of the slabs, we recommend that full depth construction joints or control joints be provided at a maximum spacing of 15 feet in each direction for 5-inch thick slabs and 12 feet for 4-inch thick slabs.

9.7.7 Crack control joints should extend a minimum depth of one-fourth the slab thickness and should be constructed using saw-cuts or other methods as soon as practical after concrete placement. The exterior floors should be poured separately in order to act independently of the walls and foundation system.

9.7.8 It is recommended that the utility trenches within the structure be compacted, as specified in our report, to minimize the transmission of moisture through the utility trench backfill. Special attention to the immediate drainage and irrigation around the structures is recommended.

9.7.9 Moisture within the structure may be derived from water vapors, which were transformed from the moisture within the soils. This moisture vapor penetration can affect floor coverings and produce mold and mildew in the structure. To minimize moisture vapor intrusion, it is recommended that a vapor retarder be installed in accordance with manufacturer's recommendations and/or ASTM guidelines, whichever is more stringent. In addition, ventilation of the structure is recommended to reduce the accumulation of interior moisture.

9.7.10 In areas where it is desired to reduce floor dampness where moisture-sensitive coverings are anticipated, construction should have a suitable waterproof vapor retarder (a minimum of 15 mils thick polyethylene vapor retarder sheeting, Raven Industries "VaporBlock 15, Stego Industries 15 mil "StegoWrap" or W.R. Meadows Sealtight 15 mil "Perminator") incorporated into the floor slab design. The water vapor retarder should be decay resistant material complying with ASTM E96 not exceeding 0.04 perms, ASTM E154 and ASTM E1745 Class A. The vapor barrier should be placed between the concrete slab and the compacted granular aggregate subbase material. The water vapor retarder (vapor barrier) should be installed in accordance with ASTM Specification E 1643-94.

9.7.11 The concrete maybe placed directly on vapor retarder. The vapor retarder should be inspected prior to concrete placement. Cut or punctured retarder should be repaired using vapor retarder material lapped 6 inches beyond damaged areas and taped.

9.7.12 The recommendations of this report are intended to reduce the potential for cracking of slabs due to soil movement. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade may exhibit some cracking due to soil movement. This is common for project areas that contain expansive soils since designing to eliminate potential soil movement is cost prohibitive. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced and/or controlled by limiting the slump of the concrete, proper concrete placement and curing, and by the placement of crack control joints at periodic intervals, in particular, where re-entrant slab corners occur.

9.7.13 Proper finishing and curing should be performed in accordance with the latest guidelines provided by the American Concrete Institute, Portland Cement Association, and ASTM.

9.8 Lateral Earth Pressures and Frictional Resistance

9.8.1 Active, at-rest and passive unit lateral earth pressures against footings and walls are summarized in the table below:

Lateral Pressure **Level Backfill and Drained Conditions**	**Equivalent Fluid Pressure, pcf**
Active Pressure	40
At-Rest Pressure	60
Passive Pressure	350
Related Parameters	
Allowable Coefficient of Friction	0.38
In-Place Soil Density (lbs/ft^3)	120

9.8.2 Active pressure applies to walls, which are free to rotate. At-rest pressure applies to walls, which are restrained against rotation. The preceding lateral earth pressures assume sufficient drainage behind retaining walls to prevent the build-up of hydrostatic pressure.

9.8.3 The top one-foot of adjacent subgrade should be deleted from the passive pressure computation.

9.8.4 A safety factor consistent with the design conditions should be included when using the values in the above table.

9.8.5 For stability against lateral sliding, which is resisted solely by the passive pressure, we recommend a minimum safety factor of 1.5.

9.8.6 For stability against lateral sliding, which is resisted by the combined passive and frictional resistance, a minimum safety factor of 2.0 is recommended.

9.8.7 For lateral stability against seismic loading conditions, we recommend a minimum safety factor of 1.1.

9.8.8 For dynamic seismic lateral loading the following equation shall be used:

Dynamic Seismic Lateral Loading Equation
Dynamic Seismic Lateral Load = $\frac{3}{8}\gamma K_h H^2$
Where: γ = In-Place Soil Density
K_h = Horizontal Acceleration = $\frac{2}{3} PGA_M$
H = Wall Height

9.9 Retaining Walls

9.9.1 Retaining and/or below grade walls should be drained with either perforated pipe encased in free-draining gravel or a prefabricated drainage system. The gravel zone should have a minimum width of 12 inches wide and should extend upward to within 12 inches of the top of the wall. The upper 12 inches of backfill should consist of native soils, concrete, asphaltic-concrete or other suitable backfill to minimize surface drainage into the wall drain system. The gravel should conform to Class II permeable materials graded in accordance with the current CalTrans Standard Specifications.

9.9.2 Prefabricated drainage systems, such as Miradrain®, Enkadrain®, or an equivalent substitute, are acceptable alternatives in lieu of gravel provided they are installed in accordance with the manufacturer's recommendations. If a prefabricated drainage system is proposed, our firm should review the system for final acceptance prior to installation.

9.9.3 Drainage pipes should be placed with perforations down and should discharge in a non-erosive manner away from foundations and other improvements. The top of the perforated pipe should be placed at or below the bottom of the adjacent floor slab or pavements. The pipe should be placed in the center line of the drainage blanket and should have a minimum diameter of 4 inches. Slots should be no wider than 1/8-inch in diameter, while perforations should be no more than ¼-inch in diameter.

9.9.4 If retaining walls are less than 5 feet in height, the perforated pipe may be omitted in lieu of weep holes on 4 feet maximum spacing. The weep holes should consist of 2-inch minimum diameter holes (concrete walls) or unmortared head joints (masonry walls) and placed no higher than 18 inches above the lowest adjacent grade. Two 8-inch square overlapping patches of geotextile fabric (conforming to the CalTrans Standard Specifications for "edge drains") should be affixed to the rear wall opening of each weep hole to retard soil piping.

9.9.5 During grading and backfilling operations adjacent to any walls, heavy equipment should not be allowed to operate within a lateral distance of 5 feet from the wall, or within a lateral distance equal to the wall height, whichever is greater, to avoid developing excessive lateral pressures. Within this zone, only hand operated equipment ("whackers," vibratory plates, or pneumatic compactors) should be used to compact the backfill soils.

9.10 Temporary Excavations

9.10.1 We anticipate that the majority of the sandy site soils will be classified as Cal-OSHA “Type C” soil when encountered in excavations during site development and construction. Excavation sloping, benching, the use of trench shields, and the placement of trench spoils should conform to the latest applicable Cal-OSHA standards. The contractor should have a Cal-OSHA-approved “competent person” onsite during excavation to evaluate trench conditions and make appropriate recommendations where necessary.

9.10.2 It is the contractor’s responsibility to provide sufficient and safe excavation support as well as protecting nearby utilities, structures, and other improvements which may be damaged by earth movements. All onsite excavations must be conducted in such a manner that potential surcharges from existing structures, construction equipment, and vehicle loads are resisted. The surcharge area may be defined by a 1:1 projection down and away from the bottom of an existing foundation or vehicle load.

9.10.3 Temporary excavations and slope faces should be protected from rainfall and erosion. Surface runoff should be directed away from excavations and slopes.

9.10.4 Open, unbraced excavations in undisturbed soils should be made according to the slopes presented in the following table:

RECOMMENDED EXCAVATION SLOPES

Depth of Excavation (ft)	Slope (Horizontal : Vertical)
0-5	1:1
5-10	2:1

9.10.5 If, due to space limitation, excavations near property lines or existing structures are performed in a vertical position, slot cuts, braced shorings or shields may be used for supporting vertical excavations. Therefore, in order to comply with the local and state safety regulations, a properly designed and installed shoring system would be required to accomplish planned excavations and installation. A Specialty Shoring Contractor should be responsible for the design and installation of such a shoring system during construction.

9.10.6 Braced shorings should be designed for a maximum pressure distribution of 30H, (where H is the depth of the excavation in feet). The foregoing does not include excess hydrostatic pressure or surcharge loading. Fifty percent of any surcharge load, such as construction equipment weight, should be added to the lateral load given herein. Equipment traffic should concurrently be limited to an area at least 3 feet from the shoring face or edge of the slope.

9.10.7 The excavation and shoring recommendations provided herein are based on soil characteristics derived from the borings within the area. Variations in soil conditions will likely be encountered during the excavations. SALEM Engineering Group, Inc. should be afforded the opportunity to provide field review to evaluate the actual conditions and account for field condition variations not otherwise anticipated in the preparation of this recommendation. Slope height, slope inclination, or excavation depth should in no case exceed those specified in local, state, or federal safety regulation, (e.g. OSHA) standards for excavations, 29 CFR part 1926, or Assessor's regulations.

9.11 Underground Utilities

9.11.1 Underground utility trenches should be backfilled with properly compacted material. The material excavated from the trenches should be adequate for use as backfill provided it does not contain deleterious matter, vegetation or rock larger than 3 inches in maximum dimension. Trench backfill should be placed in loose lifts not exceeding 8 inches and compacted to at least 95% relative compaction at or above optimum moisture content.

9.11.2 Bedding and pipe zone backfill typically extends from the bottom of the trench excavations to approximately 6 to 12 inches above the crown of the pipe. Pipe bedding and backfill material should conform to the requirements of the governing utility agency.

9.11.3 It is suggested that underground utilities crossing beneath new or existing structures be plugged at entry and exit locations to the buildings or structures to prevent water migration. Trench plugs can consist of on-site clay soils, if available, or sand cement slurry. The trench plugs should extend 2 feet beyond each side of individual perimeter foundations.

9.11.4 The contractor is responsible for removing all water-sensitive soils from the trench regardless of the backfill location and compaction requirements. The contractor should use appropriate equipment and methods to avoid damage to the utilities and/or structures during fill placement and compaction.

9.12 Surface Drainage

9.12.1 Proper surface drainage is critical to the future performance of the project. Uncontrolled infiltration of irrigation excess and storm runoff into the soils can adversely affect the performance of the planned improvements. Saturation of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change to important engineering properties. Proper drainage should be maintained at all times.

9.12.2 Site drainage should be collected and transferred away from improvements in non-erosive drainage devices. Drainage should not be allowed to pond anywhere on the site, and especially not against any foundations or retaining walls. Drainage should not be allowed to flow uncontrolled over any descending slope. The proposed structures should be provided with roof gutters. Discharge from downspouts, roof drains and scuppers are not permitted onto unprotected soils within five feet of the buildings perimeters. Planters which are located adjacent to foundations should be sealed or properly drained to prevent moisture intrusion into the materials providing foundation support. Landscape irrigation within 5 feet of the buildings perimeter footings should be kept to a minimum to just support vegetative life.

9.12.3 The ground immediately adjacent to the foundation shall be sloped away from buildings at a slope of not less than 5 percent for a minimum distance of 10 feet. Impervious surfaces within 10 feet of building's foundations shall be sloped a minimum of 2 percent away from buildings and drainage gradients maintained to carry all surface water to collection facilities and off site. These grades should be maintained for the life of the project.

9.13 Pavement Design

9.13.1 Based on site soil conditions and R-Value test results, an R-value of 30 was used for the preliminary flexible asphaltic concrete pavement design. The R-value may be verified during grading of the pavement areas.

9.13.2 The pavement design recommendations provided herein are based on the State of California Department of Transportation (CALTRANS) design manual. The following table shows the recommended pavement sections for various traffic indices.

TABLE 9.13.2
ASPHALT CONCRETE PAVEMENT

Traffic Index	Asphaltic Concrete	Class II Aggregate Base*	Compacted Subgrade*
5.0 (Parking and Vehicle Drive Areas)	3.0"	5.0"	12.0"
6.0 (Heavy Truck Areas)	3.0"	8.5"	12.0"

95% compaction based on ASTM D1557-07 Test Method

9.13.3 The following recommendations are for light-duty and heavy-duty Portland Cement Concrete pavement sections.

TABLE 9.13.3
PORTLAND CEMENT CONCRETE PAVEMENT

Traffic Index	Portland Cement Concrete*	Class II Aggregate Base**	Compacted Subgrade**
5.0 (Light Duty)	5.0"	4.0"	12.0"
6.0 (Heavy Duty)	6.0"	6.0"	12.0"

**** Minimum Compressive Strength of 4,000 psi***
***** 95% compaction based on ASTM D1557-07 Test Method***

10. PLAN REVIEW, CONSTRUCTION OBSERVATION AND TESTING

10.1 Plan and Specification Review

10.1.1 SALEM should review the project plans and specifications prior to final design submittal to assess whether our recommendations have been properly implemented and evaluate if additional analysis and/or recommendations are required.

10.2 Construction Observation and Testing Services

10.2.1 The recommendations provided in this report are based on the assumption that we will continue as Geotechnical Engineer of Record throughout the construction phase. It is important to maintain continuity of geotechnical interpretation and confirm that field conditions encountered are similar to those anticipated during design. If we are not retained for these services, we cannot assume any responsibility for others interpretation of our recommendations, and therefore the future performance of the project.

10.2.2 SALEM should be present at the site during site preparation to observe site clearing, preparation of exposed surfaces after clearing, and placement, treatment and compaction of fill material.

10.2.3 SALEM's observations should be supplemented with periodic compaction tests to establish substantial conformance with these recommendations. Moisture content of footings and slab subgrade should be tested immediately prior to concrete placement. SALEM should observe foundation excavations prior to placement of reinforcing steel or concrete to assess whether the actual bearing conditions are compatible with the conditions anticipated during the preparation of this report.

11. LIMITATIONS AND CHANGED CONDITIONS

The analyses and recommendations submitted in this report are based upon the data obtained from the test borings drilled at the approximate locations shown on the Site Plan, Figure 2. The report does not reflect variations which may occur between borings. The nature and extent of such variations may not become evident until construction is initiated.

If variations then appear, a re-evaluation of the recommendations of this report will be necessary after performing on-site observations during the excavation period and noting the characteristics of such variations. The findings and recommendations presented in this report are valid as of the present and for the proposed construction. If site conditions change due to natural processes or human intervention on the property or adjacent to the site, or changes occur in the nature or design of the project, or if there is a substantial time lapse between the submission of this report and the start of the work at the site, the conclusions and recommendations contained in our report will not be considered valid unless the changes are reviewed by SALEM and the conclusions of our report are modified or verified in writing.

The validity of the recommendations contained in this report is also dependent upon an adequate testing and observations program during the construction phase. Our firm assumes no responsibility for construction compliance with the design concepts or recommendations unless we have been retained to perform the on-site testing and review during construction. SALEM has prepared this report for the exclusive use of the owner and project design consultants.

SALEM does not practice in the field of corrosion engineering. It is recommended that a qualified corrosion engineer be consulted regarding protection of buried steel or ductile iron piping and conduit or, at a minimum, that manufacturer's recommendations for corrosion protection be closely followed. Further, a corrosion engineer may be needed to incorporate the necessary precautions to avoid premature corrosion of concrete slabs and foundations in direct contact with native soil.

The importation of soil and or aggregate materials to the site should be screened to determine the potential for corrosion to concrete and buried metal piping. The report has been prepared in accordance with generally accepted geotechnical engineering practices in the area. No other warranties, either express or implied, are made as to the professional advice provided under the terms of our agreement and included in this report.

If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (909) 980-6455.

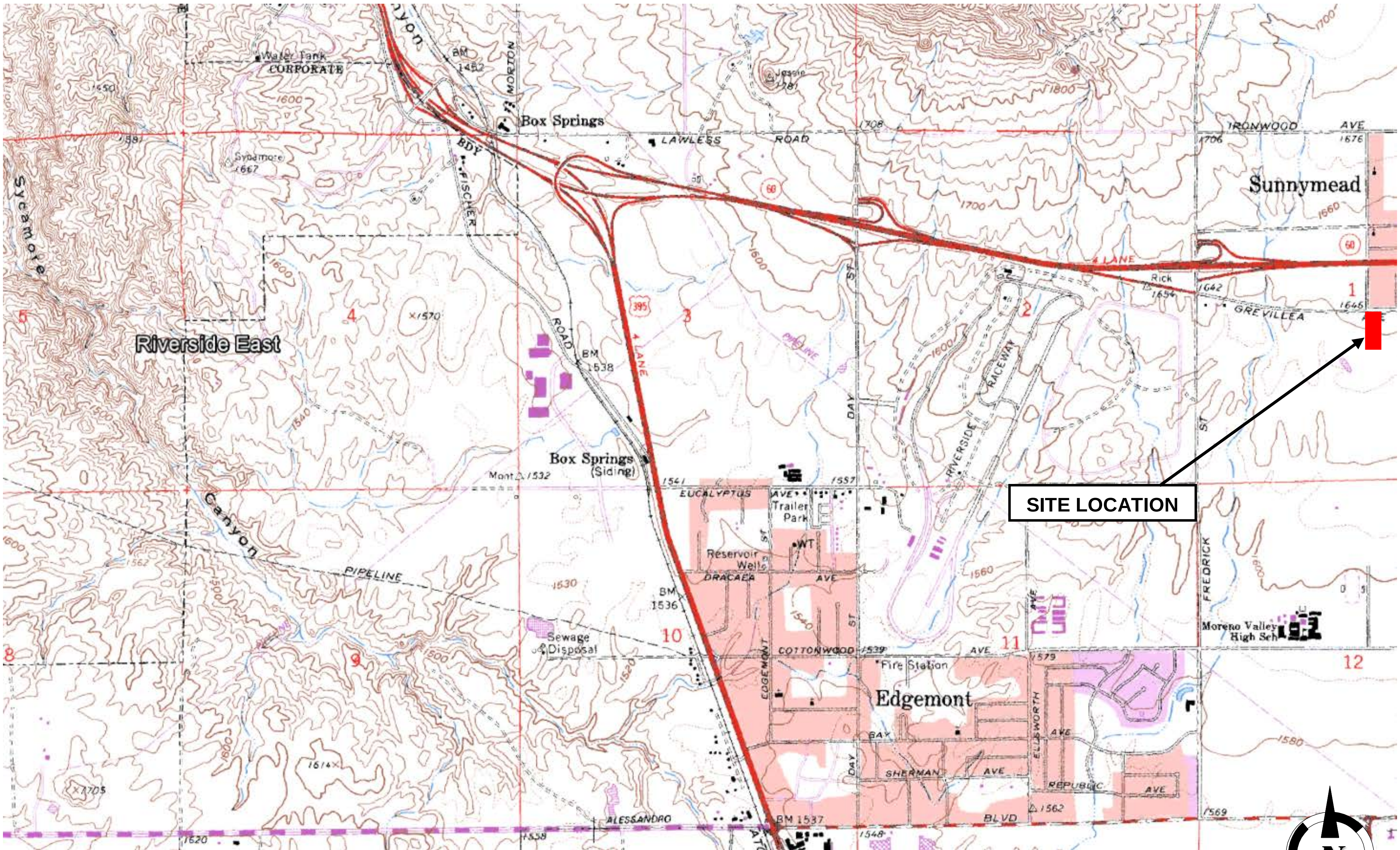
Respectfully Submitted,

SALEM ENGINEERING GROUP, INC.

Jared Christiansen
Geotechnical Staff Engineer

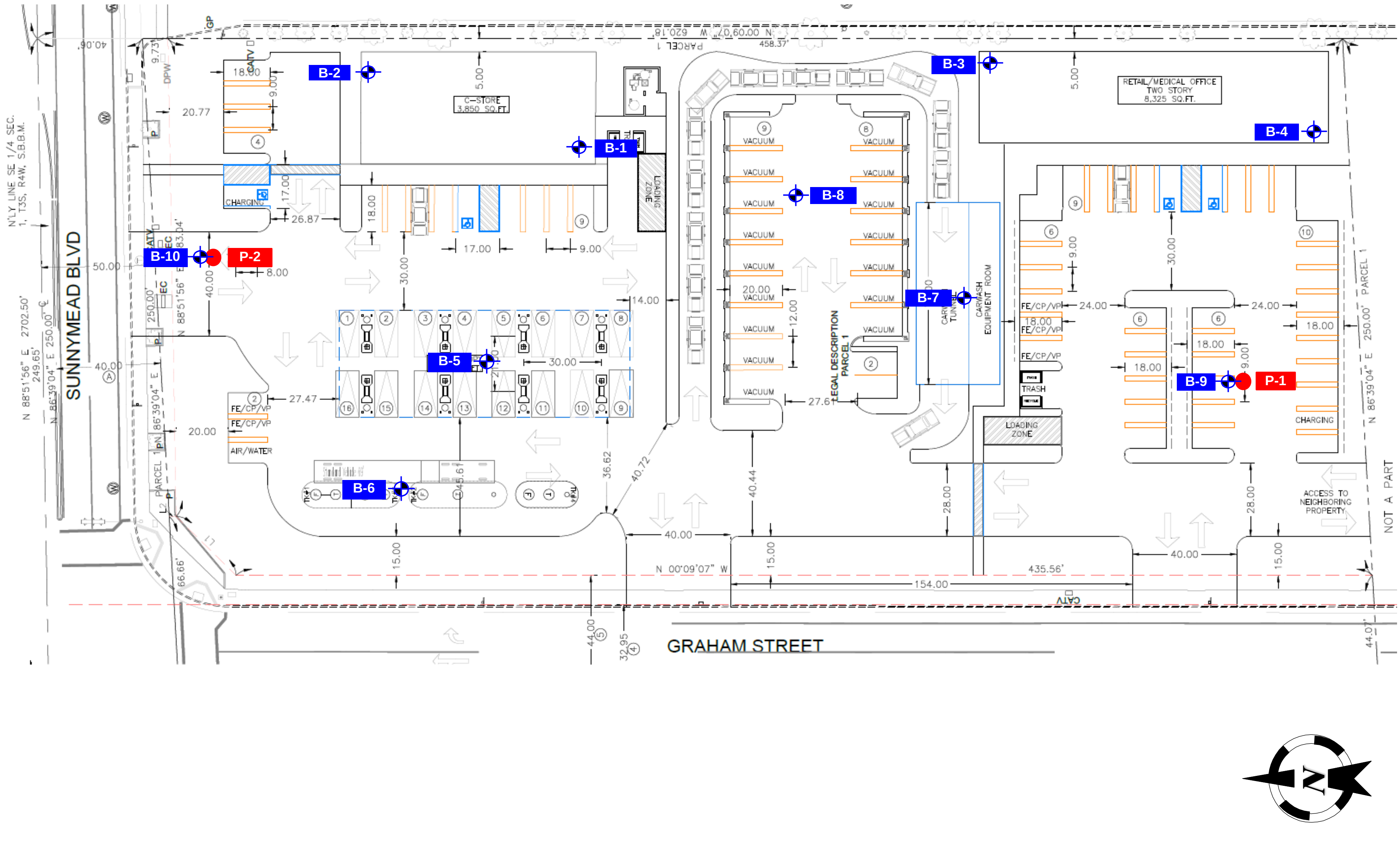
Clarence Jiang, GE
Senior Geotechnical Engineer
RGE 2477

R. Sammy Salem, MS, PE, GE
Principal Engineer
RCE 52762 / RGE 2549



Source Image: U.S. Geological Survey, Riverside East, California, N3352.5-W11715/7.5, 1967 (Photorevised 1980)

VICINITY MAP **GEOTECHNICAL ENGINEERING INVESTIGATION** **Go Fresh Gas Station** **SEC Sunnymead Boulevard & Graham Street** **Moreno Valley, California**	SCALE: NOT TO SCALE	DATE: 12/2019	SALEM engineering group, inc.
	DRAWN BY: JC	APPROVED BY: CJ	
	PROJECT NO. 3-219-1018	FIGURE NO. 1	



SITE PLAN

GEOTECHNICAL ENGINEERING INVESTIGATION
Go Fresh Gas Station
SEC Sunnymead Boulevard & Graham Street
Moreno Valley, California

SCALE:	DATE:
NOT TO SCALE	12/2019
DRAWN BY: KV	APPROVED BY: CJ
PROJECT NO. 3-219-1018	FIGURE NO. 2

LEGEND:

- B-1 Soil Boring Locations
- P-1 Percolation Locations

All Locations Approximate

SALEM engineering group, inc.

APPENDIX

A

APPENDIX A
FIELD EXPLORATION

Fieldwork for our investigation (drilling) was conducted on December 12, 2019, and included a site visit, subsurface exploration, and soil sampling. The locations of the exploratory borings and percolation tests are shown on the Site Plan, Figure 2. Boring logs for our exploration are presented in figures following the text in this appendix. Borings were located in the field using existing reference points. Therefore, actual boring locations may deviate slightly.

In general, our borings were performed using a truck-mounted CME 45 drill rig equipped with a 4-inch diameter solid flight auger. Sampling in the borings was accomplished using a hydraulic 140-pound hammer with a 30-inch drop. Samples were obtained with a 3-inch outside-diameter (OD), split spoon (California Modified) sampler, and a 2-inch OD, Standard Penetration Test (SPT) sampler. The number of blows required to drive the sampler the last 12 inches (or fraction thereof) of the 18-inch sampling interval were recorded on the boring logs. The blow counts shown on the boring logs should not be interpreted as standard SPT "N" values; corrections have not been applied. Upon completion, the borings were backfilled with soil cuttings.

Subsurface conditions encountered in the exploratory borings were visually examined, classified and logged in general accordance with the American Society for Testing and Materials (ASTM) Practice for Description and Identification of Soils (Visual-Manual Procedure D2488). This system uses the Unified Soil Classification System (USCS) for soil designations. The logs depict soil and geologic conditions encountered and depths at which samples were obtained. The logs also include our interpretation of the conditions between sampling intervals. Therefore, the logs contain both observed and interpreted data. We determined the lines designating the interface between soil materials on the logs using visual observations, drill rig penetration rates, excavation characteristics and other factors. The transition between materials may be abrupt or gradual. Where applicable, the field logs were revised based on subsequent laboratory testing.

SALEM engineering group, inc.

Test Boring: B-1 **Page** 1 **Of:** 2

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Medium dense; slightly moist; brown; fine to medium grain sand.		5.7	114.7	
	6/6 7/6 11/6			18	5.7	114.7	
5	15/6 19/6 25/6		Grades as above; dense.	44	4.9	107.7	
10	20/6 37/6 43/6		Grades as above; very dense.	80	8.0	-	
15	14/6 20/6 22/6		Grades as above; dense.	44	9.1	-	
20	15/6 22/6 37/6		Grades as above; very dense; trace clay.	59	12.6	-	
25	13/6 19/6 23/6	SW-SM	Well-graded SAND with Silt Dense; slightly moist; light brown; fine to coarse grain sand.	42	3.3	-	

Notes:

Figure Number A-1

SALEM engineering group, inc.

Project Number: 3-219-1018
Date: 12/12/2019
Test Boring: B-1

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
30	15/6 22/6 26/6	SM	Silty SAND Dense; slightly moist; light brown; fine to medium grain sand.	48	4.0	-	
35	13/6 23/6 31/6		Grades as above; very dense; moist; brown; fine grain sand; trace clay.	54	8.6	-	
40	22/6 26/6 29/6		Grades as above; fine to medium grain sand; with clay.	55	6.8	-	
45	15/6 24/6 40/6		Grades as above.	64	10.4	-	
			End of boring at 46.5 feet BGS.				
50							
55							
60							

Notes:

Figure Number A-1

SALEM engineering group, inc.

Test Boring: B-2 **Page** 1 **Of:** 1

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Medium dense; slightly moist; brown; fine to medium grain sand; with clay.				
	10/6 11/6 12/6			23	4.9	117.3	
5	12/6 19/6 21/6		Grades as above; dense.	40	3.2	111.9	
10	16/6 35/6 47/6		Grades as above; very dense; moist; trace clay.	82	6.2	-	
15	11/6 24/6 27/6		Grades as above; no clay.	51	5.7	-	
20	12/6 21/6 33/6		Grades as above; trace clay.	54	8.0	-	
			End of boring at 21.5 feet BGS.				
25							

Notes:

Figure Number A-2

Test Boring: B-3 **Page** 1 **Of:** 1

SALEM engineering group, inc.

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Medium dense; moist; brown; fine to medium grain sand.				
	7/6 11/6 17/6			28	6.4	110.7	
5	13/6 23/6 33/6		Grades as above; dense.	56	11.1	109.2	
10	20/6 32/6 47/6		Grades as above; very dense; very moist; light brown; fine to medium grain sand; with clay.	79	13.1	-	
15	15/6 23/6 38/6		Grades as above; moist.	61	8.0	-	
20	13/6 25/6 27/6		Grades as above; slightly moist; fine to coarse grain sand; no clay.	52	4.2	-	
			End of boring at 21.5 feet BGS.				
25							

Notes:

Figure Number A-3

Test Boring: B-4 **Page** 1 **Of:** 1

SALEM engineering group, inc.

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Medium dense; moist; brown; fine to medium grain sand; with clay.				
	8/6 11/6 12/6			23	6.2	116.5	
5	4/6 5/6 8/6		Grades as above; loose; slightly moist; trace clay.	13	3.6	113.8	
		SP-SM	Poorly graded SAND with Silt Medium dense; damp; light brown; fine to coarse grain sand.				
10	5/6 6/6 11/6			17	2.0	-	
		SM	Silty SAND Very dense; moist; brown; fine to medium grain sand; with clay.				
15	10/6 26/6 45/6			71	7.7	-	
20	13/6 24/6 32/6		Grades as above.	56	7.1	-	
			End of boring at 21.5 feet BGS.				
25							

Notes:

Figure Number A-4

SALEM engineering group, inc.

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Medium dense; moist; brown; fine to medium grain sand; with clay.				
	11/6 13/6 21/6			34	6.7	116.0	
5	5/6 6/6 12/6		Grades as above; slightly moist; fine grain sand.	18	3.9	109.1	
10	13/6 25/6 37/6		Grades as above; very dense; very moist; trace clay.	62	16.5	-	
15	7/6 15/6 21/6		Grades as above; dense; moist; with clay.	36	11.9	-	
20	13/6 15/6 16/6		Grades as above; trace clay.	31	7.6	-	
			End of boring at 21.5 feet BGS.				
25							

Notes:

Figure Number A-5

SALEM engineering group, inc.

Test Boring: B-6 **Page** 1 **Of:** 1

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Medium dense; moist; brown; fine to medium grain sand; with clay.				
	7/6 9/6 9/6			18	10.9	113.0	
5	4/6 5/6 6/6		Grades as above; loose; slightly moist; no clay.	11	3.9	109.1	
10	4/6 5/6 7/6		Grades as above; medium dense.	12	3.9	-	
			End of boring at 11.5 feet BGS.				
15							
20							
25							

Notes:

Figure Number A-6

Test Boring: B-7 **Page** 1 **Of:** 1

SALEM engineering group, inc.

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND				
	7/6 9/6 10/6		Medium dense; moist; brown; fine to medium grain sand; with clay.	19	7.1	114.3	
5	3/6 4/6 4/6		Grades as above; loose; light brown; fine to coarse grain sand; no clay.	8	5.7	112.6	
10	26/6 50/6 -		Grades as above; very dense; fine to medium grain sand; with clay.	50/6"	12.4	-	
15	20/6 31/6 38/6		Grades as above.	69	9.0	-	
20	17/6 27/6 35/6		Grades as above.	62	6.0	-	
			End of boring at 21.5 feet BGS.				
25							

Notes:

Figure Number A-7

Test Boring: B-8 **Page** 1 **Of:** 1

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

SALEM engineering group, inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Dense; moist; brown; fine grain sand; with clay.				
	20/6 25/6 29/6			54	11.9	119.3	
5	21/6 22/6 31/6		Grades as above; fine to medium grain sand.	53	6.9	122.7	
10	8/6 9/6 11/6		Grades as above; medium dense; slightly moist; no clay.	20	4.3	-	
15	20/6 33/6 47/6		Grades as above; very dense; moist; fine to coarse grain sand.	80	8.3	-	
20	12/6 31/6 43/6		Grades as above; fine to medium grain sand; trace clay.	74	9.7	-	
			End of boring at 21.5 feet BGS.				
25							

Notes:

Figure Number A-8

SALEM engineering group, inc.

Test Boring: B-9 **Page** 1 **Of:** 1

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Medium dense; moist; brown; fine to medium grain sand; with clay.				
	8/6 13/6 16/6			29	5.8	125.6	
5	8/6 10/6 12/6		Grades as above; trace clay.	22	9.1	121.5	
	6/6 9/6 12/6		Grades as above.	21	5.9	-	
10			End of boring at 10 feet BGS.				
15							
20							
25							

Notes:

Figure Number A-9

Test Boring: B-10 **Page** 1 **Of:** 1

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

SALEM engineering group, inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Medium dense; slightly moist; brown; fine to medium grain sand; with clay.				
	15/6 16/6 19/6			35	4.0	117.3	
	9/6 20/6 23/6		Grades as above; dense.	43	10.3	105.5	
5			End of boring at 5 feet BGS.				
10							
15							
20							
25							

Notes:

Figure Number A-10

KEY TO SYMBOLS

Symbol Description

Strata symbols

Silty sand

Well graded sand
with silt

Poorly graded sand
with silt

Misc. Symbols

Boring continues

Soil Samplers

California sampler

Standard penetration test

Notes:

Consistency Classification

Blows Per Foot (Uncorrected)

Granular Soils

	MCS	SPT
Very loose	<5	<4
Loose	5 -15	4 - 10
Medium dense	16 - 40	11 - 30
Dense	41 - 65	31 - 50
Very dense	>65	>50

Cohesive Soils

	MCS	SPT
Very soft	<3	<2
Soft	3 - 5	2 - 4
Firm	6 - 10	5 - 8
Stiff	11 - 20	9 - 15
Very Stiff	21 - 40	16 - 30
Hard	>40	>30

MCS = Modified California Sampler
SPT = Standard Penetration Test Sampler

Percolation Test Worksheet

Project: **Go Fresh Gas Station**
SEC Sunnymead Blvd. & Graham St.
Moreno Valley, California

Job No.: **3-219-1018**
Date Drilled: **12/12/2019**
Soil Classification: **Silty SAND (SM)**

Hole Radius: 4 in.
Pipe Dia.: 3 in.
Total Depth of Hole: 120 in.

Test Hole No.: **P-1**
Tested by: **SK**
Drilled Hole Depth: **10** ft.

Presoaking Date: **12/12/2019**
Test Date: **12/13/2019**

Pipe Stick up: 0 ft.

Time Start	Time Finish	Depth of Test Hole (ft)#	Refill- Yes or No	Elapsed Time (hrs:min)	Initial Water Level# (ft)	Final Water Level# (ft)	Δ Water Level (in.)	Δ Min.	Meas. Perc Rate (min/in)	Initial Height of Water (in)	Final Height of Water (in)	Average Height of Water (in)	Infiltration Rate, It (in/hr)
6:55	7:20	10.0	Y	0:25	6.10	6.77	8.04	25	3.1	46.8	38.8	42.8	0.86
7:22	7:47	10.0	Y	0:25	6.77	7.28	6.12	25	4.1	38.8	32.6	35.7	0.78
7:55	8:05	10.0	N	0:10	7.28	7.44	1.92	10	5.2	32.6	30.7	31.7	0.68
8:05	8:15	10.0	N	0:10	7.44	7.58	1.68	10	6.0	30.7	29.0	29.9	0.63
8:15	8:25	10.0	N	0:10	7.58	7.71	1.56	10	6.4	29.0	27.5	28.3	0.62
8:25	8:35	10.0	N	0:10	7.71	7.84	1.56	10	6.4	27.5	25.9	26.7	0.65
8:35	8:45	10.0	N	0:10	7.84	7.96	1.44	10	6.9	25.9	24.5	25.2	0.64
8:45	8:55	10.0	N	0:10	7.96	8.08	1.44	10	6.9	24.5	23.0	23.8	0.67
Recommended for Design:										**Infiltration Rate**			**0.62**

SALEM engineering group, inc.

Percolation Test Worksheet

Project: Go Fresh Gas Station
SEC Sunnymead Blvd. & Graham St.
Moreno Valley, California

Job No.: 3-219-1018
Date Drilled: 12/12/2019
Soil Classification: Silty SAND (SM)

Hole Radius: 4 in.
Pipe Dia.: 3 in.
Total Depth of Hole: 60 in.

Test Hole No.: **P-2**
Tested by: **SK**
Drilled Hole Depth: **5** ft.

Presoaking Date: 12/12/2019
Test Date: 12/13/2019

Pipe Stick up: 0 ft.

Time Start	Time Finish	Depth of Test Hole (ft)#	Refill- Yes or No	Elapsed Time (hrs:min)	Initial Water Level# (ft)	Final Water Level# (ft)	Δ Water Level (in.)	Δ Min.	Meas. Perc Rate (min/in)	Initial Height of Water (in)	Final Height of Water (in)	Average Height of Water (in)	Infiltration Rate, It (in/hr)
7:00	7:25	5.0	Y	0:25	1.40	2.40	12.00	25	2.1	43.2	31.2	37.2	1.47
7:25	7:50	5.0	Y	0:25	2.40	3.08	8.16	25	3.1	31.2	23.0	27.1	1.35
7:50	8:00	5.0	N	0:10	3.08	3.30	2.64	10	3.8	23.0	20.4	21.7	1.34
8:00	8:10	5.0	N	0:10	3.30	3.49	2.28	10	4.4	20.4	18.1	19.3	1.29
8:10	8:20	5.0	N	0:10	3.49	3.66	2.04	10	4.9	18.1	16.1	17.1	1.28
8:20	8:30	5.0	N	0:10	3.66	3.81	1.80	10	5.6	16.1	14.3	15.2	1.26
8:30	8:40	5.0	N	0:10	3.81	3.95	1.68	10	6.0	14.3	12.6	13.4	1.31
8:40	8:50	5.0	N	0:10	3.95	4.08	1.56	10	6.4	12.6	11.0	11.8	1.35
Recommended for Design:										**Infiltration Rate**			**1.26**

SALEM engineering group, inc.

DRY SAND SETTLEMENT DUE TO EARTHQUAKE SHAKING

Job No. 3-219-1018 **Job Name** Proposed Go Fresh Gas Station
Boring No. B-1 **Drill Date** 12/12/19

* Use Fig. 11 of Tokimatsu & Seed (1987)
** Use Fig. 13 of Tokimatsu & Seed (1987)
*** $MSF=10^{2.24}/Mw^{2.56}$
\# $C_N=2.2/(1.2+\sigma'_o/P_a)$
\+ From Pradel, D. (1998) equations for modulus reduction curves

User Input Section				
Earthquake Data		Drilling GW Depth (ft)	-	
Mag. (M_w)	8.2	Earthquake GW Depth (ft)	50	
a_{max}/g	0.624	Rod Stick-Up (ft)	3	
MSF***	0.80	SPT N-Value Correction Factors		
		Energy Ratio C_E	1.60	Notes
		Borehole Dia. C_B	1.05	Notes
		Sampling Method C_S	1.2	Notes
		Factor of Safety FS	1.0	
		Rod Length C_R	Calculated	
		Overburden Press C_N	Calculated	

Lookup Tables

% Fines	ΔN	Length	C_R
0	0	1	0.75
10	1	12	0.85
25	2	20	0.95
50	4	30	0.98
75	5	33	1

$\Delta = -0.0006(\%\ Fines)^2 + 0.1088(\%\ Fines) - 0.0852$
$C_R = -0.0002(Length)^2 + 0.0131(Length) + 0.7324$

Depth (ft)	USCS	Dry Unit Wt (pcf)	w (%)	Fines %	SPT Field N	Layer (ft)	Unit Wt (pcf)	Total σ_o bottom (psf)	Total σ_o mid-pt. (psf)	During Drilling Eff. σ'_o (psf)	C_N#	SPT $(N_1)_{60}$	ΔN	Fines Corct'd SPT $(N_1)_{60f}$	During EQ Eff. σ'_{oeq} (psf)	$\sigma_o/\sigma_{o'eq}$	r_d	Shear Modulus G_{max}##	Cyclic Shear Stress T_{av}	Shear Strain/Shear Modulus Ratio $\gamma_{eff}(G_{eff}/G_{max})$	Eff. Shear Strain γ(%)*	Vol. Strain (1-way) V%**	Vol. Strain Mw Corct'd V%*	S (2-way) in.
2	SM	120	5.7	44	11	2.0	126.8	254	127	127	1.74	29.0	2.0	31.0	127	1.000	0.997	5.70E+05	51.3	9.00E-05	2.3E-02	1.2E-2	0.01	0.01
5	SM	120	4.9	47	27	3.0	125.9	631	443	443	1.55	63.2	2.0	65.2	443	1.000	0.990	1.36E+06	177.7	1.30E-04	2.7E-02	5.2E-3	0.01	0.00
10	SM	120	8.0	20	80	5.0	129.6	1279	955	955	1.31	179.8	1.0	180.8	955	1.000	0.979	2.82E+06	379.3	1.35E-04	2.2E-02	1.1E-3	0.00	0.00
15	SM	120	9.1	22	44	5.0	130.9	1934	1607	1607	1.10	82.8	1.0	83.8	1607	1.000	0.968	2.83E+06	631.0	2.23E-04	4.9E-02	6.6E-3	0.01	0.01
20	SM	120	12.6	42	59	5.0	135.1	2610	2272	2272	0.94	106.4	2.0	108.4	2272	1.000	0.956	3.66E+06	881.2	2.41E-04	4.9E-02	4.7E-3	0.01	0.01
25	SW	120	3.3	9	42	5.0	124.0	3229	2919	2919	0.83	66.5	0.0	66.5	2919	1.000	0.941	3.53E+06	1114.2	3.16E-04	8.0E-02	1.5E-2	0.02	0.02
30	SM	120	4.0	20	48	5.0	124.8	3853	3541	3541	0.74	71.7	1.0	72.7	3541	1.000	0.919	4.00E+06	1320.2	3.30E-04	8.0E-02	1.3E-2	0.02	0.02
35	SM	120	8.6	20	54	5.0	130.3	4505	4179	4179	0.67	72.8	1.0	73.8	4179	1.000	0.888	4.37E+06	1505.7	3.44E-04	8.1E-02	1.3E-2	0.02	0.02
40	SM	120	6.8	29	55	5.0	128.2	5146	4825	4825	0.61	67.5	2.0	69.5	4825	1.000	0.848	4.61E+06	1659.0	3.60E-04	8.3E-02	1.4E-2	0.02	0.02
45	SM	120	10.4	20	64	5.0	132.5	5808	5477	5477	0.56	72.1	1.0	73.1	5477	1.000	0.799	4.99E+06	1775.7	3.56E-04	7.6E-02	1.2E-2	0.01	0.02
50	SM	120	10.0	20	60	5.0	132.0	6468	6138	6138	0.52	62.3	1.0	63.3	6138	1.000	0.748	5.03E+06	1862.0	3.70E-04	7.8E-02	1.5E-2	0.02	0.02

The total seismic-induced settlement calculation is based on a water table depth of **50** *feet below grade*

Total 0.15

APPENDIX

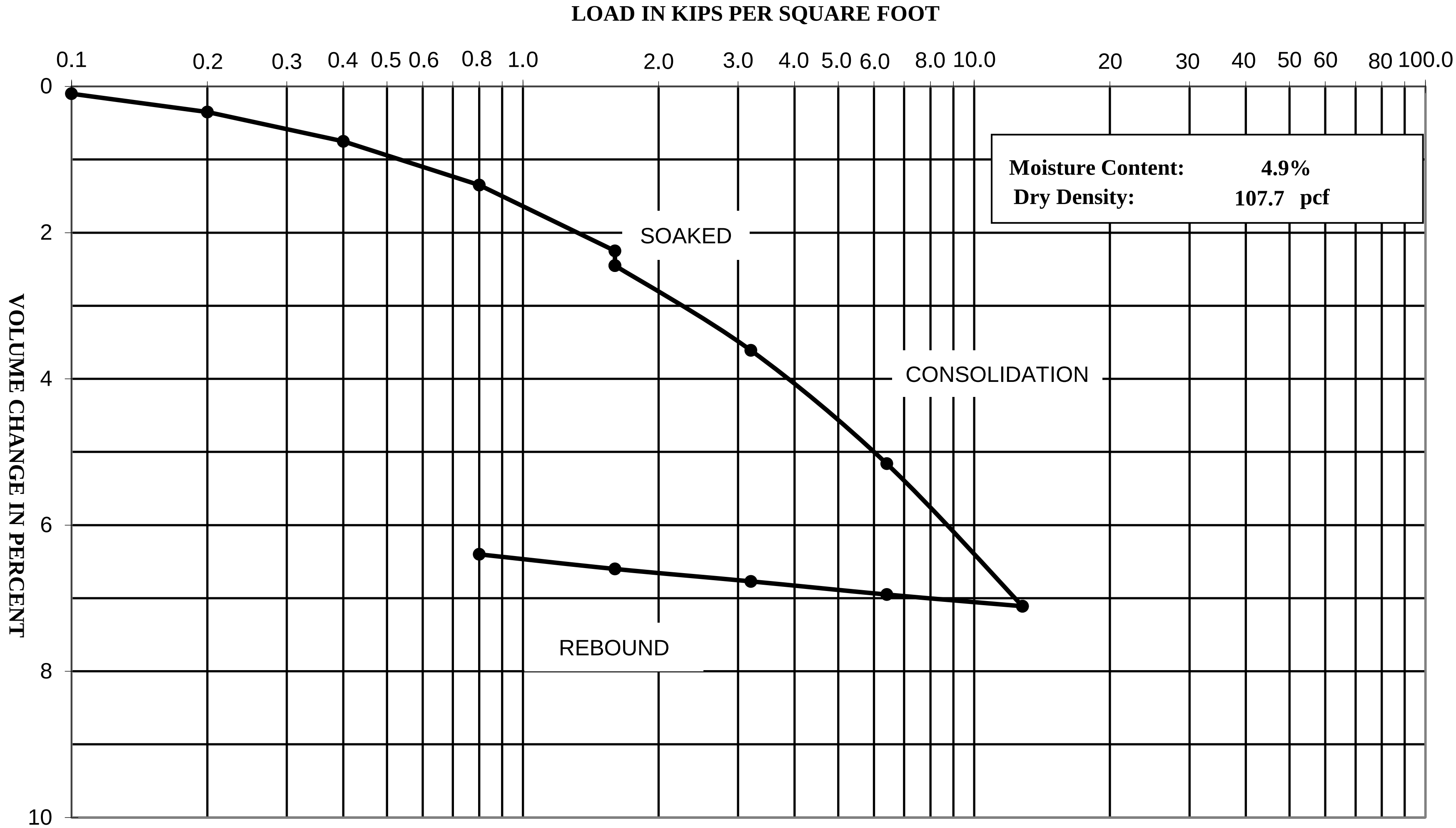
B

APPENDIX B
LABORATORY TESTING

Laboratory tests were performed in accordance with generally accepted test methods of the American Society for Testing and Materials (ASTM), Caltrans, or other suggested procedures. Selected samples were tested for in-situ dry density and moisture content, corrosivity, consolidation, shear strength, maximum density and optimum moisture content, expansion index, and grain size distribution. The results of the laboratory tests are summarized in the following figures.

CONSOLIDATION - PRESSURE TEST DATA

ASTM D2435



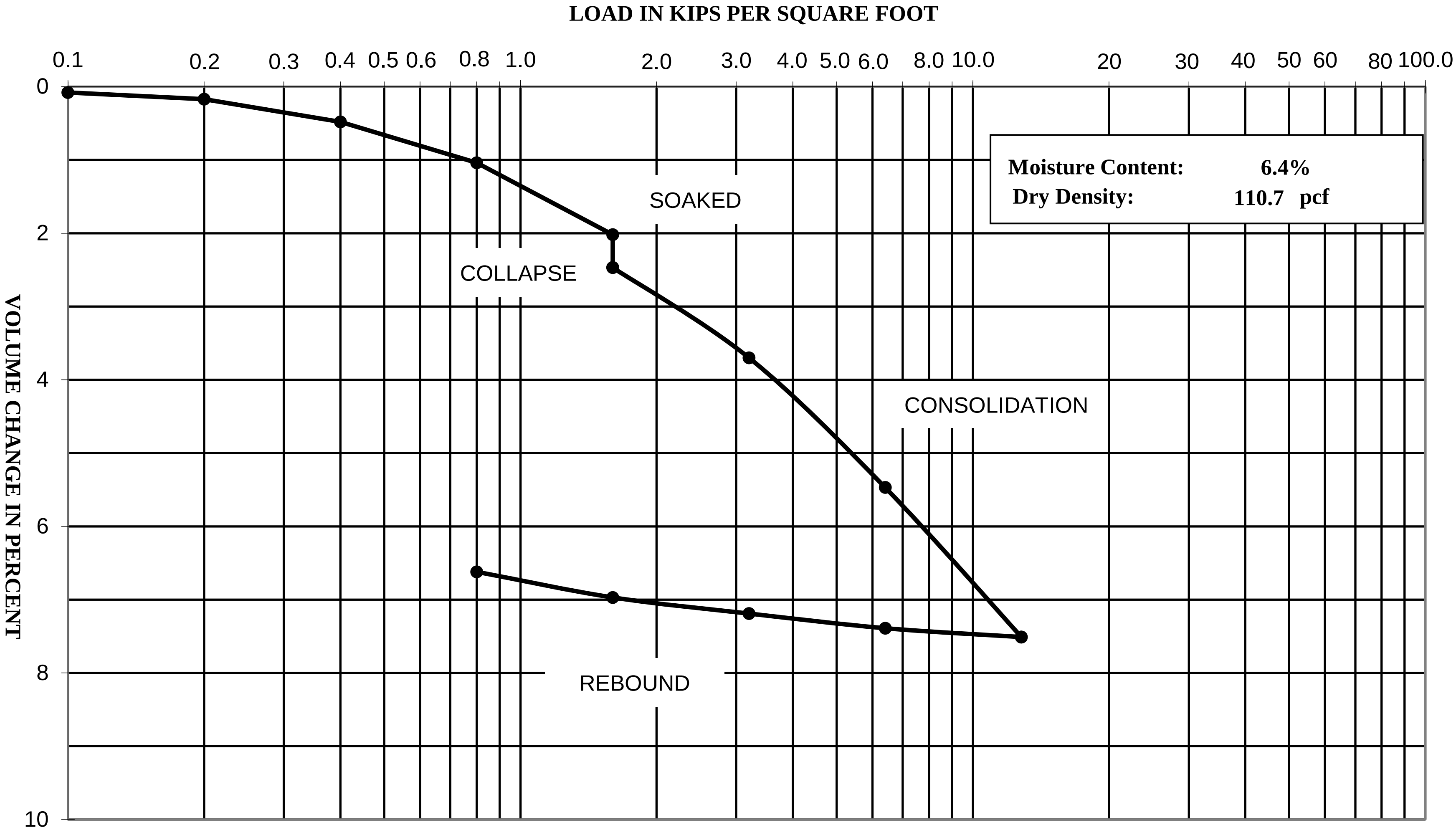
Project Name: Go Fresh Gas Station - Moreno Valley, CA

Project Number: 3-219-1018

Boring: B-1 @ 5

SALEM engineering group, inc.

CONSOLIDATION - PRESSURE TEST DATA
ASTM D2435



Project Name: Go Fresh Gas Station - Moreno Valley, CA

Project Number: 3-219-1018

Boring: B-3 @ 2

SALEM engineering group, inc.

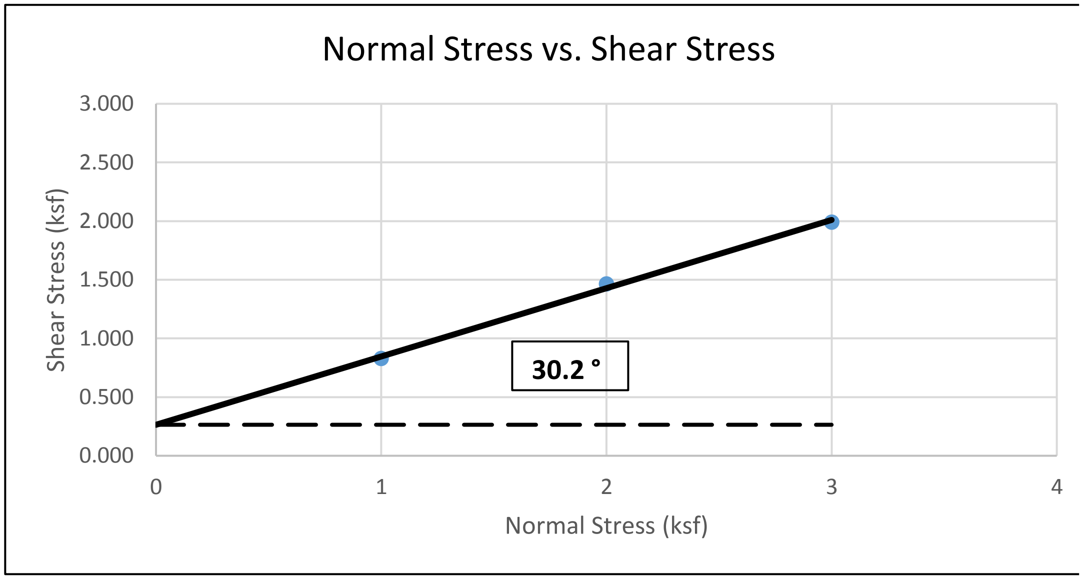
Direct Shear Test (ASTM D3080)

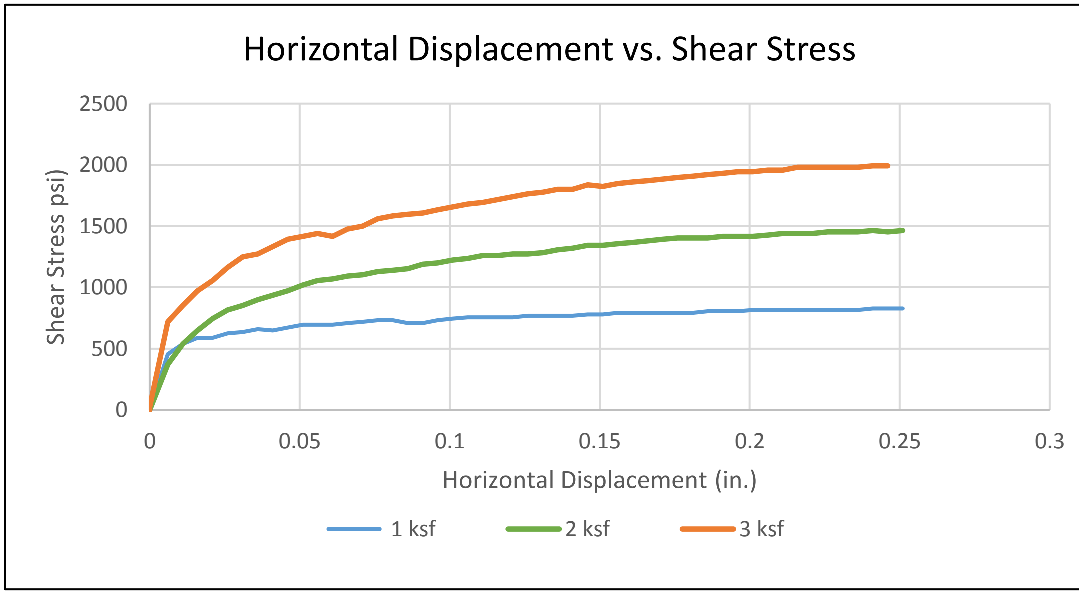
Project Name:	Go Fresh Gas Station- Moreno Valley, CA
Project Number:	3-219-1018
Client:	RAMCAM Engineering Group, Inc.
Sample Location:	B-1 @ 2'
Sample Type:	Undisturbed Ring
Soil Classification:	Silty SAND (SM)
Tested By:	M. Noorzay
Reviewed By:	CJ
Date:	12/17/2019
Equipment Used:	Geomatic Direct Shear Machine

	Sample 1	Sample 2	Sample 3
Normal Stress (ksf)	1.000	2.000	3.000
Shear Rate (in/min)	0.004		
Peak Shear Stress (ksf)	0.828	1.464	1.992
Residual Shear Stress (ksf)	0.000	0.000	0.000

Initial Height of Sample (in)	1.000	1.000	1.000
Height of Sample before Shear (in.)	1	1	1
Diameter of Sample (in)	2.416	2.416	2.416
Initial Moisture Content (%)	5.5		
Final Moisture Content (%)	15.4	14.0	14.0
Dry Density (pcf)	111.7	107.8	114.6

Peak Shear Strength Values	
Slope	0.58
Friction Angle	30.2
Cohesion (psf)	264





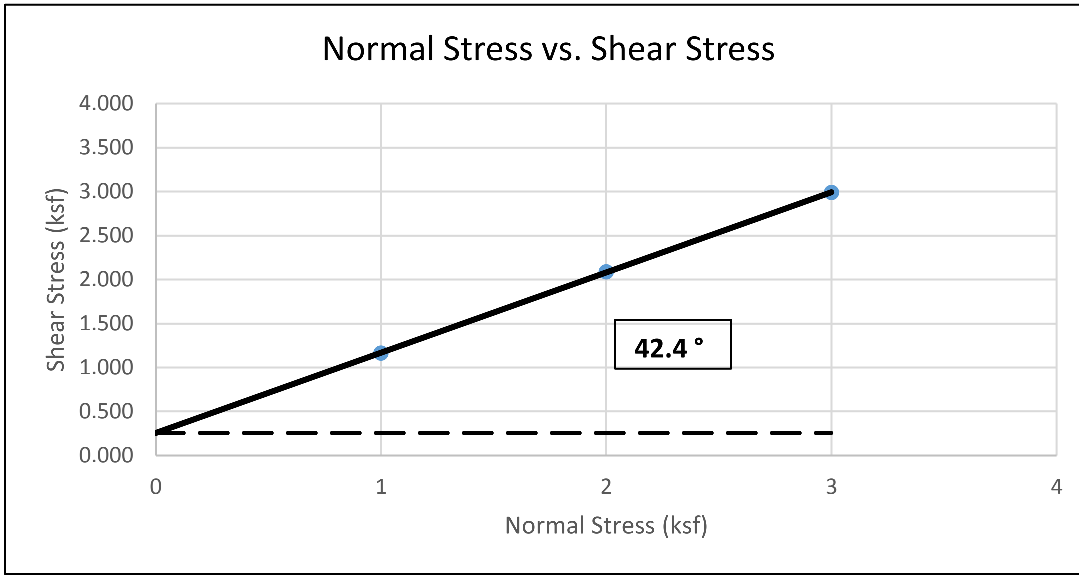
Direct Shear Test (ASTM D3080)

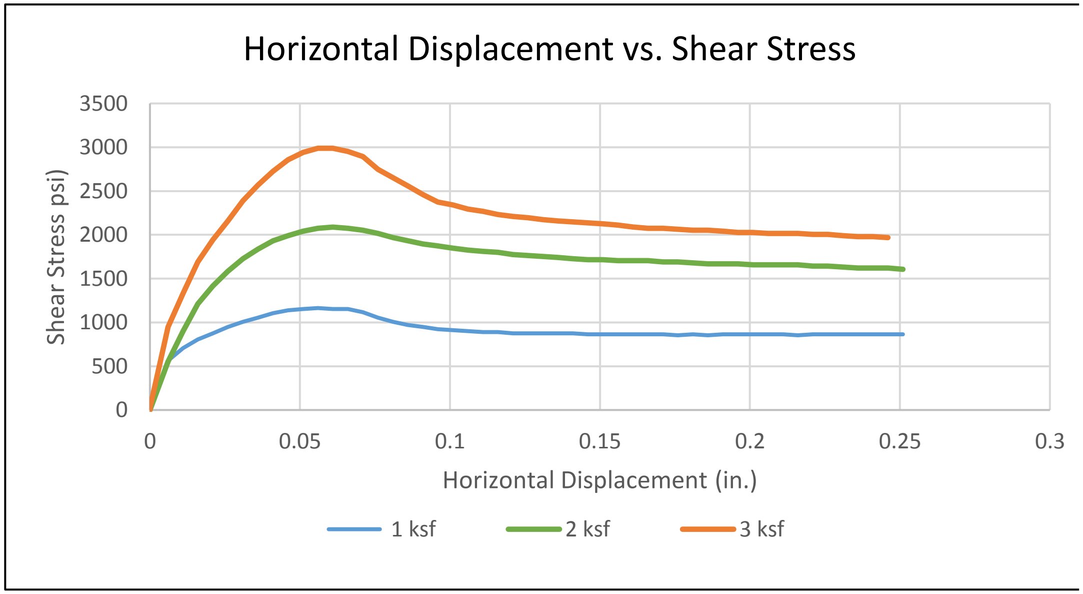
Project Name:	Go Fresh Gas Station- Moreno Valley, CA
Project Number:	3-219-1018
Client:	0.00
Sample Location:	B-3 @ 5'
Sample Type:	Undisturbed Ring
Soil Classification:	Silty SAND (SM)
Tested By:	M. Noorzay
Reviewed By:	CJ
Date:	12/18/2019
Equipment Used:	Geomatic Direct Shear Machine

	Sample 1	Sample 2	Sample 3
Normal Stress (ksf)	1.000	2.000	3.000
Shear Rate (in/min)	0.004		
Peak Shear Stress (ksf)	1.164	2.088	2.988
Residual Shear Stress (ksf)	0.000	0.000	0.000

Initial Height of Sample (in)	1.000	1.000	1.000
Height of Sample before Shear (in.)	1	1	1
Diameter of Sample (in)	2.416	2.416	2.416
Initial Moisture Content (%)	10.7		
Final Moisture Content (%)	20.1	21.1	23.6
Dry Density (pcf)	105.1	107.0	109.9

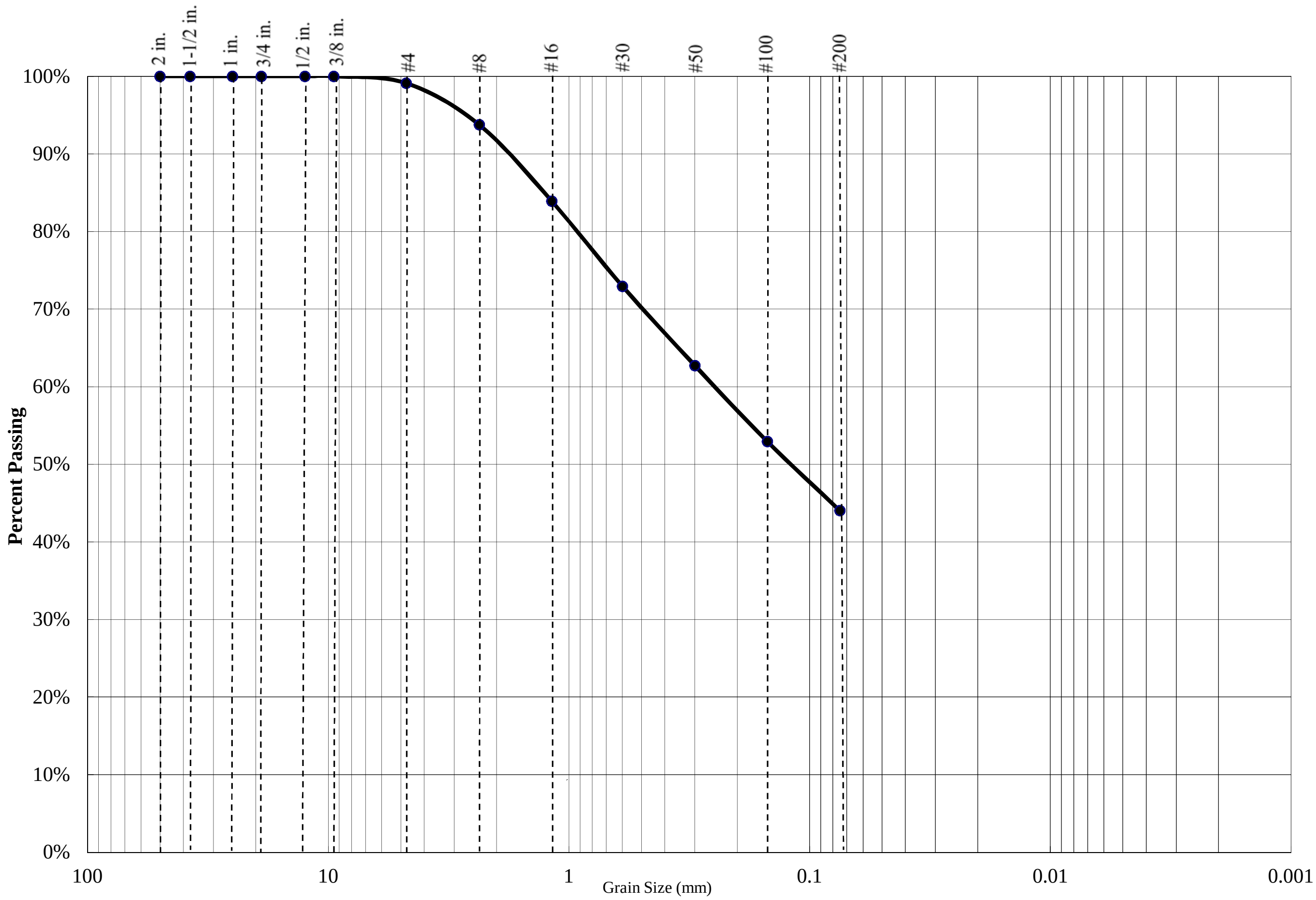
Peak Shear Strength Values	
Slope	0.91
Friction Angle	42.4
Cohesion (psf)	256





PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
1%	55%	44%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	99.1%
#8	93.8%
#16	83.9%
#30	72.9%
#50	62.7%
#100	52.9%
#200	44.0%

Atterberg Limits		
PL=	LL=	PI=

Coefficients				
D_{85}=		D_{60}=		D_{50}=
D_{30}=		D_{15}=		D_{10}=
C_u=	N/A	C_c=	N/A	

USCS CLASSIFICATION
Silty SAND (SM)

Project Name: Go Fresh Gas Station - Moreno Valley, CA

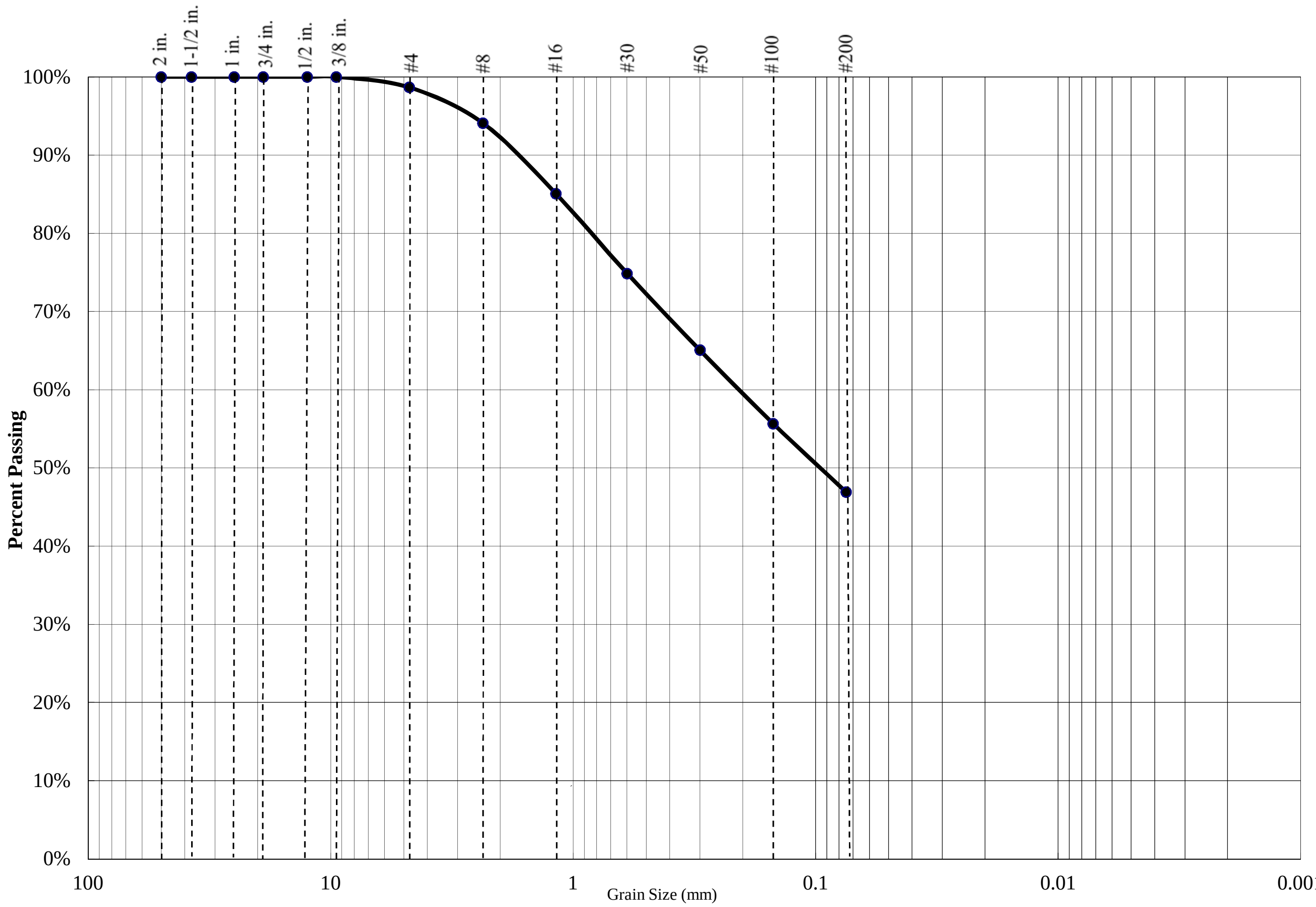
Project Number: 3-219-1018

Boring: B-1 @ 2

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
1%	52%	47%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	98.7%
#8	94.1%
#16	85.1%
#30	74.9%
#50	65.1%
#100	55.7%
#200	46.9%

Atterberg Limits		
PL=	LL=	PI=

Coefficients				
D_{85}=		D_{60}=		D_{50}=
D_{30}=		D_{15}=		D_{10}=
C_u=	N/A	C_c=	N/A	

USCS CLASSIFICATION
Silty SAND (SM)

Project Name: Go Fresh Gas Station - Moreno Valley, CA

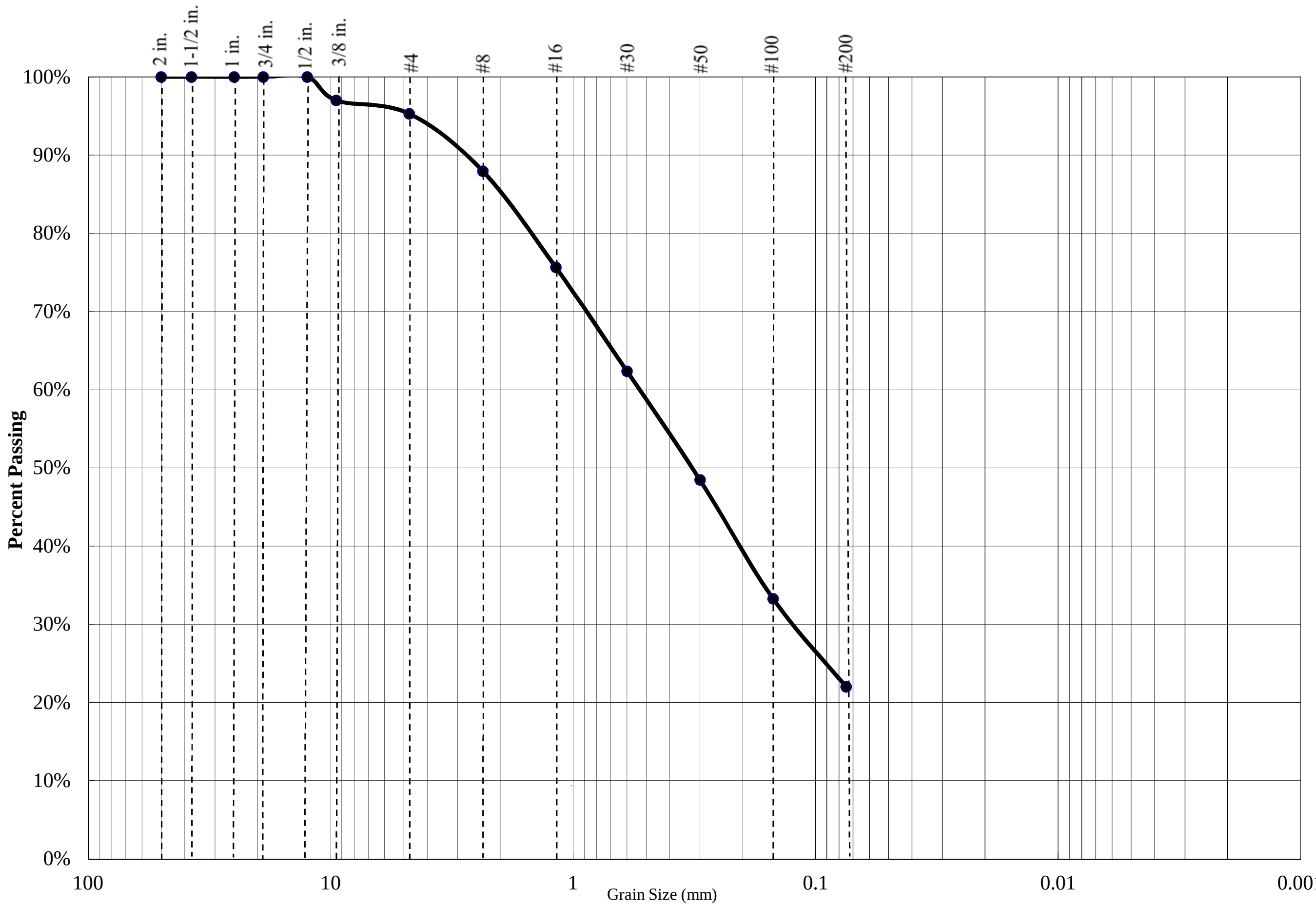
Project Number: 3-219-1018

Boring: B-1 @ 5

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
5%	73%	22%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	97.0%
#4	95.3%
#8	88.0%
#16	75.6%
#30	62.4%
#50	48.5%
#100	33.3%
#200	22.0%

Atterberg Limits		
PL=	LL=	PI=

Coefficients				
D_{85}=		D_{60}=		D_{50}=
D_{30}=		D_{15}=		D_{10}=
C_u=	N/A	C_c=	N/A	

USCS CLASSIFICATION
Silty SAND (SM)

Project Name: Go Fresh Gas Station - Moreno Valley, CA

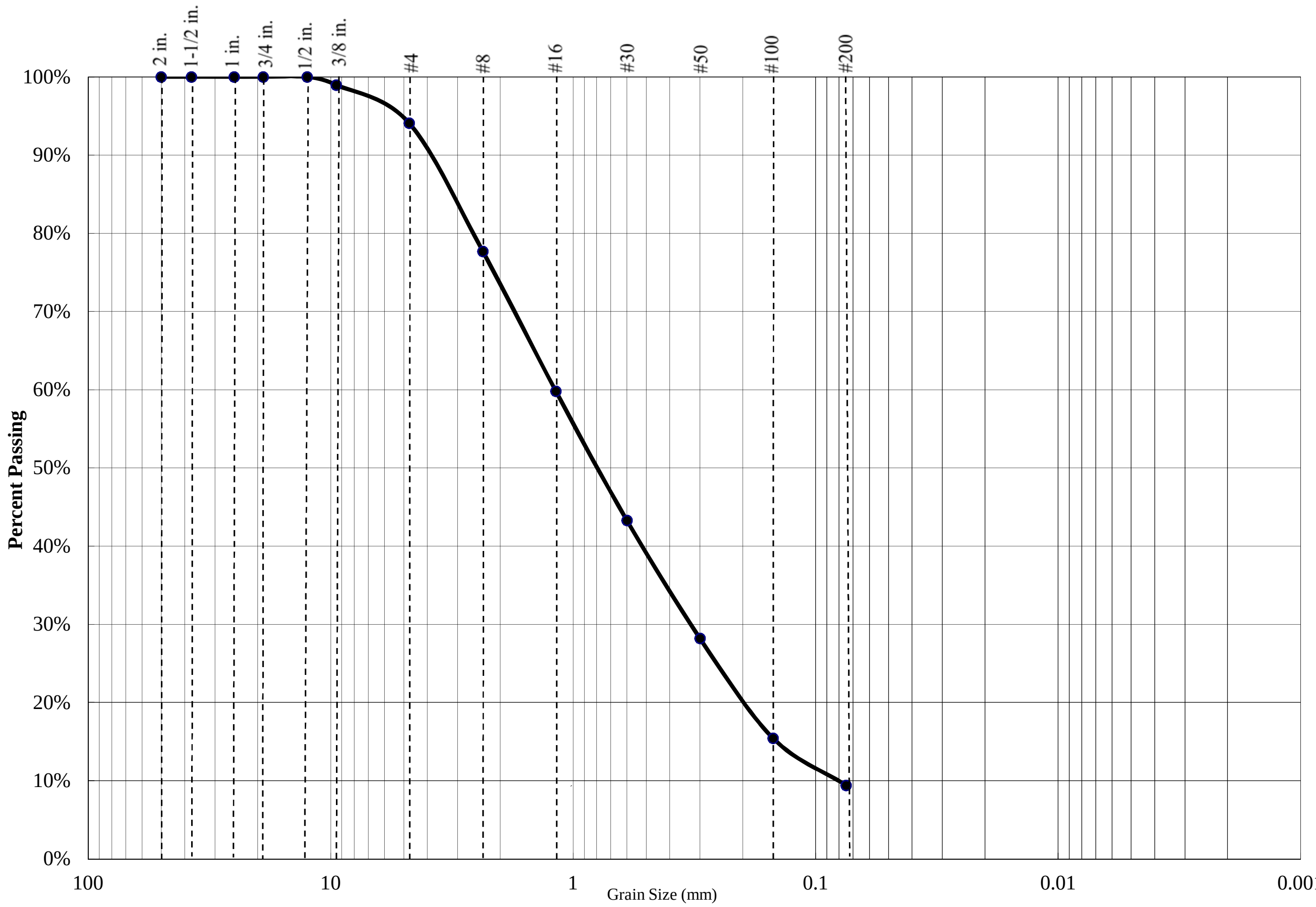
Project Number: 3-219-1018

Boring: B-1 @ 15

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
6%	85%	9%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	99.0%
#4	94.1%
#8	77.7%
#16	59.8%
#30	43.3%
#50	28.2%
#100	15.4%
#200	9.4%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=	1.25	D_{50}=	
D_{30}=	0.35	D_{15}=		D_{10}=	0.08
C_u=	15.63	C_c=	1.23		

USCS CLASSIFICATION
Well-graded SAND with Silt (SW-SM)

Project Name: Go Fresh Gas Station - Moreno Valley, CA

Project Number: 3-219-1018

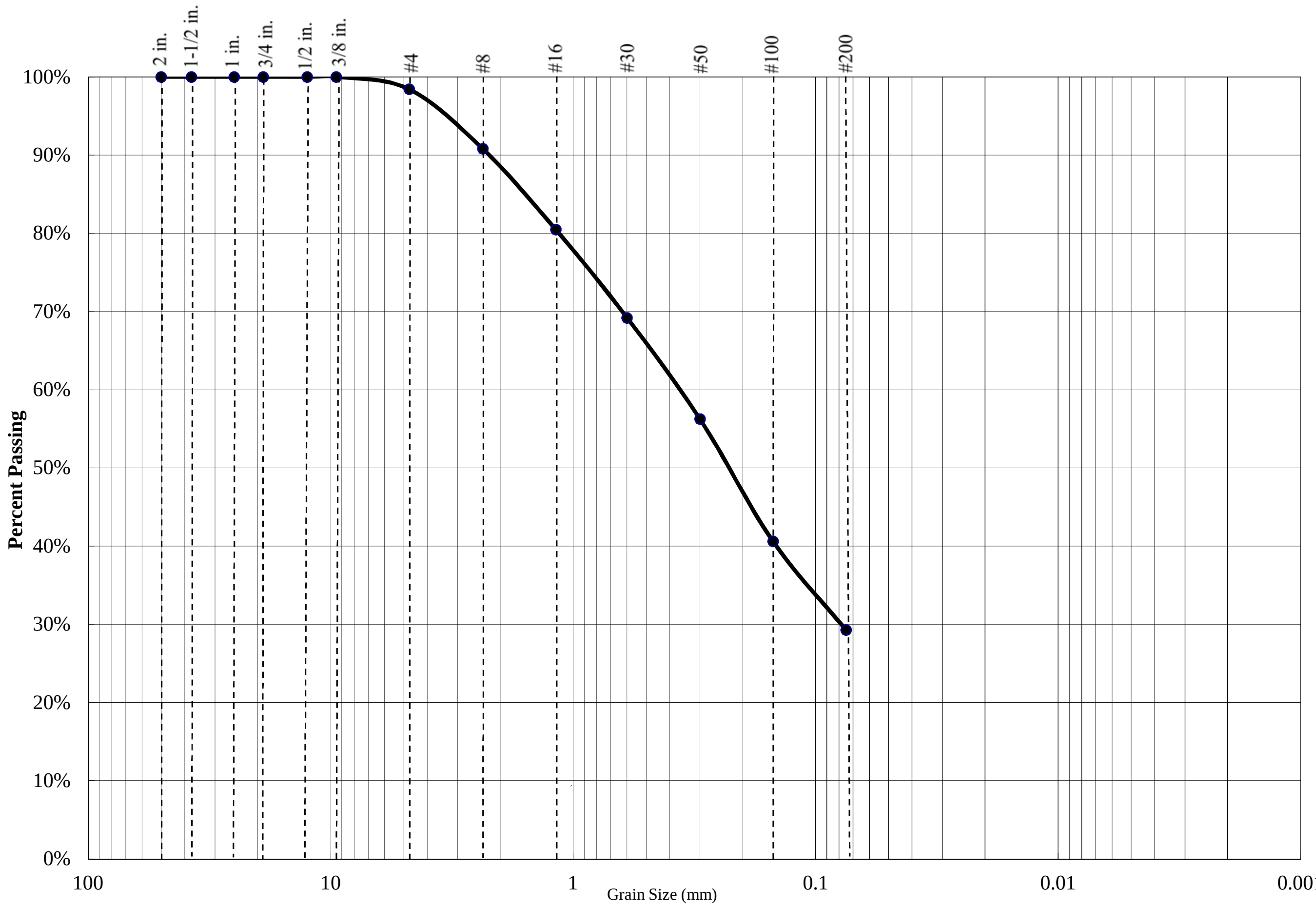
Boring: B-1 @ 25

SALEM engineering group, inc.

Attachment: Exhibit A - Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program [Revision 1] (4469 : PEN20-0141 Plot

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
2%	69%	29%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	98.4%
#8	90.8%
#16	80.5%
#30	69.2%
#50	56.2%
#100	40.6%
#200	29.3%

Atterberg Limits		
PL=	LL=	PI=

Coefficients				
D_{85}=		D_{60}=		D_{50}=
D_{30}=		D_{15}=		D_{10}=
C_u=	N/A	C_c=	N/A	

USCS CLASSIFICATION
Silty SAND (SM)

Project Name: Go Fresh Gas Station - Moreno Valley, CA

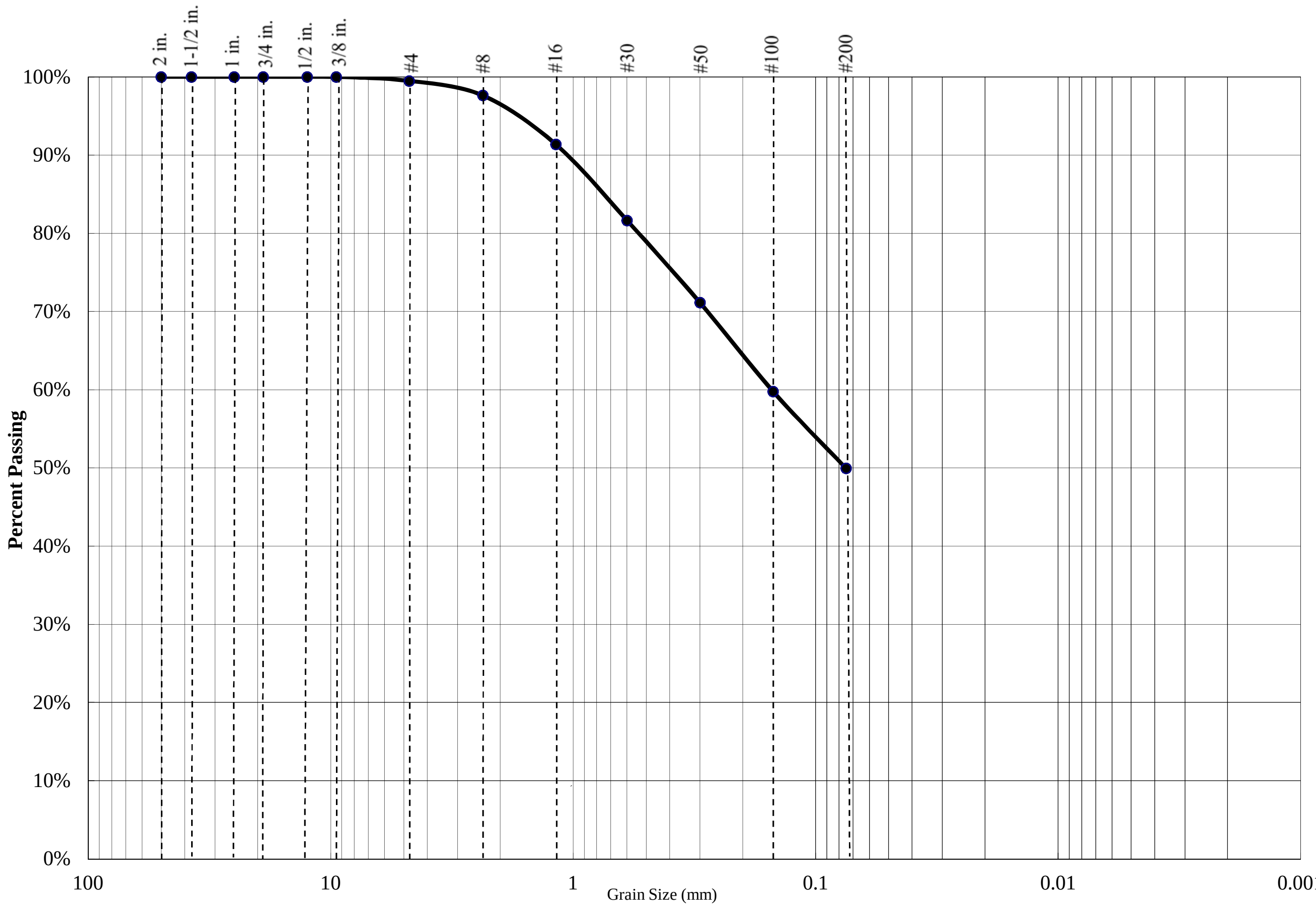
Project Number: 3-219-1018

Boring: B-1 @ 40

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
1%	50%	50%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	99.5%
#8	97.6%
#16	91.4%
#30	81.7%
#50	71.1%
#100	59.8%
#200	49.9%

Atterberg Limits		
PL=	LL=	PI=

Coefficients			
D_{85}=		D_{60}=	D_{50}=
D_{30}=		D_{15}=	D_{10}=
C_u=	N/A	C_c= N/A	

USCS CLASSIFICATION
Silty SAND (SM)

Project Name: Go Fresh Gas Station - Moreno Valley, CA

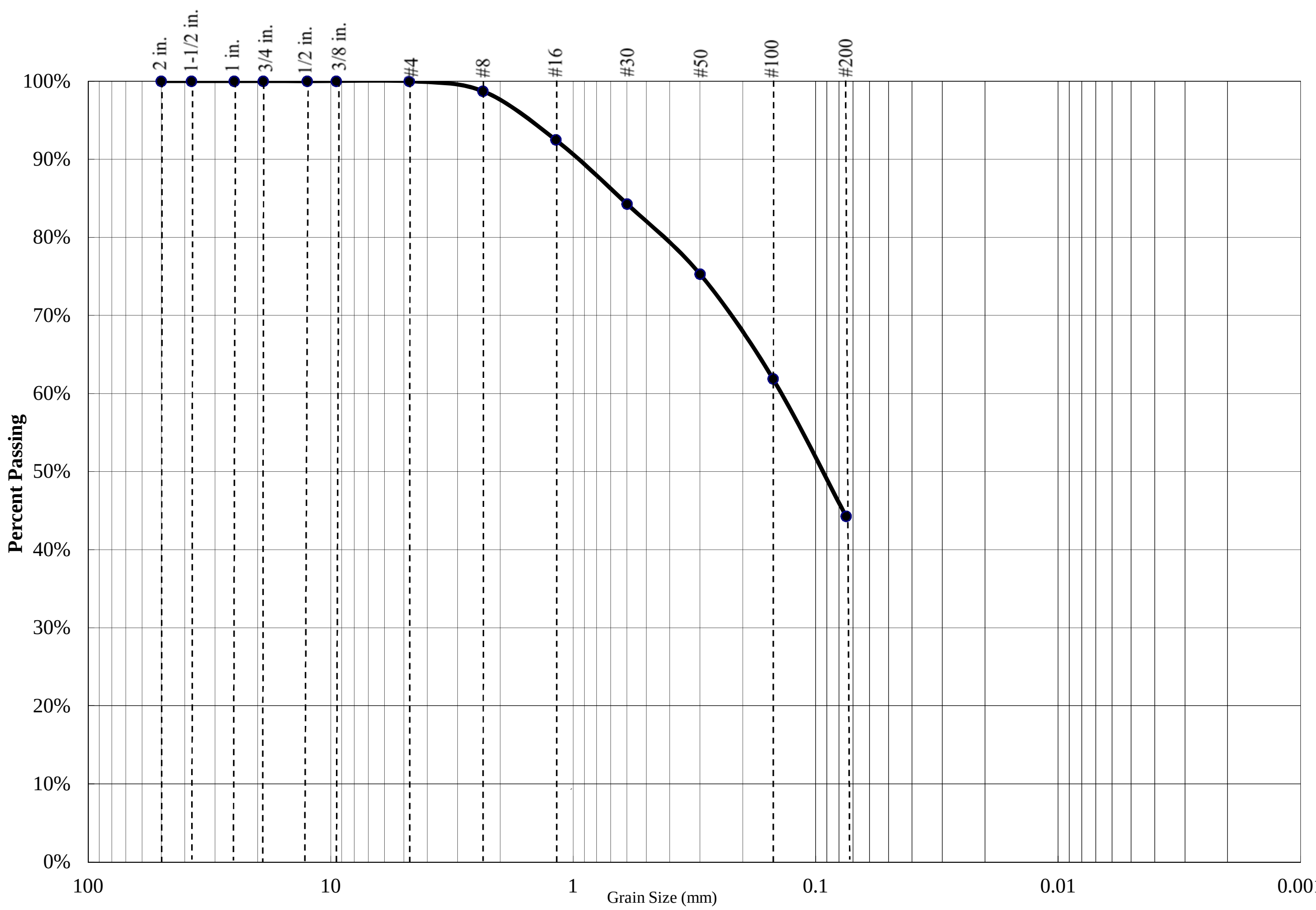
Project Number: 3-219-1018

Boring: B-3 @ 2

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
0%	56%	44%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	100.0%
#8	98.7%
#16	92.5%
#30	84.3%
#50	75.3%
#100	61.9%
#200	44.3%

Atterberg Limits		
PL=	LL=	PI=

Coefficients				
D_{85}=		D_{60}=		D_{50}=
D_{30}=		D_{15}=		D_{10}=
C_u=	N/A	C_c=	N/A	

USCS CLASSIFICATION
Silty SAND (SM)

Project Name: Go Fresh Gas Station - Moreno Valley, CA

Project Number: 3-219-1018

Boring: B-3 @ 5

SALEM engineering group, inc.

EXPANSION INDEX TEST
ASTM D4829

Project Name: Go Fresh Gas Station - Moreno Valley, CA
Project Number: 3-219-1018
Date Sampled: 12/12/19 Date Tested: 12/17/19
Sampled By: SK Tested By: M. Noorzay
Sample Location: B-1 @ 0'-4'
Soil Description: Brown Silty SAND (SM)

Trial #	1	2	3
Weight of Soil & Mold, g.	775.6		
Weight of Mold, g.	368.5		
Weight of Soil, g.	407.1		
Wet Density, pcf	122.8		
Weight of Moisture Sample (Wet), g.	800.0		
Weight of Moisture Sample (Dry), g.	735.3		
Moisture Content, %	8.8		
Dry Density, pcf	112.8		
Specific Gravity of Soil	2.7		
Degree of Saturation, %	48.2		

Time	Inital	30 min	1 hr	6 hrs	12 hrs	24 hrs
Dial Reading	0	0.001	0.001	--	--	0.001

Expansion Index $_{measured}$ = 1
Expansion Index $_{50}$ = 0.3

Expansion Index = 0

Expansion Potential Table	
Exp. Index	Potential Exp.
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

SALEM engineering group, inc.

CHEMICAL ANALYSIS

SO_4 - Modified CTM 417 & Cl - Modified CTM 417/422

Project Name: Go Fresh Gas Station - Moreno Valley, CA
Project Number: 3-219-1018
Date Sampled: 12/12/19 Date Tested: 12/17/19
Sampled By: SK Tested By: M. Noorzay
Soil Description: Brown Silty SAND (SM)

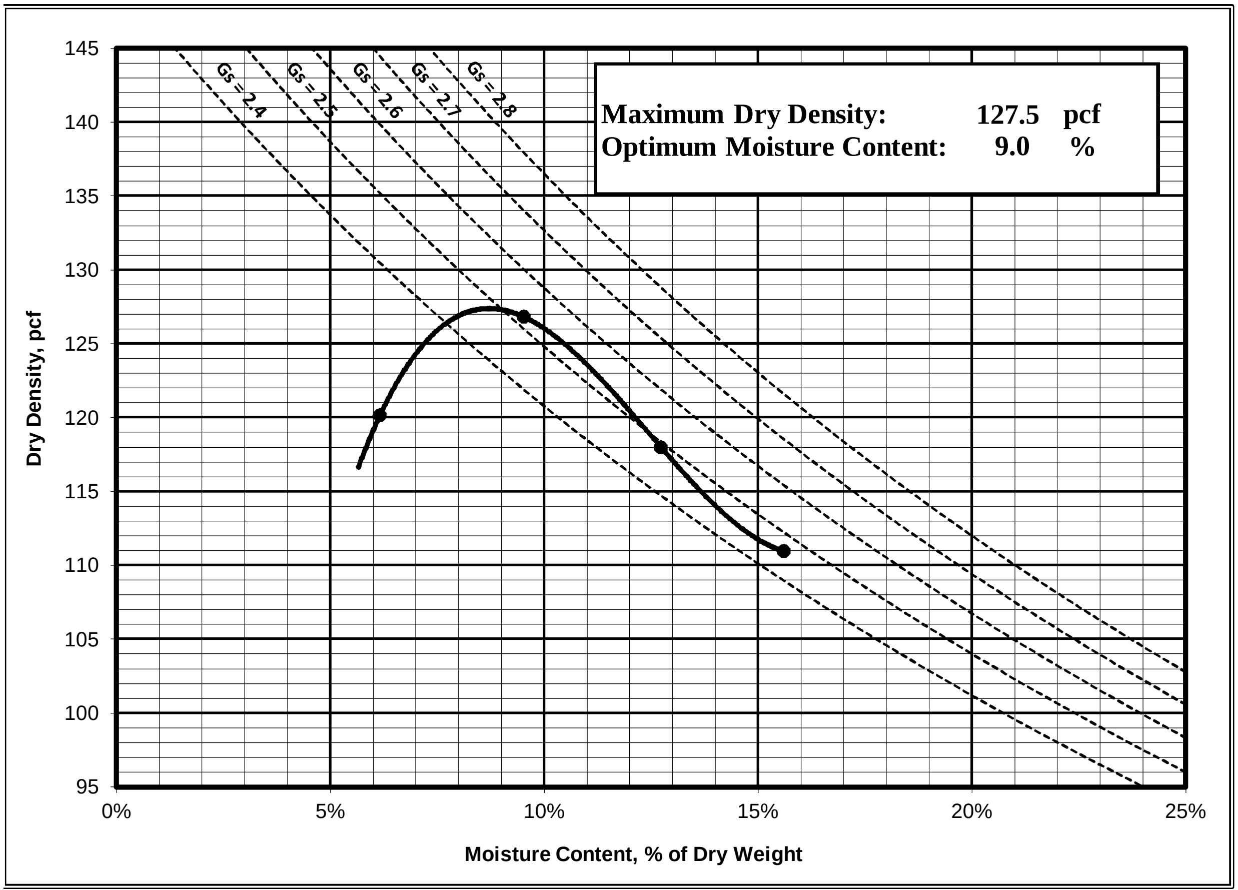
Sample Number	Sample Location	Soluble Sulfate SO_4-S	Soluble Chloride Cl	pH
1a.	B-1 @ 0'-4'	50 mg/kg	130 mg/kg	8.1
1b.	B-1 @ 0'-4'	50 mg/kg	129 mg/kg	8.1
1c.	B-1 @ 0'-4'	50 mg/kg	127 mg/kg	8.1
Average:		**50 mg/kg**	**129 mg/kg**	**8.1**

SALEM engineering group, inc.

Laboratory Compaction Curve
ASTM D1557

Project Name: Go Fresh Gas Station - Moreno Valley, CA
Project Number: 3-219-1018
Date Sampled: 12/12/19 Date Tested: 12/16/19
Sampled By: SK Tested By: M. Noorzay
Sample Location: B-1 @ 0'-4'
Soil Description: Brown Silty SAND (SM)
Test Method: Method A

	1	2	3	4
Weight of Moist Specimen & Mold, (g)	4186.7	4358.3	4269.3	4197.5
Weight of Compaction Mold, (g)	2258.4	2258.4	2258.4	2258.4
Weight of Moist Specimen, (g)	1928.3	2099.9	2010.9	1939.1
Volume of Mold, (ft^3)	0.0333	0.0333	0.0333	0.0333
Wet Density, (pcf)	127.5	138.9	133.0	128.2
Weight of Wet (Moisture) Sample, (g)	100.0	100.0	100.0	100.0
Weight of Dry (Moisture) Sample, (g)	94.2	91.3	88.7	86.5
Moisture Content, (%)	6.2%	9.5%	12.7%	15.6%
Dry Density, (pcf)	120.1	126.8	118.0	110.9



SALEM engineering group, inc.

APPENDIX

C

APPENDIX C
GENERAL EARTHWORK AND PAVEMENT SPECIFICATIONS

When the text of the report conflicts with the general specifications in this appendix, the recommendations in the report have precedence.

1.0 SCOPE OF WORK: These specifications and applicable plans pertain to and include all earthwork associated with the site rough grading, including, but not limited to, the furnishing of all labor, tools and equipment necessary for site clearing and grubbing, stripping, preparation of foundation materials for receiving fill, excavation, processing, placement and compaction of fill and backfill materials to the lines and grades shown on the project grading plans and disposal of excess materials.

2.0 PERFORMANCE: The Contractor shall be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications. This work shall be inspected and tested by a representative of SALEM Engineering Group, Incorporated, hereinafter referred to as the Soils Engineer and/or Testing Agency. Attainment of design grades, when achieved, shall be certified by the project Civil Engineer. Both the Soils Engineer and the Civil Engineer are the Owner's representatives. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plans, he shall make the necessary adjustments until all work is deemed satisfactory as determined by both the Soils Engineer and the Civil Engineer. No deviation from these specifications shall be made except upon written approval of the Soils Engineer, Civil Engineer, or project Architect.

No earthwork shall be performed without the physical presence or approval of the Soils Engineer. The Contractor shall notify the Soils Engineer at least 2 working days prior to the commencement of any aspect of the site earthwork.

The Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify and hold the Owner and the Engineers harmless from any and all liability, real or alleged, in connection with the performance of work on this project, except for liability arising from the sole negligence of the Owner or the Engineers.

3.0 TECHNICAL REQUIREMENTS: All compacted materials shall be densified to no less that 95 percent of relative compaction (90 percent for cohesive soils) based on ASTM D1557 Test Method (latest edition), UBC or CAL-216, or as specified in the technical portion of the Soil Engineer's report. The location and frequency of field density tests shall be determined by the Soils Engineer. The results of these tests and compliance with these specifications shall be the basis upon which satisfactory completion of work will be judged by the Soils Engineer.

4.0 SOILS AND FOUNDATION CONDITIONS: The Contractor is presumed to have visited the site and to have familiarized himself with existing site conditions and the contents of the data presented in the Geotechnical Engineering Report. The Contractor shall make his own interpretation of the data contained in the Geotechnical Engineering Report and the Contractor shall not be relieved of liability for any loss sustained as a result of any variance between conditions indicated by or deduced from said report and the actual conditions encountered during the progress of the work.

5.0 DUST CONTROL: The work includes dust control as required for the alleviation or prevention of any dust nuisance on or about the site or the borrow area, or off-site if caused by the Contractor's operation either during the performance of the earthwork or resulting from the conditions in which the Contractor leaves the site. The Contractor shall assume all liability, including court costs of codefendants, for all claims related to dust or wind-blown materials attributable to his work. Site preparation shall consist of site clearing and grubbing and preparation of foundation materials for receiving fill.

6.0 CLEARING AND GRUBBING: The Contractor shall accept the site in this present condition and shall demolish and/or remove from the area of designated project earthwork all structures, both surface and subsurface, trees, brush, roots, debris, organic matter and all other matter determined by the Soils Engineer to be deleterious. Such materials shall become the property of the Contractor and shall be removed from the site.

Tree root systems in proposed improvement areas should be removed to a minimum depth of 3 feet and to such an extent which would permit removal of all roots greater than 1 inch in diameter. Tree roots removed in parking areas may be limited to the upper 1½ feet of the ground surface. Backfill of tree root excavations is not permitted until all exposed surfaces have been inspected and the Soils Engineer is present for the proper control of backfill placement and compaction. Burning in areas which are to receive fill materials shall not be permitted.

7.0 SUBGRADE PREPARATION: Surfaces to receive Engineered Fill and/or building or slab loads shall be prepared as outlined above, scarified to a minimum of 12 inches, moisture-conditioned as necessary, and recompacted to 95 percent relative compaction (90 percent for cohesive soils).

Loose soil areas and/or areas of disturbed soil shall be moisture-conditioned as necessary and recompacted to 95 percent relative compaction (90 percent for cohesive soils). All ruts, hummocks, or other uneven surface features shall be removed by surface grading prior to placement of any fill materials. All areas which are to receive fill materials shall be approved by the Soils Engineer prior to the placement of any fill material.

8.0 EXCAVATION: All excavation shall be accomplished to the tolerance normally defined by the Civil Engineer as shown on the project grading plans. All over-excavation below the grades specified shall be backfilled at the Contractor's expense and shall be compacted in accordance with the applicable technical requirements.

9.0 FILL AND BACKFILL MATERIAL: No material shall be moved or compacted without the presence or approval of the Soils Engineer. Material from the required site excavation may be utilized for construction site fills, provided prior approval is given by the Soils Engineer. All materials utilized for constructing site fills shall be free from vegetation or other deleterious matter as determined by the Soils Engineer.

10.0 PLACEMENT, SPREADING AND COMPACTION: The placement and spreading of approved fill materials and the processing and compaction of approved fill and native materials shall be the responsibility of the Contractor. Compaction of fill materials by flooding, ponding, or jetting shall not be permitted unless specifically approved by local code, as well as the Soils Engineer. Both cut and fill shall be surface-compacted to the satisfaction of the Soils Engineer prior to final acceptance.

11.0 SEASONAL LIMITS: No fill material shall be placed, spread, or rolled while it is frozen or thawing, or during unfavorable wet weather conditions. When the work is interrupted by heavy rains, fill operations shall not be resumed until the Soils Engineer indicates that the moisture content and density of previously placed fill is as specified.

12.0 DEFINITIONS - The term "pavement" shall include asphaltic concrete surfacing, untreated aggregate base, and aggregate subbase. The term "subgrade" is that portion of the area on which surfacing, base, or subbase is to be placed.

The term "Standard Specifications": hereinafter referred to, is the most recent edition of the Standard Specifications of the State of California, Department of Transportation. The term "relative compaction" refers to the field density expressed as a percentage of the maximum laboratory density as determined by ASTM D1557 Test Method (latest edition) or California Test Method 216 (CAL-216), as applicable.

13.0 PREPARATION OF THE SUBGRADE - The Contractor shall prepare the surface of the various subgrades receiving subsequent pavement courses to the lines, grades, and dimensions given on the plans. The upper 12 inches of the soil subgrade beneath the pavement section shall be compacted to a minimum relative compaction of 95 percent based upon ASTM D1557. The finished subgrades shall be tested and approved by the Soils Engineer prior to the placement of additional pavement courses.

14.0 AGGREGATE BASE - The aggregate base material shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate base material shall conform to the requirements of Section 26 of the Standard Specifications for Class II material, ¾-inch or 1½-inches maximum size. The aggregate base material shall be compacted to a minimum relative compaction of 95 percent based upon CAL-216. The aggregate base material shall be spread in layers not exceeding 6 inches and each layer of aggregate material course shall be tested and approved by the Soils Engineer prior to the placement of successive layers.

15.0 AGGREGATE SUBBASE - The aggregate subbase shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate subbase material shall conform to the requirements of Section 25 of the Standard Specifications for Class II Subbase material. The aggregate subbase material shall be compacted to a minimum relative compaction of 95 percent based upon CAL-216, and it shall be spread and compacted in accordance with the Standard Specifications. Each layer of aggregate subbase shall be tested and approved by the Soils Engineer prior to the placement of successive layers.

16.0 ASPHALTIC CONCRETE SURFACING - Asphaltic concrete surfacing shall consist of a mixture of mineral aggregate and paving grade asphalt, mixed at a central mixing plant and spread and compacted on a prepared base in conformity with the lines, grades, and dimensions shown on the plans. The viscosity grade of the asphalt shall be PG 64-10, unless otherwise stipulated or local conditions warrant more stringent grade. The mineral aggregate shall be Type A or B, ½ inch maximum size, medium grading, and shall conform to the requirements set forth in Section 39 of the Standard Specifications. The drying, proportioning, and mixing of the materials shall conform to Section 39. The prime coat, spreading and compacting equipment, and spreading and compacting the mixture shall conform to the applicable chapters of Section 39, with the exception that no surface course shall be placed when the atmospheric temperature is below 50 degrees F. The surfacing shall be rolled with a combination steel-wheel and pneumatic rollers, as described in the Standard Specifications. The surface course shall be placed with an approved self-propelled mechanical spreading and finishing machine.

Appendix 4: Historical Site Conditions

Phase I Environmental Site Assessment or Other Information on Past Site Use

NOT APPLICABLE

Appendix 5: LID Infeasibility

LID Technical Infeasibility Analysis

Table 5.3 – LID BMP Feasibility Analysis 3 – Infiltration Basins	
3. a – Are there any programmatic constraints that prevent the use of this BMP, *e.g., Americans with Disabilities Act; need for emergency access, funding restrictions, etc.? See Section 3.b of the Guidance.*	Yes; if checked, provide basis for finding and STOP; this BMP is infeasible No; BMP is potentially feasible, continue to 3.b
3. b - Do appropriate soil conditions exist at the project site to allow effective infiltration consistent with a drawdown period, not to exceed 72 hours?	No; if checked, provide basis for finding **Infiltration rates of 0.62-1.26 in/hr.** Yes,per Soil Report in Appendix
3. c - Is there at least 10 feet separation between the planned basin invert and the measured groundwater elevation?	No; if checked, provide basis for finding Yes
3.d- Is there at least 100 feet separation from the proposed basin(s) and any known water supply wells?	No; if checked, provide basis for finding Yes
3. e - Is the underlying soil and/or groundwater free from any known contamination?	No; if checked, provide basis for finding Yes
3.f - Is there sufficient space to size or place an infiltration basin that: • Has slopes that are no steeper than 4:1, <u>and</u> • Is located at least 100 feet from bridge structures?	No; if checked, provide basis for finding Yes
3. g - For a project area that has high vehicular traffic (25,000 or more average daily traffic), can the planned infiltration basin meet the MS4 Permit's pretreatment of runoff requirements?	No; if checked, provide basis for finding Yes
3. h - Can an infiltration basin be incorporated into the site plan in a manner that does not create traffic or pedestrian safety concerns?	No; if checked, provide basis for finding Yes
3. I - Does inclusion of an infiltration basin detract from the aesthetics of the roadway or project area that cannot be mitigated?	No; if checked, provide basis for finding Yes
• If "No" is checked for any of the above questions (3.b – 3.i), this BMP is infeasible • If "Yes" is checked for all of the above (3.b - 3.i), then this BMP is potentially feasible; continue to 3.j	
3. j – Are there any special maintenance, equipment, or experience requirements associated with the implementation of this BMP?	Yes; if checked, provide basis for finding and determine whether the findings prevent implementation of this BMP No
3. k – If this BMP is implemented, will there be any one-time capital costs incurred, e.g., for new equipment required to maintain the BMP, that impacts project funding?	Yes; if checked, provide basis for finding and determine whether the findings prevent implementation of this BMP No
3. l – Is there long-term funding available to maintain this BMP?	Yes No
• If any of the findings from 3.j, 3.k <u>or</u> 3.l prevent the use of this BMP, then this BMP is infeasible; attach appropriate documentation as needed • If the findings from 3.j., 3.k, <u>and</u> 3.l do not prevent implementation of this BMP, then the BMP is feasible; incorporate into Table 7.1	

Appendix 6: BMP Design Details

BMP Sizing, Design Details and other Supporting Documentation

```
  CIVILCADD/CIVILDESIGN  Engineering Software, (c) 2014   Version 9.0

--------------------------------------------------------------------
DMA-1
n-0.2
Vegetated Swale


--------------------------------------------------------------------
REGESTERED USE - S/N   6409
--------------------------------------------------------------------
            *** Improved Channel Analysis ***

      Upstream (headworks) Elevation =   1638.550(Ft.)
      Downstream (outlet) Elevation =   1636.010(Ft.)
      Runoff/Flow Distance =    407.000(Ft.)
      Maximum flow rate in channel(s) =      0.300(CFS)


*** CALCULATED DEPTH DATA AT FLOW =    0.30(CFS) ***
Channel base width  =   16.000(Ft.)
Slope or 'Z' of left channel bank =   4.000
Slope or 'Z' of right channel bank =   4.000
Manning's 'N'    = 0.200
Maximum depth of channel  =    0.200(Ft.)
Flow(q) thru channel =      0.300(CFS)
Depth of flow =   0.126(Ft.)
Average velocity =   0.144(Ft/s)
Total flow rate in 1/2 street =   0.300(CFS)
Channel flow top width =   17.007(Ft.)
Depth of flow in channel =   0.13(Ft.)

Total number of channels (same dimensions) = 1
Flow Velocity =    0.14(Ft/s)
Individual channel flow =    0.300(CFS)
Total capacity of channel(s) =      0.300(CFS)

Sub-Channel No. 1 Critical depth =      0.022(Ft.)
  '     '       '     Critical flow top width =     16.178(Ft.)
  '     '       '     Critical flow velocity=    0.839(Ft/s)
  '     '       '     Critical flow area =      0.357(Sq.Ft)

Design Length.
L =
7(min) x (flow velocity, ft/sec) x 60
Design Length.
L =
7(min) x (0.144) x 60= 61.8'>407' ok
```

```
  CIVILCADD/CIVILDESIGN  Engineering Software, (c) 2014   Version 9.0
--------------------------------------------------------------------
DMA-3
N=0.2
Vegetated Sewale


--------------------------------------------------------------------
- S/N   6409
--------------------------------------------------------------------
            *** Improved Channel Analysis ***

      Upstream (headworks) Elevation =     37.680(Ft.)
      Downstream (outlet) Elevation =     36.810(Ft.)
      Runoff/Flow Distance =    160.000(Ft.)
      Maximum flow rate in channel(s) =      0.100(CFS)


*** CALCULATED DEPTH DATA AT FLOW =    0.10(CFS) ***
Channel base width  =    2.000(Ft.)
Slope or 'Z' of left channel bank =   4.000
Slope or 'Z' of right channel bank =   4.000
Manning's 'N'    = 0.200
Maximum depth of channel  =    0.200(Ft.)
Flow(q) thru channel =      0.100(CFS)
Depth of flow =   0.209(Ft.)
Average velocity =   0.183(Ft/s)
Total flow rate in 1/2 street =   0.100(CFS)
!!Warning: Water is above left or right bank elevations
Channel flow top width =    2.800(Ft.)
Depth of flow in channel =   0.21(Ft.)

Total number of channels (same dimensions) = 1
Flow Velocity =    0.18(Ft/s)
Individual channel flow =    0.100(CFS)
Total capacity of channel(s) =      0.100(CFS)

Sub-Channel No. 1 Critical depth =      0.042(Ft.)
  '     '       '     Critical flow top width =      2.332(Ft.)
  '     '       '     Critical flow velocity=    1.112(Ft/s)
  '     '       '     Critical flow area =      0.090(Sq.Ft)
```

Design Length.

L =

7(min) x (flow velocity, ft/sec) x 60

Design Length.

L =

7(min) x (0.18)x 60= 75.6’< 160.0' ok

```
  CIVILCADD/CIVILDESIGN  Engineering Software, (c) 2014   Version 9.0
--------------------------------------------------------------------
DMA-4
N=0.4
Vegetated Swale


--------------------------------------------------------------------
 - S/N   6409
--------------------------------------------------------------------
            *** Improved Channel Analysis ***

      Upstream (headworks) Elevation =     38.400(Ft.)
      Downstream (outlet) Elevation =     33.640(Ft.)
      Runoff/Flow Distance =    169.000(Ft.)
      Maximum flow rate in channel(s) =      0.100(CFS)

++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

*** CALCULATED DEPTH DATA AT FLOW =    0.10(CFS) ***
Channel base width  =    2.000(Ft.)
Slope or 'Z' of left channel bank =   4.000
Slope or 'Z' of right channel bank =   4.000
Manning's 'N'    = 0.200
Maximum depth of channel  =    0.200(Ft.)
Flow(q) thru channel =      0.100(CFS)
Depth of flow =   0.136(Ft.)
Average velocity =   0.288(Ft/s)
Total flow rate in 1/2 street =   0.100(CFS)
Channel flow top width =    3.091(Ft.)
Depth of flow in channel =   0.14(Ft.)

Total number of channels (same dimensions) = 1
Flow Velocity =    0.29(Ft/s)
Individual channel flow =    0.100(CFS)
Total capacity of channel(s) =      0.100(CFS)

Sub-Channel No. 1 Critical depth =      0.042(Ft.)
  '     '       '     Critical flow top width =      2.332(Ft.)
  '     '       '     Critical flow velocity=    1.112(Ft/s)
  '     '       '     Critical flow area =      0.090(Sq.Ft)
```

Design Length.

L =

7(min) x (flow velocity, ft/sec) x 60

Design Length.

L =

7(min) x (0.29)x 60= 121.8< 169' ok

Santa Ana Watershed

V_{BMP} and Q_{BMP} worksheets

These worksheets are to be used to determine the required

Design Capture Volume (V_{BMP})
or the
Design Flow Rate (Q_{BMP})

for BMPs in the Santa Ana Watershed

To verify which watershed your project is located within, visit

www.rcflood.org/npdes

and use the 'Locate my Watershed' tool

If your project is not located in the Santa Ana Watershed,

Do not use these worksheets! Instead visit

www.rcflood.org/npdes/developers.aspx

To access worksheets applicable to your watershed

Use the tabs across the bottom
to access the worksheets for the Santa Ana Watershed

Santa Ana Watershed - BMP Design Flow Rate, Q_{BMP}

(Rev. 10-2011)

Legend: Required Entries

Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name Ramcam Engineering Group Date 3/21/2020

Designed by Imad Abugharbieh Case No

Company Project Number/Name 23610 SUNNYMEAD BLVD -MORENO VALLEY, CA 92570,

BMP Identification

BMP NAME / ID DMA-1 BIOTREATMENT (VEGETATED SWALE)

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

Design Rainfall I = 0.20 in/hr

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMAs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type (use pull-down menu)	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	Design Rainfall Intensity (in/hr)	Design Flow Rate (cfs)	Proposed Flow Rate (cfs)
DMA-1	9732	Roofs	1	0.89	8680.94			
DMA-1	45155	ASPHALT/Concrete	1	0.89	40278.26			
DMA-1	13088.9	Ladscape	0.1	0.11	1445.77			
	67975.9	Total			50405.0	0.20	0.23	0.30

Notes:

Santa Ana Watershed - BMP Design Flow Rate, Q_{BMP}

(Rev. 10-2011)

Legend: Required Entries

Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name: Ramcam Engineering Group
Date: 3/21/2020
Designed by: Imad Abugharbieh
Case No:
Company Project Number/Name: 23610 SUNNYMEAD BLVD -MORENO VALLEY, CA 92570,

BMP Identification

BMP NAME / ID: DMA-2 BIOTREATMENT (VEGETATED SWALE)

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

Design Rainfall: I = 0.20 in/hr

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type (use pull-down menu)	Effective Imperivous Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Rainfall Intensity (in/hr)*	*Design Flow Rate (cfs)*	*Proposed Flow Rate (cfs)*
DMA-2	*6532.8*	*Asphalt/Concrete*	*1*	*0.89*	*5827.26*			
DMA-2	*961*	*Ladscape*	*0.1*	*0.11*	*106.15*			
	7493.8	***Total***			5933.4	0.20	*0.03*	*0.10*

Notes:

Santa Ana Watershed - BMP Design Flow Rate, Q_{BMP}

(Rev. 10-2011)

Legend: Required Entries

Calculated Cells

*(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)*

Company Name Ramcam Engineering Group Date 3/21/2020

Designed by Imad Abugharbieh Case No

Company Project Number/Name 23610 SUNNYMEAD BLVD -MORENO VALLEY, CA 92570,

BMP Identification

BMP NAME / ID DMA-3 BIOTREATMENT (VEGETATED SWALE)

Must match Name/ID used on BMP Design Calculation Sheet

Design Rainfall Depth

Design Rainfall I = 0.20 in/hr

Drainage Management Area Tabulation

Insert additional rows if needed to accommodate all DMAs draining to the BMP

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type (use pull-down menu)	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Design Rainfall Intensity (in/hr)*	*Design Flow Rate (cfs)*	*Proposed Flow Rate (cfs)*
DMA-3	*10171.9*	*Asphalt/Concrete*	*1*	*0.89*	*9073.31*			
DMA-3	*2507.0*	*ROOF*	*1*	*0.89*	*2236.24*			
	3820	*Ladscape*	*0.1*	*0.11*	*421.95*			
	16498.87	***Total***			**11731.5**	**0.20**	***0.05***	***0.10***

Notes:

Effective Impervious Fraction

Developed Cover Types	Effective Impervious Fraction
Roofs	1.00
Concrete or Asphalt	1.00
Grouted or Gapless Paving Blocks	1.00
Compacted Soil (e.g. unpaved parking)	0.40
Decomposed Granite	0.40
Permeable Paving Blocks w/ Sand Filled Gap	0.25
Class 2 Base	0.30
Gravel or Class 2 Permeable Base	0.10
Pervious Concrete / Porous Asphalt	0.10
Open and Porous Pavers	0.10
Turf block	0.10
Ornamental Landscaping	0.10
Natural (A Soil)	0.03
Natural (B Soil)	0.15
Natural (C Soil)	0.30
Natural (D Soil)	0.40

Mixed Surface Types

Use this table to determine the effective impervious fraction for the V_{BMP} and Q_{BMP} calculation sheets

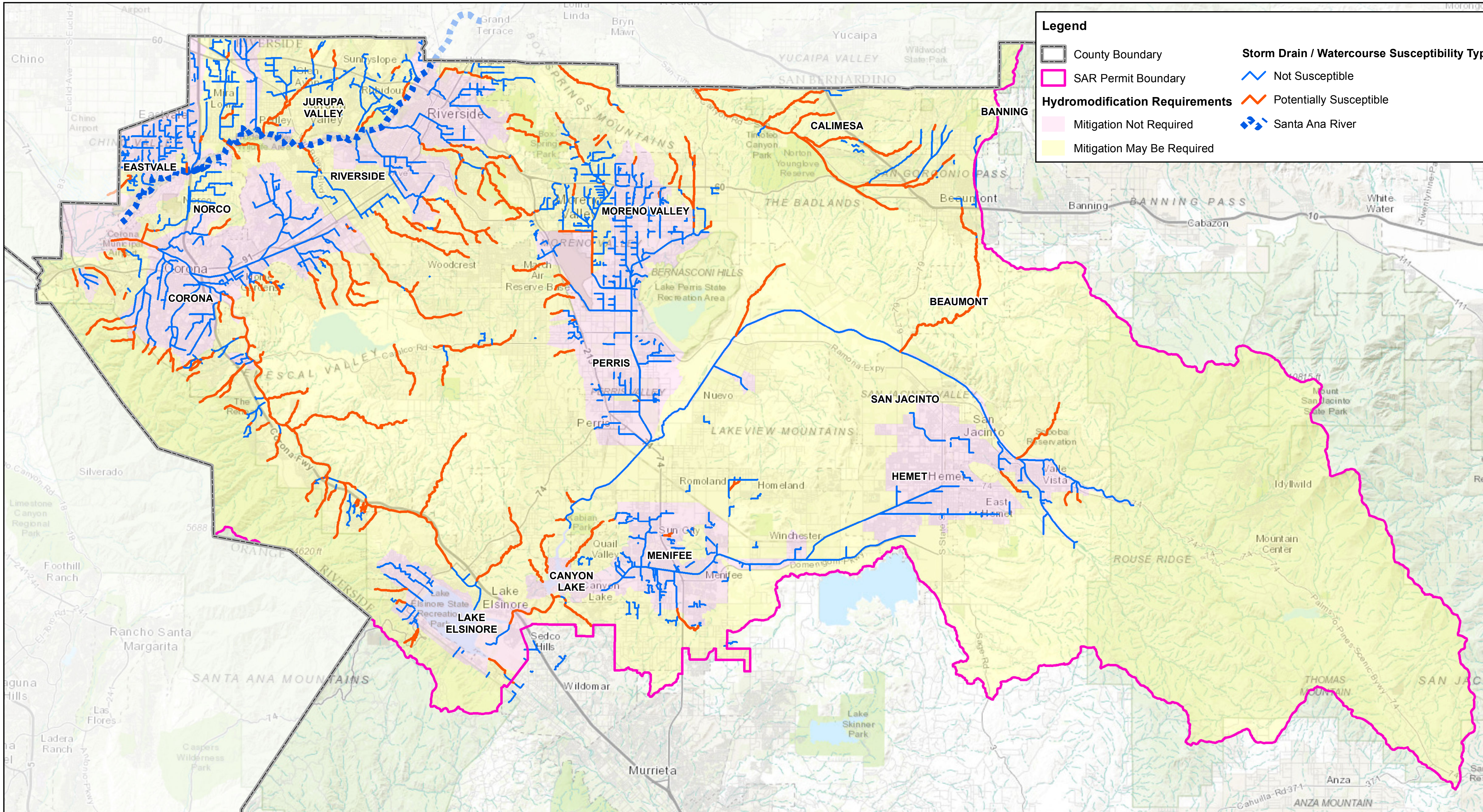
Appendix 7: Hydromodification

Supporting Detail Relating to Hydrologic Conditions of Concern

Runoff from the Project is discharged into a publicly owned, operated and maintained MS4 systems. Starting from the project site, the flow is directed due south into the city of Moreno Valley storm drain system; hence to the newly constructed Sunnymead (Heacock MDP Line B), stages 3 and 4, concrete lined Channel. The flow is taken, then, to the Perris Valley Channel Lat “A” and “B” before joining The San Jacinto River that directs the flow to Canyon lake and Lake Elsinore.

Based on the change on the surfacing on the Sunnymead Channel (Heacock MDP Line B), stages 3 and 4 after issuance of the Map in 2017, The areas delineated on the map, shown in boxes, needs to be added to the map as “Not Applicable”.

Due to the findings, no Hydromodifications calculations are required to accommodate for any increase in the onsite runoff, as the downstream facilities are designed at the Q100 capacity.



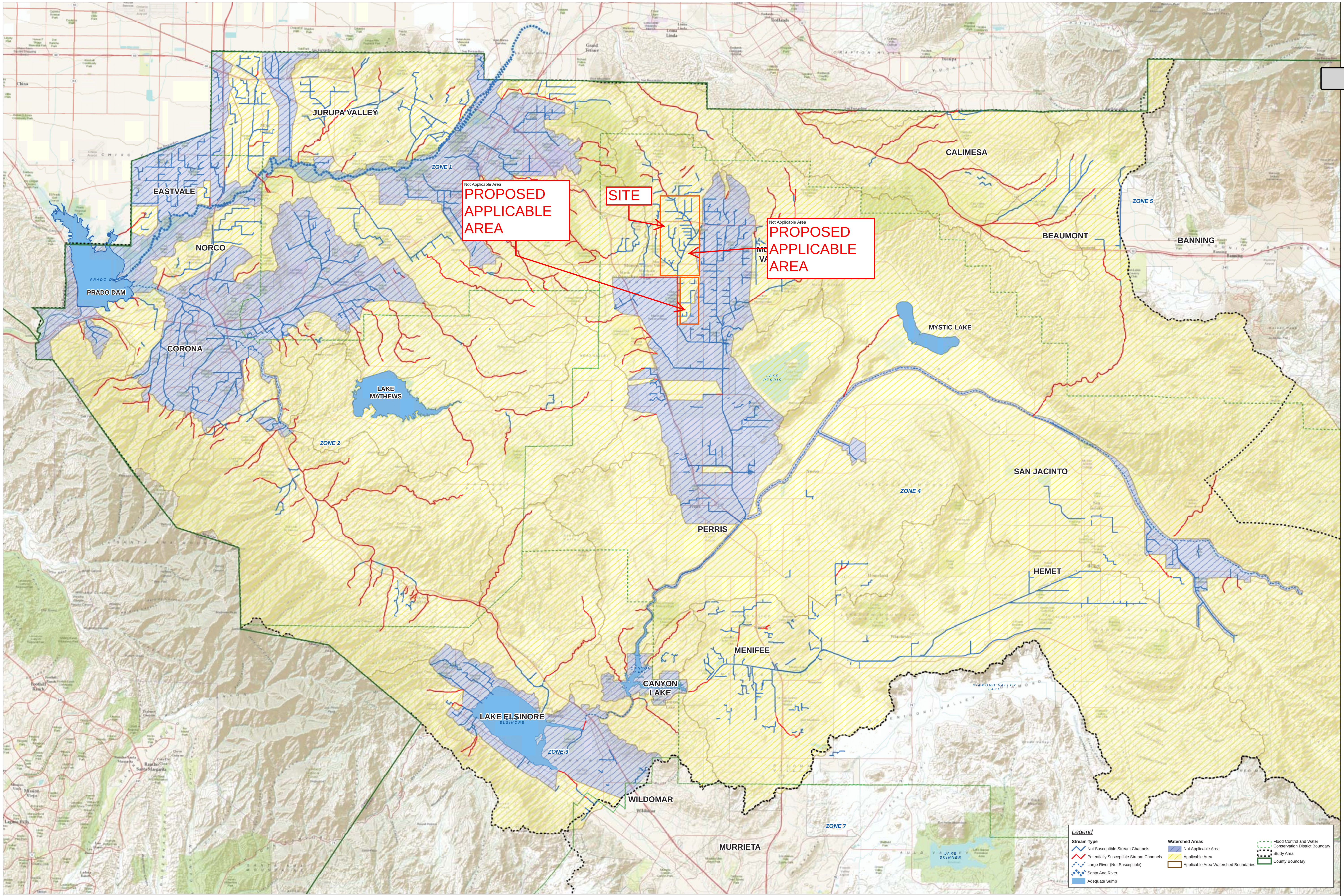
N

0 2.5 5 10 Miles

Updated February 2017

HCOC Applicability Map
SAR Permittees

Map 2



HCOC Applicability Map

Hydromodification Susceptibility Documentation Report and Mapping
Riverside County Flood Control and Water Conservation District

Map 2

Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

IF THESE SOURCES WILL BE ON THE PROJECT SITE…	**… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE**		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on WQMP Drawings**	**3** **Permanent Controls—List in WQMP Table and Narrative**	**4** **Operational BMPs—Include in WQMP Table and Narrative**
■ **A.** On-site storm drain inlets	■ Locations of inlets.	■ Mark all inlets with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.	■ Maintain and periodically repaint or replace inlet markings. ■ Provide Stormwater pollution prevention information to new site Owners, lessees, or operators. ■ See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQ Stormwater Quality Handbooks at www.cabmphandbooks.com ■ Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit
■ **B.** Interior floor drains and elevator shaft sump pumps		■ State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.	■ Inspect and maintain drains to prevent blockages and overflow.
❑ **C.** Interior parking garages		❑ State that parking garage floor drains will be plumbed to the sanitary sewer.	❑ Inspect and maintain drains to prevent blockages and overflow.

IF THESE SOURCES WILL BE ON THE PROJECT SITE…	… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on WQMP Drawings**	**3** **Permanent Controls—List in WQMP Table and Narrative**	**4** **Operational BMPs—Include in WQMP Table and Narrative**
❑ **D1.** Need for future indoor & structural pest control		❑ Note building design features that discourage entry of pests.	❑ Provide Integrated Pest Management information to Owners, lessees, and operators.
■ **D2.** Landscape/ Outdoor Pesticide Use	❑ Show locations of native trees or areas of shrubs and groundcover to be undisturbed and retained. ❑ Show self-retaining landscape areas, if any. ■ Show storm water treatment and hydrograph modification management BMPs. (See instructions in Chapter 3, Step 5 and guidance in Chapter 5.)	State that final landscape plans will accomplish all the following. ❑ Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. ■ Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to Stormwater pollution. ■ Where landscaped areas reused to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions. ■ Consider using pest-resistant plants, especially adjacent to hardscape. To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	■ Maintain landscaping using minimum or no pesticides. ■ See applicable operational BMPs in "What you should know for Landscape and Gardening" at http://rcflood.org/stormwater/ ■ Provide IPM information to new Owners, lessees and operators.

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❑ **E.** Pools, spas, ponds, decorative fountains, and other water features.	❑ Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet. (Exception: Public pools must be plumbed according to County Department of Environmental Health Guidelines.)	If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.	❑ See applicable operational BMPs in "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://rcflood.org/stormwater/
■ **F.** Food service	■ For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floormats, containers, and equipment. ■ On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.	■ Describe the location and features of the designated cleaning area. ❑ Describe the items to be cleaned in this facility and how it has been sized to ensure that the largest Items can be accommodated.	■ See the brochure, "The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries" at http://rcflood.org/stormwater/ Provide this brochure to new site Owners, lessees, and operators.

■ **G.** Refuse areas	■ Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas. ■ If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area. ■ Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.	■ State how site refuse will be handled and provide supporting detail to what is shown on plans. ■ State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.	■ State how the following will be implemented: Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

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❑ **H.** Industrial processes.	❑ Show process area.	❑ If industrial processes are to be located on site, state: "All process activities to be performed indoors. No processes to drain to exterior or to storm drain system."	❑ See Fact Sheet SC-10, "Non-Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com See the brochure "Industrial& Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities" at http://rcflood.org/stormwater/

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❑ **I.** Outdoor storage of equipment or materials. (See rows J and K for source control Measures for vehicle cleaning, repair, and maintenance.)	❑ Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or run-off from area. ❑ Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults. ❑ Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.	Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains. Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for: ▪Hazardous Waste Generation ▪Hazardous Materials Release Response and Inventory ▪California Accidental Release (CalARP) ▪Aboveground Storage Tank ▪Uniform Fire Code Article 80 Section 103(b) & (c) 1991 ▪Underground Storage Tank www.cchealth.org/groups/hazmat/	❑ See the Fact SheetsSC-31, “Outdoor Liquid Container Storage” and SC-33, “Outdoor Storage of Raw Materials ” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

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❑ **J.** Vehicle and Equipment Cleaning	❑ Show on drawings as appropriate: (1) Commercial/industrial facilities having vehicle/equipment cleaning needs shall either provide a covered or bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses. (2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site, and hoses are provided with an automatic shut-off to discourage such use). (3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer. (4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed.	❑ If a car wash area is not provided, describe any measures taken to discourage on-site car washing and explain how these will be enforced.	Describe operational measures to implement the following (if applicable): ❑ Wash water from vehicle and equipment washing operations shall not be discharged to the storm drain system. Refer to "Outdoor Cleaning Activities and Professional Mobile Service Providers" for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/ ❑ Car dealerships and similar may rinse cars with water only.

Attachment: Exhibit A - Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program

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❑ **K.**Vehicle/Equipment Repair and Maintenance	❑ Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater. ❑ Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas. ❑ Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained.	❑ State that no vehicle repair or maintenance will be done outdoors, or else describes the required features of the outdoor work area. ❑ State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements. ❑ State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the Design meets that agency's requirements.	In the Stormwater Control Plan, note that all the following restrictions apply to use the site: ❑ No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinse water from parts cleaning into storm drains. ❑ No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately. ❑ No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment. Refer to "Automotive Maintenance & Car Care Best Management Practices for Auto Body Shops, Auto Repair Shops, Car Dealerships, Gas Stations and Fleet Service Operations". Brochure can be found at http://rcflood.org/stormwater/ Refer to Outdoor Cleaning activities and Professional Mobile Service Providers for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/

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■ **L.** Fuel Dispensing Areas	■ Fueling areas[6] shall have impermeable floors(i.e., Portland cement concrete or equivalent smooth impervious surface)that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable. ■ Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area[1].] The canopy [or cover] shall not drain onto the fueling area.		■ The property Owner shall dry sweep the fueling area routinely. ■ See the Fact Sheet SD-30 , "Fueling Areas" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

[6]The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.

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❑ **M.** Loading Docks	❑ Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct storm water away from the loading area. Water from loading dock areas shall be drained to the sanitary sewer or diverted and collected for ultimate discharge to the sanitary sewer. ❑ Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation. ❑ Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.		■ Move loaded and unloaded items indoors as soon as possible. ❑ See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

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■ **N.** Fire Sprinkler Test Water		■ Provide means to drain fire sprinkler test water to the sanitary sewer.	■ See the note in Fact Sheet SC-41, “Building and Grounds Maintenance,” in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
■ **O.** Miscellaneous Drain or Wash Water or Other Sources ❑ Boiler drain lines ■ Condensate drain lines ❑ Rooftop equipment ❑ Drainage sumps ■ Roofing, gutters, and trim. ❑ Other sources		❑ Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. ■ Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drains ❑ lines may not discharge to the storm drain system. Rooftop equipment with potential to produce pollutants shall be ❑ roofed and/or have secondary containment. Any drainage sumps on-site shall ❑ feature a sediment sump to reduce the quantity of sediment in pumped water. ■ Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff. Include controls for other sources as specified by local reviewer.	

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■ **P.** Plazas, sidewalks, and parking lots.			■ Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect wash water containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.

Appendix 9: O&M

Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms

To be added in the FWQMP

Appendix 10: Educational Materials

BMP Fact Sheets, Maintenance Guidelines and Other End-User BMP Information

To be added in the FWQMP

COUNTY OF RIVERSIDE BIOTREATMENT FACILITIY FACT SHEETS

COUNTY OF RIVERSIDE EDUCATIONAL MATERILAS

CASQA REFERENCE SHEETS

Appendix I – Geotechnical Engineering Investigation

SALEM
engineering group, inc.

GEOTECHNICAL ENGINEERING INVESTIGATION

GO FRESH GAS STATION
SUNNYMEAD BOULEVARD & GRAHAM STREET
MORENO VALLEY, CALIFORNIA

SALEM PROJECT NO. 3-219-1018
DECEMBER 23, 2019

PREPARED FOR:

MR. ALEX A. IRSHAID
RAMCAM ENGINEERING GROUP, INC.
670 E. PARKRIDGE AVENUE, SUITE 101
CORONA, CA 92879

PREPARED BY:

SALEM ENGINEERING GROUP, INC.
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8711 Monroe Court, Suite A
Rancho Cucamonga, CA 91730
Phone (909) 980-6455
Fax (909) 980-6435

December 23, 2019

Project No. 3-219-1018

Mr. Alex A. Irshaid
RAMCAM Engineering Group, Inc.
670 Parkridge Avenue, Suite 101
Corona, CA 92879

SUBJECT: GEOTECHNICAL ENGINEERING INVESTIGATION
GO FRESH GAS STATION
SUNNYMEAD BOULEVARD & GRAHAM STREET
MORENO VALLEY, CALIFORNIA

Dear Mr. Irshaid:

At your request and authorization, SALEM Engineering Group, Inc. (SALEM) has prepared this Geotechnical Engineering Investigation report for the Go Fresh Gas Station to be located at the subject site.

The accompanying report presents our findings, conclusions, and recommendations regarding the geotechnical aspects of designing and constructing the project as presently proposed. In our opinion, the proposed project is feasible from a geotechnical viewpoint provided our recommendations are incorporated into the design and construction of the project.

We appreciate the opportunity to assist you with this project. Should you have questions regarding this report or need additional information, please contact the undersigned at (909) 980-6455.

Respectfully Submitted,

SALEM ENGINEERING GROUP, INC.

Clarence Jiang, GE
Geotechnical Division Manager
RGE 2477

R. Sammy Salem, MS, PE, GE
Principal Engineer
RCE 52762 / RGE 2549

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Rancho Cucamonga, CA 91730
Phone (909) 980-6455
Fax (909) 980-6435

GEOTECHNICAL ENGINEERING INVESTIGATION
GO FRESH GAS STATION
SEC OF SUNNYMEAD BOULEVARD & GRAHAM STREET
MORENO VALLEY, CALIFORNIA

1. PURPOSE AND SCOPE

This report presents the results of our Geotechnical Engineering Investigation for the site of the Go Fresh Gas Station to be located at the southeast corner of Sunnymead Boulevard and Graham Street in Moreno Valley, California (see Figure 1, Vicinity Map).

The purpose of our geotechnical engineering investigation was to observe and sample the subsurface conditions encountered at the site, and provide conclusions and recommendations relative to the geotechnical aspects of constructing the project as presently proposed.

The scope of this investigation included a field exploration, percolation testing, laboratory testing, engineering analysis and the preparation of this report. Our field exploration was performed on December 12, 2019 and included the drilling of ten (10) small-diameter soil borings to a maximum depth of 46½ feet at the site. Additionally, two (2) percolation tests were performed at depths of approximately 5 and 10 feet below existing grade for the determination of the percolation rate. The locations of the soil borings and percolation tests are depicted on Figure 2, Site Plan. A detailed discussion of our field investigation, percolation tests, and exploratory boring logs are presented in Appendix A.

Laboratory tests were performed on selected soil samples obtained during the investigation to evaluate pertinent physical properties for engineering analyses. Appendix B presents the laboratory test results in tabular and graphic format.

The recommendations presented herein are based on analysis of the data obtained during the investigation and our experience with similar soil and geologic conditions. If project details vary significantly from those described herein, SALEM should be contacted to determine the necessity for review and possible revision of this report. Earthwork and Pavement Specifications are presented in Appendix C. If text of the report conflict with the specifications in Appendix C, the recommendations in the text of the report have precedence.

2. PROJECT DESCRIPTION

Based on the information provided to us, we understand that the proposed development will include construction of a 3,850 square-foot convenience store, a 2,241 square-foot express carwash, and an 8,325 square-foot 2-story retail/medical office building on a 2.18-acre vacant land. Underground storage tanks, parking, and landscaping are also planned to be associated with the proposed development. Maximum wall load is expected to be on the order of 4 kips per linear foot. Maximum column load is expected to be on the order of 80 kips. Floor slab soil bearing pressure is expected to be on the order of 150 psf.

A site grading plan was not available at the time of preparation of this report. As the existing project area is sloping to west and south, we anticipate that cuts and fills during earthwork will be moderate. In the event that changes occur in the nature or design of the project, the conclusions and recommendations contained in this report will not be considered valid unless the changes are reviewed and the conclusions of our report are modified. The site configuration and locations of proposed improvements are shown on the Site Plan, Figure 2.

3. SITE LOCATION AND DESCRIPTION

The subject site is located at the southeast corner of Sunnymead Boulevard and Graham Street in the City of Moreno Valley, California (see Vicinity Map, Figure 1). The subject site is rectangular in shape and encompasses approximately 2.18 acres.

At the time of our field exploration, the subject site was a vacant land with seasonal grasses and weeds throughout the site. The site is bound by Sunnymead Boulevard to the north, commercial development to the east, residential development to the south, and Graham Street to the west. The site is relatively flat within no major changes in grade. The average elevation is approximately 1,637 feet above mean sea level based on Google Earth imagery.

4. FIELD EXPLORATION

Our field exploration consisted of site surface reconnaissance and subsurface exploration. The exploratory test borings (B-1 through B-10) were drilled on December 12, 2019 in the areas shown on the Site Plan, Figure 2. The test borings were advanced with a 4-inch diameter solid flight auger rotated by truck-mounted CME 45 drill rig. The test borings were extended to a maximum depth of 46½ feet below existing grade.

The materials encountered in the test borings were visually classified in the field, and logs were recorded by a field engineer and stratification lines were approximated on the basis of observations made at the time of drilling. Visual classification of the materials encountered in the test borings were generally made in accordance with the Unified Soil Classification System (ASTM D2487). A soil classification chart and key to sampling is presented on the Unified Soil Classification Chart, in Appendix "A." The logs of the test borings are presented in Appendix "A." The Boring Logs include the soil type, color, moisture content, dry density, and the applicable Unified Soil Classification System symbol.

The location of the test borings were determined by measuring from features shown on the Site Plan, provided to us. Hence, accuracy can be implied only to the degree that this method warrants. The actual boundaries between different soil types may be gradual and soil conditions may vary. For a more detailed description of the materials encountered, the Boring Logs in Appendix "A" should be consulted.

Soil samples were obtained from the test borings at the depths shown on the logs of borings. The MCS samples were recovered and capped at both ends to preserve the samples at their natural moisture content; SPT samples were recovered and placed in a sealed bag to preserve their natural moisture content. The borings were backfilled with soil cuttings after completion of the drilling.

5. LABORATORY TESTING

Laboratory tests were performed on selected soil samples to evaluate their physical characteristics and engineering properties. The laboratory-testing program was formulated with emphasis on the evaluation of natural moisture, in-situ density, shear strength, consolidation potential, expansion index, maximum density and optimum moisture determination, and gradation of the materials encountered.

In addition, chemical tests were performed to evaluate the corrosivity of the soils to buried concrete and metal. Details of the laboratory test program and the results of laboratory test are summarized in Appendix "B." This information, along with the field observations, was used to prepare the final boring logs in Appendix "A."

6. GEOLOGIC SETTING

The subject site is located within the Peninsular Range Geomorphic Province, an area characterized by active northeast trending strike slip faults, including the San Jacinto to the northwest, and the Elsinore to the southwest. The project site is situated between the Santa Rosa Mountains and the San Jacinto Mountains to the east; and Santa Ana Mountains to the west and south. The near-surface deposits in the vicinity of the subject site are comprised of recent alluvium consisting of unconsolidated sands, silt, and clays derived from erosion of local mountain ranges. Deposits encountered on the subject site during exploratory drilling are discussed in detail in this report.

7. GEOLOGIC HAZARDS

7.1 Faulting and Seismicity

The Peninsular Range has historically been a province of relatively high seismic activity. The nearest faults to the project site are associated with the San Jacinto Fault system located approximately 4.6 miles from the site. There are no known active fault traces in the project vicinity. Based on mapping and historical seismicity, the seismicity of the Peninsular Range has been generally considered high by the scientific community.

The project area is not within an Alquist-Priolo Earthquake Fault (Special Studies) Zone and will not require a special site investigation by an Engineering Geologist. Soils on site are classified as Site Class D in accordance with Chapter 16 of the California Building Code. The proposed structures are determined to be in Seismic Design Category D.

To determine the distance of known active faults within 100 miles of the site, we used the United States Geological Survey (USGS) web-based application *2008 National Seismic Hazard Maps - Fault Parameters*. Site latitude is 33.9382° North; site longitude is 117.2523° West. The ten closest active faults are summarized in Table 7.1 on the next page.

TABLE 7.1
REGIONAL FAULT SUMMARY

Fault Name	Distance to Site (miles)	Max. Earthquake Magnitude, M_w
San Jacinto; SBV+SJV+A+CC+B+SM	4.6	7.9
San Jacinto; SBV	5.5	7.1
San Jacinto; A+CC+B+SM	8.9	7.6
S. San Andreas; PK+CH+CC+BB+NM+SM+NSB+SSB+BG+CO	14.0	8.2
S. San Andreas; PK+CH+CC+BB+NM+SM+NSB	14.7	8.0
Elsinore; W+GI+T+J+CM	18.0	7.8
Chino, alt 2	19.7	6.8
Cucamonga	19.9	6.7
Elsinore; T+J+CM	20.3	7.5
Chino, alt 1	20.7	6.7

The faults tabulated above and numerous other faults in the region are sources of potential ground motion. However, earthquakes that might occur on other faults throughout California are also potential generators of significant ground motion and could subject the site to intense ground shaking.

7.2 Surface Fault Rupture

The site is not within a currently established State of California Earthquake Fault Zone for surface fault rupture hazards. No active faults with the potential for surface fault rupture are known to pass directly beneath the site. Therefore, the potential for surface rupture due to faulting occurring beneath the site during the design life of the proposed development is considered low.

7.3 Ground Shaking

Based on the 2016 CBC, a Site Class D was selected for the site based on soil conditions encountered and our experience in the vicinity of the subject site. Table 9.2.1 includes design seismic coefficients and spectral response parameters, based on the 2016 California Building Code (CBC) for the project foundation design. Based on the Office of Statewide Health Planning and Development (OSHPD) Seismic Design Maps, the estimated design peak ground acceleration adjusted for site class effects (PGA_M) was determined to be 0.62g (based on both probabilistic and deterministic seismic ground motion).

7.4 Liquefaction

Soil liquefaction is a state of soil particles suspension caused by a complete loss of strength when the effective stress drops to zero. Liquefaction normally occurs under saturated conditions in soils such as sand in which the strength is purely frictional. Primary factors that trigger liquefaction are: moderate to strong ground shaking (seismic source), relatively clean, loose granular soils (primarily poorly graded sands and silty sands), and saturated soil conditions (shallow groundwater). Due to the increasing overburden pressure with depth, liquefaction of granular soils is generally limited to the upper 50 feet of a soil profile. However, liquefaction has occurred in soils other than clean sand.

The soils encountered within the depth of 50 feet on the project site consisted predominately of loose to very dense silty sand. Groundwater was not encountered during this investigation. Low to very low cohesion strength is commonly associated with the sandy soil profile at the site. A seismic hazard, which could cause damage to the proposed development during seismic shaking, is the post-liquefaction settlement of liquefied sands. The Riverside County Office of Information Technology GIS website shows the subject site is located within a low liquefaction potential area. The site was evaluated for liquefaction potential. The liquefaction analysis indicated that the soils had a low potential for liquefaction under seismic conditions. Therefore, no mitigation measures are warranted.

7.5 Seismic Densification

One of the most common phenomena during seismic shaking accompanying any earthquake is the induced settlement of loose unconsolidated soils. Based on site subsurface conditions and the seismicity of the region, any loose granular materials at the site could be vulnerable to this potential hazard. Our analysis of dynamic densification of "dry" soil in the upper 50 feet of existing soil profile was performed.

For the analysis, a maximum earthquake magnitude of 8.2 M_w and a peak horizontal ground surface acceleration of 0.624g (with a 2 percent probability of exceedance in 50 years) were considered appropriate for the analysis. The seismic densification of dry to damp alluvial sandy soils due to onsite seismic activity is calculated to have a total settlement of approximately 0.15 inch. The corresponding differential settlement should be less than 0.08 inch. The seismic settlement analysis is included in Appendix A.

7.6 Lateral Spreading

Lateral spreading is a phenomenon in which soils move laterally during seismic shaking and is often associated with liquefaction. The amount of movement depends on the soil strength, duration and intensity of seismic shaking, topography, and free face geometry. Due to the relatively flat site topography and low liquefaction potential, we judge the likelihood of lateral spreading to be low.

7.7 Subsidence

The Riverside County Office of Information Technology GIS website shows the site to be in a susceptible subsidence potential area. Based on the existence of loose to very dense silty sand, subsidence potential is considered minimal.

7.8 Collapsible or Hydroconsolidatable Soils

Test data in this geotechnical report show that soil samples consolidated from approximately 7 to 8 percent after a maximum 12.8 ksf load. Hydroconsolidation (collapse upon wetting) at a load of 1.6 ksf was approximately 0.2 to ½ percent.

7.9 Flood and Dam Inundation

The FEMA Flood Zone Hazard Map website shows that the subject site is not located in a flood zone.

7.10 Landslides/Slope Instability/Debris Flow

The subject site is on a gently (<5%) sloping grade, over 1/4 mile from the nearest significant topographic change. As such, landslide/ slope instability/rock fall issues pose a very low risk. Due to the site's distance from significant topography, topography-related debris flows are a low risk.

7.11 Wind and Water Erosion

Based on SALEM's soil boring logs for the subject site, surface soils consist predominately of loose to very dense silty sand. Soil of this consistency have been shown to possess good resistance to wind and water erosion. The site is essentially flat, minimizing the potential for water erosion. The site will be completely covered by buildings, pavement, or landscaping after development, minimizing long-term wind erosion potential.

7.12 Tsunamis and Seiches

The site is not located within a coastal area. Therefore, tsunamis (seismic sea waves) are not considered a significant hazard at the site. Seiches are large waves generated in enclosed bodies of water in response to ground shaking. No major water-retaining structures are located immediately up gradient from the project site. Flooding from a seismically-induced seiche is considered unlikely.

8. SOIL AND GROUNDWATER CONDITIONS

8.1 Subsurface Conditions

The subsurface conditions encountered appear typical of those found in the geologic region of the site. In general, the soils within the depth of exploration consisted of loose to very dense silty sand. Fill soils may be present on site between our test boring locations. Verification of the extent of fill should be determined during site grading. Field and laboratory tests suggest that the deeper native soils are moderately strong and slightly compressible.

The soils were classified in the field during the drilling and sampling operations. The stratification lines were approximated by the field engineer on the basis of observations made at the time of drilling. The actual boundaries between different soil types may be gradual and soil conditions may vary. For a more detailed description of the materials encountered, the Boring Logs in Appendix "A" should be consulted. The Boring Logs include the soil type, color, moisture content, dry density, and the applicable Unified Soil Classification System symbol. The locations of the test borings were determined by measuring from feature shown on the Site Plan, provided to us. Hence, accuracy can be implied only to the degree that this method warrants.

8.2 Groundwater

The test boring locations were checked for the presence of groundwater during and after the drilling operations. Free groundwater was not encountered during this investigation. It should be recognized that water table elevations may fluctuate with time, being dependent upon seasonal precipitation, irrigation, land use, localized pumping, and climatic conditions as well as other factors. Therefore, water level observations at the time of the field investigation may vary from those encountered during the construction phase of the project. The evaluation of such factors is beyond the scope of this report.

8.3 Soil Corrosion Screening

Excessive sulfate in either the soil or native water may result in an adverse reaction between the cement in concrete and the soil. The 2014 Edition of ACI 318 (ACI 318) has established criteria for evaluation of sulfate and chloride levels and how they relate to cement reactivity with soil and/or water. A soil sample was obtained from the project site and was tested for the evaluation of the potential for concrete deterioration or steel corrosion due to attack by soil-borne soluble salts and soluble chloride. The water-soluble sulfate concentration in the saturation extract from the soil sample was detected to be 50 mg/kg. ACI 318 Tables 19.3.1.1 and 19.3.2.1 outline exposure categories, classes, and concrete requirements by exposure class. ACI 318 requirements for site concrete based upon soluble sulfate are summarized in Table 8.3 below.

TABLE 8.3
WATER SOLUBLE SULFATE EXPOSURE REQUIREMENTS

Water Soluble Sulfate (SO_4) in Soil, % by Weight	Exposure Severity	Exposure Class	Maximum w/cm Ratio	Min. Concrete Compressive Strength	Cementitious Materials Type
0.0050	Not Applicable	S0	N/A	2,500 psi	No Restriction

The water-soluble chloride concentration detected in saturation extract from the soil samples was 129 mg/kg. This level of chloride concentration is considered to be mildly corrosive. It is recommended that a qualified corrosion engineer be consulted regarding protection of buried steel or ductile iron piping and conduit or, at a minimum, applicable manufacturer's recommendations for corrosion protection of buried metal pipe be closely followed.

8.4 Percolation Testing

Two percolation tests (P-1 and P-2) were performed within assumed infiltration areas and were conducted in accordance with the guidelines established by the County of Riverside. The approximate percolation test locations are shown on the Site Plan, Figure 2. The boreholes were advanced to the depths shown on the percolation tests worksheets. Percolation rates were measured by filling the test holes with clean water and measuring the water drops at a certain time interval. The percolation rate data are presented in tabular format attached to this report. The difference in the percolation rates are reflected by the varied type of soil materials at the bottom of the test holes. The test results are shown on the table below.

Test No.	Depth (Feet)	Measured Percolation Rate (min/inch)	Infiltration Rate* (inch/hour)	Soil Type
P-1	10	6.9	**0.62**	Silty SAND (SM)
P-2	5	6.4	**1.26**	Silty SAND (SM)

*** Tested infiltration Rate = $(\Delta H\ 60\ r) / (\Delta t(r + 2H_{avg}))$**

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Additional percolation tests should be conducted at bottom of the drainage system during construction to verify the design infiltration/percolation rate. The soil infiltration rate is based on test conducted with clear water. The infiltration rate may vary with time as a result of soil clogging from water impurities. The infiltration rate will deteriorate over time due to the soil conditions and an appropriate factor of safety (FS) should be applied. The soils may also become less permeable to impermeable if the soil is compacted. Thus, periodic maintenance consisting of clearing the bottom of the drainage system of clogged soils should be expected.

The infiltration rate may become slower if the surrounding soil is wet or saturated due to prolonged rainfalls. Additional infiltration tests should be conducted at bottom of the drainage system during construction to verify the infiltration rate. Groundwater, if closer to the bottom of the drainage system, will also reduce the infiltration rate.

The scope of our services did not include a groundwater study and was limited to the performance of infiltration testing and soil profile description, and the submitted data only. Our services did not include those associated with septic system design. Neither did services include an Environmental Site Assessment for the presence or absence of hazardous and/or toxic materials in the soil, groundwater, or atmosphere; or the presence of wetlands.

Any statements, or absence of statements, in this report or on any boring logs regarding odors, unusual or suspicious items, or conditions observed, are strictly for descriptive purposes and are not intended to convey engineering judgment regarding potential hazardous and/or toxic assessment. The geotechnical engineering information presented herein is based upon professional interpretation utilizing standard engineering practices. The work conducted through the course of this investigation, including the preparation of this report, has been performed in accordance with the generally accepted standards of geotechnical engineering practice, which existed in the geographic area at the time the report was written. No other warranty, express or implied, is made.

Please be advised that when performing infiltration testing services in relatively small areas (double rings) that the testing may not fully model the actual full scale long term performance of a given site. This is particularly true where infiltration test data is to be used in the design of large infiltration areas such as those proposed for the site. Subsurface conditions, including infiltration rates, can change over time as fine-grained soils migrate. It is not warranted that such information and interpretation cannot be superseded by future geotechnical engineering developments. We emphasize that this report is valid for the project outlined above and should not be used for any other sites.

9. CONCLUSIONS AND RECOMMENDATIONS

9.1 General

9.1.1 Based upon the data collected during this investigation, and from a geotechnical engineering standpoint, it is our opinion that the site is suitable for the proposed construction of improvements at the site as planned, provided the recommendations contained in this report are incorporated into the project design and construction. Conclusions and recommendations provided in this report are based on our review of available literature, analysis of data obtained from our field exploration and laboratory testing program, and our understanding of the proposed development at this time.

9.1.2 The primary geotechnical constraints identified in our investigation is the presence of potentially compressible (collapsible) material at the site. Recommendations to mitigate the effects of these soils are provided in this report.

9.1.3 Fill materials may be present onsite between our boring locations. Undocumented fill materials are not suitable to support any future structures and should be replaced with Engineered Fill. The extent and consistency of the fills should be verified during site construction. Prior to fill placement, Salem Engineering Group, Inc. should inspect the bottom of the excavation to verify the fill condition.

9.1.4 Site demolition activities shall include removal of all surface obstructions not intended to be incorporated into final site design. In addition, underground buried structures and/or utility lines encountered during demolition and construction should be properly removed and the resulting excavations backfilled with Engineered Fill. It is suspected that possible demolition activities of the existing structures may disturb the upper soils. After demolition activities, it is recommended that disturbed soils be removed and/or recompacted.

9.1.5 Surface vegetation consisting of grasses and other similar vegetation should be removed by stripping to a sufficient depth to remove organic-rich topsoil. The upper 4 to 8 inches of the soils containing, vegetation, roots and other objectionable organic matter encountered at the time of grading should be stripped and removed from the surface. Deeper stripping may be required in localized areas. The stripped vegetation, will not be suitable for use as Engineered Fill or within 5 feet of building pads or within pavement areas. However, stripped topsoil may be stockpiled and reused in landscape or non-structural areas or exported from the site.

9.1.6 The near-surface onsite soils are moisture-sensitive and are moderately to highly compressible (collapsible soil) under saturated conditions. Proposed structures may experience excessive post-construction settlement, when the foundation soils become near saturated. The collapsible or weak soils should be removed and recompacted according to the recommendations in the Grading section of this report (Section 9.5).

9.1.7 Based on the subsurface conditions at the site and the anticipated structural loading, we anticipate that the proposed buildings may be supported using conventional shallow foundations provided that the recommendations presented herein are incorporated in the design and construction of the project.

9.1.8 Provided the site is graded in accordance with the recommendations of this report and foundations constructed as described herein, we estimate that total settlement due to static load utilizing conventional shallow foundations for the proposed buildings will be within 1 inch and corresponding differential settlement will be less than ½ inch over 20 feet.

9.1.9 SALEM shall review the project grading and foundation plans prior to final design submittal to assess whether our recommendations have been properly implemented and evaluate if additional analysis and/or recommendations are required. If SALEM is not provided plans and specifications for review, we cannot assume any responsibility for the future performance of the project.

9.1.10 SALEM shall be present at the site during site demolition and preparation to observe site clearing/demolition, preparation of exposed surfaces after clearing, and placement, treatment and compaction of fill material.

9.1.11 SALEM's observations should be supplemented with periodic compaction tests to establish substantial conformance with these recommendations. Moisture content of footings and slab subgrade should be tested immediately prior to concrete placement. SALEM should observe foundation excavations prior to placement of reinforcing steel or concrete to assess whether the actual bearing conditions are compatible with the conditions anticipated during the preparation of this report.

9.2 Seismic Design Criteria

9.2.1 For seismic design of the structures, and in accordance with the seismic provisions of the 2016 CBC, our recommended parameters are shown below. These parameters were determined using California's Office of Statewide Health Planning and Development (OSHPD) (https://seismicmaps.org/) in accordance with the 2016 CBC. The Site Class was determined based on the soils encountered during our field exploration.

TABLE 9.2.1
SEISMIC DESIGN PARAMETERS

Seismic Item	Symbol	Value
Site Coordinates (Datum = NAD 83)		33.9382 Lat -117.2523 Lon
Site Class	--	D
Soil Profile Name	--	Stiff Soil
Risk Category	--	II
Site Coefficient for PGA	F_{PGA}	1.000
Peak Ground Acceleration (adjusted for Site Class effects)	PGA_M	0.624 g
Seismic Design Category	SDC	D
Mapped Spectral Acceleration (Short period - 0.2 sec)	S_S	1.583 g
Mapped Spectral Acceleration (1.0 sec. period)	S_1	0.686 g
Site Class Modified Site Coefficient	F_a	1.000
Site Class Modified Site Coefficient	F_v	1.500
MCE Spectral Response Acceleration (Short period - 0.2 sec) $S_{MS} = F_a S_S$	S_{MS}	1.583 g
MCE Spectral Response Acceleration (1.0 sec. period) $S_{M1} = F_v S_1$	S_{M1}	1.029 g
Design Spectral Response Acceleration $S_{DS}=⅔S_{MS}$ (short period - 0.2 sec)	S_{DS}	1.056 g
Design Spectral Response Acceleration $S_{D1}=⅔S_{M1}$ (1.0 sec. period)	S_{D1}	0.686 g

9.2.2 Conformance to the criteria in the above table for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will not occur if a large earthquake occurs. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

9.3 Soil and Excavation Characteristics

9.3.1 Based on the soil conditions encountered in our soil borings, the onsite soils can be excavated with moderate to laborious effort using conventional heavy-duty or special excavation and earthmoving equipment.

9.3.2 It is the responsibility of the contractor to ensure that all excavations and trenches are properly shored and maintained in accordance with applicable Occupational Safety and Health Administration (OSHA) rules and regulations to maintain safety and maintain the stability of adjacent existing improvements. Temporary excavations are further discussed in a later Section of this report.

9.3.3 The upper soils are moisture-sensitive and moderately to highly collapsible under saturated conditions. These soils, in their present condition, possess moderate risk to construction in terms of possible post-construction movement of the foundations and floor systems if no mitigation measures are employed. Accordingly, measures are considered necessary to reduce anticipated collapse potential. Mitigation measures will not eliminate post-construction soil movement, but will reduce the soil movement. Success of the mitigation measures will depend on the thoroughness of the contractor in dealing with the soil conditions.

9.3.4 The near surface soils identified as part of our investigation are, generally, slightly moist to moist due to the absorption characteristics of the soil. Earthwork operations may encounter very moist unstable soils which may require removal to a stable bottom. Exposed native soils exposed as part of site grading operations shall not be allowed to dry out and should be kept continuously moist prior to placement of subsequent fill.

9.4 Materials for Fill

9.4.1 Excavated soils generated from cut operations at the site are suitable for use as general Engineered Fill in structural areas, provided they do not contain deleterious matter, organic material, or rock material larger than 3 inches in maximum dimension.

9.4.2 The preferred materials specified for Engineered Fill are suitable for most applications with the exception of exposure to erosion. Project site winterization and protection of exposed soils during the construction phase should be the sole responsibility of the Contractor, since they have complete control of the project site.

9.4.3 Import soil shall be well-graded, slightly cohesive silty fine sand or sandy silt, with relatively impervious characteristics when compacted. A clean sand or very sandy soil is not acceptable for this purpose. This material should be approved by the Engineer prior to use and should typically possess the soil characteristics summarized below in Table 9.4.3.

TABLE 9.4.3
IMPORT FILL REQUIREMENTS

Minimum Percent Passing No. 200 Sieve	20
Maximum Percent Passing No. 200 Sieve	50
Minimum Percent Passing No. 4 Sieve	80
Maximum Particle Size	3"
Maximum Plasticity Index	12
Maximum CBC Expansion Index	20

9.4.4 Environmental characteristics and corrosion potential of import soil materials should also be considered.

9.4.5 Proposed import materials should be sampled, tested, and approved by SALEM prior to its transportation to the site.

9.5 Grading

9.5.1 A representative of our firm should be present during all site clearing and grading operations to test and observe earthwork construction. This testing and observation is an integral part of our service as acceptance of earthwork construction is dependent upon compaction of the material and the stability of the material. The Geotechnical Engineer may reject any material that does not meet compaction and stability requirements. Further recommendations of this report are predicated upon the assumption that earthwork construction will conform to recommendations set forth in this section as well as other portions of this report.

9.5.2 A preconstruction conference should be held at the site prior to the beginning of grading operations with the owner, contractor, civil engineer and geotechnical engineer in attendance.

9.5.3 Site preparation should begin with removal of existing surface/subsurface structures, underground utilities (as required), any existing uncertified fill, and debris. Excavations or depressions resulting from site clearing operations, or other existing excavations or depressions, should be restored with Engineered Fill in accordance with the recommendations of this report.

9.5.4 Surface vegetation consisting of grasses and other similar vegetation should be removed by stripping to a sufficient depth to remove organic-rich topsoil. The upper 4 to 8 inches of the soils containing, vegetation, roots and other objectionable organic matter encountered at the time of grading should be stripped and removed from the surface. Deeper stripping may be required in localized areas. The stripped vegetation, will not be suitable for use as Engineered Fill or within 5 feet of building pads or within pavement areas. However, stripped topsoil may be stockpiled and reused in landscape or non-structural areas or exported from the site.

9.5.5 Tree root systems in proposed improvement areas should be removed to a minimum depth of 3 feet and to such an extent which would permit removal of all roots greater than ½ inch in diameter. Tree roots removed in parking areas may be limited to the upper 1½ feet of the ground surface. Backfill of tree root excavations is not permitted until all exposed surfaces have been inspected and the Soils Engineer is present for the proper control of backfill placement and compaction. Burning in areas which are to receive fill materials shall not be permitted.

9.5.6 Any fill materials encountered during grading should be removed and replaced with engineered fill. The actual depth of the overexcavation and recompaction should be determined by our field representative during construction.

9.5.7 To minimize post-construction soil movement and provide uniform support for the proposed buildings, overexcavation and recompaction within the proposed buildings' areas should be performed to a minimum depth of **four (4) feet** below existing grade or **three (3) foot** below proposed footing bottom, whichever is deeper. The overexcavation and recompaction should also extend laterally to a minimum of 5 feet beyond the outer edges of the proposed footings.

9.5.8 Prior to placement of fill soils, the upper 8 to 10 inches of native subgrade soils should be scarified, moisture-conditioned to no less than the optimum moisture content and recompacted to a minimum of 95% of the maximum dry density based on ASTM D1557-07 Test Method.

9.5.9 All Engineered Fill (including scarified ground surfaces and backfill) should be placed in thin lifts to allow for adequate bonding and compaction (typically 6 to 8 inches in loose thickness).

9.5.10 All Engineered Fill soils should be placed, moisture conditioned to near optimum moisture content, and compacted to at least 95% relative compaction.

9.5.11 An integral part of satisfactory fill placement is the stability of the placed lift of soil. If placed materials exhibit excessive instability as determined by a SALEM field representative, the lift will be considered unacceptable and shall be remedied prior to placement of additional fill material. Additional lifts should not be placed if the previous lift did not meet the required dry density or if soil conditions are not stable.

9.5.12 Within pavement, it is recommended that scarification, moisture conditioning and recompaction be performed to at least 12 inches below existing grade or finish grade, whichever is deeper. The upper 12 inches of final pavement subgrade, whether completed at-grade, by excavation, or by filling, should be uniformly moisture-conditioned to no less than the optimum moisture content and compacted to at least 95% relative compaction.

9.5.13 Final pavement subgrade should be finished to a smooth, unyielding surface. We further recommend proof-rolling the subgrade with a loaded water truck (or similar equipment with high contact pressure) to verify the stability of the subgrade prior to placing aggregate base.

9.5.14 The most effective site preparation alternatives will depend on site conditions prior to grading. We should evaluate site conditions and provide supplemental recommendations immediately prior to grading, if necessary.

9.5.15 We do not anticipate groundwater or seepage to adversely affect construction if conducted during the drier months of the year (typically summer and fall). However, groundwater and soil moisture conditions could be significantly different during the wet season (typically winter and spring) as surface soil becomes wet; perched groundwater conditions may develop. Grading during this time period will likely encounter wet materials resulting in possible excavation and fill placement difficulties. Project site winterization consisting of placement of aggregate base and protecting exposed soils during construction should be performed. If the construction schedule requires grading operations during the wet season, we can provide additional recommendations as conditions warrant.

9.5.16 The wet soils may become non conducive to site grading as the upper soils yield under the weight of the construction equipment. Therefore, mitigation measures should be performed for stabilization. Typical remedial measures include: discing and aerating the soil during dry weather; mixing the soil with dryer materials; removing and replacing the soil with an approved fill material or placement of crushed rocks or aggregate base material; or mixing the soil with an approved lime or cement product.

The most common remedial measure of stabilizing the bottom of the excavation due to wet soil condition is to reduce the moisture of the soil to near the optimum moisture content by having the subgrade soils scarified and aerated or mixed with drier soils prior to compacting. However, the drying process may require an extended period of time and delay the construction operation. To expedite the stabilizing process, crushed rock may be utilized for stabilization provided this method is approved by the owner for the cost purpose. If the use of crushed rock is considered, it is recommended that the upper soft and wet soils be replaced by 6 to 24 inches of ¾-inch to 1-inch crushed rocks. The thickness of the rock layer depends on the severity of the soil instability. The recommended 6 to 24 inches of crushed rock material will provide a stable platform. It is further recommended that lighter compaction equipment be utilized for compacting the crushed rock. A layer of geofabric is recommended to be placed on top of the compacted crushed rock to minimize migration of soil particles into the voids of the crushed rock, resulting in soil movement. Although it is not required, the use of geogrid (e.g. Tensar TX 140) below the crushed rock will enhance stability and reduce the required thickness of crushed rock necessary for stabilization.

Our firm should be consulted prior to implementing remedial measures to provide appropriate recommendations.

9.6 Shallow Foundations

9.6.1 The site is suitable for use of conventional shallow foundations consisting of continuous footings and isolated pad footings bearing in properly compacted Engineered Fill.

9.6.2 The bearing wall footings considered for the structure should be continuous with a minimum width of 15 inches and extend to a minimum depth of 18 inches below the lowest adjacent grade. Isolated column footings should have a minimum width of 24 inches and extend a minimum depth of 18 inches below the lowest adjacent grade.

9.6.3 The bottom of footing excavations should be maintained free of loose and disturbed soil. Footing concrete should be placed into a neat excavation.

9.6.4 For design purposes, total settlement due to static loading on the order of 1 inch may be assumed for shallow footings. Differential settlement due to static loading, along a 20-foot exterior wall footing or between adjoining column footings, should be ½ inch, producing an angular distortion of 0.002. Most of the settlement is expected to occur during construction as the loads are applied. However, additional post-construction settlement may occur if the foundation soils are flooded or saturated. The footing excavations should not be allowed to dry out any time prior to pouring concrete.

9.6.5 Footings proportioned as recommended above may be designed for the maximum allowable soil bearing pressures shown in the table below.

Loading Condition	Allowable Bearing
Dead Load Only	2,000 psf
Dead-Plus-Live Load	2,500 psf
Total Load, Including Wind or Seismic Loads	3,325 psf

9.6.6 Resistance to lateral footing displacement can be computed using an allowable coefficient of friction factor of 0.38 acting between the base of foundations and the supporting subgrade.

9.6.7 Lateral resistance for footings can alternatively be developed using an allowable equivalent fluid passive pressure of 350 pounds per cubic foot acting against the appropriate vertical native footing faces. The frictional and passive resistance of the soil may be combined without reduction in determining the total lateral resistance. An increase of one-third is permitted when using the alternate load combination in Section 1605.3.2 of the 2015 IBC/2016 CBC that includes wind or earthquake loads.

9.6.8 Underground utilities running parallel to footings should not be constructed in the zone of influence of footings. The zone of influence may be taken to be the area beneath the footing and within a 1:1 plane extending out and down from the bottom edge of the footing.

9.6.9 The foundation subgrade should be sprinkled as necessary to maintain a moist condition without significant shrinkage cracks as would be expected in any concrete placement. Prior to placing rebar reinforcement, foundation excavations should be evaluated by a representative of SALEM for appropriate support characteristics and moisture content. Moisture conditioning may be required for the materials exposed at footing bottom, particularly if foundation excavations are left open for an extended period.

9.7 Concrete Slabs-on-Grade

9.7.1 Slab thickness and reinforcement should be determined by the structural engineer based on the anticipated loading. We recommend that non-structural slabs-on-grade be at least 4 inches thick and underlain by six (6) inches of compacted granular aggregate subbase material compacted to at least 95% relative compaction.

9.7.2 Granular aggregate subbase material shall conform to ASTM D-2940, Latest Edition (Table 1, bases) with at least 95 percent passing a 1½-inch sieve and not more than 8% passing a No. 200 sieve or its approved equivalent to prevent capillary moisture rise.

9.7.3 The use of processed asphalt in the granular aggregate subbase material (i.e. recycled or miscellaneous base) will have to be approved by the owner. Asphalt is a petroleum hydrocarbon with numerous components, including naphthalene and other semi-volatile constituents that are regulated by California. This material in the subsurface could become a potential vapor intrusion risk (naphthalene is a recent risk-driver that DTSC is actively pursuing).

9.7.4 We recommend reinforcing slabs, at a minimum, with No. 3 reinforcing bars placed 18 inches on center, each way.

9.7.5 Slabs subject to structural loading may be designed utilizing a modulus of subgrade reaction K of 150 pounds per square inch per inch. The K value was approximated based on inter-relationship of soil classification and bearing values (Portland Cement Association, Rocky Mountain Northwest).

9.7.6 The spacing of crack control joints should be designed by the project structural engineer. In order to regulate cracking of the slabs, we recommend that full depth construction joints or control joints be provided at a maximum spacing of 15 feet in each direction for 5-inch thick slabs and 12 feet for 4-inch thick slabs.

9.7.7 Crack control joints should extend a minimum depth of one-fourth the slab thickness and should be constructed using saw-cuts or other methods as soon as practical after concrete placement. The exterior floors should be poured separately in order to act independently of the walls and foundation system.

9.7.8 It is recommended that the utility trenches within the structure be compacted, as specified in our report, to minimize the transmission of moisture through the utility trench backfill. Special attention to the immediate drainage and irrigation around the structures is recommended.

9.7.9 Moisture within the structure may be derived from water vapors, which were transformed from the moisture within the soils. This moisture vapor penetration can affect floor coverings and produce mold and mildew in the structure. To minimize moisture vapor intrusion, it is recommended that a vapor retarder be installed in accordance with manufacturer's recommendations and/or ASTM guidelines, whichever is more stringent. In addition, ventilation of the structure is recommended to reduce the accumulation of interior moisture.

9.7.10 In areas where it is desired to reduce floor dampness where moisture-sensitive coverings are anticipated, construction should have a suitable waterproof vapor retarder (a minimum of 15 mils thick polyethylene vapor retarder sheeting, Raven Industries "VaporBlock 15, Stego Industries 15 mil "StegoWrap" or W.R. Meadows Sealtight 15 mil "Perminator") incorporated into the floor slab design. The water vapor retarder should be decay resistant material complying with ASTM E96 not exceeding 0.04 perms, ASTM E154 and ASTM E1745 Class A. The vapor barrier should be placed between the concrete slab and the compacted granular aggregate subbase material. The water vapor retarder (vapor barrier) should be installed in accordance with ASTM Specification E 1643-94.

9.7.11 The concrete maybe placed directly on vapor retarder. The vapor retarder should be inspected prior to concrete placement. Cut or punctured retarder should be repaired using vapor retarder material lapped 6 inches beyond damaged areas and taped.

9.7.12 The recommendations of this report are intended to reduce the potential for cracking of slabs due to soil movement. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade may exhibit some cracking due to soil movement. This is common for project areas that contain expansive soils since designing to eliminate potential soil movement is cost prohibitive. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced and/or controlled by limiting the slump of the concrete, proper concrete placement and curing, and by the placement of crack control joints at periodic intervals, in particular, where re-entrant slab corners occur.

9.7.13 Proper finishing and curing should be performed in accordance with the latest guidelines provided by the American Concrete Institute, Portland Cement Association, and ASTM.

9.8 Lateral Earth Pressures and Frictional Resistance

9.8.1 Active, at-rest and passive unit lateral earth pressures against footings and walls are summarized in the table below:

Lateral Pressure **Level Backfill and Drained Conditions**	**Equivalent Fluid Pressure, pcf**
Active Pressure	40
At-Rest Pressure	60
Passive Pressure	350
Related Parameters	
Allowable Coefficient of Friction	0.38
In-Place Soil Density (lbs/ft^3)	120

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9.8.2 Active pressure applies to walls, which are free to rotate. At-rest pressure applies to walls, which are restrained against rotation. The preceding lateral earth pressures assume sufficient drainage behind retaining walls to prevent the build-up of hydrostatic pressure.

9.8.3 The top one-foot of adjacent subgrade should be deleted from the passive pressure computation.

9.8.4 A safety factor consistent with the design conditions should be included when using the values in the above table.

9.8.5 For stability against lateral sliding, which is resisted solely by the passive pressure, we recommend a minimum safety factor of 1.5.

9.8.6 For stability against lateral sliding, which is resisted by the combined passive and frictional resistance, a minimum safety factor of 2.0 is recommended.

9.8.7 For lateral stability against seismic loading conditions, we recommend a minimum safety factor of 1.1.

9.8.8 For dynamic seismic lateral loading the following equation shall be used:

Dynamic Seismic Lateral Loading Equation
Dynamic Seismic Lateral Load = $\frac{3}{8}\gamma K_h H^2$
Where: γ = In-Place Soil Density
K_h = Horizontal Acceleration = $\frac{2}{3}PGA_M$
H = Wall Height

9.9 Retaining Walls

9.9.1 Retaining and/or below grade walls should be drained with either perforated pipe encased in free-draining gravel or a prefabricated drainage system. The gravel zone should have a minimum width of 12 inches wide and should extend upward to within 12 inches of the top of the wall. The upper 12 inches of backfill should consist of native soils, concrete, asphaltic-concrete or other suitable backfill to minimize surface drainage into the wall drain system. The gravel should conform to Class II permeable materials graded in accordance with the current CalTrans Standard Specifications.

9.9.2 Prefabricated drainage systems, such as Miradrain®, Enkadrain®, or an equivalent substitute, are acceptable alternatives in lieu of gravel provided they are installed in accordance with the manufacturer's recommendations. If a prefabricated drainage system is proposed, our firm should review the system for final acceptance prior to installation.

9.9.3 Drainage pipes should be placed with perforations down and should discharge in a non-erosive manner away from foundations and other improvements. The top of the perforated pipe should be placed at or below the bottom of the adjacent floor slab or pavements. The pipe should be placed in the center line of the drainage blanket and should have a minimum diameter of 4 inches. Slots should be no wider than 1/8-inch in diameter, while perforations should be no more than ¼-inch in diameter.

9.9.4 If retaining walls are less than 5 feet in height, the perforated pipe may be omitted in lieu of weep holes on 4 feet maximum spacing. The weep holes should consist of 2-inch minimum diameter holes (concrete walls) or unmortared head joints (masonry walls) and placed no higher than 18 inches above the lowest adjacent grade. Two 8-inch square overlapping patches of geotextile fabric (conforming to the CalTrans Standard Specifications for "edge drains") should be affixed to the rear wall opening of each weep hole to retard soil piping.

9.9.5 During grading and backfilling operations adjacent to any walls, heavy equipment should not be allowed to operate within a lateral distance of 5 feet from the wall, or within a lateral distance equal to the wall height, whichever is greater, to avoid developing excessive lateral pressures. Within this zone, only hand operated equipment ("whackers," vibratory plates, or pneumatic compactors) should be used to compact the backfill soils.

9.10 Temporary Excavations

9.10.1 We anticipate that the majority of the sandy site soils will be classified as Cal-OSHA “Type C” soil when encountered in excavations during site development and construction. Excavation sloping, benching, the use of trench shields, and the placement of trench spoils should conform to the latest applicable Cal-OSHA standards. The contractor should have a Cal-OSHA-approved “competent person” onsite during excavation to evaluate trench conditions and make appropriate recommendations where necessary.

9.10.2 It is the contractor’s responsibility to provide sufficient and safe excavation support as well as protecting nearby utilities, structures, and other improvements which may be damaged by earth movements. All onsite excavations must be conducted in such a manner that potential surcharges from existing structures, construction equipment, and vehicle loads are resisted. The surcharge area may be defined by a 1:1 projection down and away from the bottom of an existing foundation or vehicle load.

9.10.3 Temporary excavations and slope faces should be protected from rainfall and erosion. Surface runoff should be directed away from excavations and slopes.

9.10.4 Open, unbraced excavations in undisturbed soils should be made according to the slopes presented in the following table:

RECOMMENDED EXCAVATION SLOPES

Depth of Excavation (ft)	Slope (Horizontal : Vertical)
0-5	1:1
5-10	2:1

SALEM engineering group, inc.

9.10.5 If, due to space limitation, excavations near property lines or existing structures are performed in a vertical position, slot cuts, braced shorings or shields may be used for supporting vertical excavations. Therefore, in order to comply with the local and state safety regulations, a properly designed and installed shoring system would be required to accomplish planned excavations and installation. A Specialty Shoring Contractor should be responsible for the design and installation of such a shoring system during construction.

9.10.6 Braced shorings should be designed for a maximum pressure distribution of 30H, (where H is the depth of the excavation in feet). The foregoing does not include excess hydrostatic pressure or surcharge loading. Fifty percent of any surcharge load, such as construction equipment weight, should be added to the lateral load given herein. Equipment traffic should concurrently be limited to an area at least 3 feet from the shoring face or edge of the slope.

9.10.7 The excavation and shoring recommendations provided herein are based on soil characteristics derived from the borings within the area. Variations in soil conditions will likely be encountered during the excavations. SALEM Engineering Group, Inc. should be afforded the opportunity to provide field review to evaluate the actual conditions and account for field condition variations not otherwise anticipated in the preparation of this recommendation. Slope height, slope inclination, or excavation depth should in no case exceed those specified in local, state, or federal safety regulation, (e.g. OSHA) standards for excavations, 29 CFR part 1926, or Assessor's regulations.

9.11 Underground Utilities

9.11.1 Underground utility trenches should be backfilled with properly compacted material. The material excavated from the trenches should be adequate for use as backfill provided it does not contain deleterious matter, vegetation or rock larger than 3 inches in maximum dimension. Trench backfill should be placed in loose lifts not exceeding 8 inches and compacted to at least 95% relative compaction at or above optimum moisture content.

9.11.2 Bedding and pipe zone backfill typically extends from the bottom of the trench excavations to approximately 6 to 12 inches above the crown of the pipe. Pipe bedding and backfill material should conform to the requirements of the governing utility agency.

9.11.3 It is suggested that underground utilities crossing beneath new or existing structures be plugged at entry and exit locations to the buildings or structures to prevent water migration. Trench plugs can consist of on-site clay soils, if available, or sand cement slurry. The trench plugs should extend 2 feet beyond each side of individual perimeter foundations.

9.11.4 The contractor is responsible for removing all water-sensitive soils from the trench regardless of the backfill location and compaction requirements. The contractor should use appropriate equipment and methods to avoid damage to the utilities and/or structures during fill placement and compaction.

9.12 Surface Drainage

9.12.1 Proper surface drainage is critical to the future performance of the project. Uncontrolled infiltration of irrigation excess and storm runoff into the soils can adversely affect the performance of the planned improvements. Saturation of a soil can cause it to lose internal shear strength and increase its compressibility, resulting in a change to important engineering properties. Proper drainage should be maintained at all times.

9.12.2 Site drainage should be collected and transferred away from improvements in non-erosive drainage devices. Drainage should not be allowed to pond anywhere on the site, and especially not against any foundations or retaining walls. Drainage should not be allowed to flow uncontrolled over any descending slope. The proposed structures should be provided with roof gutters. Discharge from downspouts, roof drains and scuppers are not permitted onto unprotected soils within five feet of the buildings perimeters. Planters which are located adjacent to foundations should be sealed or properly drained to prevent moisture intrusion into the materials providing foundation support. Landscape irrigation within 5 feet of the buildings perimeter footings should be kept to a minimum to just support vegetative life.

9.12.3 The ground immediately adjacent to the foundation shall be sloped away from buildings at a slope of not less than 5 percent for a minimum distance of 10 feet. Impervious surfaces within 10 feet of building's foundations shall be sloped a minimum of 2 percent away from buildings and drainage gradients maintained to carry all surface water to collection facilities and off site. These grades should be maintained for the life of the project.

9.13 Pavement Design

9.13.1 Based on site soil conditions and R-Value test results, an R-value of 30 was used for the preliminary flexible asphaltic concrete pavement design. The R-value may be verified during grading of the pavement areas.

9.13.2 The pavement design recommendations provided herein are based on the State of California Department of Transportation (CALTRANS) design manual. The following table shows the recommended pavement sections for various traffic indices.

TABLE 9.13.2
ASPHALT CONCRETE PAVEMENT

Traffic Index	Asphaltic Concrete	Class II Aggregate Base*	Compacted Subgrade*
5.0 (Parking and Vehicle Drive Areas)	3.0"	5.0"	12.0"
6.0 (Heavy Truck Areas)	3.0"	8.5"	12.0"

95% compaction based on ASTM D1557-07 Test Method

9.13.3 The following recommendations are for light-duty and heavy-duty Portland Cement Concrete pavement sections.

TABLE 9.13.3
PORTLAND CEMENT CONCRETE PAVEMENT

Traffic Index	Portland Cement Concrete*	Class II Aggregate Base**	Compacted Subgrade**
5.0 (Light Duty)	5.0"	4.0"	12.0"
6.0 (Heavy Duty)	6.0"	6.0"	12.0"

Minimum Compressive Strength of 4,000 psi
***** 95% compaction based on ASTM D1557-07 Test Method***

10. PLAN REVIEW, CONSTRUCTION OBSERVATION AND TESTING

10.1 Plan and Specification Review

10.1.1 SALEM should review the project plans and specifications prior to final design submittal to assess whether our recommendations have been properly implemented and evaluate if additional analysis and/or recommendations are required.

10.2 Construction Observation and Testing Services

10.2.1 The recommendations provided in this report are based on the assumption that we will continue as Geotechnical Engineer of Record throughout the construction phase. It is important to maintain continuity of geotechnical interpretation and confirm that field conditions encountered are similar to those anticipated during design. If we are not retained for these services, we cannot assume any responsibility for others interpretation of our recommendations, and therefore the future performance of the project.

10.2.2 SALEM should be present at the site during site preparation to observe site clearing, preparation of exposed surfaces after clearing, and placement, treatment and compaction of fill material.

10.2.3 SALEM's observations should be supplemented with periodic compaction tests to establish substantial conformance with these recommendations. Moisture content of footings and slab subgrade should be tested immediately prior to concrete placement. SALEM should observe foundation excavations prior to placement of reinforcing steel or concrete to assess whether the actual bearing conditions are compatible with the conditions anticipated during the preparation of this report.

11. LIMITATIONS AND CHANGED CONDITIONS

The analyses and recommendations submitted in this report are based upon the data obtained from the test borings drilled at the approximate locations shown on the Site Plan, Figure 2. The report does not reflect variations which may occur between borings. The nature and extent of such variations may not become evident until construction is initiated.

If variations then appear, a re-evaluation of the recommendations of this report will be necessary after performing on-site observations during the excavation period and noting the characteristics of such variations. The findings and recommendations presented in this report are valid as of the present and for the proposed construction. If site conditions change due to natural processes or human intervention on the property or adjacent to the site, or changes occur in the nature or design of the project, or if there is a substantial time lapse between the submission of this report and the start of the work at the site, the conclusions and recommendations contained in our report will not be considered valid unless the changes are reviewed by SALEM and the conclusions of our report are modified or verified in writing.

The validity of the recommendations contained in this report is also dependent upon an adequate testing and observations program during the construction phase. Our firm assumes no responsibility for construction compliance with the design concepts or recommendations unless we have been retained to perform the on-site testing and review during construction. SALEM has prepared this report for the exclusive use of the owner and project design consultants.

SALEM does not practice in the field of corrosion engineering. It is recommended that a qualified corrosion engineer be consulted regarding protection of buried steel or ductile iron piping and conduit or, at a minimum, that manufacturer's recommendations for corrosion protection be closely followed. Further, a corrosion engineer may be needed to incorporate the necessary precautions to avoid premature corrosion of concrete slabs and foundations in direct contact with native soil.

The importation of soil and or aggregate materials to the site should be screened to determine the potential for corrosion to concrete and buried metal piping. The report has been prepared in accordance with generally accepted geotechnical engineering practices in the area. No other warranties, either express or implied, are made as to the professional advice provided under the terms of our agreement and included in this report.

If you have any questions, or if we may be of further assistance, please do not hesitate to contact our office at (909) 980-6455.

Respectfully Submitted,

SALEM ENGINEERING GROUP, INC.

Jared Christiansen
Geotechnical Staff Engineer

Clarence Jiang, GE
Senior Geotechnical Engineer
RGE 2477

R. Sammy Salem, MS, PE, GE
Principal Engineer
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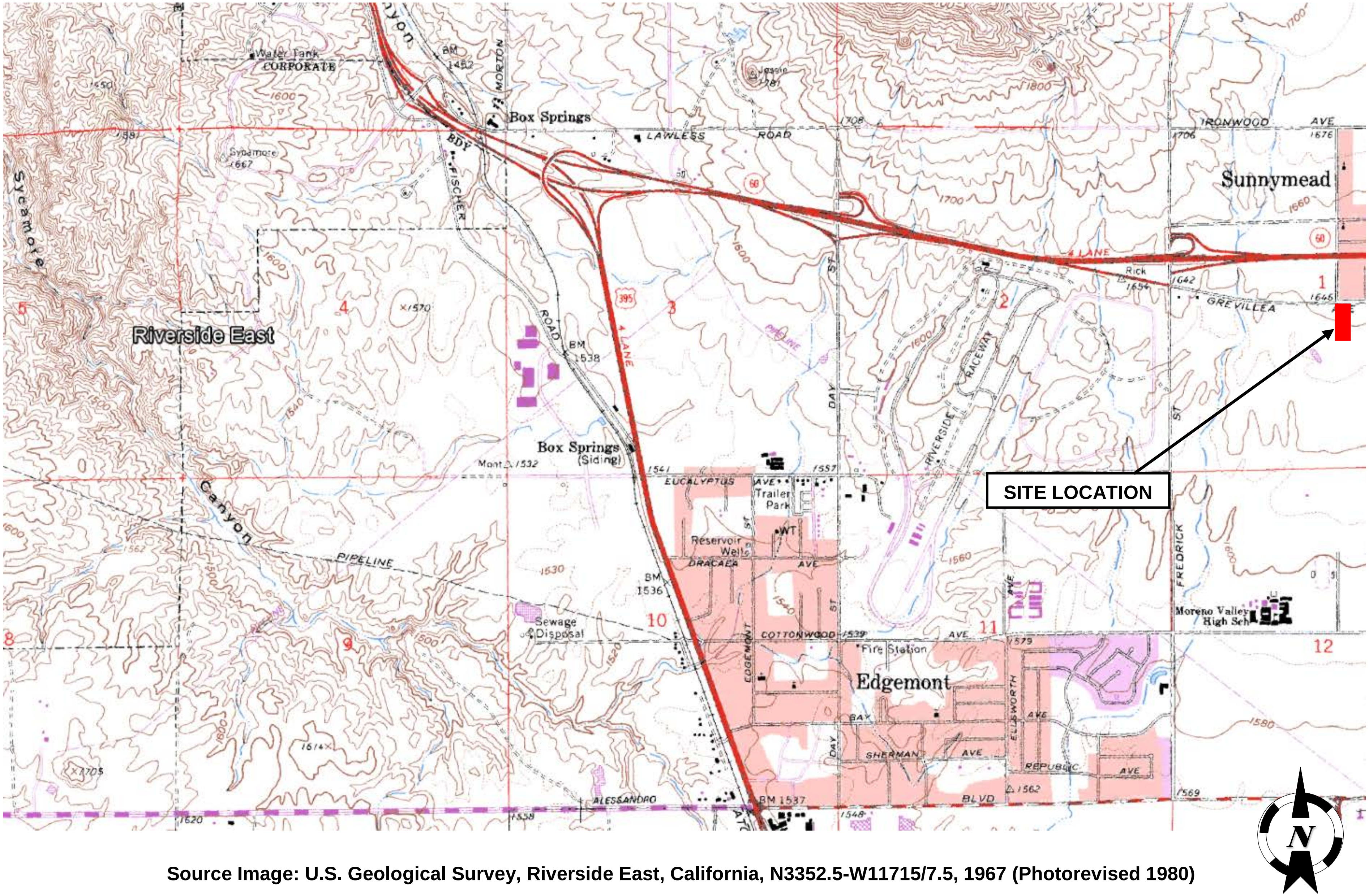
SALEM engineering group, inc.



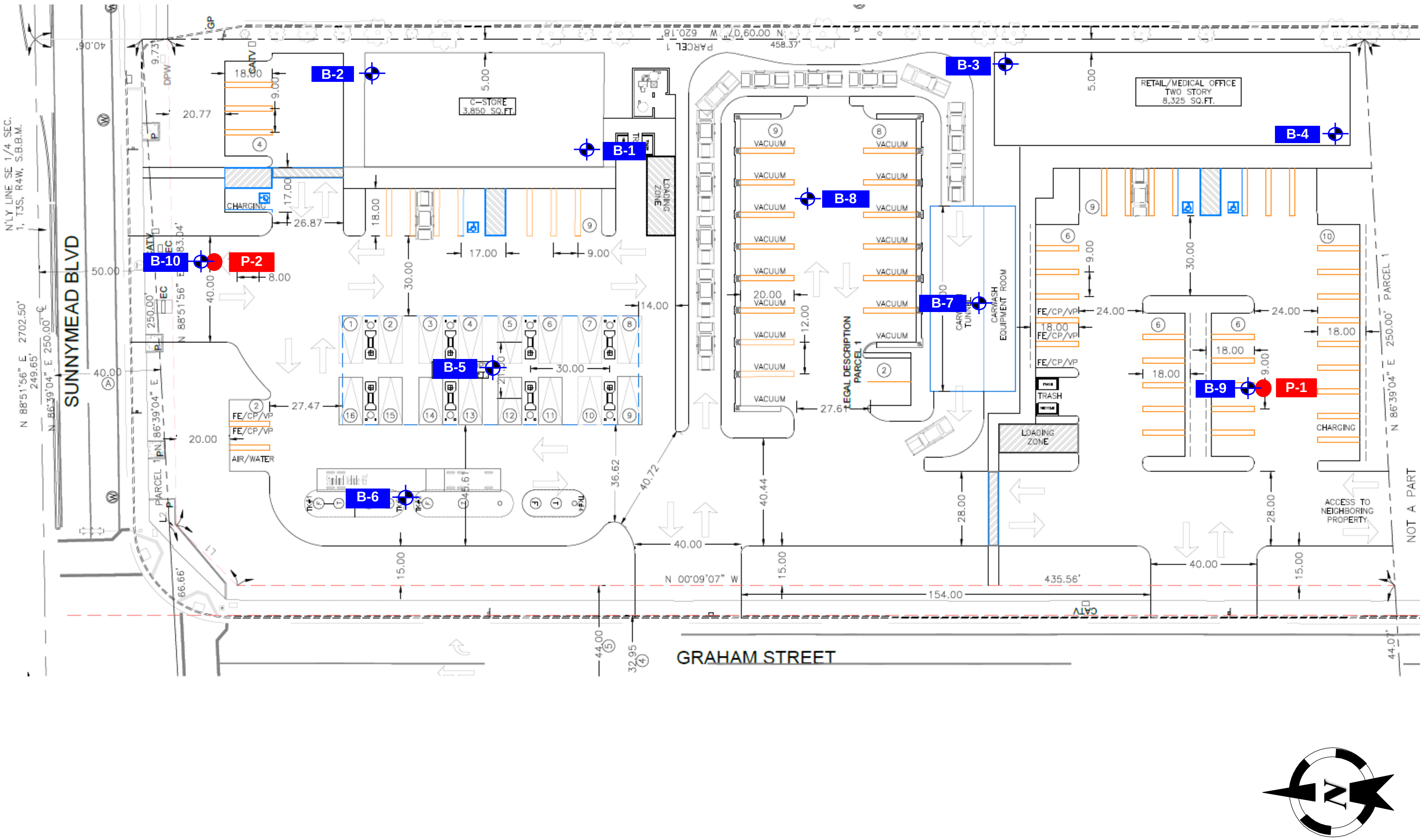
Source Image: U.S. Geological Survey, Riverside East, California, N3352.5-W11715/7.5, 1967 (Photorevised 1980)

VICINITY MAP

GEOTECHNICAL ENGINEERING INVESTIGATION
Go Fresh Gas Station
SEC Sunnymead Boulevard & Graham Street
Moreno Valley, California

SCALE:	DATE:
NOT TO SCALE	12/2019
DRAWN BY:	APPROVED BY:
JC	CJ
PROJECT NO.	FIGURE NO.
3-219-1018	1

SALEM engineering group, inc.



SITE PLAN

GEOTECHNICAL ENGINEERING INVESTIGATION
Go Fresh Gas Station
SEC Sunnymead Boulevard & Graham Street
Moreno Valley, California

SCALE: NOT TO SCALE	DATE: 12/2019
DRAWN BY: KV	APPROVED BY: CJ
PROJECT NO. 3-219-1018	FIGURE NO. 2

LEGEND:
B-1 Soil Boring Locations
P-1 Percolation Locations
All Locations Approximate

SALEM engineering group, inc.

APPENDIX A

APPENDIX A
FIELD EXPLORATION

Fieldwork for our investigation (drilling) was conducted on December 12, 2019, and included a site visit, subsurface exploration, and soil sampling. The locations of the exploratory borings and percolation tests are shown on the Site Plan, Figure 2. Boring logs for our exploration are presented in figures following the text in this appendix. Borings were located in the field using existing reference points. Therefore, actual boring locations may deviate slightly.

In general, our borings were performed using a truck-mounted CME 45 drill rig equipped with a 4-inch diameter solid flight auger. Sampling in the borings was accomplished using a hydraulic 140-pound hammer with a 30-inch drop. Samples were obtained with a 3-inch outside-diameter (OD), split spoon (California Modified) sampler, and a 2-inch OD, Standard Penetration Test (SPT) sampler. The number of blows required to drive the sampler the last 12 inches (or fraction thereof) of the 18-inch sampling interval were recorded on the boring logs. The blow counts shown on the boring logs should not be interpreted as standard SPT "N" values; corrections have not been applied. Upon completion, the borings were backfilled with soil cuttings.

Subsurface conditions encountered in the exploratory borings were visually examined, classified and logged in general accordance with the American Society for Testing and Materials (ASTM) Practice for Description and Identification of Soils (Visual-Manual Procedure D2488). This system uses the Unified Soil Classification System (USCS) for soil designations. The logs depict soil and geologic conditions encountered and depths at which samples were obtained. The logs also include our interpretation of the conditions between sampling intervals. Therefore, the logs contain both observed and interpreted data. We determined the lines designating the interface between soil materials on the logs using visual observations, drill rig penetration rates, excavation characteristics and other factors. The transition between materials may be abrupt or gradual. Where applicable, the field logs were revised based on subsequent laboratory testing.

Test Boring: B-1 **Page** 1 **Of:** 2

SALEM engineering group, inc.

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Medium dense; slightly moist; brown; fine to medium grain sand.		5.7	114.7	
	6/6 7/6 11/6			18	5.7	114.7	
5	15/6 19/6 25/6		Grades as above; dense.	44	4.9	107.7	
10	20/6 37/6 43/6		Grades as above; very dense.	80	8.0	-	
15	14/6 20/6 22/6		Grades as above; dense.	44	9.1	-	
20	15/6 22/6 37/6		Grades as above; very dense; trace clay.	59	12.6	-	
25	13/6 19/6 23/6	SW-SM	Well-graded SAND with Silt Dense; slightly moist; light brown; fine to coarse grain sand.	42	3.3	-	

Notes:

Figure Number A-1

SALEM engineering group, inc.

Project Number: 3-219-1018
Date: 12/12/2019
Test Boring: B-1

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
30	15/6 22/6 26/6	SM	Silty SAND Dense; slightly moist; light brown; fine to medium grain sand.	48	4.0	-	
35	13/6 23/6 31/6		Grades as above; very dense; moist; brown; fine grain sand; trace clay.	54	8.6	-	
40	22/6 26/6 29/6		Grades as above; fine to medium grain sand; with clay.	55	6.8	-	
45	15/6 24/6 40/6		Grades as above.	64	10.4	-	
			End of boring at 46.5 feet BGS.				
50							
55							
60							

Notes:

Figure Number A-1

Test Boring: B-2 **Page** 1 **Of:** 1

SALEM engineering group, inc.

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Medium dense; slightly moist; brown; fine to medium grain sand; with clay.	23	4.9	117.3	
	10/6 11/6 12/6						
5	12/6 19/6 21/6		Grades as above; dense.	40	3.2	111.9	
10	16/6 35/6 47/6		Grades as above; very dense; moist; trace clay.	82	6.2	-	
15	11/6 24/6 27/6		Grades as above; no clay.	51	5.7	-	
20	12/6 21/6 33/6		Grades as above; trace clay.	54	8.0	-	
			End of boring at 21.5 feet BGS.				
25							

Notes:

Figure Number A-2

SALEM engineering group, inc.

Test Boring: B-3 **Page** 1 **Of:** 1

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Medium dense; moist; brown; fine to medium grain sand.	28	6.4	110.7	
	7/6 11/6 17/6						
5	13/6 23/6 33/6		Grades as above; dense.	56	11.1	109.2	
10	20/6 32/6 47/6		Grades as above; very dense; very moist; light brown; fine to medium grain sand; with clay.	79	13.1	-	
15	15/6 23/6 38/6		Grades as above; moist.	61	8.0	-	
20	13/6 25/6 27/6		Grades as above; slightly moist; fine to coarse grain sand; no clay.	52	4.2	-	
			End of boring at 21.5 feet BGS.				
25							

Notes:

Figure Number A-3

Test Boring: B-4 **Page** 1 **Of:** 1

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Medium dense; moist; brown; fine to medium grain sand; with clay.				
	8/6 11/6 12/6			23	6.2	116.5	
5	4/6 5/6 8/6		Grades as above; loose; slightly moist; trace clay.	13	3.6	113.8	
		SP-SM	Poorly graded SAND with Silt Medium dense; damp; light brown; fine to coarse grain sand.				
10	5/6 6/6 11/6			17	2.0	-	
		SM	Silty SAND Very dense; moist; brown; fine to medium grain sand; with clay.				
15	10/6 26/6 45/6			71	7.7	-	
20	13/6 24/6 32/6		Grades as above.	56	7.1	-	
			End of boring at 21.5 feet BGS.				
25							

Notes:

Figure Number A-4

Test Boring: B-5 **Page** 1 **Of:** 1

SALEM engineering group, inc.

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Medium dense; moist; brown; fine to medium grain sand; with clay.				
	11/6 13/6 21/6			34	6.7	116.0	
5	5/6 6/6 12/6		Grades as above; slightly moist; fine grain sand.	18	3.9	109.1	
10	13/6 25/6 37/6		Grades as above; very dense; very moist; trace clay.	62	16.5	-	
15	7/6 15/6 21/6		Grades as above; dense; moist; with clay.	36	11.9	-	
20	13/6 15/6 16/6		Grades as above; trace clay.	31	7.6	-	
			End of boring at 21.5 feet BGS.				
25							

Notes:

Figure Number A-5

SALEM engineering group, inc.

Test Boring: B-6 **Page** 1 **Of:** 1

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Medium dense; moist; brown; fine to medium grain sand; with clay.	18	10.9	113.0	
	7/6 9/6 9/6						
5	4/6 5/6 6/6		Grades as above; loose; slightly moist; no clay.	11	3.9	109.1	
10	4/6 5/6 7/6		Grades as above; medium dense.	12	3.9	-	
			End of boring at 11.5 feet BGS.				
15							
20							
25							

Notes:

Figure Number A-6

Test Boring: B-7 **Page** 1 **Of:** 1

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

SALEM engineering group, inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Medium dense; moist; brown; fine to medium grain sand; with clay.	19	7.1	114.3	
	7/6 9/6 10/6						
5	3/6 4/6 4/6		Grades as above; loose; light brown; fine to coarse grain sand; no clay.	8	5.7	112.6	
10	26/6 50/6 -		Grades as above; very dense; fine to medium grain sand; with clay.	50/6"	12.4	-	
15	20/6 31/6 38/6		Grades as above.	69	9.0	-	
20	17/6 27/6 35/6		Grades as above.	62	6.0	-	
			End of boring at 21.5 feet BGS.				
25							

Notes:

Figure Number A-7

SALEM engineering group, inc.

Test Boring: B-8 **Page** 1 **Of:** 1

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Dense; moist; brown; fine grain sand; with clay.				
	20/6 25/6 29/6			54	11.9	119.3	
5	21/6 22/6 31/6		Grades as above; fine to medium grain sand.	53	6.9	122.7	
10	8/6 9/6 11/6		Grades as above; medium dense; slightly moist; no clay.	20	4.3	-	
15	20/6 33/6 47/6		Grades as above; very dense; moist; fine to coarse grain sand.	80	8.3	-	
20	12/6 31/6 43/6		Grades as above; fine to medium grain sand; trace clay.	74	9.7	-	
			End of boring at 21.5 feet BGS.				
25							

Notes:

Figure Number A-8

SALEM engineering group, inc.

Test Boring: B-9 **Page** 1 **Of:** 1

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Medium dense; moist; brown; fine to medium grain sand; with clay.				
	8/6 13/6 16/6			29	5.8	125.6	
5	8/6 10/6 12/6		Grades as above; trace clay.	22	9.1	121.5	
	6/6 9/6 12/6		Grades as above.	21	5.9	-	
10			End of boring at 10 feet BGS.				
15							
20							
25							

Notes:

Figure Number A-9

SALEM engineering group, inc.

Test Boring: B-10 **Page** 1 **Of:** 1

Project Number: 3-219-1018

Date: 12/12/2019

Client: RAMCAM Engineering Group, Inc.

Project: Go Fresh Gas Station

Location: SEC Sunnymead Boulevard & Graham Street, Moreno Valley, California

Drilled By: SALEM **Logged By:** SK

Drill Type: CME 45C **Elevation:** N/A

Auger Type: 4 in. Solid Flight Auger **Initial Depth to Groundwater:** N/A

Hammer Type: Automatic Trip - 140 lb/30 in **Final Depth to Groundwater:** N/A

ELEVATION/ DEPTH (feet)	SOIL SYMBOLS SAMPLER SYMBOLS AND FIELD TEST DATA	USCS	Soil Description	N-Values blows/ft.	Moisture Content %	Dry Density, PCF	Remarks
0		SM	Silty SAND Medium dense; slightly moist; brown; fine to medium grain sand; with clay.	35	4.0	117.3	
	15/6 16/6 19/6						
	9/6 20/6 23/6		Grades as above; dense.	43	10.3	105.5	
5			End of boring at 5 feet BGS.				
10							
15							
20							
25							

Notes:

Figure Number A-10

KEY TO SYMBOLS

Symbol Description

Strata symbols

Silty sand

Well graded sand with silt

Poorly graded sand with silt

Misc. Symbols

Boring continues

Soil Samplers

California sampler

Standard penetration test

Notes:

Consistency Classification

Blows Per Foot (Uncorrected)

Granular Soils

	MCS	SPT
Very loose	<5	<4
Loose	5 -15	4 - 10
Medium dense	16 - 40	11 - 30
Dense	41 - 65	31 - 50
Very dense	>65	>50

Cohesive Soils

	MCS	SPT
Very soft	<3	<2
Soft	3 - 5	2 - 4
Firm	6 - 10	5 - 8
Stiff	11 - 20	9 - 15
Very Stiff	21 - 40	16 - 30
Hard	>40	>30

MCS = Modified California Sampler
SPT = Standard Penetration Test Sampler

Percolation Test Worksheet

Project: **Go Fresh Gas Station**
SEC Sunnymead Blvd. & Graham St.
Moreno Valley, California

Job No.: **3-219-1018**
Date Drilled: **12/12/2019**
Soil Classification: **Silty SAND (SM)**

Hole Radius: 4 in.
Pipe Dia.: 3 in.
Total Depth of Hole: 120 in.

Test Hole No.: **P-1**
Tested by: **SK**
Drilled Hole Depth: **10** ft.

Presoaking Date: **12/12/2019**
Test Date: **12/13/2019**

Pipe Stick up: 0 ft.

Time Start	Time Finish	Depth of Test Hole (ft)#	Refill- Yes or No	Elapsed Time (hrs:min)	Initial Water Level# (ft)	Final Water Level# (ft)	Δ Water Level (in.)	Δ Min.	Meas. Perc Rate (min/in)	Initial Height of Water (in)	Final Height of Water (in)	Average Height of Water (in)	Infiltration Rate, It (in/hr)
6:55	7:20	10.0	Y	0:25	6.10	6.77	8.04	25	3.1	46.8	38.8	42.8	0.86
7:22	7:47	10.0	Y	0:25	6.77	7.28	6.12	25	4.1	38.8	32.6	35.7	0.78
7:55	8:05	10.0	N	0:10	7.28	7.44	1.92	10	5.2	32.6	30.7	31.7	0.68
8:05	8:15	10.0	N	0:10	7.44	7.58	1.68	10	6.0	30.7	29.0	29.9	0.63
8:15	8:25	10.0	N	0:10	7.58	7.71	1.56	10	6.4	29.0	27.5	28.3	0.62
8:25	8:35	10.0	N	0:10	7.71	7.84	1.56	10	6.4	27.5	25.9	26.7	0.65
8:35	8:45	10.0	N	0:10	7.84	7.96	1.44	10	6.9	25.9	24.5	25.2	0.64
8:45	8:55	10.0	N	0:10	7.96	8.08	1.44	10	6.9	24.5	23.0	23.8	0.67
Recommended for Design:										**Infiltration Rate**			**0.62**

SALEM engineering group, inc.

Percolation Test Worksheet

Project: Go Fresh Gas Station
SEC Sunnymead Blvd. & Graham St.
Moreno Valley, California

Job No.: 3-219-1018
Date Drilled: 12/12/2019
Soil Classification: Silty SAND (SM)

Hole Radius: 4 in.
Pipe Dia.: 3 in.
Total Depth of Hole: 60 in.

Test Hole No.: **P-2**
Tested by: **SK**
Drilled Hole Depth: **5** ft.

Presoaking Date: 12/12/2019
Test Date: 12/13/2019

Pipe Stick up: 0 ft.

Time Start	Time Finish	Depth of Test Hole (ft)#	Refill- Yes or No	Elapsed Time (hrs:min)	Initial Water Level# (ft)	Final Water Level# (ft)	Δ Water Level (in.)	Δ Min.	Meas. Perc Rate (min/in)	Initial Height of Water (in)	Final Height of Water (in)	Average Height of Water (in)	Infiltration Rate, It (in/hr)
7:00	7:25	5.0	Y	0:25	1.40	2.40	12.00	25	2.1	43.2	31.2	37.2	1.47
7:25	7:50	5.0	Y	0:25	2.40	3.08	8.16	25	3.1	31.2	23.0	27.1	1.35
7:50	8:00	5.0	N	0:10	3.08	3.30	2.64	10	3.8	23.0	20.4	21.7	1.34
8:00	8:10	5.0	N	0:10	3.30	3.49	2.28	10	4.4	20.4	18.1	19.3	1.29
8:10	8:20	5.0	N	0:10	3.49	3.66	2.04	10	4.9	18.1	16.1	17.1	1.28
8:20	8:30	5.0	N	0:10	3.66	3.81	1.80	10	5.6	16.1	14.3	15.2	1.26
8:30	8:40	5.0	N	0:10	3.81	3.95	1.68	10	6.0	14.3	12.6	13.4	1.31
8:40	8:50	5.0	N	0:10	3.95	4.08	1.56	10	6.4	12.6	11.0	11.8	1.35

Recommended for Design: **Infiltration Rate** **1.26**

SALEM engineering group, inc.

DRY SAND SETTLEMENT DUE TO EARTHQUAKE SHAKING

Job No. 3-219-1018 **Job Name** Proposed Go Fresh Gas Station
Boring No. B-1 **Drill Date** 12/12/19

* Use Fig. 11 of Tokimatsu & Seed (1987)
** Use Fig. 13 of Tokimatsu & Seed (1987)
*** $MSF=10^{2.24}/Mw^{2.56}$
\# $C_N=2.2/(1.2+\sigma'_o/P_a)$
\+ From Pradel, D. (1998) equations for modulus reduction curves

User Input Section

Earthquake Data			
Mag. (M_w)	8.2	Drilling GW Depth (ft)	-
a_{max}/g	0.624	Earthquake GW Depth (ft)	50
MSF***	0.80	Rod Stick-Up (ft)	3

SPT N-Value Correction Factors

Energy Ratio	C_E	1.60	Notes
Borehole Dia.	C_B	1.05	Notes
Sampling Method	C_S	1.2	Notes
Factor of Safety	FS	1.0	
Rod Length	C_R	Calculated	
Overburden Press	C_N	Calculated	

Lookup Tables

% Fines	ΔN	Length	C_R
0	0	1	0.75
10	1	12	0.85
25	2	20	0.95
50	4	30	0.98
75	5	33	1

$\Delta = -0.0006(\%\ Fines)^2 + 0.1088(\%\ Fines) - 0.0852$
$C_R = -0.0002(Length)^2 + 0.0131(Length) + 0.7324$

Depth (ft)	USCS	Dry Unit Wt (pcf)	w (%)	Fines %	SPT Field N	Layer (ft)	Unit Wt (pcf)	Total σ_o bottom (psf)	Total σ_o mid-pt. (psf)	During Drilling Eff. σ'_o (psf)	C_N#	SPT $(N_1)_{60}$	ΔN	Fines Corct'd SPT $(N_1)_{60f}$	During EQ Eff. σ'_{oeq} (psf)	σ_o/σ'_{oeq}	r_d	Shear Modulus G_{max}##	Cyclic Shear Stress T_{av}	Shear Strain/Shear Modulus Ratio $\gamma_{eff}(G_{eff}/G_{max})$	Eff. Shear Strain γ(%)*	Vol. Strain (1-way) V%**	Vol. Strain Mw Corct'd V%*	S (2-way) in.
2	SM	120	5.7	44	11	2.0	126.8	254	127	127	1.74	29.0	2.0	31.0	127	1.000	0.997	5.70E+05	51.3	9.00E-05	2.3E-02	1.2E-2	0.01	0.01
5	SM	120	4.9	47	27	3.0	125.9	631	443	443	1.55	63.2	2.0	65.2	443	1.000	0.990	1.36E+06	177.7	1.30E-04	2.7E-02	5.2E-3	0.01	0.00
10	SM	120	8.0	20	80	5.0	129.6	1279	955	955	1.31	179.8	1.0	180.8	955	1.000	0.979	2.82E+06	379.3	1.35E-04	2.2E-02	1.1E-3	0.00	0.00
15	SM	120	9.1	22	44	5.0	130.9	1934	1607	1607	1.10	82.8	1.0	83.8	1607	1.000	0.968	2.83E+06	631.0	2.23E-04	4.9E-02	6.6E-3	0.01	0.01
20	SM	120	12.6	42	59	5.0	135.1	2610	2272	2272	0.94	106.4	2.0	108.4	2272	1.000	0.956	3.66E+06	881.2	2.41E-04	4.9E-02	4.7E-3	0.01	0.01
25	SW	120	3.3	9	42	5.0	124.0	3229	2919	2919	0.83	66.5	0.0	66.5	2919	1.000	0.941	3.53E+06	1114.2	3.16E-04	8.0E-02	1.5E-2	0.02	0.02
30	SM	120	4.0	20	48	5.0	124.8	3853	3541	3541	0.74	71.7	1.0	72.7	3541	1.000	0.919	4.00E+06	1320.2	3.30E-04	8.0E-02	1.3E-2	0.02	0.02
35	SM	120	8.6	20	54	5.0	130.3	4505	4179	4179	0.67	72.8	1.0	73.8	4179	1.000	0.888	4.37E+06	1505.7	3.44E-04	8.1E-02	1.3E-2	0.02	0.02
40	SM	120	6.8	29	55	5.0	128.2	5146	4825	4825	0.61	67.5	2.0	69.5	4825	1.000	0.848	4.61E+06	1659.0	3.60E-04	8.3E-02	1.4E-2	0.02	0.02
45	SM	120	10.4	20	64	5.0	132.5	5808	5477	5477	0.56	72.1	1.0	73.1	5477	1.000	0.799	4.99E+06	1775.7	3.56E-04	7.6E-02	1.2E-2	0.01	0.02
50	SM	120	10.0	20	60	5.0	132.0	6468	6138	6138	0.52	62.3	1.0	63.3	6138	1.000	0.748	5.03E+06	1862.0	3.70E-04	7.8E-02	1.5E-2	0.02	0.02

The total seismic-induced settlement calculation is based on a water table depth of ***50*** *feet below grade*

Total 0.15

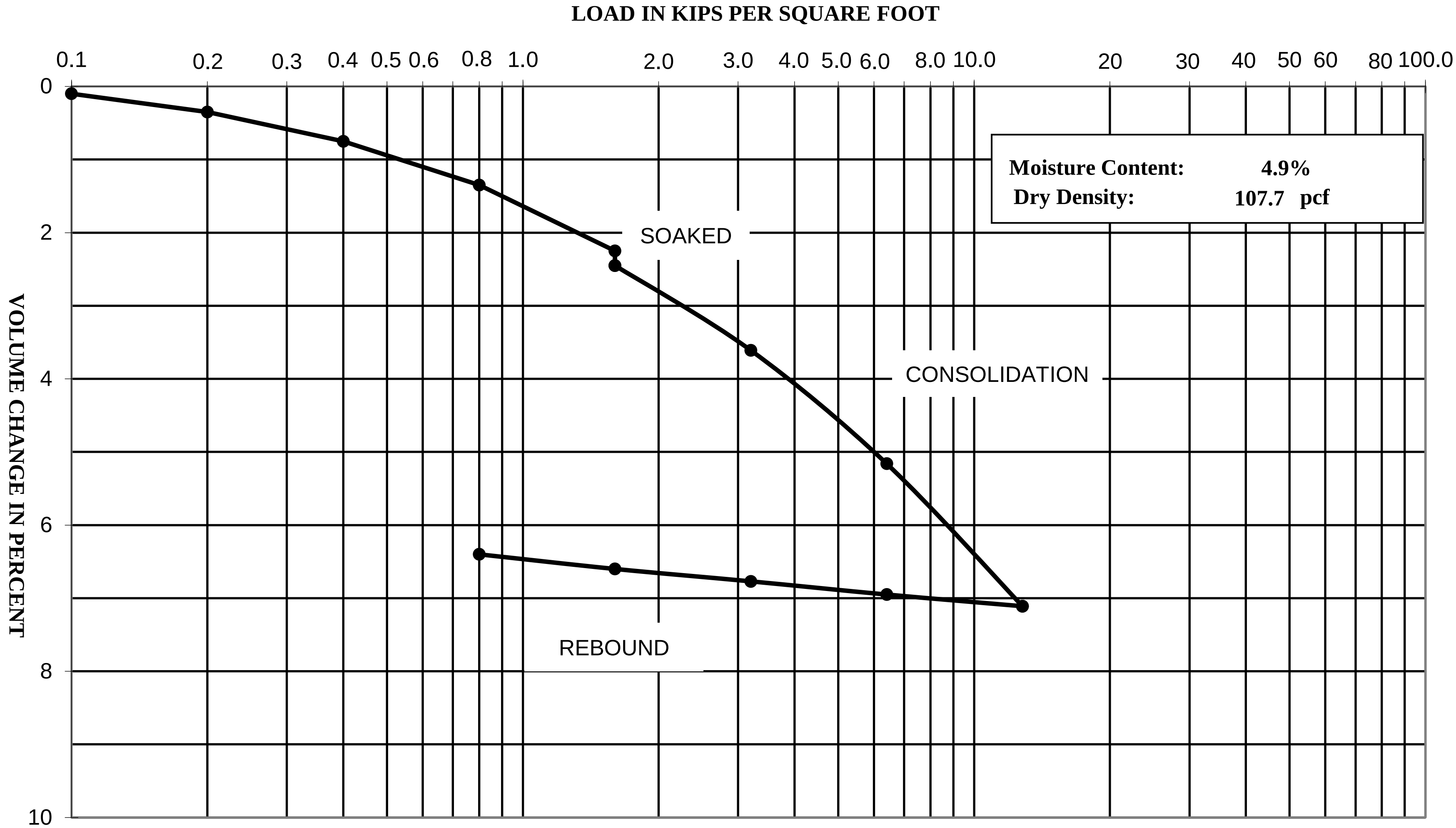
APPENDIX

B

APPENDIX B
LABORATORY TESTING

Laboratory tests were performed in accordance with generally accepted test methods of the American Society for Testing and Materials (ASTM), Caltrans, or other suggested procedures. Selected samples were tested for in-situ dry density and moisture content, corrosivity, consolidation, shear strength, maximum density and optimum moisture content, expansion index, and grain size distribution. The results of the laboratory tests are summarized in the following figures.

CONSOLIDATION - PRESSURE TEST DATA
ASTM D2435



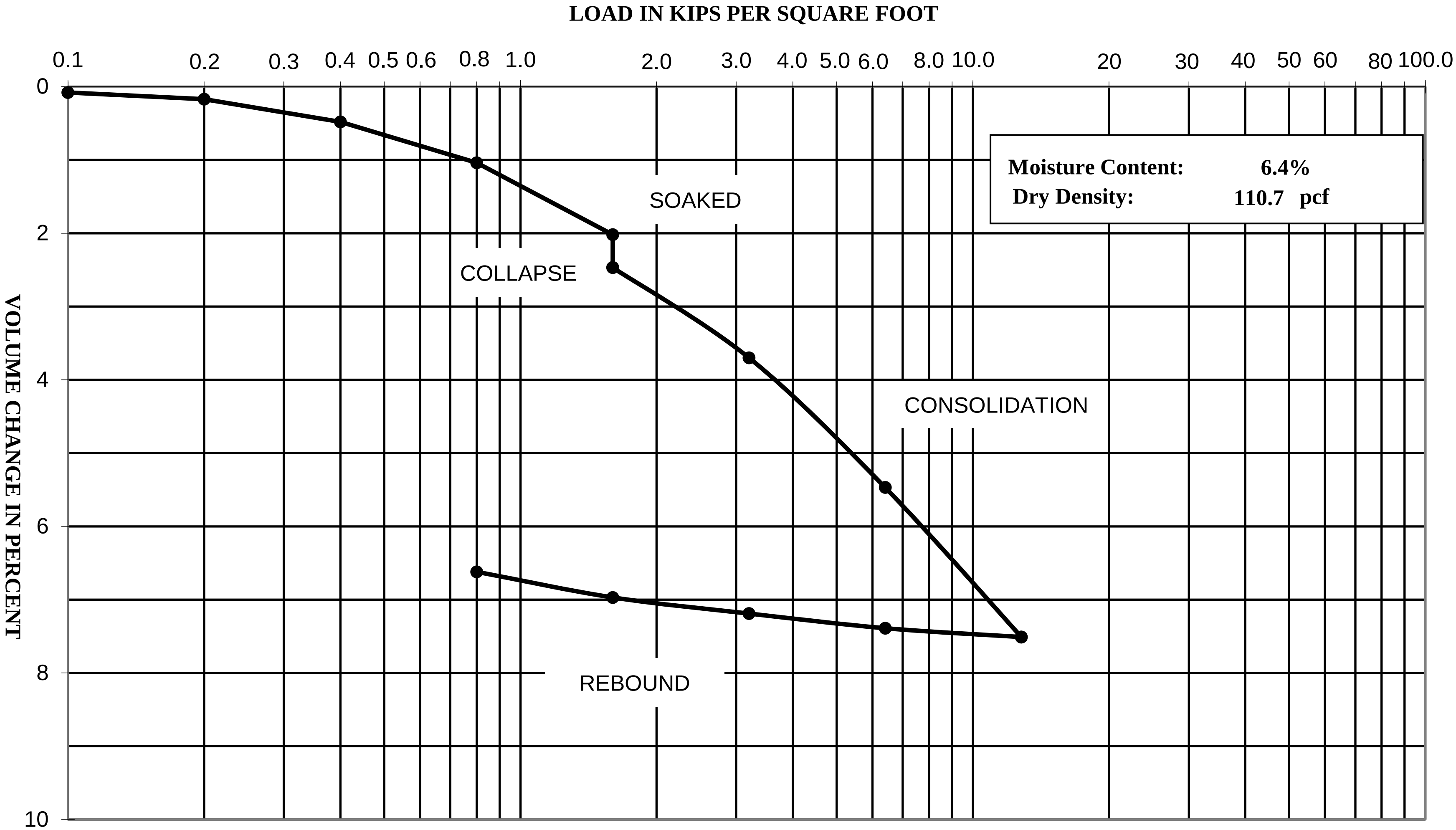
Project Name: Go Fresh Gas Station - Moreno Valley, CA

Project Number: 3-219-1018

Boring: B-1 @ 5

SALEM engineering group, inc.

CONSOLIDATION - PRESSURE TEST DATA
ASTM D2435



Project Name: Go Fresh Gas Station - Moreno Valley, CA

Project Number: 3-219-1018

Boring: B-3 @ 2

SALEM engineering group, inc.

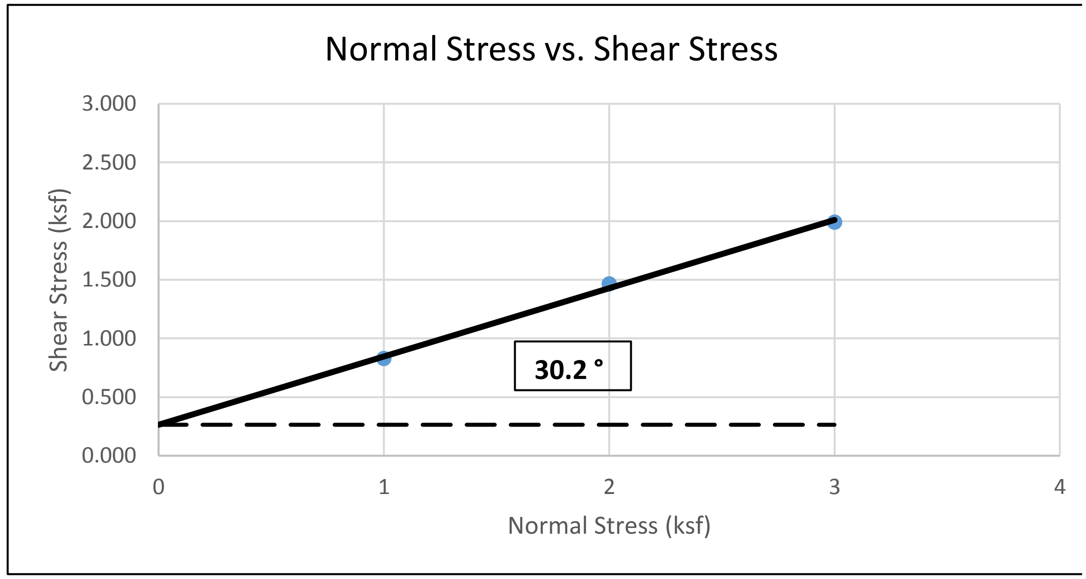
Direct Shear Test (ASTM D3080)

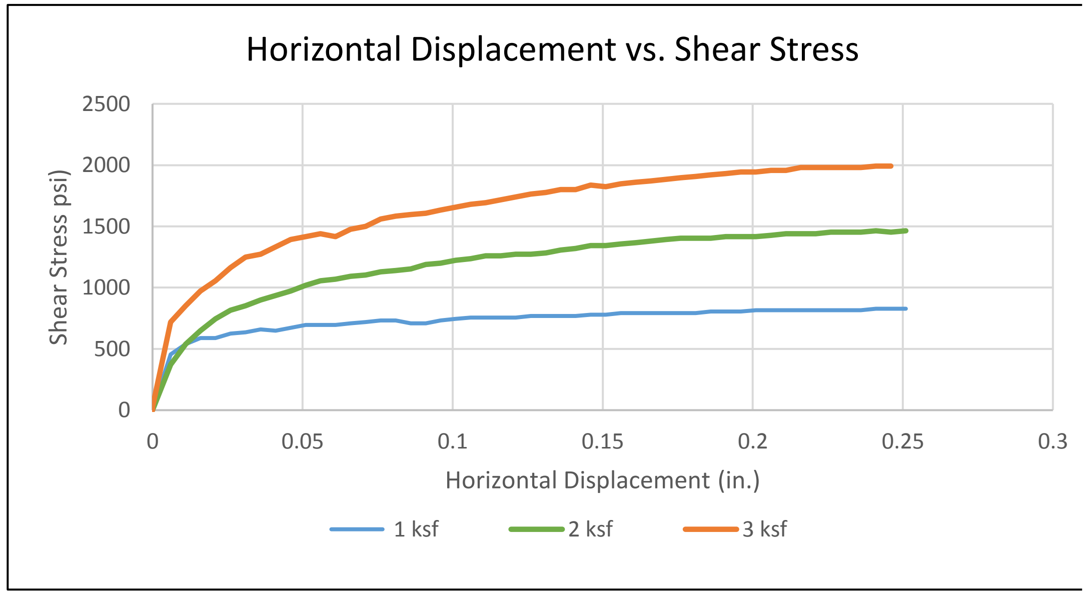
Project Name:	Go Fresh Gas Station- Moreno Valley, CA
Project Number:	3-219-1018
Client:	RAMCAM Engineering Group, Inc.
Sample Location:	B-1 @ 2'
Sample Type:	Undisturbed Ring
Soil Classification:	Silty SAND (SM)
Tested By:	M. Noorzay
Reviewed By:	CJ
Date:	12/17/2019
Equipment Used:	Geomatic Direct Shear Machine

	Sample 1	Sample 2	Sample 3
Normal Stress (ksf)	1.000	2.000	3.000
Shear Rate (in/min)	0.004		
Peak Shear Stress (ksf)	0.828	1.464	1.992
Residual Shear Stress (ksf)	0.000	0.000	0.000

Initial Height of Sample (in)	1.000	1.000	1.000
Height of Sample before Shear (in.)	1	1	1
Diameter of Sample (in)	2.416	2.416	2.416
Initial Moisture Content (%)	5.5		
Final Moisture Content (%)	15.4	14.0	14.0
Dry Density (pcf)	111.7	107.8	114.6

Peak Shear Strength Values	
Slope	0.58
Friction Angle	30.2
Cohesion (psf)	264





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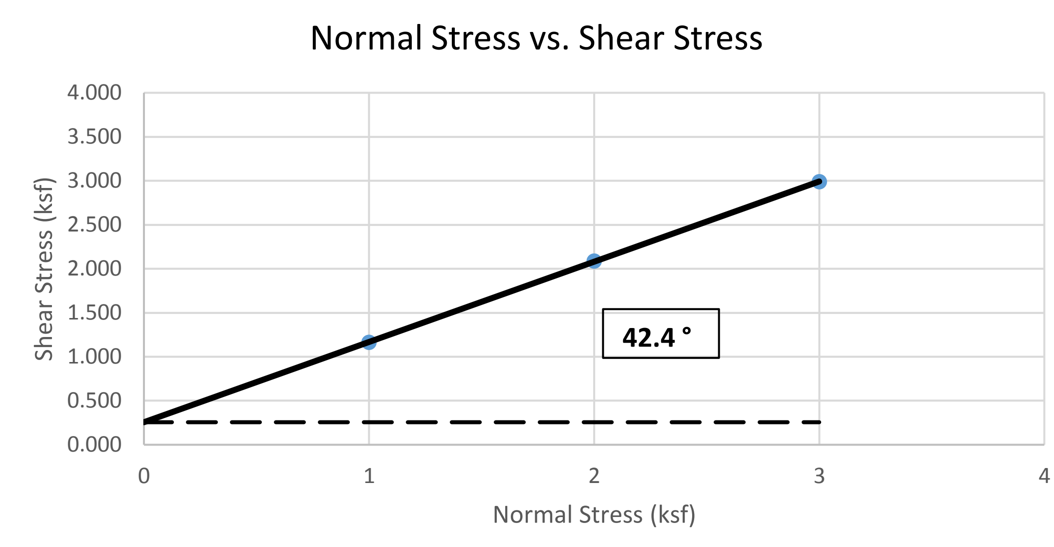
Direct Shear Test (ASTM D3080)

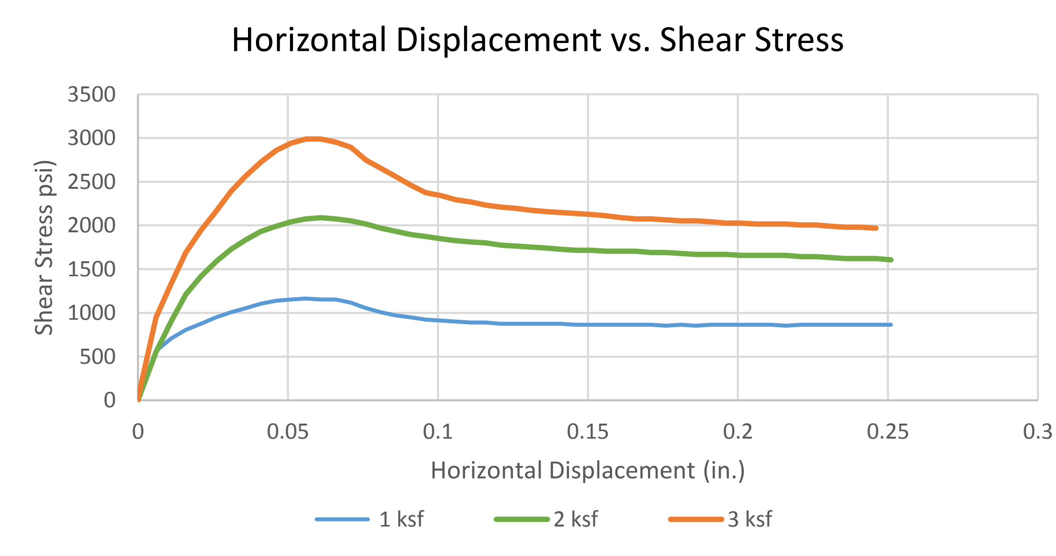
Project Name:	Go Fresh Gas Station- Moreno Valley, CA
Project Number:	3-219-1018
Client:	0.00
Sample Location:	B-3 @ 5'
Sample Type:	Undisturbed Ring
Soil Classification:	Silty SAND (SM)
Tested By:	M. Noorzay
Reviewed By:	CJ
Date:	12/18/2019
Equipment Used:	Geomatic Direct Shear Machine

	Sample 1	Sample 2	Sample 3
Normal Stress (ksf)	1.000	2.000	3.000
Shear Rate (in/min)	0.004		
Peak Shear Stress (ksf)	1.164	2.088	2.988
Residual Shear Stress (ksf)	0.000	0.000	0.000

Initial Height of Sample (in)	1.000	1.000	1.000
Height of Sample before Shear (in.)	1	1	1
Diameter of Sample (in)	2.416	2.416	2.416
Initial Moisture Content (%)	10.7		
Final Moisture Content (%)	20.1	21.1	23.6
Dry Density (pcf)	105.1	107.0	109.9

Peak Shear Strength Values	
Slope	0.91
Friction Angle	42.4
Cohesion (psf)	256

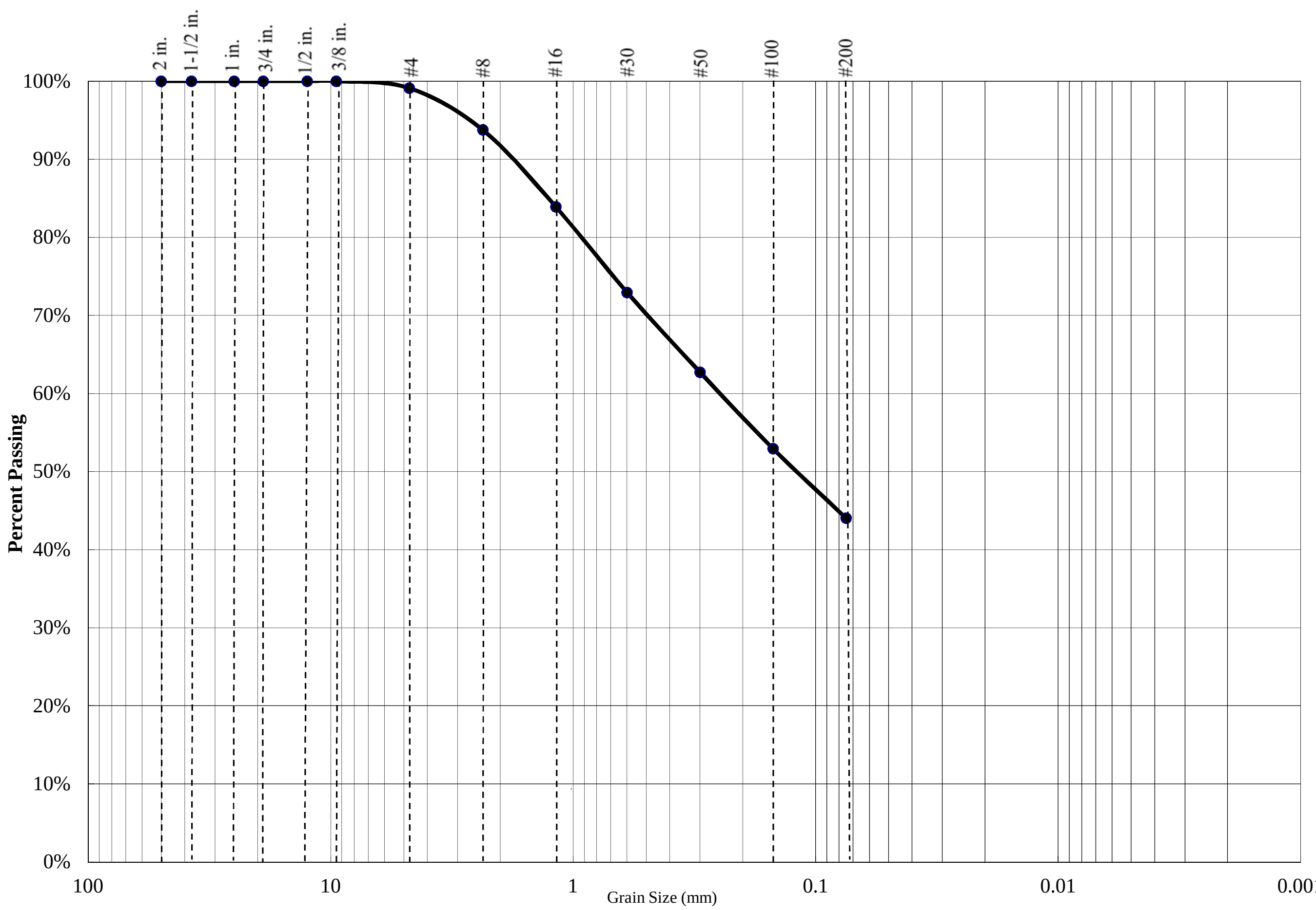




SALEM engineering

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
1%	55%	44%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	99.1%
#8	93.8%
#16	83.9%
#30	72.9%
#50	62.7%
#100	52.9%
#200	44.0%

Atterberg Limits		
PL=	LL=	PI=

Coefficients				
D_{85}=		D_{60}=		D_{50}=
D_{30}=		D_{15}=		D_{10}=
C_u=	N/A	C_c=	N/A	

USCS CLASSIFICATION
Silty SAND (SM)

Project Name: Go Fresh Gas Station - Moreno Valley, CA

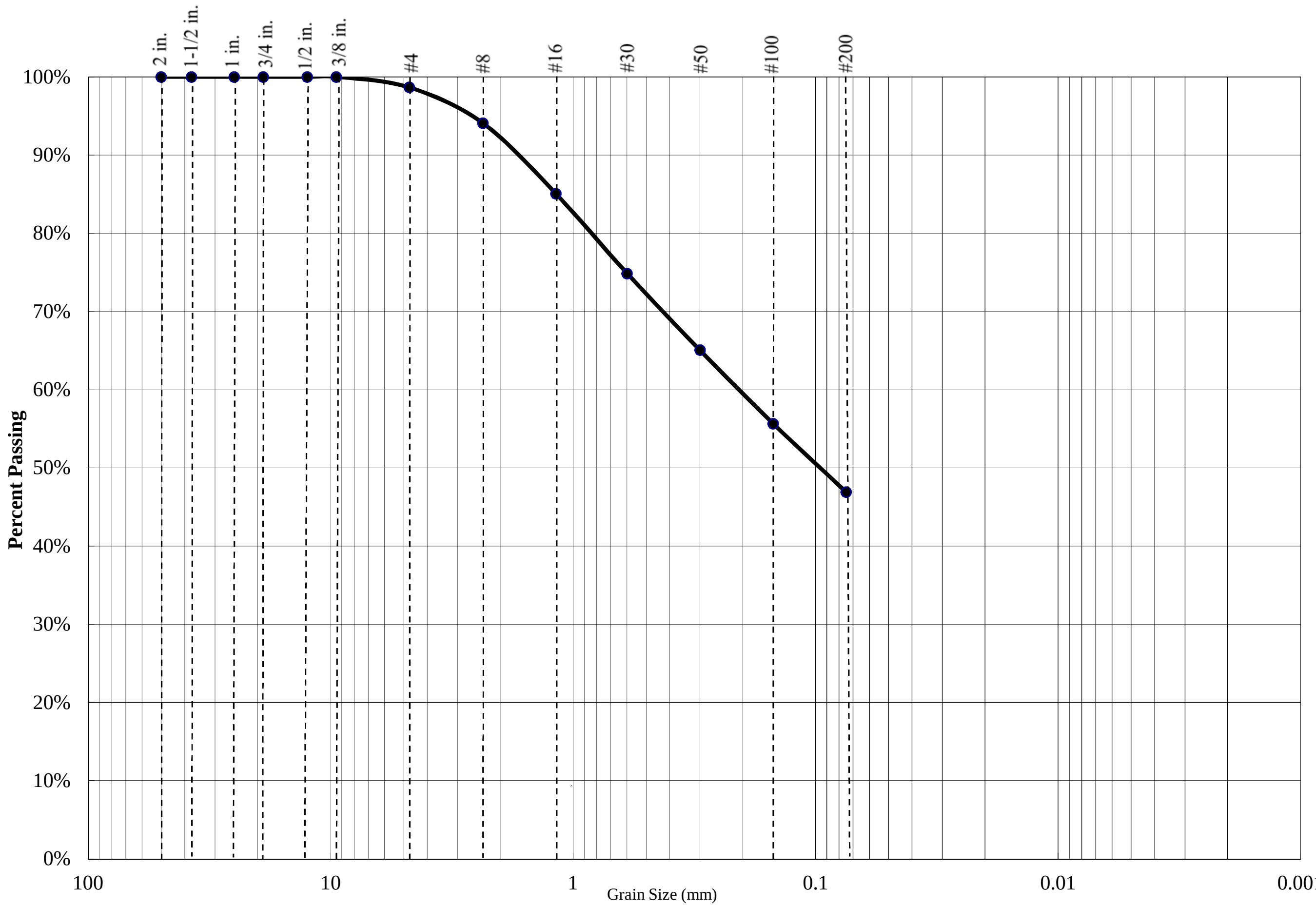
Project Number: 3-219-1018

Boring: B-1 @ 2

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
1%	52%	47%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	98.7%
#8	94.1%
#16	85.1%
#30	74.9%
#50	65.1%
#100	55.7%
#200	46.9%

Atterberg Limits		
PL=	LL=	PI=

Coefficients				
D_{85}=		D_{60}=		D_{50}=
D_{30}=		D_{15}=		D_{10}=
C_u=	N/A	C_c=	N/A	

USCS CLASSIFICATION
Silty SAND (SM)

Project Name: Go Fresh Gas Station - Moreno Valley, CA

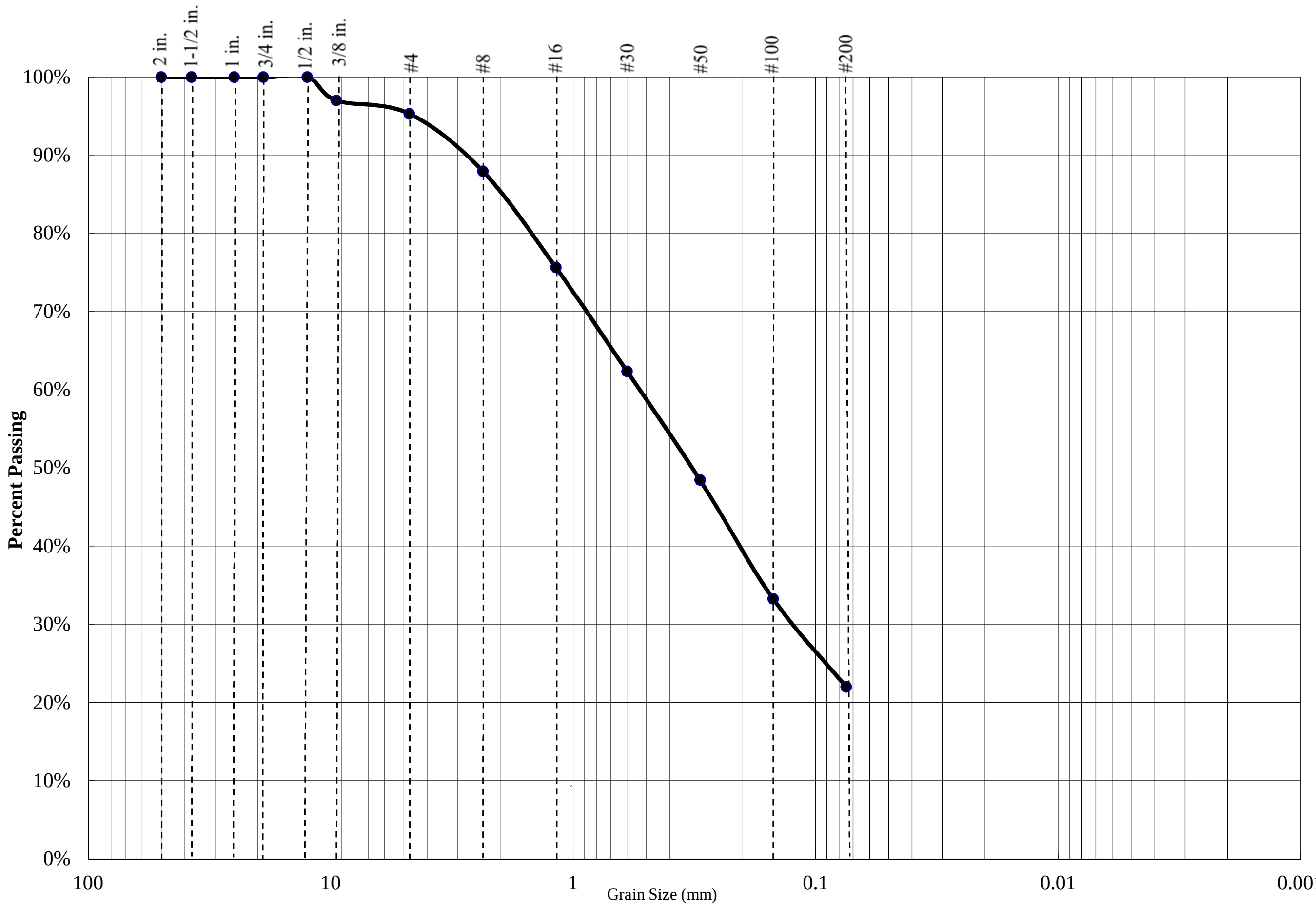
Project Number: 3-219-1018

Boring: B-1 @ 5

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
5%	73%	22%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	97.0%
#4	95.3%
#8	88.0%
#16	75.6%
#30	62.4%
#50	48.5%
#100	33.3%
#200	22.0%

Atterberg Limits		
PL=	LL=	PI=

Coefficients				
D_{85}=		D_{60}=		D_{50}=
D_{30}=		D_{15}=		D_{10}=
C_u=	N/A	C_c=	N/A	

USCS CLASSIFICATION
Silty SAND (SM)

Project Name: Go Fresh Gas Station - Moreno Valley, CA

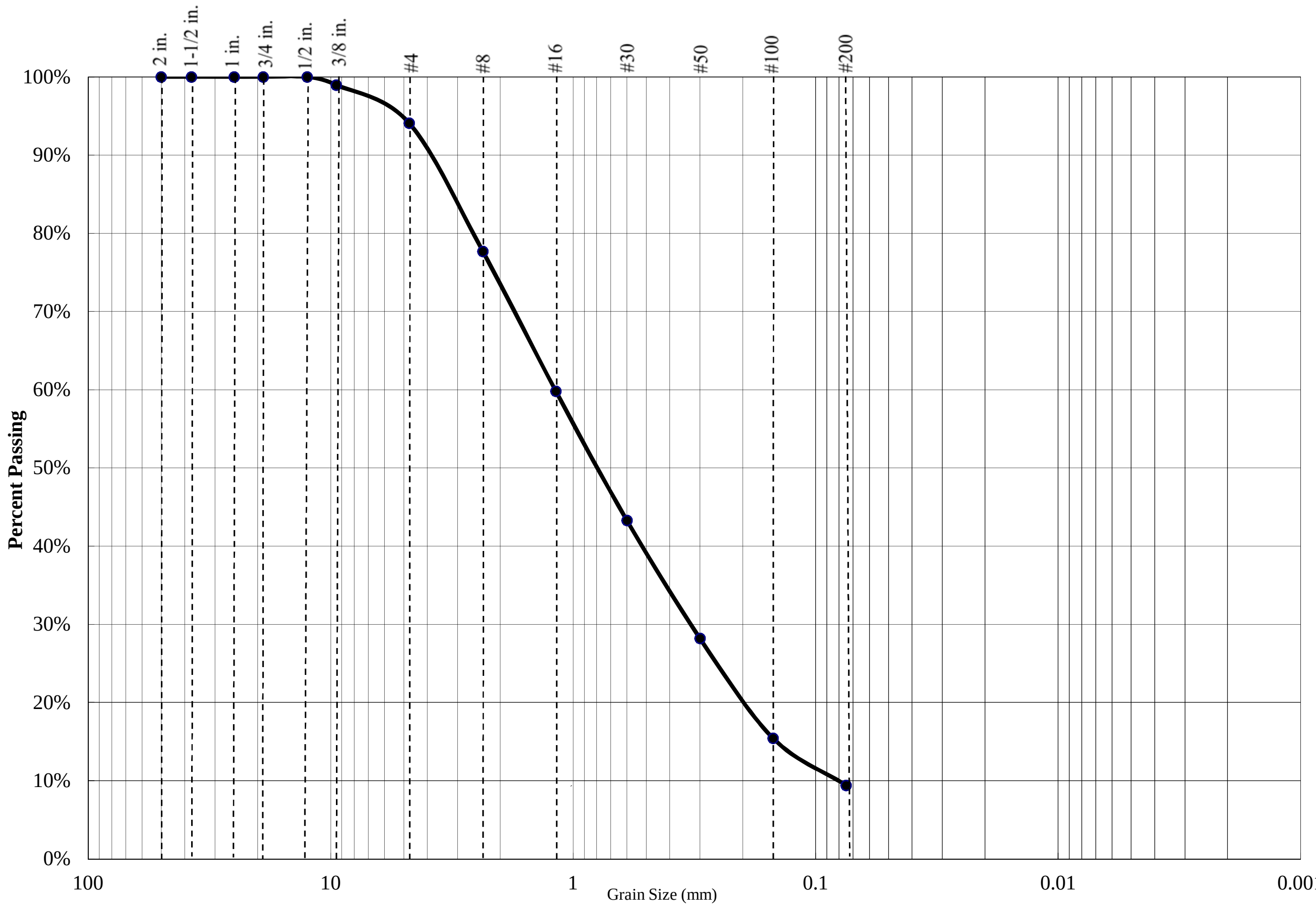
Project Number: 3-219-1018

Boring: B-1 @ 15

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
6%	85%	9%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	99.0%
#4	94.1%
#8	77.7%
#16	59.8%
#30	43.3%
#50	28.2%
#100	15.4%
#200	9.4%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=	1.25	D_{50}=	
D_{30}=	0.35	D_{15}=		D_{10}=	0.08
C_u=	15.63	C_c=	1.23		

USCS CLASSIFICATION
Well-graded SAND with Silt (SW-SM)

Project Name: Go Fresh Gas Station - Moreno Valley, CA

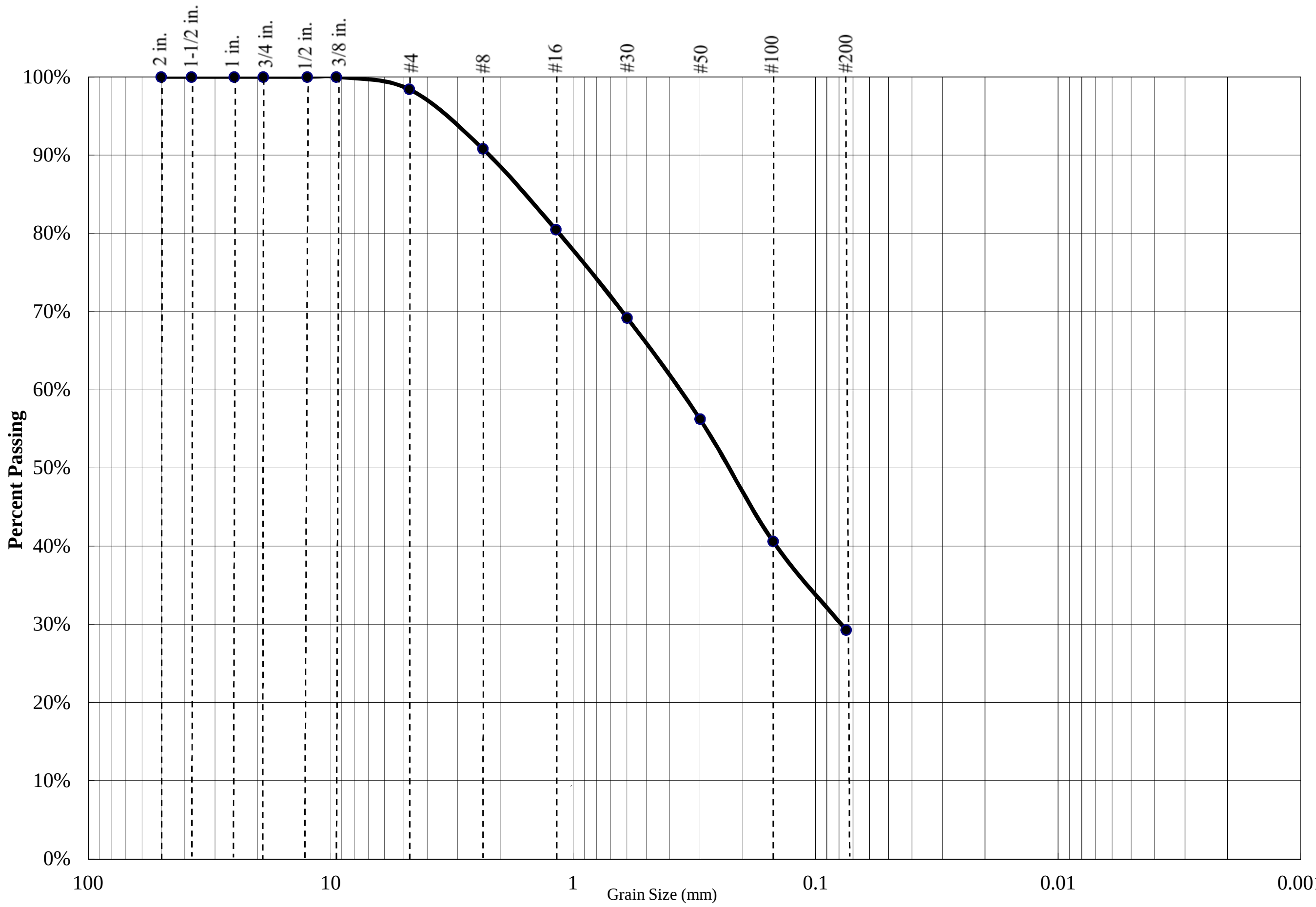
Project Number: 3-219-1018

Boring: B-1 @ 25

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
2%	69%	29%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	98.4%
#8	90.8%
#16	80.5%
#30	69.2%
#50	56.2%
#100	40.6%
#200	29.3%

Atterberg Limits		
PL=	LL=	PI=

Coefficients				
D_{85}=		D_{60}=		D_{50}=
D_{30}=		D_{15}=		D_{10}=
C_u=	N/A	C_c=	N/A	

USCS CLASSIFICATION
Silty SAND (SM)

Project Name: Go Fresh Gas Station - Moreno Valley, CA

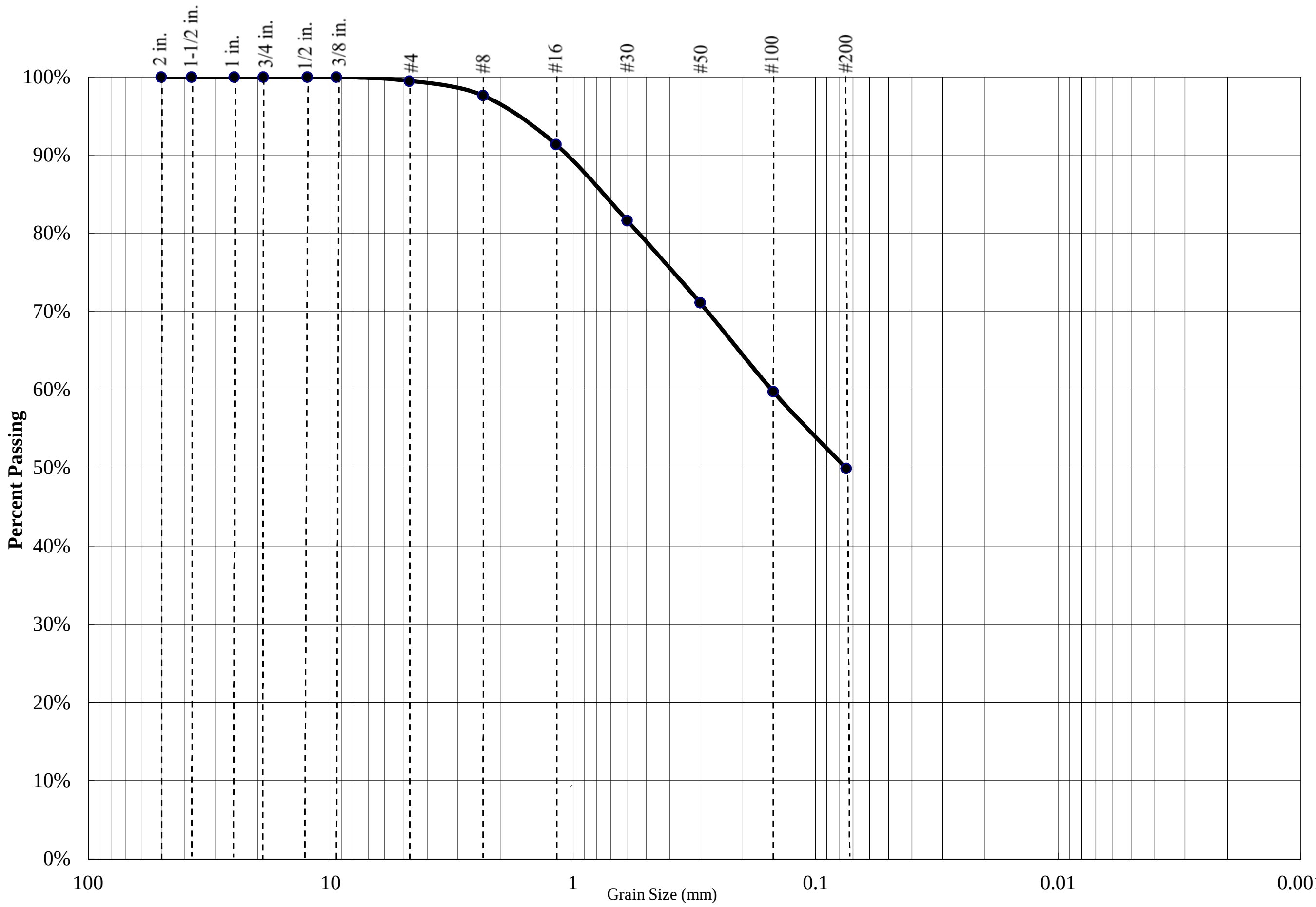
Project Number: 3-219-1018

Boring: B-1 @ 40

SALEM engineering group, inc.

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
1%	50%	50%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	99.5%
#8	97.6%
#16	91.4%
#30	81.7%
#50	71.1%
#100	59.8%
#200	49.9%

Atterberg Limits		
PL=	LL=	PI=

Coefficients				
D_{85}=		D_{60}=		D_{50}=
D_{30}=		D_{15}=		D_{10}=
C_u=	N/A	C_c=	N/A	

USCS CLASSIFICATION
Silty SAND (SM)

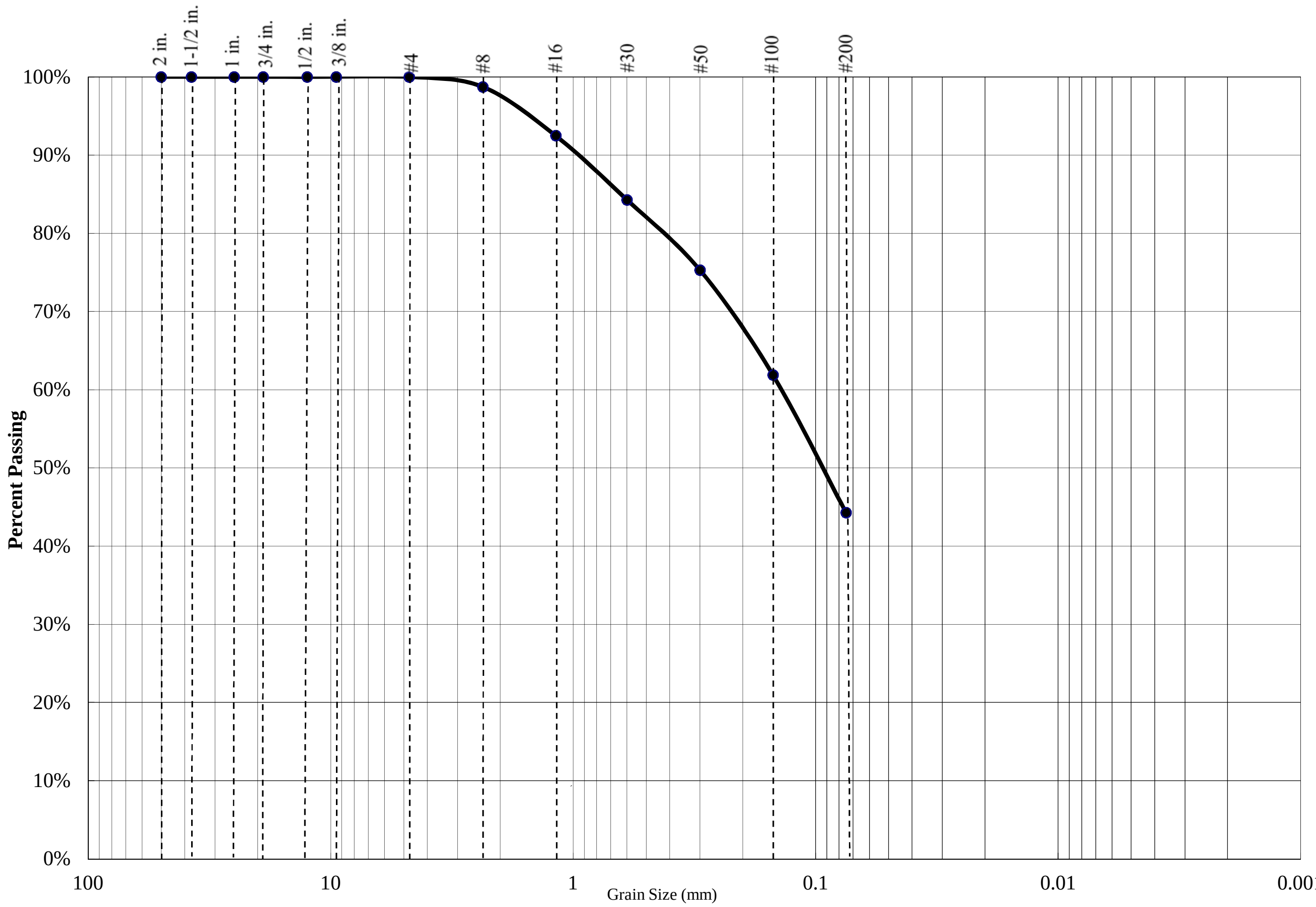
Project Name: Go Fresh Gas Station - Moreno Valley, CA
Project Number: 3-219-1018
Boring: B-3 @ 2

SALEM engineering group, inc.

Attachment: Exhibit A - Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program [Revision 1] (4469 : PEN20-0141 Plot

PARTICLE SIZE DISTRIBUTION DIAGRAM

GRADATION TEST - ASTM C136



Percent Gravel	Percent Sand	Percent Silt/Clay
0%	56%	44%

Sieve Size	Percent Passing
3/4 inch	100.0%
1/2 inch	100.0%
3/8 inch	100.0%
#4	100.0%
#8	98.7%
#16	92.5%
#30	84.3%
#50	75.3%
#100	61.9%
#200	44.3%

Atterberg Limits		
PL=	LL=	PI=

Coefficients					
D_{85}=		D_{60}=		D_{50}=	
D_{30}=		D_{15}=		D_{10}=	
C_u=	N/A	C_c=	N/A		

USCS CLASSIFICATION
Silty SAND (SM)

Project Name: Go Fresh Gas Station - Moreno Valley, CA

Project Number: 3-219-1018

Boring: B-3 @ 5

SALEM engineering group, inc.

EXPANSION INDEX TEST
ASTM D4829

Project Name: Go Fresh Gas Station - Moreno Valley, CA
Project Number: 3-219-1018
Date Sampled: 12/12/19 Date Tested: 12/17/19
Sampled By: SK Tested By: M. Noorzay
Sample Location: B-1 @ 0'-4'
Soil Description: Brown Silty SAND (SM)

Trial #	1	2	3
Weight of Soil & Mold, g.	775.6		
Weight of Mold, g.	368.5		
Weight of Soil, g.	407.1		
Wet Density, pcf	122.8		
Weight of Moisture Sample (Wet), g.	800.0		
Weight of Moisture Sample (Dry), g.	735.3		
Moisture Content, %	8.8		
Dry Density, pcf	112.8		
Specific Gravity of Soil	2.7		
Degree of Saturation, %	48.2		

Time	Inital	30 min	1 hr	6 hrs	12 hrs	24 hrs
Dial Reading	0	0.001	0.001	--	--	0.001

Expansion Index $_{measured}$ = 1
Expansion Index $_{50}$ = 0.3

Expansion Index = 0

Expansion Potential Table	
Exp. Index	Potential Exp.
0 - 20	Very Low
21 - 50	Low
51 - 90	Medium
91 - 130	High
>130	Very High

SALEM engineering group, inc.

CHEMICAL ANALYSIS

SO_4 - Modified CTM 417 & Cl - Modified CTM 417/422

Project Name: Go Fresh Gas Station - Moreno Valley, CA
Project Number: 3-219-1018
Date Sampled: 12/12/19 Date Tested: 12/17/19
Sampled By: SK Tested By: M. Noorzay
Soil Description: Brown Silty SAND (SM)

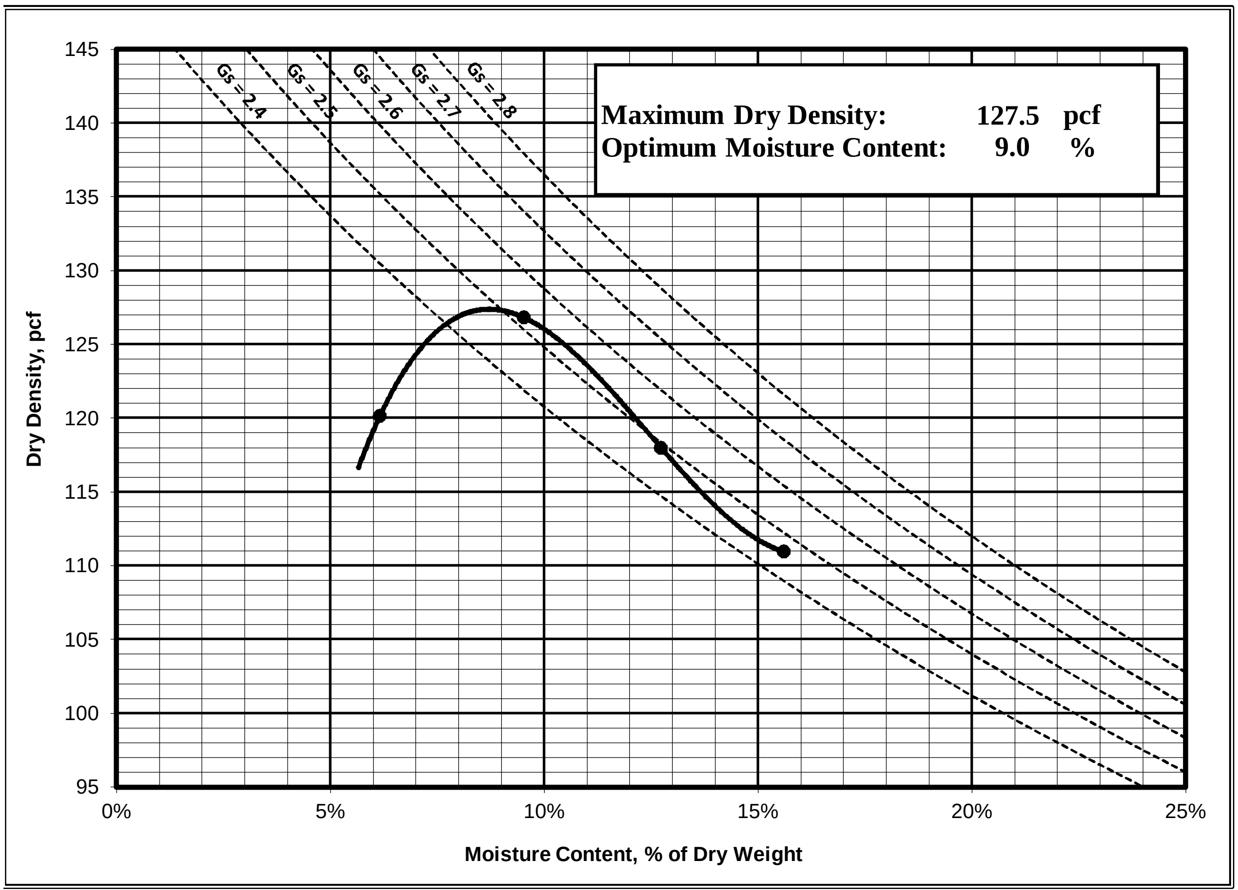
Sample Number	Sample Location	Soluble Sulfate SO_4-S	Soluble Chloride Cl	pH
1a.	B-1 @ 0'-4'	50 mg/kg	130 mg/kg	8.1
1b.	B-1 @ 0'-4'	50 mg/kg	129 mg/kg	8.1
1c.	B-1 @ 0'-4'	50 mg/kg	127 mg/kg	8.1
Average:		**50 mg/kg**	**129 mg/kg**	**8.1**

SALEM engineering group, inc.

Laboratory Compaction Curve
ASTM D1557

Project Name: Go Fresh Gas Station - Moreno Valley, CA
Project Number: 3-219-1018
Date Sampled: 12/12/19 Date Tested: 12/16/19
Sampled By: SK Tested By: M. Noorzay
Sample Location: B-1 @ 0'-4'
Soil Description: Brown Silty SAND (SM)
Test Method: Method A

	1	2	3	4
Weight of Moist Specimen & Mold, (g)	4186.7	4358.3	4269.3	4197.5
Weight of Compaction Mold, (g)	2258.4	2258.4	2258.4	2258.4
Weight of Moist Specimen, (g)	1928.3	2099.9	2010.9	1939.1
Volume of Mold, (ft^3)	0.0333	0.0333	0.0333	0.0333
Wet Density, (pcf)	127.5	138.9	133.0	128.2
Weight of Wet (Moisture) Sample, (g)	100.0	100.0	100.0	100.0
Weight of Dry (Moisture) Sample, (g)	94.2	91.3	88.7	86.5
Moisture Content, (%)	6.2%	9.5%	12.7%	15.6%
Dry Density, (pcf)	120.1	126.8	118.0	110.9



APPENDIX

C

APPENDIX C
GENERAL EARTHWORK AND PAVEMENT SPECIFICATIONS

When the text of the report conflicts with the general specifications in this appendix, the recommendations in the report have precedence.

1.0 SCOPE OF WORK: These specifications and applicable plans pertain to and include all earthwork associated with the site rough grading, including, but not limited to, the furnishing of all labor, tools and equipment necessary for site clearing and grubbing, stripping, preparation of foundation materials for receiving fill, excavation, processing, placement and compaction of fill and backfill materials to the lines and grades shown on the project grading plans and disposal of excess materials.

2.0 PERFORMANCE: The Contractor shall be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications. This work shall be inspected and tested by a representative of SALEM Engineering Group, Incorporated, hereinafter referred to as the Soils Engineer and/or Testing Agency. Attainment of design grades, when achieved, shall be certified by the project Civil Engineer. Both the Soils Engineer and the Civil Engineer are the Owner's representatives. If the Contractor should fail to meet the technical or design requirements embodied in this document and on the applicable plans, he shall make the necessary adjustments until all work is deemed satisfactory as determined by both the Soils Engineer and the Civil Engineer. No deviation from these specifications shall be made except upon written approval of the Soils Engineer, Civil Engineer, or project Architect.

No earthwork shall be performed without the physical presence or approval of the Soils Engineer. The Contractor shall notify the Soils Engineer at least 2 working days prior to the commencement of any aspect of the site earthwork.

The Contractor shall assume sole and complete responsibility for job site conditions during the course of construction of this project, including safety of all persons and property; that this requirement shall apply continuously and not be limited to normal working hours; and that the Contractor shall defend, indemnify and hold the Owner and the Engineers harmless from any and all liability, real or alleged, in connection with the performance of work on this project, except for liability arising from the sole negligence of the Owner or the Engineers.

3.0 TECHNICAL REQUIREMENTS: All compacted materials shall be densified to no less that 95 percent of relative compaction (90 percent for cohesive soils) based on ASTM D1557 Test Method (latest edition), UBC or CAL-216, or as specified in the technical portion of the Soil Engineer's report. The location and frequency of field density tests shall be determined by the Soils Engineer. The results of these tests and compliance with these specifications shall be the basis upon which satisfactory completion of work will be judged by the Soils Engineer.

4.0 SOILS AND FOUNDATION CONDITIONS: The Contractor is presumed to have visited the site and to have familiarized himself with existing site conditions and the contents of the data presented in the Geotechnical Engineering Report. The Contractor shall make his own interpretation of the data contained in the Geotechnical Engineering Report and the Contractor shall not be relieved of liability for any loss sustained as a result of any variance between conditions indicated by or deduced from said report and the actual conditions encountered during the progress of the work.

5.0 DUST CONTROL: The work includes dust control as required for the alleviation or prevention of any dust nuisance on or about the site or the borrow area, or off-site if caused by the Contractor's operation either during the performance of the earthwork or resulting from the conditions in which the Contractor leaves the site. The Contractor shall assume all liability, including court costs of codefendants, for all claims related to dust or wind-blown materials attributable to his work. Site preparation shall consist of site clearing and grubbing and preparation of foundation materials for receiving fill.

6.0 CLEARING AND GRUBBING: The Contractor shall accept the site in this present condition and shall demolish and/or remove from the area of designated project earthwork all structures, both surface and subsurface, trees, brush, roots, debris, organic matter and all other matter determined by the Soils Engineer to be deleterious. Such materials shall become the property of the Contractor and shall be removed from the site.

Tree root systems in proposed improvement areas should be removed to a minimum depth of 3 feet and to such an extent which would permit removal of all roots greater than 1 inch in diameter. Tree roots removed in parking areas may be limited to the upper 1½ feet of the ground surface. Backfill of tree root excavations is not permitted until all exposed surfaces have been inspected and the Soils Engineer is present for the proper control of backfill placement and compaction. Burning in areas which are to receive fill materials shall not be permitted.

7.0 SUBGRADE PREPARATION: Surfaces to receive Engineered Fill and/or building or slab loads shall be prepared as outlined above, scarified to a minimum of 12 inches, moisture-conditioned as necessary, and recompacted to 95 percent relative compaction (90 percent for cohesive soils).

Loose soil areas and/or areas of disturbed soil shall be moisture-conditioned as necessary and recompacted to 95 percent relative compaction (90 percent for cohesive soils). All ruts, hummocks, or other uneven surface features shall be removed by surface grading prior to placement of any fill materials. All areas which are to receive fill materials shall be approved by the Soils Engineer prior to the placement of any fill material.

8.0 EXCAVATION: All excavation shall be accomplished to the tolerance normally defined by the Civil Engineer as shown on the project grading plans. All over-excavation below the grades specified shall be backfilled at the Contractor's expense and shall be compacted in accordance with the applicable technical requirements.

9.0 FILL AND BACKFILL MATERIAL: No material shall be moved or compacted without the presence or approval of the Soils Engineer. Material from the required site excavation may be utilized for construction site fills, provided prior approval is given by the Soils Engineer. All materials utilized for constructing site fills shall be free from vegetation or other deleterious matter as determined by the Soils Engineer.

10.0 PLACEMENT, SPREADING AND COMPACTION: The placement and spreading of approved fill materials and the processing and compaction of approved fill and native materials shall be the responsibility of the Contractor. Compaction of fill materials by flooding, ponding, or jetting shall not be permitted unless specifically approved by local code, as well as the Soils Engineer. Both cut and fill shall be surface-compacted to the satisfaction of the Soils Engineer prior to final acceptance.

11.0 SEASONAL LIMITS: No fill material shall be placed, spread, or rolled while it is frozen or thawing, or during unfavorable wet weather conditions. When the work is interrupted by heavy rains, fill operations shall not be resumed until the Soils Engineer indicates that the moisture content and density of previously placed fill is as specified.

12.0 DEFINITIONS - The term "pavement" shall include asphaltic concrete surfacing, untreated aggregate base, and aggregate subbase. The term "subgrade" is that portion of the area on which surfacing, base, or subbase is to be placed.

The term “Standard Specifications”: hereinafter referred to, is the most recent edition of the Standard Specifications of the State of California, Department of Transportation. The term "relative compaction" refers to the field density expressed as a percentage of the maximum laboratory density as determined by ASTM D1557 Test Method (latest edition) or California Test Method 216 (CAL-216), as applicable.

13.0 PREPARATION OF THE SUBGRADE - The Contractor shall prepare the surface of the various subgrades receiving subsequent pavement courses to the lines, grades, and dimensions given on the plans. The upper 12 inches of the soil subgrade beneath the pavement section shall be compacted to a minimum relative compaction of 95 percent based upon ASTM D1557. The finished subgrades shall be tested and approved by the Soils Engineer prior to the placement of additional pavement courses.

14.0 AGGREGATE BASE - The aggregate base material shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate base material shall conform to the requirements of Section 26 of the Standard Specifications for Class II material, ¾-inch or 1½-inches maximum size. The aggregate base material shall be compacted to a minimum relative compaction of 95 percent based upon CAL-216. The aggregate base material shall be spread in layers not exceeding 6 inches and each layer of aggregate material course shall be tested and approved by the Soils Engineer prior to the placement of successive layers.

15.0 AGGREGATE SUBBASE - The aggregate subbase shall be spread and compacted on the prepared subgrade in conformity with the lines, grades, and dimensions shown on the plans. The aggregate subbase material shall conform to the requirements of Section 25 of the Standard Specifications for Class II Subbase material. The aggregate subbase material shall be compacted to a minimum relative compaction of 95 percent based upon CAL-216, and it shall be spread and compacted in accordance with the Standard Specifications. Each layer of aggregate subbase shall be tested and approved by the Soils Engineer prior to the placement of successive layers.

16.0 ASPHALTIC CONCRETE SURFACING - Asphaltic concrete surfacing shall consist of a mixture of mineral aggregate and paving grade asphalt, mixed at a central mixing plant and spread and compacted on a prepared base in conformity with the lines, grades, and dimensions shown on the plans. The viscosity grade of the asphalt shall be PG 64-10, unless otherwise stipulated or local conditions warrant more stringent grade. The mineral aggregate shall be Type A or B, ½ inch maximum size, medium grading, and shall conform to the requirements set forth in Section 39 of the Standard Specifications. The drying, proportioning, and mixing of the materials shall conform to Section 39. The prime coat, spreading and compacting equipment, and spreading and compacting the mixture shall conform to the applicable chapters of Section 39, with the exception that no surface course shall be placed when the atmospheric temperature is below 50 degrees F. The surfacing shall be rolled with a combination steel-wheel and pneumatic rollers, as described in the Standard Specifications. The surface course shall be placed with an approved self-propelled mechanical spreading and finishing machine.

MITIGATION MONITORING AND REPORTING PROGRAM

1. Mitigation Monitoring and Reporting Requirements

Public Resources Code (PRC) Section 21081.6 (enacted by the passage of Assembly Bill [AB] 3180) mandates that the following requirements shall apply to all reporting or mitigation monitoring programs:

- The public agency shall adopt a reporting or monitoring program for the changes made to the project or conditions of project approval in order to mitigate or avoid significant effects on the environment. The reporting or monitoring program shall be designed to ensure compliance during project implementation. For those changes which have been required or incorporated into the project at the request of a Responsible Agency or a public agency having jurisdiction by law over natural resources affected by the project, that agency shall, if so requested by the Lead Agency or a Responsible Agency, prepare and submit a proposed reporting or monitoring program.
- The Lead Agency shall specify the location and custodian of the documents or other material, which constitute the record of proceedings upon which its decision is based. A public agency shall provide the measures to mitigate or avoid significant effects on the environment that are fully enforceable through permit conditions, agreements, or other measures. Conditions of project approval may be set forth in referenced documents which address required mitigation measures or in the case of the adoption of a plan, policy, regulation, or other project, by incorporating the mitigation measures into the plan, policy, regulation, or project design.
- Prior to the close of the public review period for a draft Environmental Impact Report (EIR) or Mitigated Negative Declaration (MND), a Responsible Agency, or a public agency having jurisdiction over natural resources affected by the project, shall either submit to the Lead Agency complete and detailed performance objectives for mitigation measures which would address the significant effects on the environment identified by the Responsible Agency or agency having jurisdiction over natural resources affected by the project, or refer the Lead Agency to appropriate, readily available guidelines or reference documents. Any mitigation measures submitted to a Lead Agency by a Responsible Agency or an agency having jurisdiction over natural resources affected by the project shall be limited to measures that mitigate impacts to resources, which are subject to the statutory authority of, and definitions applicable to, that agency. Compliance or noncompliance by a Responsible Agency or agency having jurisdiction over natural resources affected by a project with that requirement shall not limit that authority of the Responsible Agency or agency having jurisdiction over natural resources affected by a project, or the authority of the Lead Agency, to approve, condition, or deny projects as provided by this division or any other provision of law.

2. Mitigation Monitoring and Reporting Procedures

The Mitigation Monitoring and Reporting Program (MMRP) has been prepared in compliance with PRC Section 21081.6. It describes the requirements and procedures to be followed by the City of Moreno Valley to ensure that all mitigation measures adopted as part of the Proposed Project will be carried out as described in the Draft IS/MND. Table 1 lists each of the mitigation measures specified in the Draft IS/MND and identifies the party or parties responsible for implementation and monitoring of each measure.

Table 1. Go Fresh Gas Station Project
Mitigation Monitoring and Reporting Program

Mitigation Measures and Project Design Features	Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
1. Aesthetics			
The proposed project would not result in significant adverse impacts related to aesthetics. No mitigation would be required.			
2. Agricultural and Forestry Resources			
The proposed project would not result in significant adverse impacts related to agriculture and forestry resources. No mitigation would be required.			
3. Air Quality			
The proposed project would not result in significant adverse impacts related to air quality. No mitigation would be required.			
4. Biological Resources			
The proposed project would not result in significant adverse impacts related to biological resources. No mitigation would be required.			
5. Cultural Resources			
CUL-1: Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), including Agua Caliente Band of Cahuilla Indians, San Manuel Band of Mission Indians, and Soboba Band of Luiseño Indians, the contractor, and the City, shall develop a Cultural	Project Developer, Project Archaeologist	Prior to issuance of a grading permit	

Mitigation Measures and Project Design Features	Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include: ○ Project grading and development scheduling; ○ The Project archeologist and the Consulting Tribes(s) as defined in CUL-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting			

Mitigation Measures and Project Design Features		Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
	Tribe(s) shall make themselves available to provide the training on an as-needed basis; ○ The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.			
CUL-2:	Prior to the issuance of a grading permit, the Developer shall secure agreements with the Agua Caliente Band of Cahuilla Indians, San Manuel Band of Mission Indians, and Soboba Band of Luiseño Indians for tribal monitoring. The Developer is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2.	Project Developer, Project Archaeologist	Prior to issuance of a grading permit	
CUL-3:	In the event that Native American cultural resources are discovered during the course of grading (inadvertent	Project Developer, Project Archaeologist	During grading activities if Native American cultural	

Mitigation Measures and Project Design Features		Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
	discoveries), the following procedures shall be carried out for final disposition of the discoveries: a. One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department: i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.		resources are discovered during grading (inadvertent discoveries)	
ii.	Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CUL-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CUL-1.			
CUL-4:	The City shall verify that the following note is included on the Grading Plan: "If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."	City Engineer	Prior to issuance of a grading permit	

Mitigation Measures and Project Design Features		Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
CUL-5:	If potential historic or cultural resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person meeting the Secretary of the Interior's standards (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all Consulting Native American Tribes as defined in CUL-1 before any further work commences in the affected area.	Project Developer, Project Archaeologist	If potential historic or cultural resources are uncovered during excavation or construction activities	
CUL-6:	If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 24 hours of the published finding to be given a reasonable opportunity to identify the "most likely descendant". The "most likely descendant" shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).	Project Developer, County Coroner	If human remains are discovered during construction	
CUL-7:	If human remains of any kind are found during construction, the requirements of CEQA Guidelines § 15064.5(e) and AB 2641 shall be followed. According to	Project Developer, County Coroner	If human remains are discovered during construction	

Mitigation Measures and Project Design Features	Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
these requirements, all construction activities must cease immediately and the Riverside County Coroner and a qualified archaeologist must be notified. The Coroner will examine the remains and determine the next appropriate action based on his or her findings. If the coroner determines the remains to be of Native American origin, he or she will notify the NAHC. The NAHC will then identify the most likely descendants (MLD) to be consulted regarding treatment and/or reburial of the remains. If an MLD cannot be identified, or the MLD fails to make a recommendation regarding the treatment of the remains within 48 hours after gaining access to the remains, the property owner shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further subsurface disturbance.			
6. Energy			
The proposed project would not result in significant adverse impacts related to energy. No mitigation is required.			
7. Geology and Soils			
The proposed project would not result in significant adverse impacts related to energy. No mitigation is required.			
8. Greenhouse Gas Emissions			
The proposed project would not result in significant adverse impacts related to greenhouse gas emissions. No mitigation would be required.			
9. Hazards and Hazardous Materials			

Mitigation Measures and Project Design Features	Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
The proposed project would not result in significant adverse impacts related to hazards and hazardous materials. No mitigation would be required.			
10. Hydrology and Water Quality			
The proposed project would not result in significant adverse impacts related to hydrology and water quality. No mitigation would be required.			
11. Land Use and Planning			
The proposed project would not result in significant adverse impacts related to land use and planning. No mitigation would be required.			
12. Mineral Resources			
The proposed project would not result in significant adverse impacts related to mineral resources. No mitigation would be required.			
13. Noise			
The proposed project would not result in significant adverse impacts related to noise. No mitigation would be required.			
14. Population and Housing			
The proposed project would not result in significant adverse impacts related to population and housing. No mitigation would be required.			
15. Public Services			
The proposed project would not result in significant adverse impacts related to public services. No mitigation would be required.			
16. Recreation			
The proposed project would not result in significant adverse impacts related to recreation. No mitigation would be required.			

Mitigation Measures and Project Design Features	Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
17. Transportation			
TRANS-1: The subject development shall contribute a fair share of 19 percent of the construction costs for the queue length extension of the westbound left-turn pocket on Sunnymead Boulevard at Graham Street to provide at least 280 feet of storage length.	Project Developer	Prior to the issuance of occupancy permits	
18. Tribal Cultural Resources			
CUL-1: Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), including Agua Caliente Band of Cahuilla Indians, San Manuel Band of Mission Indians, and Soboba Band of Luiseño Indians, the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include: ○ Project grading and development scheduling;	Project Developer, Project Archaeologist	Prior to issuance of a grading permit	

Mitigation Measures and Project Design Features	Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
○ The Project archeologist and the Consulting Tribes(s) as defined in CUL-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis; The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.			
CUL-2: Prior to the issuance of a grading permit, the Developer shall secure agreements with the Agua Caliente Band of Cahuilla Indians, San Manuel Band of Mission Indians, and Soboba Band of Luiseño Indians for tribal monitoring. The Developer is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and	Project Developer, Project Archaeologist	Prior to issuance of a grading permit	

Mitigation Measures and Project Design Features	Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2.			
CUL-3: In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries: b. One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department: i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources. ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CUL-1. This shall include measures and provisions to	Project Developer, Project Archaeologist	During grading activities if Native American cultural resources are discovered during grading (inadvertent discoveries)	

Mitigation Measures and Project Design Features	Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CUL-1.			
CUL-4: The City shall verify that the following note is included on the Grading Plan: "If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."	City Engineer	Prior to issuance of a grading permit	
CUL-5: If potential historic or cultural resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person meeting the Secretary of the Interior's standards (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all Consulting Native American Tribes as defined in CUL-1 before any further work commences in the affected area.	Project Developer, Project Archaeologist	If potential historic or cultural resources are uncovered during excavation or construction activities	

Mitigation Measures and Project Design Features	Responsible Party	Timing for Standard Condition or Mitigation Measure	Compliance Verification (Date and Signature Required)
CUL-6: If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 24 hours of the published finding to be given a reasonable opportunity to identify the "most likely descendant". The "most likely descendant" shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).	Project Developer, County Coroner	If human remains are discovered during construction	
19. Utilities and Service Systems			
The proposed project would not result in significant adverse impacts related to utilities and service systems. No mitigation would be required.			
20. Wildfire			
The proposed project would not result in significant adverse impacts related to wildfire. No mitigation would be required.			

CITY OF MORENO VALLEY
PLANNING COMMISSION

NOTICE OF PUBLIC HEARING AND
NOTICE OF INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION

NOTICE IS HEREBY GIVEN that a Public Hearing will be held by the Planning Commission of the City of Moreno Valley as follows:

Project:	Case No. PEN20-0141 – Plot Plan & PEN20-0142 – Conditional Use Permit
Applicant:	Nancy Kaskas of Go Fresh, LLC
Property Owner:	HI Speed, LLC
Representative:	Alex Irshaid of RamCam
APN:	292-100-012
Location:	Southeast corner of Sunnymead Blvd. and Graham Street
Proposal:	Plot Plan for a 8,624 square foot multi-tenant retail building with a 999 square foot hydrogen equipment room, and a 2,485 square foot carwash building with 17 vacuum stations. Conditional Use Permit for the gasoline, propane, and hydrogen fuel service station use, accessory convenience store (5,006 sq.ft. of the multi-tenant retail building), and carwash with vacuum stations uses.
Council District:	1

ENVIRONMENTAL DETERMINATION: The City of Moreno Valley has reviewed the above project and has prepared an Initial Study in accordance with California Environmental Quality Act (CEQA) Guidelines Section 15070. The Mitigated Negative Declaration represents the City's independent judgment and analysis. The proposed project will not have a significant effect on the environment with the implementation of mitigation measures.

The Draft IS/MND is being circulated for review and comment by interested agencies, organizations, and persons for 20 days in accordance with Section 21091 of the State CEQA Guidelines. A 20-day public review period to solicit comments on the Draft IS/MND starts July 2, 2021 and ends July 22, 2021 at 5:30 p.m.

PUBLIC TESTIMONY: All interested parties will be provided an opportunity to submit oral testimony during the Public Hearing and/or provide written testimony during or prior to the Public Hearing. The application file and related environmental documents may be inspected at the Community Development Department at 14177 Frederick Street, Moreno Valley, California or electronically by calling (951) 413-3206 during normal business hours (7:30 a.m. to 5:30 p.m., Monday through Thursday, and 7:30 a.m. to 4:30 p.m. on Friday).

PLEASE NOTE: The Planning Commission may consider and approve changes to the proposed items under consideration during the Public Hearing.

GOVERNMENT CODE § 65009 NOTICE: If you challenge any of the proposed actions taken by the Planning Commission in court, you may be limited to raising only those issues you or someone else raised during the Public Hearing described in this notice, or in written correspondence delivered to the Planning Division of the City of Moreno Valley during or prior to, the Public Hearing.

ACCESSIBILITY: Upon request and in compliance with the Americans with Disabilities Act of 1990, any person with a disability who requires a modification or accommodation in order to participate in a meeting should direct such request to James Verdugo, ADA Coordinator, at (951) 413-3350 at least 48 hours before the meeting. The 48-hour notification will enable the City to make reasonable arrangements to ensure accessibility to this meeting.

Date and Time:	July 22, 2021 at 7:00 p.m.
Location:	City Hall Council Chambers 14177 Frederick Street, Moreno Valley, CA 92553
Planner:	Gabriel Diaz, Associate Planner
Contact:	(951) 413-3226 or gabrield@moval.org

/s/Patty Nevins Press-Enterprise July 2, 2021

Patty Nevins
Planning Official
Community Development Department

Newspaper

Date of Publication

RESOLUTION NUMBER 2021-31

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, APPROVING PLOT PLAN PEN20-0141 FOR A 8,624 SQUARE FOOT MULTI-TENANT RETAIL BUILDING WITH A 999 SQUARE FOOT HYDROGEN EQUIPMENT ROOM, A 2,485 SQUARE FOOT CARWASH BUILDING WITH 17 VACUUM STATIONS, AND SERVICE STATION WITH GASOLINE, PROPANE, AND HYDROGEN FUEL SERVICE AND CONVENIENCE STORE (5,006 SQ.FT. OF THE MULTI-TENANT RETAIL BUILDING), LOCATED AT THE SOUTHEAST CORNER OF SUNNYMEAD BOULEVARD AND GRAHAM STREET (APN: 292-100-012)

WHEREAS, the City of Moreno Valley ("City") is a general law city and a municipal corporation of the State of California; and

WHEREAS, Go Fresh, LLC, ("Developer") has filed an application for the approval of Plot Plan PEN20-0141 ("Application") for a 8,624 square foot multi-tenant retail building with a 999 square foot hydrogen equipment room, a 2,485 square foot carwash building with 17 vacuum stations, and service station with gasoline, propane, and hydrogen fuel service and convenience store (5,006 sq.ft. of the multi-tenant retail building) ("Project") located at the southeast corner of Sunnymead Boulevard and Graham Street, APN 292-100-012 ("Project Site"); and

WHEREAS, Section 9.02.070 (Plot Plan) of the Moreno Valley Municipal Code acknowledges that the purpose of plot plans is to provide a mechanism by which all new construction of industrial, commercial or multiple-family residential can be reviewed when not subject to other discretionary review processes which have review authority over project design; and

WHEREAS, the Application has been evaluated in accordance with Section 9.02.070 (Plot Plan) of the Municipal Code with consideration given to the City's General Plan, Zoning Ordinance, and other applicable laws and regulations; and

WHEREAS, Section 9.02.070 of the Municipal Code imposes conditions of approval upon projects for which a Plot Plan is required, which conditions may be imposed by the Planning Commission to address on-site improvements, off-site improvements, the manner in which the site is used and any other conditions as may be deemed necessary to protect the public health, safety and welfare and ensure that the proposed Project will be developed in accordance with the purpose and intent of Title 9 ("Planning and Zoning") of the Municipal Code; and

WHEREAS, Staff has presented for the Planning Commission's consideration Conditions of Approval to be imposed upon Plot Plan PEN20-0141, which conditions have been deemed necessary to protect the public health, safety and welfare and ensure that the proposed Project will be developed in accordance with the purpose and intent of Title 9 (Planning and Zoning) of the Municipal Code; and

WHEREAS, pursuant to the provisions of Section 9.02.200 (Public Hearing and Notification Procedures) of the Municipal Code and Government Code section 65905, a public hearing was scheduled for July 22, 2021, and notice thereof was duly published and posted, and mailed to all property owners of record within 600 feet of the Site; and

WHEREAS, on July 22, 2021, the public hearing to consider the Application was duly conducted by the Planning Commission at which time all interested persons were provided with an opportunity to testify and to present evidence; and

WHEREAS, consistent with the requirements of Section 9.02.070 (Plot Plan) of the Municipal Code, at the public hearing the Planning Commission considered Conditions of Approval to be imposed upon Plot Plan PEN20-0141, which conditions were prepared by Planning Division staff who deemed said conditions to be necessary to protect the public health, safety and welfare and to ensure the proposed Project will be developed in accordance with the purpose and intent of Title 9 ("Planning and Zoning") of the Municipal Code; and

WHEREAS, at the public hearing, the Planning Commission considered whether each of the requisite findings specified in Section 9.02.070 of the Municipal Code and set forth herein could be made with respect to the proposed Project as conditioned by Conditions of Approval; and

WHEREAS, on July 22, 2021, in accordance with the provisions of the California Environmental Quality Act (CEQA[1]) and CEQA Guidelines,[2] the Planning Commission approved Resolution 2021-31.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

Section 1. **Recitals and Exhibits**

That the foregoing Recitals and attached Exhibits are true and correct and are hereby incorporated by this reference.

Section 2. **Notice**

That pursuant to Government Code section 66020(d)(1), notice is hereby given that the proposed Project is subject to certain fees, dedications, reservations and other exactions as provided herein.

Section 3. **Evidence**

[1] Public Resources Code §§ 21000-21177
[2] 14 California Code of Regulations §§15000-15387

That the Planning Commission has considered all of the evidence submitted into the administrative record for the proposed Plot Plan, including, but not limited to, the following:

(a) Moreno Valley General Plan and all other relevant provisions contained therein;
(b) Title 9 (Planning and Zoning) of the Moreno Valley Municipal Code and all other relevant provisions referenced therein;
(c) Application for the approval of Plot Plan PEN20-0141 and all documents, records and references contained therein;
(d) Conditions of Approval for Plot Plan PEN20-0141, attached hereto as Exhibit A;
(e) Staff Report prepared for the Planning Commission's consideration and all documents, records and references related thereto, and Staff's presentation at the public hearing;
(f) Testimony and/or comments from Applicant and its representatives during the public hearing; and
(g) Testimony and/or comments from all persons that was provided in written format or correspondence, at, or prior to, the public hearing.

Section 4. **Findings**

That based on the foregoing Recitals and the Evidence contained in the Administrative Record as set forth above, the Planning Commission makes the following findings in approving Plot Plan PEN20-0141:

(a) The proposed project is consistent with the goals, objectives, policies and programs of the general plan;
(b) The proposed project complies with all applicable zoning and other regulations;
(c) The proposed project will not be detrimental to the public health, safety or welfare or materially injurious to properties or improvements in the vicinity; and
(d) The location, design and operation of the proposed project will be compatible with existing and planned land uses in the vicinity.

Section 5. **Approval**

That based on the foregoing Recitals, Evidence contained in the Administrative Record and Findings set forth above, the Planning Commission hereby approves Plot Plan PEN20-0141 subject to the Conditions of Approval for Plot Plan PEN20-0141 attached hereto as Exhibit A.

Section 6. **Repeal of Conflicting Provisions**

That all the provisions as heretofore adopted by the Planning Commission that are in conflict with the provisions of this Resolution are hereby repealed.

Section 7. **Severability**

That the Planning Commission declares that, should any provision, section, paragraph, sentence or word of this Resolution be rendered or declared invalid by any final court action in a court of competent jurisdiction or by reason of any preemptive legislation, the remaining provisions, sections, paragraphs, sentences or words of this Resolution as hereby adopted shall remain in full force and effect.

Section 8. **Effective Date**

That this Resolution shall take effect immediately upon the date of adoption.

Section 9. **Certification**

That the Secretary of the Planning Commission shall certify to the passage of this Resolution.

PASSED AND ADOPTED THIS 22nd day of July, 2021.

CITY OF MORENO VALLEY
PLANNING COMMISSION

____
Patricia Korzec, Chairperson

ATTEST:

____
Patty Nevins
Planning Official

APPROVED AS TO FORM:

____
Steven B. Quintanilla
Interim City Attorney

Exhibits:
Exhibit A: Conditions of Approval PEN20-0141

Exhibit A

CONDITIONS OF APPROVAL

CITY OF MORENO VALLEY
CONDITIONS OF APPROVAL
Plot Plan (PEN20-0141)
Conditional Use Permit
(PEN20-0142)

EFFECTIVE DATE:
EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENT

Planning Division

1. A change or modification to the land use or the approved site plans may require a separate approval. Prior to any change or modification, the property owner shall contact the City of Moreno Valley Community Development Department to determine if a separate approval is required.

2. The developer, or the developer's successor-in-interest, shall be responsible for maintaining any undeveloped portion of the site in a manner that provides for the control of weeds, erosion and dust. (MC 9.02.030)

3. This approval shall expire three years after the approval date of this project unless used or extended as provided for by the City of Moreno Valley Municipal Code; otherwise it shall become null and void and of no effect whatsoever. Use means the beginning of substantial construction contemplated by this approval within the three-year period, which is thereafter pursued to completion, or the beginning of substantial utilization contemplated by this approval. (MC 9.02.230)

4. In the event the use hereby permitted ceases operation for a period of one (1) year or more, or as defined in the current Municipal Code, this permit may be revoked in accordance with provisions of the Municipal Code.

5. All landscaped areas shall be maintained in a healthy and thriving condition, free from weeds, trash and debris. (MC 9.02.030)

6. This project is located within The Village Specific Plan 204. The provisions of the specific plan, the design manual, their subsequent amendments, and the Conditions of Approval shall prevail unless modified herein. (MC 9.13)

7. The site shall be developed in accordance with the approved plans on file in the Community Development Department - Planning Division, the Municipal Code regulations, General Plan, and the conditions contained herein. Prior to any use of the project site or business activity being commenced thereon, all Conditions of Approval shall be completed to the satisfaction of the Planning Official. (MC 9.14.020)

8. Any signs indicated on the submitted plans are not included with this approval. Any signs, whether permanent (e.g. wall, monument) or temporary (e.g. banner, flag), require separate application and approval by the Planning Division. No signs are permitted in the public right of way. (MC 9.12)

9. All site plans, grading plans, landscape and irrigation plans, fence/wall plans, lighting plans and street improvement plans shall be coordinated for consistency with this approval.

<u>Special Conditions</u>

10. The follow Airport Land Use Commission Conditions of Approval apply to the project. Prior to the issuance of a grading and building permit, the applicant shall demonstrate to the City of Moreno Valley that the Airport Land Use Commission Conditions of Approval have been satisfied.

11. Drive-up or drive-through speaker system shall not be detectable above daytime ambient noise levels beyond the property line boundaries, and shall not exceed fifty-five (55) dBA at any one time beyond the boundaries of the property line. (MC9.09.080 C.6 and 9.10.140)

12. CR-1: Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:
    a. Project grading and development scheduling;
    b. The Project archeologist and the Consulting Tribes(s) as defined in CR-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate

avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;

c. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

13. CR-2: Prior to the issuance of a grading permit, the Developer shall secure agreements with the Agua Caliente Band of Cahuilla Indians, San Manuel Band of Mission Indians, and Soboba Band of Luiseño Indians for tribal monitoring. The Developer is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2.

14. CR-3: In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:

a) One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department:

i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.

ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CR-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CR-1.

15. CR-4: The City shall verify that the following note is included on the Grading Plan:
    "If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."

16. CR-5: If potential historic or cultural resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person meeting the Secretary of the Interior's standards (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all Consulting Native American Tribes as defined in CR-1 before any further work commences in the affected area.

17. CR-6: If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 24 hours of the published finding to be given a reasonable opportunity to identify the "most likely descendant". The "most likely descendant" shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

18. No Alcohol sales allowed.

19. The site has been approved for a 8,624 square foot multi-tenant retail building with a 999 square foot hydrogen equipment room, and for a gasoline, propane, and hydrogen fuel service station use, accessory convenience store (5,006 sq.ft. of the multi-tenant retail building), and 2,485 square foot carwash building with 17 vacuum stations. A change or modification shall require separate approval. For a Conditional Use Permit, violation may result in revocation of the Conditional Use Permit.

<u>Prior to Grading Permit</u>

20. At least thirty days prior to issuance of any grading permit, the developer shall retain a qualified archaeologist, provide a letter identifying the name and qualifications of the archaeologist to the Planning Division for approval, to monitor all ground

disturbing activities in an effort to identify any unknown archaeological resources and to evaluate and recommend appropriate actions for any archaeological deposits exposed by construction activity.

At least thirty days prior to issuance of a grading permit, the applicant shall provide evidence that contact has been established with the appropriate Native American Tribe(s), providing notification of grading, excavation and the proposed monitoring program and to coordinate with the City and Tribe(s) to develop a cultural resources treatment and monitoring agreement. The agreement shall address treatment of known cultural resources, the designation, responsibilities and participation of Tribal monitors during grading, excavation and ground disturbing activities; project grading and development scheduling; terms of compensation; and treatment and final disposition of any cultural resources, sacred sites, and human remains discovered on the site.

A report documenting the proposed methodology for grading monitoring shall be submitted to and approved by the Planning Division prior to issuance of any grading permit. The monitoring archaeologist shall be empowered to stop and redirect grading in the vicinity of an exposed archaeological deposit until that deposit can be fully evaluated. The archaeologist shall consult with affected Tribe(s) to evaluate any archaeological resources discovered on the project site. Tribal monitors shall be allowed to monitor all grading, excavation and groundbreaking activities, and shall also have authority to stop and redirect grading activities in consultation with the project archaeologist.

The property owner shall relinquish ownership to the Tribe(s) of all Native American cultural resources, including sacred items, burial goods and all archaeological artifacts that are found on the project site for proper treatment and disposition. All sacred sites, should they be encountered with the project site, shall be avoided and preserved as the preferred mitigation.

If any inadvertent discoveries of subsurface archaeological or cultural resources occur during grading, the applicant, project archaeologist, and Tribe(s) shall assess the significance of such resources and shall meet and confer regarding mitigation of such resources. Avoidance is the preferred method of preservation of archaeological resources. If the applicant, project archaeologist and Tribe(s) cannot agree on the significance or mitigation for such resources, the issue(s) will be presented to the Planning Official with adequate documentation. The Official shall make a determination based on the provisions of CEQA and consideration of the religious beliefs, customs and practices of the Tribe(s).

21. Prior to issuance of any grading permit, all Conditions of Approval, Mitigation Measures and Airport Land Use Commission Conditions of Approval shall be printed on the grading plans.

22. Prior to the issuance of grading permits, decorative (e.g. colored/scored concrete or as approve by the Planning Official) pedestrian pathways across circulation aisles/paths shall be provided throughout the development to connect dwellings with open spaces and/or recreational uses or commercial/industrial buildings with open space and/or parking. and/or the public right-of-way. The pathways shall be shown on the precise grading plan. (GP Objective 46.8, DG)

23. Prior to issuance of any grading permits, mitigation measures contained in the Mitigation Monitoring Program approved with this project shall be implemented as provided therein. A mitigation monitoring fee, as provided by City ordinance, shall be paid by the applicant within 30 days of project approval. No City permit or approval shall be issued until such fee is paid. (CEQA)

24. Prior to issuance of grading permits, the developer shall pay the applicable Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan mitigation fee. (Ord)

25. If potential historic, archaeological, Native American cultural resources or paleontological resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person (meeting the Secretary of the Interior's standards (36CFR61)) shall be consulted by the applicant to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, prehistoric, or paleontological resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all affected Native American Tribes before any further work commences in the affected area.

    If human remains are discovered during grading and other construction excavation, no further disturbance shall occur until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 5-days of the published finding to be given a reasonable opportunity to identify the "most likely descendant." The "most likely descendant" shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

26. Within thirty (30) days prior to any grading or other land disturbance, a pre-construction survey for Burrowing Owls shall be conducted pursuant to the established guidelines of Multiple Species Habitat Conservation Plan. The pre-construction survey shall be submitted to the Planning Division prior to any

disturbance of the site and/or grading permit issuance.

27. Prior to the issuance of grading permits, the site plan and grading plans shall show decorative hardscape (e.g. colored concrete, stamped concrete, pavers or as approved by the Planning Official) consistent and compatible with the design, color and materials of the proposed development for all driveway ingress/egress locations of the project.

28. Prior to the issuance of grading permits, a temporary project identification sign shall be erected on the site in a secure and visible manner. The sign shall be conspicuously posted at the site and remain in place until occupancy of the project. The sign shall include the following:

    a. The name (if applicable) and address of the development.
    b. The developer's name, address, and a 24-hour emergency telephone number.

29. Prior to issuance of any grading permit, all Conditions of Approval, Mitigation Measures and Airport Land Use Commission Conditions of Approval shall be printed on the building plans.

30. Prior to the issuance of building permits, the developer shall provide documentation that contact was made to the U.S. Postal Service to determine the appropriate type and location of mailboxes.

31. Prior to issuance of any building permits, final landscaping and irrigation plans shall be submitted for review and approved by the Planning Division. After the third plan check review for landscape plans, an additional plan check fee shall apply. The plans shall be prepared in accordance with the City's Landscape Requirements.

32. Prior to issuance of building permits, the Planning Division shall review and approve the location and method of enclosure or screening of transformer cabinets, commercial gas meters and back flow preventers as shown on the final working drawings. Location and screening shall comply with the following criteria: transformer cabinets and commercial gas meters shall not be located within required setbacks and shall be screened from public view either by architectural treatment or landscaping; multiple electrical meters shall be fully enclosed and incorporated into the overall architectural design of the building(s); back-flow preventers shall be screened by landscaping. (GP Objective 43.30)

33. Prior to issuance of a building permit, the developer/property owner or developer's successor-in-interest shall pay all applicable impact fees due at permit issuance, including but not limited to Multi-species Habitat Conservation Plan (MSHCP) mitigation fees. (Ord)

34. Prior to building final, the developer/owner or developer's/owner's successor-in-interest shall pay all applicable impact fees, including but not limited to Transportation Uniform Mitigation fees (TUMF), and the City's adopted Development Impact Fees. (Ord)

35. Prior to issuance of building permits, for projects that will be phased, a phasing plan shall be submitted to and approved by the Planning Division if occupancy is proposed to be phased.

36. Prior to or at building plan check submittal, the elevation plans shall include decorative lighting sconces on all sides of the buildings of the complex facing a parking lot, courtyard or plaza, or public right of way or open space to provide up-lighting and shadowing on the structures. Include drawings of the sconce details for each building within the elevation plans, approved by the Planning Division prior to building permit issuance.

37. Prior to issuance of building permits, screening details shall be addressed on the building plans for roof top equipment submitted for Planning Division review and approval through the building plan check process. All equipment shall be completely screened so as not to be visible from public view, and the screening shall be an integral part of the building.

<u>Prior to Building Final or Occupancy</u>

38. Prior to building final, all required landscaping and irrigation shall be installed per plan, certified by the Landscape Architect and inspected by the Planning Division. (MC 9.03.040, MC 9.17).

39. Prior to building final, Planning approved/stamped landscape plans shall be provided to the Community Development Department – Planning Division on a CD disk.

40. Prior to building final, all required and proposed fences and walls shall be constructed according to the approved plans on file in the Planning Division. (MC 9.080.070).

<u>Building Division</u>

41. The proposed non-residential project shall comply with the latest Federal Law, Americans with Disabilities Act, and State Law, California Code of Regulations, Title 24, Chapter 11B for accessibility standards for the disabled including access to the site, exits, bathrooms, work spaces, etc.

42. Prior to submittal, all new development, including residential second units, are

required to obtain a valid property address prior to permit application. Addresses can be obtained by contacting the Building Safety Division at 951.413.3350.

43. Contact the Building Safety Division for permit application submittal requirements.

44. Any construction within the city shall only be as follows: Monday through Friday seven a.m. to seven p.m(except for holidays which occur on weekdays), eight a.m. to four p.m.; weekends and holidays (as observed by the city and described in the Moreno Valley Municipal Code Chapter 2.55), unless written approval is first obtained from the Building Official or City Engineer.

45. Building plans submitted shall be signed and sealed by a California licensed design professional as required by the State Business and Professions Code.

46. The proposed development shall be subject to the payment of required development fees as required by the City's current Fee Ordinance at the time a building application is submitted or prior to the issuance of permits as determined by the City.

47. The proposed project will be subject to approval by the Eastern Municipal Water District and all applicable fees and charges shall be paid prior to permit issuance. Contact the water district at 951.928.3777 for specific details.

48. All new structures shall be designed in conformance to the latest design standards adopted by the State of California in the California Building Code, (CBC) Part 2, Title 24, California Code of Regulations including requirements for allowable area, occupancy separations, fire suppression systems, accessibility, etc.

49. The proposed non-residential project shall comply with California Green Building Standards Code, Section 5.106.5.3, mandatory requirements for Electric Vehicle Charging Station (EVCS).

50. The proposed project's occupancy shall be classified by the Building Official and must comply with exiting, occupancy separation(s) and minimum plumbing fixture requirements. Minimum plumbing fixtures shall be provided per the California Plumbing Code, Table 422.1. The occupant load and occupancy classification shall be determined in accordance with the California Building Code.

51. Prior to permit issuance, every applicant shall submit a properly completed Waste Management Plan (WMP), as a portion of the building or demolition permit process. (MC 8.80.030)

ECONOMIC DEVELOPMENT DEPARTMENT (EDD)

52. New Moreno Valley businesses may work with the Economic Development

Department to coordinate job recruitment fairs.

53. New Moreno Valley businesses may adopt a “First Source” approach to employee recruitment that gives notice of job openings to Moreno Valley residents for one week in advance of the public recruitment.

54. New Moreno Valley businesses are encouraged to hire local residents.

55. New Moreno Valley businesses are encouraged to provide a job fair flyer and/or web announcement to the City in advance of job recruitments, so that the City can assist in publicizing these events.

56. New Moreno Valley businesses may utilize the workforce recruitment services provided by the Moreno Valley Employment Resource Center (“ERC”).

    The ERC offers no cost assistance to businesses recruiting and training potential employees. Complimentary services include:

    • Job Announcements
    • Applicant testing / pre-screening
    • Interviewing
    • Job Fair support
    • Training space

FIRE DEPARTMENT

Fire Prevention Bureau

57. All Fire Department access roads or driveways shall not exceed 12 percent grade. (CFC 503.2.7 and MVMC 8.36.060[G])

58. The Fire Department emergency vehicular access road shall be (all weather surface) capable of sustaining an imposed load of 80,000 lbs. GVW, based on street standards approved by the Public Works Director and the Fire Prevention Bureau. The approved fire access road shall be in place during the time of construction. Temporary fire access roads shall be approved by the Fire Prevention Bureau. (CFC 501.4, and MV City Standard Engineering Plan 108d)

59. The angle of approach and departure for any means of Fire Department access shall not exceed 1 ft drop in 20 ft (0.3 m drop in 6 m), and the design limitations of the fire apparatus of the Fire Department shall be subject to approval by the AHJ. (CFC 503 and MVMC 8.36.060)

60. Prior to construction, all locations where structures are to be built shall have an

approved Fire Department access based on street standards approved by the Public Works Director and the Fire Prevention Bureau. (CFC 501.4)

61. Prior to issuance of Building Permits, the applicant/developer shall provide the Fire Prevention Bureau with an approved site plan for Fire Lanes and signage. (CFC 501.3)

62. Prior to issuance of Certificate of Occupancy or Building Final, "Blue Reflective Markers" shall be installed to identify fire hydrant locations in accordance with City specifications. (CFC 509.1 and MVLT 440A-0 through MVLT 440C-0)

63. Prior to issuance of building permits, plans specifying the required structural materials for building construction in high fire hazard severity zones shall be submitted to the Fire Prevention Bureau for approval. (CFC, 4905)

64. Prior to issuance of Certificate of Occupancy or Building Final, all commercial buildings shall display street numbers in a prominent location on the street side and rear access locations. The numerals shall be a minimum of twelve inches in height. (CFC 505.1, MVMC 8.36.060[I])

65. Prior to issuance of Certificate of Occupancy, approval shall be required from the County of Riverside Community Health Agency (Department of Environmental Health) and Moreno Valley Fire Prevention Bureau to maintain, store, use, handle materials, or conduct processes which produce conditions hazardous to life or property, and to install equipment used in connection with such activities. (CFC 105)

66. Existing fire hydrants on public streets are allowed to be considered available. Existing fire hydrants on adjacent properties shall not be considered available unless fire apparatus access roads extend between properties and easements are established to prevent obstruction of such roads. (CFC 507, 501.3) a - After the local water company signs the plans, the originals shall be presented to the Fire Prevention Bureau for signatures. The required water system, including fire hydrants, shall be installed, made serviceable, and be accepted by the Moreno Valley Fire Department prior to beginning construction. They shall be maintained accessible.

67. Final fire and life safety conditions will be addressed when the Fire Prevention Bureau reviews building plans. These conditions will be based on occupancy, use, California Building Code (CBC), California Fire Code (CFC), and related codes, which are in effect at the time of building plan submittal.

68. Prior to issuance of Certificate of Occupancy or Building Final, the applicant/developer shall install a fire alarm system monitored by an approved Underwriters Laboratory listed central station based on a requirement for monitoring

the sprinkler system, occupancy or use. Fire alarm panel shall be accessible from exterior of building in an approved location. Plans shall be submitted to the Fire Prevention Bureau for approval prior to installation. (CFC Chapter 9 and MVMC 8.36.100)

69. The Fire Code Official is authorized to enforce the fire safety during construction requirements of Chapter 33. (CFC Chapter 33 & CBC Chapter 33)

70. Fire lanes and fire apparatus access roads shall have an unobstructed width of not less than twenty–four (24) feet and an unobstructed vertical clearance of not less the thirteen (13) feet six (6) inches. (CFC 503.2.1 and MVMC 8.36.060[E])

71. Prior to issuance of Certificate of Occupancy or Building Final, the applicant/developer shall install a fire sprinkler system based on square footage and type of construction, occupancy or use. Fire sprinkler plans shall be submitted to the Fire Prevention Bureau for approval prior to installation. (CFC Chapter 9, MVMC 8.36.100[D])

72. Prior to issuance of the building permit for development, independent paved access to the nearest paved road, maintained by the City shall be designed and constructed by the developer within the public right of way in accordance with City Standards. (MVMC 8.36.060, CFC 501.4)

73. Prior to issuance of a Certificate of Occupancy or Building Final, a “Knox Box Rapid Entry System” shall be provided. The Knox-Box shall be installed in an accessible location approved by the Fire Code Official. All exterior security emergency access gates shall be electronically operated and be provided with Knox key switches for access by emergency personnel. (CFC 506.1)

74. The minimum number of fire hydrants required, as well as the location and spacing of fire hydrants, shall comply with the C.F.C., MVMC, and NFPA 24. Fire hydrants shall be located no closer than 40 feet to a building. A fire hydrant shall be located within 50 feet of the fire department connection for buildings protected with a fire sprinkler system. The size and number of outlets required for the approved fire hydrants are (6” x 4” x 2 ½” x 2 ½”) (CFC 507.5.1, 507.5.7, Appendix C, NFPA 24-7.2.3, MVMC 912.2.1)

75. Fire Department access driveways over 150 feet in length shall have a turn-around as determined by the Fire Prevention Bureau capable of accommodating fire apparatus. (CFC 503 and MVMC 8.36.060, CFC 501.4)

76. During phased construction, dead end roadways and streets which have not been completed shall have a turn-around capable of accommodating fire apparatus. (CFC 503.1 and 503.2.5)

77. If construction is phased, each phase shall provide an approved emergency vehicular access way for fire protection prior to any building construction. (CFC 501.4)

78. Prior to issuance of Building Permits, plans for structural protection from vegetation fires shall be submitted to the Fire Prevention Bureau for review and approval. Measures shall include, but are not limited to: noncombustible barriers (cement or block walls), fuel modification zones, etc. (CFC Chapter 49)

79. Plans for private water mains supplying fire sprinkler systems and/or private fire hydrants shall be submitted to the Fire Prevention Bureau for approval. (CFC 105 and CFC 3312.1)

80. The Fire Prevention Bureau is required to set a minimum fire flow for the remodel or construction of all commercial buildings per CFC Appendix B and Table B105.1. The applicant/developer shall provide documentation to show there exists a water system capable of delivering said waterflow for 2 hour(s) duration at 20-PSI residual operating pressure. The required fire flow may be adjusted during the approval process to reflect changes in design, construction type, or automatic fire protection measures as approved by the Fire Prevention Bureau. Specific requirements for the project will be determined at time of submittal. (CFC 507.3, Appendix B)

81. Dead-end streets and/or fire apparatus access roads in excess of 150 feet in length shall be provided with an approved turnaround for fire apparatus.

82. Prior to construction, all traffic calming designs/devices must be approved by the Fire Marshal and City Engineer.

83. Prior to building construction, dead end roadways and streets which have not been completed shall have a turnaround capable of accommodating fire apparatus. (CFC 503.2.5)

84. Prior to issuance of Certificate of Occupancy or Building Final, the applicant/developer shall be responsible for obtaining underground and/or above ground tank permits for the storage of combustible liquids, flammable liquids, or any other hazardous materials from both the County of Riverside Community Health Agency Department of Environmental Health and the Fire Prevention Bureau. (CFC 105)

85. Prior to issuance of Building Permits, the applicant/developer shall furnish one copy of the water system plans to the Fire Prevention Bureau for review. Plans shall: a. Be signed by a registered civil engineer or a certified fire protection engineer; b. Contain a Fire Prevention Bureau approval signature block; and c. Conform to hydrant type, location, spacing of new and existing hydrants and minimum fire flow required as determined by the Fire Prevention Bureau. The required water system,

including fire hydrants, shall be installed, made serviceable, and be accepted by the Moreno Valley Fire Department prior to beginning construction. They shall be maintained accessible.

PUBLIC WORKS DEPARTMENT

Land Development

86. Aggregate slurry, as defined in Section 203-5 of Standard Specifications for Public Works Construction, shall be required prior to 90% security reduction or the end of the one-year warranty period of the public streets as approved by the City Engineer. If slurry is required, a slurry mix design shall be submitted for review and approved by the City Engineer. The latex additive shall be Ultra Pave 70 (for anionic) or Ultra Pave 65 K (for cationic) or an approved equal per the geotechnical report. The latex shall be added at the emulsion plant after weighing the asphalt and before the addition of mixing water. The latex shall be added at a rate of two to two-and-one-half (2 to 2½) parts to one-hundred (100) parts of emulsion by volume. Any existing striping shall be removed prior to slurry application and replaced per City standards.

87. The developer shall comply with all applicable City ordinances and resolutions including the City's Municipal Code (MC) and if subdividing land, the Government Code (GC) of the State of California, specifically Sections 66410 through 66499.58, said sections also referred to as the Subdivision Map Act (SMA). [MC 9.14.010]

88. The final approved conditions of approval (COAs) issued and any applicable Mitigation Measures by the Planning Division shall be photographically or electronically placed on mylar sheets and included in the Grading and Street Improvement plans.

89. The developer shall monitor, supervise and control all construction related activities, so as to prevent these activities from causing a public nuisance, including but not limited to, insuring strict adherence to the following:
(a) Removal of dirt, debris, or other construction material deposited on any public street no later than the end of each working day.
(b) Observance of working hours as stipulated on permits issued by the Land Development Division.
(c) The construction site shall accommodate the parking of all motor vehicles used by persons working at or providing deliveries to the site.
(d) All dust control measures per South Coast Air Quality Management District (SCAQMD) requirements during the grading operations.
Violation of any condition, restriction or prohibition set forth in these conditions shall subject the owner, applicant, developer or contractor(s) to remedy as noted in City

Municipal Code 8.14.090. In addition, the City Engineer or Building Official may suspend all construction related activities for violation of any condition, restriction or prohibition set forth in these conditions until such time as it has been determined that all operations and activities are in conformance with these conditions.

90. Drainage facilities (e.g., catch basins, water quality basins, etc.) with sump conditions shall be designed to convey the tributary 100-year storm flows. Secondary emergency escape shall also be provided.

91. The developer shall protect downstream properties from damage caused by alteration of drainage patterns (i.e. concentration or diversion of flow, etc). Protection shall be provided by constructing adequate drainage facilities, including, but not limited to, modifying existing facilities or by securing a drainage easement. [MC 9.14.110]

92. This project shall submit civil engineering design plans, reports and/or documents (prepared by a registered/licensed civil engineer) for review and approval by the City Engineer per the current submittal requirements, prior to the indicated threshold or as required by the City Engineer. The submittal consists of, but is not limited to, the following:
    a. Rough grading w/ erosion control plan (prior to grading permit issuance);
    b. Precise grading w/ erosion control plan (prior to grading permit issuance);
    c. Public improvement plans (e.g., street with striping, etc.) (prior to encroachment permit issuance);
    d. Final drainage study (prior to grading plan approval);
    e. Final WQMP (prior to grading plan approval);
    f. legal documents (e.g., dedication(s), etc.) (prior to building permit issuance);
    g. As-Built revision for all plans (prior to Occupancy release);

<u>Prior to Grading Plan Approval</u>

93. A final detailed drainage study (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer. The study shall include, but not be limited to: existing and proposed hydrologic conditions as well as hydraulic calculations for all drainage control devices and storm drain lines. The study shall analyze 1, 3, 6 and 24-hour duration events for the 2, 5, 10 and 100-year storm events [MC 9.14.110(A.1)]. A digital (pdf) copy of the approved drainage study shall be submitted to the Land Development Division.

94. Emergency overflow areas shall be shown at all applicable drainage improvement locations in the event that the drainage improvement fails or exceeds full capacity.

95. The developer shall ensure compliance with the City Grading ordinance, these Conditions of Approval and the following criteria:

a. The project street and lot grading shall be designed in a manner that perpetuates the existing natural drainage patterns with respect to tributary drainage area and outlet points. Unless otherwise approved by the City Engineer, lot lines shall be located at the top of slopes.

b. Any grading that creates cut or fill slopes adjacent to the street shall provide erosion control, sight distance control, and slope easements as approved by the City Engineer.

c. All improvement plans are substantially complete and appropriate clearance letters are provided to the City.

d. A soils/geotechnical report (addressing the soil's stability and geological conditions of the site) shall be submitted to the Land Development Division for review. A digital (pdf) copy of the soils/geotechnical report shall be submitted to the Land Development Division.

96. Grading plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

97. The developer shall select Low Impact Development (LID) Best Management Practices (BMPs) designed per the latest version of the Water Quality Management Plan (WQMP) - a guidance document for the Santa Ana region of Riverside County.

98. The developer shall pay all remaining plan check fees.

99. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared in conformance with the State's current Construction Activities Storm Water General Permit. A copy of the current SWPPP shall be kept at the project site and be available for review upon request.

100. Any proposed trash enclosure shall include a solid cover (roof) and sufficient size for dual bin (one for trash and one for recyclables). The architecture shall be approved by the Planning Division and any structural approvals shall be made by the Building & Safety Division.

101. A final project-specific Water Quality Management Plan (WQMP) shall be submitted for review and approved by the City Engineer, which:

a. Addresses Site Design Best Management Practices (BMPs) such as minimizing impervious areas, maximizing permeability, minimizes directly connected impervious areas to the City's street and storm drain systems, and conserves natural areas;

b. Incorporates Source Control BMPs and provides a detailed description of their implementation;

c. Describes the long-term operation and maintenance requirements for BMPs requiring maintenance; and

d. Describes the mechanism for funding the long-term operation and

maintenance of the BMPs.
A copy of the final WQMP template can be obtained on the City's Website or by contacting the Land Development Division. A digital (pdf) copy of the approved final project-specific Water Quality Management Plan (WQMP) shall be submitted to the Land Development Division.

102. For projects that will result in discharges of storm water associated with construction with a soil disturbance of one or more acres of land, the developer shall submit a Notice of Intent (NOI) and obtain a Waste Discharger's Identification number (WDID#) from the State Water Quality Control Board (SWQCB) which shall be noted on the grading plans.

Prior to Grading Permit

103. A receipt showing payment of the Area Drainage Plan (ADP) fee to Riverside County Flood Control and Water Conservation District shall be submitted. [MC 9.14.100(O)]

104. For non-subdivision projects, a copy of the Covenants, Conditions and Restrictions (CC&Rs) shall be submitted for review by the City Engineer. The CC&Rs shall include, but not be limited to, access easements, reciprocal access, private and/or public utility easements as may be relevant to the project.

105. Security, in the form of a cash deposit (preferable), bond or letter of credit shall be submitted as a guarantee of the implementation and maintenance of erosion control measures. At least twenty-five (25) percent of the required security shall be in the form of a cash deposit with the City. [MC 8.21.160(H)]

106. Security, in the form of a cash deposit (preferable), bond or letter of credit shall be submitted as a guarantee of the completion of the grading operations for the project. [MC 8.21.070]

Prior to Improvement Plan Approval

107. The developer is required to bring any existing access ramps adjacent to and fronting the project to current ADA (Americans with Disabilities Act) requirements. However, when work is required in an intersection that involves or impacts existing access ramps, all access ramps in that intersection shall be retrofitted to comply with current ADA requirements, unless otherwise approved by the City Engineer.

108. The developer shall submit clearances from all applicable agencies, and pay all applicable plan check fees.

109. The street improvement plans shall comply with current City policies, plans and

applicable City standards (i.e. MVSI-160 series, etc.) throughout this project.

110. All public improvement plans (prepared by a licensed/registered civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

111. Any missing or deficient existing improvements along the project frontage within shall be constructed or secured for construction. The City Engineer may require the ultimate structural section for pavement to half-street width plus 18 feet or provide core test results confirming that existing pavement section is per current City Standards; additional signing & striping to accommodate increased traffic imposed by the development, etc.

112. The plans shall indicate any restrictions on trench repair pavement cuts to reflect the City's moratorium on disturbing newly-constructed pavement less than three (3) years old and recently slurry sealed streets less than one (1) year old. Pavement cuts may be allowed for emergency repairs or as specifically approved in writing by the City Engineer. Special requirements shall be imposed for repaving, limits to be determined by the City Engineer.

113. All dry and wet utilities shall be shown on the plans and any crossings shall be potholed to determine actual location and elevation. Any conflicts shall be identified and addressed on the plans. The pothole survey data shall be submitted to Land Development with the public improvement plans for reference purposes only. The developer is responsible to coordinate with all affected utility companies and bear all costs of any utility relocation.

114. The driveway approach on Sunnymead Blvd. shall be per standard MVSI-112A-0. The driveway approach on Graham shall be per standard MVSI-112C-0.

115. The developer shall be required to install street lights within the public right-of-way per standard MVLT-400B-0 along Graham Street and Sunnymead Blvd.

<u>Prior to Encroachment Permit</u>

116. A digital (pdf) copy of all approved improvement plans shall be submitted to the Land Development Division, if applicable.

117. All applicable inspection fees shall be paid.

118. The plans shall indicate any restrictions on trench repair pavement cuts to reflect the City's moratorium on disturbing newly-constructed pavement less than three (3) years old and recently slurry sealed streets less than one (1) year old. Pavement cuts may be allowed for emergency repairs or as specifically approved in writing by

the City Engineer. Special requirements shall be imposed for repaving, limits to be determined by the City Engineer.

119. Any work performed within public right-of-way requires an encroachment permit.

Prior to Building Permit

120. An engineered-fill certification, rough grade certification and compaction report shall be submitted for review and approved by the City Engineer. A digital (pdf) copy of the approved compaction report shall be submitted to the Land Development Division. All pads shall meet pad elevations per approved grading plans as noted by the setting of "blue-top" markers installed by a registered land surveyor or licensed civil engineer.

121. For Commercial/Industrial projects, the owner may have to secure coverage under the State's General Industrial Activities Storm Water Permit as issued by the State Water Resources Control Board.

122. A walk through with a Land Development Inspector shall be scheduled to inspect existing improvements within public right of way along project frontage. Any missing, damaged or substandard improvements including ADA access ramps that do not meet current City standards shall be required to be installed, replaced and/or repaired. The applicant shall post security to cover the cost of the repairs and complete the repairs within the time allowed in the public improvement agreement used to secure the improvements.

Prior to Occupancy

123. All required as-built plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

124. The final/precise grade certification shall be submitted for review and approved by the City Engineer.

125. For commercial, industrial and multi-family projects, in compliance with Proposition 218, the developer shall agree to approve the City of Moreno Valley NPDES Regulatory Rate Schedule that is in place at the time of certificate of occupancy issuance. Under the current permit for storm water activities required as part of the National Pollutant Discharge Elimination System (NPDES) as mandated by the Federal Clean Water Act, this project is subject to the following requirements:

a. Select one of the following options to meet the financial responsibility to provide storm water utilities services for the required continuous operation, maintenance, monitoring system evaluations and enhancements, remediation and/or replacement, all in accordance with Resolution No. 2002-46.

i. Participate in the mail ballot proceeding in compliance with Proposition 218, for the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule and pay all associated costs with the ballot process; or

ii. Establish an endowment to cover future City costs as specified in the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule.

b. Notify the Special Districts Division of the intent to request building permits 90 days prior to their issuance and the financial option selected. The financial option selected shall be in place prior to the issuance of certificate of occupancy. [California Government Code & Municipal Code]

126. The developer shall complete all public improvements in conformance with current City standards, except as noted in the Special Conditions, including but not limited to the following:

a. Street improvements including, but not limited to: pavement, base, curb and/or gutter, cross gutters, spandrel, sidewalks, drive approaches, pedestrian ramps, street lights (SCE: LS-2), signing, striping, under sidewalk drains, landscaping and irrigation, medians, pavement tapers/transitions and traffic control devices as appropriate.

b. Storm drain facilities including, but not limited to: storm drain pipe, storm drain laterals, open channels, catch basins and local depressions.

c. City-owned utilities.

d. Sewer and water systems including, but not limited to: sanitary sewer, potable water and recycled water.

e. Under grounding of all existing and proposed utilities adjacent to and on-site. [MC 9.14.130]

f. Relocation of overhead electrical utility lines including, but not limited to: electrical, cable and telephone.

127. The applicant shall ensure the following, pursuant to Section XII. I. of the 2010 NPDES Permit:

a. Field verification that structural Site Design, Source Control and Treatment Control BMPs are designed, constructed and functional in accordance with the approved Final Water Quality Management Plan (WQMP).

b. Certification of best management practices (BMPs) from a state licensed civil engineer. An original WQMP BMP Certification shall be submitted for review and approved by the City Engineer.

128. The Developer shall comply with the following water quality related items:

a. Notify the Land Development Division prior to construction and installation of all structural BMPs so that an inspection can be performed.

b. Demonstrate that all structural BMPs described in the approved final project-specific WQMP have been constructed and installed in conformance with the approved plans and specifications;

c. Demonstrate that Developer is prepared to implement all non-structural BMPs described in the approved final project-specific WQMP; and

d. Demonstrate that an adequate number of copies of the approved final project-specific WQMP are available for future owners/occupants.

e. Clean and repair the water quality BMP's, including re-grading to approved civil drawing if necessary.

f. Obtain approval and complete installation of the irrigation and landscaping.

129. All outstanding fees shall be paid.

Special Districts Division

130. NEW STREET LIGHT INSTALLATION FEES. Prior to the issuance of the first building permit for this project, the Developer shall pay New Street Light Installation Fees for all applicable Residential and Arterial Street Lights required for this development. Payment shall be made to the City of Moreno Valley and collected by the Land Development Division. Fees are based upon the Advanced Energy fee rate in place at the time of payment, as set forth in the current Listing of City Fees, Charges, and Rates adopted by City Council. The Developer shall provide a copy of the receipt to the Special Districts Division (specialdistricts@moval.org). Any change in the project which may increase the number of street lights to be installed will require payment of additional Advanced Energy fees at the then current fee. Questions may be directed to the Special Districts Division at 951.413.3480 or specialdistricts@moval.org.

131. This project is conditioned for a proposed district to provide a funding source for the operation and maintenance of public improvements and/or services associated with new development in that territory. The Developer shall satisfy this condition with one of the options outlined below.

a. Participate in a special election for maintenance/services and pay all associated costs of the election process and formation, if any. Financing may be structured through a Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or

b. Establish an endowment fund to cover the future maintenance and/or service costs.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance. If the first building permit is pulled prior to formation of the district, this condition will not apply. If the district has been or is in the process of being formed the Developer must inform the Special Districts Division of its selected financing option (a. or b. above). The option for participating in a special election requires 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

The financial option selected shall be in place prior to the issuance of the first certificate of occupancy for the project.

132. This project is conditioned to provide a funding source for the following special financing program(s):

a. Street Lighting Services for capital improvements, energy charges, and maintenance.

The Developer's responsibility is to provide a funding source for the capital improvements and the continued maintenance. The Developer shall satisfy this condition with one of the options below.

i. Participate in a special election (mail ballot proceeding) and pay all associated costs of the special election and formation, if any. Financing may be structured through a Community Services District zone, Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or

ii. Establish a Property Owner's Association (POA) or Home Owner's Association (HOA) which will be responsible for any and all operation and maintenance costs

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option when submitting the application for building permit issuance. The option for participating in a special election requires approximately 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

The financial option selected shall be in place prior to the issuance of the first certificate of occupancy for the project.

133. Commercial (BP) If Land Development, a Division of the Public Works Department, requires this project to supply a funding source necessary to provide for, but not limited to, stormwater utilities services for the continuous operation, remediation and/or replacement, monitoring, systems evaluations and enhancement of on-site facilities and performing annual inspections of the affected areas to ensure

compliance with state mandated stormwater regulations, a funding source needs to be established. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option for the National Pollution Discharge Elimination System (NPDES) program when submitting the application for the first building permit issuance (see Land Development's related condition). Participating in a special election the process requires a 90 day period prior to the City's issuance of a building permit. This allows adequate time to be in compliance with the provisions of Article 13D of the California Constitution. (California Health and Safety Code Sections 5473 through 5473.8 (Ord. 708 Section 3.1, 2006) & City of Moreno Valley Municipal Code Title 3, Section 3.50.050.)

134. This project has been identified to be included in the formation of a Community Facilities District (Mello-Roos) for Public Safety services, including but not limited to Police, Fire Protection, Paramedic Services, Park Rangers, and Animal Control services. The property owner(s) shall not protest the formation; however, they retain the right to object to the rate and method of maximum special tax. In compliance with Proposition 218, the property owner shall agree to approve the mail ballot proceeding (special election) for either formation of the CFD or annexation into an existing district. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance to determine the requirement for participation. If the first building permit is pulled prior to formation of the district, this condition will not apply. If the condition applies, the special election will require a minimum of 90 days prior to issuance of the first building permit. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution. (California Government Code Section 53313 et. seq.)

135. The existing parkway/median along the frontage of the project shall be brought to current City Standards. Improvements may include but are not limited to: plant material, irrigation, and hardscape.

136. Inspection fees for the monitoring of landscape installation associated with the City of Moreno Valley maintained parkways/medians are due prior to the required pre-construction meeting. (MC 3.32.040)

137. The ongoing maintenance of any landscaping required to be installed behind the curb shall be the responsibility of the property owner.

138. Modification of existing irrigation systems for parkway improvements may be required per the direction of, approval by and coordination with the Special Districts Division. Please contact Special District Division staff at 951.413.3480 or specialdistricts@moval.org to coordinate the modifications.

139. Any damage to existing landscape areas maintained by the City of Moreno Valley

due to project construction shall be repaired/replaced by the Developer, or Developer's successors in interest, at no cost to the City of Moreno Valley.

140. MAJOR INFRASTRUCTURE FINANCING DISTRICT. This project has been identified to potentially be included in the formation of a special financing district for the construction and maintenance of major infrastructure improvements which may include but are not limited to thoroughfares, bridges, and certain flood control improvements. The property owner(s) shall participate in such district and pay any special tax, assessment, or fee levied upon the project property for such district. At the time of the public hearing to consider formation of or annexation into the district, the qualified elector(s) will not protest the formation or annexation, but will retain the right to object to any eventual tax/assessment/fee that is not equitable should the financial burden of the tax/assessment/fee not be reasonably proportionate to the benefit the affected property obtains from the improvements to be installed and/or maintained. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting an application for the first building permit to determine whether the development will be subjected to this condition. If subject to the condition, the special election requires a minimum 90-day process in compliance with the provisions of Article 13C of the California Constitution.

141. The parcel(s) associated with this project have been incorporated into the Moreno Valley Community Services District Zone A (Parks & Community Services), Zone C (Arterial Street Lighting), and Zone S (Sunnymead Boulevard Maintenance). All assessable parcels therein shall be subject to annual parcel taxes for Zone A and Zone C and the annual parcel charge for Zone S for operations and capital improvements.

142. The removal of existing trees with four-inch or greater trunk diameters (calipers), shall be replaced, at a three to one ratio, with minimum twenty-four (24) inch box size trees of the same species, or a minimum thirty-six (36) inch box for a one to one replacement, where approved. (MC 9.17.030)

143. PARKS MAINTENANCE FUNDING. Prior to applying for the 1st Building Permit, the qualified elector (e.g. property owner) must initiate the process (i.e. pay the annexation fee or fund an endowment) to provide an ongoing funding source for the continued maintenance, enhancement, and or retrofit of parks, open spaces, linear parks, and/or trails systems, and programs.

This condition must be fully satisfied prior to issuance of the 1st Certificate of Occupancy. This condition will be satisfied with the successful annexation/formation (i.e. special election process) into a special financing district and payment of all costs associated with the special election process. Annexation into a special financing district requires an annual payment of the annual special tax, assessment, or fee levied against the property tax bill, or other lawful means, of the parcels of the project for such district. At the time of the public hearing to consider annexation into or formation of the district, the qualified elector(s) will not protest the annexation or formation, but will retain the right to object to any eventual tax/assessment/fee that is not equitable should the financial burden of the tax/assessment/fee not be reasonably proportionate to the benefit the affected property receives from the improvements to be installed and/or maintained or services provided. The special election requires a minimum 90-day process in compliance with the provisions of Article 13C of the California Constitution, Proposition 218, or other applicable legislation, and consistent with the scheduling for City Council meetings.

Alternatively, the condition can be satisfied by the Developer funding an endowment in an amount sufficient to yield an annual revenue stream that meets the annual obligation. The Developer must contact Special Districts Administration at 951.413.3470 or at SDAdmin@moval.org to satisfy this condition.

144. Landscape and irrigation on corner of Sunnymead Blvd. and Graham St. currently maintained by the City as part of Zone S, will be removed and replaced with on-site landscaping as per the plans.

<u>Transportation Engineering Division</u>

145. Conditions of approval may be modified or added if a phasing plan is submitted for this development.

146. All project driveways shall conform to Section 9.11.080, and Table 9.11.080-14 of the City's Development Code – Design Guidelines and City of Moreno Valley Standard Plans No. MVSI-112A~D-0 for commercial driveway approaches. Access at the project driveways shall be as follows:
-Graham Street shall have a 50-ft driveway per City Standard No. MVSI-112C-0 with full access.
-Sunnymead Boulevard shall have a 40-ft driveway per City Standard No. MVSI-112A-0 with right in/right out access only.

147. Sight distance at the proposed roadways and driveways shall conform to City of Moreno Valley Standard No. MVSI-164A,B,C-0 at the time of preparation of final grading, landscape, and street improvement plans.

148. Prior to issuance of a Building Final or Certificate of Occupancy, all approved signing and striping shall be installed per current City Standards

149. All proposed on-site traffic signing and striping should be accordance with the latest California Manual on Uniform Traffic Control Devices (CAMUTCD).

150. The first parking stall/drive aisle juncture shall be 60 feet from the property line per Municipal Code Section 9.11.080 - A.18 or as approved by the City Engineer.

151. Prior to the final approval of the street improvement plans, a signing and striping modification plan shall be prepared for the following street segments:

 -Sunnymead Boulevard along the project frontage
 -Graham Street along the project frontage

 A "One Way" sign (R6-1) shall be installed on the existing median island facing the proposed driveway on Sunnymead Boulevard. All signing and striping plans shall be prepared per the latest edition of the California Manual on Uniform Traffic Control Devices (CAMUTCD) and current City of Moreno Valley Standard Plans by a qualified registered Civil or Traffic engineer shall be required for plan approval or as required by the City Traffic Engineer.

152. Communication conduit along project frontages may be required per City Standard Plan No. MVSI-186-0.

153. Prior to the issuance of Building Permit, the project applicant shall make a fair-share payment to the City of Moreno Valley for 39% of the construction costs to extend the westbound left turn lane storage length to 280 feet minimum at the Sunnymead Boulevard/Graham Street intersection, as identified in the project Traffic Study.

154. Prior to issuance of a construction permit, construction traffic control plans prepared by a qualified, registered Civil or Traffic engineer may be required for plan approval or as required by the City Traffic Engineer.

155. No on-street parking shall be permitted along Sunnymead Boulevard and Graham Street. Appropriate signage shall be installed.

156. Prior to issuance of a Building Final or Certificate of Occupancy, all approved street improvements shall be installed to the satisfaction of the City Engineer.

RESOLUTION NUMBER 2021-32

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, APPROVING CONDITIONAL USE PERMIT (PEN20-0142) FOR A SERVICE STATION WITH GASOLINE, PROPANE, AND HYDROGEN FUEL SERVICE AND CONVENIENCE STORE (5,006 SQ.FT. OF THE MULTI-TENANT RETAIL BUILDING), AND A 2,485 SQUARE FOOT CARWASH BUILDING WITH 17 VACUUM STATIONS, LOCATED AT THE SOUTHEAST CORNER OF SUNNYMEAD BOULEVARD AND GRAHAM STREET (APN: 292-100-012)

WHEREAS, the City of Moreno Valley ("City") is a general law city and a municipal corporation of the State of California; and

WHEREAS, Go Fresh, LLC, ("Developer") has filed an application for the approval of Conditional Use Permit PEN20-0142 ("Application") for a gasoline, propane, and hydrogen fuel service station use, accessory convenience store (5,006 sq.ft. of the multi-tenant retail building), and a 2,485 square foot carwash building with 17 vacuum stations, ("Project") located at the southeast corner of Sunnymead Boulevard and Graham Street ("Site"); and

WHEREAS, Section 9.02.060 (Conditional Use Permits) of the Moreno Valley Municipal Code acknowledges that the purpose of conditional use permits is to allow the establishment of uses that may have special impacts or uniqueness such that their effect on the surrounding environment cannot be determined in advance of the use being proposed for a particular location and that the conditional use permit application process involves the review of location, design and configuration of improvements related to the project, and the potential impact of the project on the surrounding area based on fixed and established standards; and

WHEREAS, the Application has been evaluated in accordance with Section 9.02.060 (Conditional Use Permits) of the Municipal Code with consideration given to the City's General Plan, Zoning Ordinance, and other applicable laws and regulations; and

WHEREAS, Section 9.02.060 of the Municipal Code imposes conditions of approval upon projects for which a Conditional Use Permit is required, which conditions may be imposed by the Planning Commission to address on-site improvements, off-site improvements, the manner in which the site is used and any other conditions as may be deemed necessary to protect public health, safety and welfare and ensure that the proposed Project will be developed in accordance with the purpose and intent of Title 9 (Planning and Zoning) of the Municipal Code; and

WHEREAS, Staff has presented for the Planning Commission's consideration Conditions of Approval to be imposed upon Conditional Use Permit PEN20-0142, which conditions have been deemed necessary to protect public health, safety and welfare and ensure that the proposed Project will be developed in accordance with the purpose and intent of Title 9 (Planning and Zoning) of the Municipal Code; and

WHEREAS, pursuant to the provisions of Section 9.02.200 (Public Hearing and Notification Procedures) of the Municipal Code and Government Code section 65905, a public hearing was scheduled for July 22, 2021, and notice thereof was duly published and posted, and mailed to all property owners of record within 600 feet of the Site; and

WHEREAS, on July 22, 2021, a duly noticed public hearing was conducted by the Planning Commission; and

WHEREAS, consistent with the requirements of Section 9.02.060 (Conditional Use Permits) of the Municipal Code, at the public hearing the Planning Commission considered Conditions of Approval to be imposed upon Conditional Use Permit PEN20-0142, which were prepared by Planning Division staff who deemed said conditions to be necessary to protect public health, safety and welfare and to ensure the proposed Project will be developed in accordance with the purpose and intent of Title 9 (Planning and Zoning) of the Municipal Code; and

WHEREAS, at the public hearing, the Planning Commission considered whether each of the requisite findings specified in Section 9.02.060 of the Municipal Code and set forth herein could be made with respect to the proposed Project as conditioned by the Conditions of Approval; and

WHEREAS, on July 22, 2021, in accordance with the provisions of the California Environmental Quality Act (CEQA[1]) and CEQA Guidelines,[2] the Planning Commission approved Resolution 2021-32.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

<u>Section 1.</u> **Recitals and Exhibits**

That the foregoing Recitals and attached Exhibits are true and correct and are hereby incorporated by this reference.

<u>Section 2.</u> **Notice**

That pursuant to Government Code section 66020(d)(1), notice is hereby given that the proposed Project is subject to certain fees, dedications, reservations and other exactions as provided herein.

<u>Section 3.</u> **Evidence**

[1] Public Resources Code §§ 21000-21177
[2] 14 California Code of Regulations §§15000-15387

That the Planning Commission has considered all of the evidence submitted into the administrative record for the proposed CUP, including, but not limited to, the following:

(a) Moreno Valley General Plan and all relevant provisions contained therein;
(b) Title 9 (Planning and Zoning) of the Moreno Valley Municipal Code and all relevant provisions referenced therein;
(c) Application for the approval of Conditional Use Permit (CUP) PEN20-0142 and all documents, records and contained therein;
(d) Conditions of Approval for CUP PEN20-0142, attached hereto as Exhibit A;
(e) Staff Report prepared for the Planning Commission's consideration and all documents, records and references related thereto, and Staff's presentation at the public hearing;
(f) Testimony and/or comments from Applicant and its representatives during the public hearing; and
(g) Testimony, comments and/or correspondence from all persons that were provided in written format or correspondence, at, or prior to, the public hearing.

Section 4. **Findings**

That based on the foregoing Recitals and the Evidence contained in the Administrative Record as set forth above, the Planning Commission makes the following findings in approving CUP PEN20-0142:

(a) The proposed Project is consistent with the goals, objectives, policies and programs of the General Plan;
(b) The proposed Project complies with all applicable zoning and other regulations;
(c) The proposed Project will not be detrimental to the public health, safety or welfare or materially injurious to properties or improvements in the vicinity; and
(d) The location, design and operation of the proposed Project will be compatible with existing and planned land uses in the vicinity.

Section 5. **Approval**

That based on the foregoing Recitals, Evidence contained in the Administrative Record and Findings set forth above, the Planning Commission hereby approves CUP PEN20-0142 subject to the Conditions of Approval of CUP PEN20-0142, attached hereto as Exhibit A.

Section 6. **Repeal of Conflicting Provisions**

That all the provisions as heretofore adopted by the Planning Commission that are in conflict with the provisions of this Resolution are hereby repealed.

Section 7. **Severability**

That the Planning Commission declares that, should any provision, section, paragraph, sentence or word of this Resolution be rendered or declared invalid by any final court action in a court of competent jurisdiction or by reason of any preemptive legislation, the remaining provisions, sections, paragraphs, sentences or words of this Resolution as hereby adopted shall remain in full force and effect.

Section 8. **Effective Date**

That this Resolution shall take effect immediately upon the date of adoption.

Section 9. **Certification**

That the Secretary of the Planning Commission shall certify to the passage of this Resolution.

PASSED AND ADOPTED THIS 22nd day of July, 2021.

CITY OF MORENO VALLEY
PLANNING COMMISSION

____
Patricia Korzec, Chairperson

ATTEST:

____
Patty Nevins
Planning Official

APPROVED AS TO FORM:

____
Steven B. Quintanilla
Interim City Attorney

Exhibits:
Exhibit A: Conditions of Approval PEN20-0142

Exhibit A

CONDITIONS OF APPROVAL

CITY OF MORENO VALLEY
CONDITIONS OF APPROVAL
Plot Plan (PEN20-0141)
Conditional Use Permit
(PEN20-0142)

EFFECTIVE DATE:
EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENT

Planning Division

1. A change or modification to the land use or the approved site plans may require a separate approval. Prior to any change or modification, the property owner shall contact the City of Moreno Valley Community Development Department to determine if a separate approval is required.

2. The developer, or the developer's successor-in-interest, shall be responsible for maintaining any undeveloped portion of the site in a manner that provides for the control of weeds, erosion and dust. (MC 9.02.030)

3. This approval shall expire three years after the approval date of this project unless used or extended as provided for by the City of Moreno Valley Municipal Code; otherwise it shall become null and void and of no effect whatsoever. Use means the beginning of substantial construction contemplated by this approval within the three-year period, which is thereafter pursued to completion, or the beginning of substantial utilization contemplated by this approval. (MC 9.02.230)

4. In the event the use hereby permitted ceases operation for a period of one (1) year or more, or as defined in the current Municipal Code, this permit may be revoked in accordance with provisions of the Municipal Code.

5. All landscaped areas shall be maintained in a healthy and thriving condition, free from weeds, trash and debris. (MC 9.02.030)

6. This project is located within The Village Specific Plan 204. The provisions of the specific plan, the design manual, their subsequent amendments, and the Conditions of Approval shall prevail unless modified herein. (MC 9.13)

7. The site shall be developed in accordance with the approved plans on file in the Community Development Department - Planning Division, the Municipal Code regulations, General Plan, and the conditions contained herein. Prior to any use of the project site or business activity being commenced thereon, all Conditions of Approval shall be completed to the satisfaction of the Planning Official. (MC 9.14.020)

8. Any signs indicated on the submitted plans are not included with this approval. Any signs, whether permanent (e.g. wall, monument) or temporary (e.g. banner, flag), require separate application and approval by the Planning Division. No signs are permitted in the public right of way. (MC 9.12)

9. All site plans, grading plans, landscape and irrigation plans, fence/wall plans, lighting plans and street improvement plans shall be coordinated for consistency with this approval.

Special Conditions

10. The follow Airport Land Use Commission Conditions of Approval apply to the project. Prior to the issuance of a grading and building permit, the applicant shall demonstrate to the City of Moreno Valley that the Airport Land Use Commission Conditions of Approval have been satisfied.

11. Drive-up or drive-through speaker system shall not be detectable above daytime ambient noise levels beyond the property line boundaries, and shall not exceed fifty-five (55) dBA at any one time beyond the boundaries of the property line. (MC9.09.080 C.6 and 9.10.140)

12. CR-1: Prior to the issuance of a grading permit, the Developer shall retain a professional archaeologist to conduct monitoring of all mass grading and trenching activities. The Project Archaeologist shall have the authority to temporarily redirect earthmoving activities in the event that suspected archaeological resources are unearthed during Project construction. The Project Archaeologist, in consultation with the Consulting Tribe(s), the contractor, and the City, shall develop a Cultural Resources Management Plan (CRMP) in consultation pursuant to the definition in AB52 to address the details, timing and responsibility of all archaeological and cultural activities that will occur on the project site. A consulting tribe is defined as a tribe that initiated the AB 52 tribal consultation process for the Project, has not opted out of the AB52 consultation process, and has completed AB 52 consultation with the City as provided for in Cal Pub Res Code Section 21080.3.2(b)(1) of AB52. Details in the Plan shall include:
    a. Project grading and development scheduling;
    b. The Project archeologist and the Consulting Tribes(s) as defined in CR-1 shall attend the pre-grading meeting with the City, the construction manager and any contractors and will conduct a mandatory Cultural Resources Worker Sensitivity Training to those in attendance. The Training will include a brief review of the cultural sensitivity of the Project and the surrounding area; what resources could potentially be identified during earthmoving activities; the requirements of the monitoring program; the protocols that apply in the event inadvertent discoveries of cultural resources are identified, including who to contact and appropriate

avoidance measures until the find(s) can be properly evaluated; and any other appropriate protocols. All new construction personnel that will conduct earthwork or grading activities that begin work on the Project following the initial Training must take the Cultural Sensitivity Training prior to beginning work and the Project archaeologist and Consulting Tribe(s) shall make themselves available to provide the training on an as-needed basis;

c. The protocols and stipulations that the contractor, City, Consulting Tribe(s) and Project archaeologist will follow in the event of inadvertent cultural resources discoveries, including any newly discovered cultural resource deposits that shall be subject to a cultural resources evaluation.

13. CR-2: Prior to the issuance of a grading permit, the Developer shall secure agreements with the Agua Caliente Band of Cahuilla Indians, San Manuel Band of Mission Indians, and Soboba Band of Luiseño Indians for tribal monitoring. The Developer is also required to provide a minimum of 30 days advance notice to the tribes of all mass grading and trenching activities. The Native American Tribal Representatives shall have the authority to temporarily halt and redirect earth moving activities in the affected area in the event that suspected archaeological resources are unearthed. If the Native American Tribal Representatives suspect that an archaeological resource may have been unearthed, the Project Archaeologist or the Tribal Representatives shall immediately redirect grading operations in a 100-foot radius around the find to allow identification and evaluation of the suspected resource. In consultation with the Native American Tribal Representatives, the Project Archaeologist shall evaluate the suspected resource and make a determination of significance pursuant to California Public Resources Code Section 21083.2.

14. CR-3: In the event that Native American cultural resources are discovered during the course of grading (inadvertent discoveries), the following procedures shall be carried out for final disposition of the discoveries:

a) One or more of the following treatments, in order of preference, shall be employed with the tribes. Evidence of such shall be provided to the City of Moreno Valley Planning Department:

i. Preservation-In-Place of the cultural resources, if feasible. Preservation in place means avoiding the resources, leaving them in the place they were found with no development affecting the integrity of the resources.

ii. Onsite reburial of the discovered items as detailed in the treatment plan required pursuant to Mitigation Measure CR-1. This shall include measures and provisions to protect the future reburial area from any future impacts in perpetuity. Reburial shall not occur until all legally required cataloging and basic recordation have been completed. No recordation of sacred items is permitted without the written consent of all Consulting Native American Tribal Governments as defined in CR-1.

15. CR-4: The City shall verify that the following note is included on the Grading Plan:
    "If any suspected archaeological resources are discovered during ground-disturbing activities and the Project Archaeologist or Native American Tribal Representatives are not present, the construction supervisor is obligated to halt work in a 100-foot radius around the find and call the Project Archaeologist and the Tribal Representatives to the site to assess the significance of the find."

16. CR-5: If potential historic or cultural resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person meeting the Secretary of the Interior's standards (36 CFR 61), Tribal Representatives, and all site monitors per the Mitigation Measures, shall be consulted by the City to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, or prehistoric resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all Consulting Native American Tribes as defined in CR-1 before any further work commences in the affected area.

17. CR-6: If human remains are discovered, no further disturbance shall occur in the affected area until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 24 hours of the published finding to be given a reasonable opportunity to identify the "most likely descendant". The "most likely descendant" shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

18. No Alcohol sales allowed.

19. The site has been approved for a 8,624 square foot multi-tenant retail building with a 999 square foot hydrogen equipment room, and for a gasoline, propane, and hydrogen fuel service station use, accessory convenience store (5,006 sq.ft. of the multi-tenant retail building), and 2,485 square foot carwash building with 17 vacuum stations. A change or modification shall require separate approval. For a Conditional Use Permit, violation may result in revocation of the Conditional Use Permit.

<u>Prior to Grading Permit</u>

20. At least thirty days prior to issuance of any grading permit, the developer shall retain a qualified archaeologist, provide a letter identifying the name and qualifications of the archaeologist to the Planning Division for approval, to monitor all ground

disturbing activities in an effort to identify any unknown archaeological resources and to evaluate and recommend appropriate actions for any archaeological deposits exposed by construction activity.

At least thirty days prior to issuance of a grading permit, the applicant shall provide evidence that contact has been established with the appropriate Native American Tribe(s), providing notification of grading, excavation and the proposed monitoring program and to coordinate with the City and Tribe(s) to develop a cultural resources treatment and monitoring agreement. The agreement shall address treatment of known cultural resources, the designation, responsibilities and participation of Tribal monitors during grading, excavation and ground disturbing activities; project grading and development scheduling; terms of compensation; and treatment and final disposition of any cultural resources, sacred sites, and human remains discovered on the site.

A report documenting the proposed methodology for grading monitoring shall be submitted to and approved by the Planning Division prior to issuance of any grading permit. The monitoring archaeologist shall be empowered to stop and redirect grading in the vicinity of an exposed archaeological deposit until that deposit can be fully evaluated. The archaeologist shall consult with affected Tribe(s) to evaluate any archaeological resources discovered on the project site. Tribal monitors shall be allowed to monitor all grading, excavation and groundbreaking activities, and shall also have authority to stop and redirect grading activities in consultation with the project archaeologist.

The property owner shall relinquish ownership to the Tribe(s) of all Native American cultural resources, including sacred items, burial goods and all archaeological artifacts that are found on the project site for proper treatment and disposition. All sacred sites, should they be encountered with the project site, shall be avoided and preserved as the preferred mitigation.

If any inadvertent discoveries of subsurface archaeological or cultural resources occur during grading, the applicant, project archaeologist, and Tribe(s) shall assess the significance of such resources and shall meet and confer regarding mitigation of such resources. Avoidance is the preferred method of preservation of archaeological resources. If the applicant, project archaeologist and Tribe(s) cannot agree on the significance or mitigation for such resources, the issue(s) will be presented to the Planning Official with adequate documentation. The Official shall make a determination based on the provisions of CEQA and consideration of the religious beliefs, customs and practices of the Tribe(s).

21. Prior to issuance of any grading permit, all Conditions of Approval, Mitigation Measures and Airport Land Use Commission Conditions of Approval shall be printed on the grading plans.

22. Prior to the issuance of grading permits, decorative (e.g. colored/scored concrete or as approve by the Planning Official) pedestrian pathways across circulation aisles/paths shall be provided throughout the development to connect dwellings with open spaces and/or recreational uses or commercial/industrial buildings with open space and/or parking. and/or the public right-of-way. The pathways shall be shown on the precise grading plan. (GP Objective 46.8, DG)

23. Prior to issuance of any grading permits, mitigation measures contained in the Mitigation Monitoring Program approved with this project shall be implemented as provided therein. A mitigation monitoring fee, as provided by City ordinance, shall be paid by the applicant within 30 days of project approval. No City permit or approval shall be issued until such fee is paid. (CEQA)

24. Prior to issuance of grading permits, the developer shall pay the applicable Stephens' Kangaroo Rat (SKR) Habitat Conservation Plan mitigation fee. (Ord)

25. If potential historic, archaeological, Native American cultural resources or paleontological resources are uncovered during excavation or construction activities at the project site, work in the affected area must cease immediately and a qualified person (meeting the Secretary of the Interior's standards (36CFR61)) shall be consulted by the applicant to evaluate the find, and as appropriate recommend alternative measures to avoid, minimize or mitigate negative effects on the historic, prehistoric, or paleontological resource. Determinations and recommendations by the consultant shall be immediately submitted to the Planning Division for consideration, and implemented as deemed appropriate by the Community Development Director, in consultation with the State Historic Preservation Officer (SHPO) and any and all affected Native American Tribes before any further work commences in the affected area.

    If human remains are discovered during grading and other construction excavation, no further disturbance shall occur until the County Coroner has made necessary findings as to origin. If the County Coroner determines that the remains are potentially Native American, the California Native American Heritage Commission shall be notified within 5-days of the published finding to be given a reasonable opportunity to identify the "most likely descendant." The "most likely descendant" shall then make recommendations, and engage in consultations concerning the treatment of the remains (California Public Resources Code 5097.98). (GP Objective 23.3, CEQA).

26. Within thirty (30) days prior to any grading or other land disturbance, a pre-construction survey for Burrowing Owls shall be conducted pursuant to the established guidelines of Multiple Species Habitat Conservation Plan. The pre-construction survey shall be submitted to the Planning Division prior to any

disturbance of the site and/or grading permit issuance.

27. Prior to the issuance of grading permits, the site plan and grading plans shall show decorative hardscape (e.g. colored concrete, stamped concrete, pavers or as approved by the Planning Official) consistent and compatible with the design, color and materials of the proposed development for all driveway ingress/egress locations of the project.

28. Prior to the issuance of grading permits, a temporary project identification sign shall be erected on the site in a secure and visible manner. The sign shall be conspicuously posted at the site and remain in place until occupancy of the project. The sign shall include the following:

    a. The name (if applicable) and address of the development.
    b. The developer’s name, address, and a 24-hour emergency telephone number.

29. Prior to issuance of any grading permit, all Conditions of Approval, Mitigation Measures and Airport Land Use Commission Conditions of Approval shall be printed on the building plans.

30. Prior to the issuance of building permits, the developer shall provide documentation that contact was made to the U.S. Postal Service to determine the appropriate type and location of mailboxes.

31. Prior to issuance of any building permits, final landscaping and irrigation plans shall be submitted for review and approved by the Planning Division. After the third plan check review for landscape plans, an additional plan check fee shall apply. The plans shall be prepared in accordance with the City's Landscape Requirements.

32. Prior to issuance of building permits, the Planning Division shall review and approve the location and method of enclosure or screening of transformer cabinets, commercial gas meters and back flow preventers as shown on the final working drawings. Location and screening shall comply with the following criteria: transformer cabinets and commercial gas meters shall not be located within required setbacks and shall be screened from public view either by architectural treatment or landscaping; multiple electrical meters shall be fully enclosed and incorporated into the overall architectural design of the building(s); back-flow preventers shall be screened by landscaping. (GP Objective 43.30)

33. Prior to issuance of a building permit, the developer/property owner or developer's successor-in-interest shall pay all applicable impact fees due at permit issuance, including but not limited to Multi-species Habitat Conservation Plan (MSHCP) mitigation fees. (Ord)

34. Prior to building final, the developer/owner or developer's/owner's successor-in-interest shall pay all applicable impact fees, including but not limited to Transportation Uniform Mitigation fees (TUMF), and the City's adopted Development Impact Fees. (Ord)

35. Prior to issuance of building permits, for projects that will be phased, a phasing plan shall be submitted to and approved by the Planning Division if occupancy is proposed to be phased.

36. Prior to or at building plan check submittal, the elevation plans shall include decorative lighting sconces on all sides of the buildings of the complex facing a parking lot, courtyard or plaza, or public right of way or open space to provide up-lighting and shadowing on the structures. Include drawings of the sconce details for each building within the elevation plans, approved by the Planning Division prior to building permit issuance.

37. Prior to issuance of building permits, screening details shall be addressed on the building plans for roof top equipment submitted for Planning Division review and approval through the building plan check process. All equipment shall be completely screened so as not to be visible from public view, and the screening shall be an integral part of the building.

Prior to Building Final or Occupancy

38. Prior to building final, all required landscaping and irrigation shall be installed per plan, certified by the Landscape Architect and inspected by the Planning Division. (MC 9.03.040, MC 9.17).

39. Prior to building final, Planning approved/stamped landscape plans shall be provided to the Community Development Department – Planning Division on a CD disk.

40. Prior to building final, all required and proposed fences and walls shall be constructed according to the approved plans on file in the Planning Division. (MC 9.080.070).

Building Division

41. The proposed non-residential project shall comply with the latest Federal Law, Americans with Disabilities Act, and State Law, California Code of Regulations, Title 24, Chapter 11B for accessibility standards for the disabled including access to the site, exits, bathrooms, work spaces, etc.

42. Prior to submittal, all new development, including residential second units, are

required to obtain a valid property address prior to permit application. Addresses can be obtained by contacting the Building Safety Division at 951.413.3350.

43. Contact the Building Safety Division for permit application submittal requirements.

44. Any construction within the city shall only be as follows: Monday through Friday seven a.m. to seven p.m(except for holidays which occur on weekdays), eight a.m. to four p.m.; weekends and holidays (as observed by the city and described in the Moreno Valley Municipal Code Chapter 2.55), unless written approval is first obtained from the Building Official or City Engineer.

45. Building plans submitted shall be signed and sealed by a California licensed design professional as required by the State Business and Professions Code.

46. The proposed development shall be subject to the payment of required development fees as required by the City's current Fee Ordinance at the time a building application is submitted or prior to the issuance of permits as determined by the City.

47. The proposed project will be subject to approval by the Eastern Municipal Water District and all applicable fees and charges shall be paid prior to permit issuance. Contact the water district at 951.928.3777 for specific details.

48. All new structures shall be designed in conformance to the latest design standards adopted by the State of California in the California Building Code, (CBC) Part 2, Title 24, California Code of Regulations including requirements for allowable area, occupancy separations, fire suppression systems, accessibility, etc.

49. The proposed non-residential project shall comply with California Green Building Standards Code, Section 5.106.5.3, mandatory requirements for Electric Vehicle Charging Station (EVCS).

50. The proposed project's occupancy shall be classified by the Building Official and must comply with exiting, occupancy separation(s) and minimum plumbing fixture requirements. Minimum plumbing fixtures shall be provided per the California Plumbing Code, Table 422.1. The occupant load and occupancy classification shall be determined in accordance with the California Building Code.

51. Prior to permit issuance, every applicant shall submit a properly completed Waste Management Plan (WMP), as a portion of the building or demolition permit process. (MC 8.80.030)

ECONOMIC DEVELOPMENT DEPARTMENT (EDD)

52. New Moreno Valley businesses may work with the Economic Development

Department to coordinate job recruitment fairs.

53. New Moreno Valley businesses may adopt a "First Source" approach to employee recruitment that gives notice of job openings to Moreno Valley residents for one week in advance of the public recruitment.

54. New Moreno Valley businesses are encouraged to hire local residents.

55. New Moreno Valley businesses are encouraged to provide a job fair flyer and/or web announcement to the City in advance of job recruitments, so that the City can assist in publicizing these events.

56. New Moreno Valley businesses may utilize the workforce recruitment services provided by the Moreno Valley Employment Resource Center ("ERC").

    The ERC offers no cost assistance to businesses recruiting and training potential employees. Complimentary services include:

    • Job Announcements
    • Applicant testing / pre-screening
    • Interviewing
    • Job Fair support
    • Training space

FIRE DEPARTMENT

Fire Prevention Bureau

57. All Fire Department access roads or driveways shall not exceed 12 percent grade. (CFC 503.2.7 and MVMC 8.36.060[G])

58. The Fire Department emergency vehicular access road shall be (all weather surface) capable of sustaining an imposed load of 80,000 lbs. GVW, based on street standards approved by the Public Works Director and the Fire Prevention Bureau. The approved fire access road shall be in place during the time of construction. Temporary fire access roads shall be approved by the Fire Prevention Bureau. (CFC 501.4, and MV City Standard Engineering Plan 108d)

59. The angle of approach and departure for any means of Fire Department access shall not exceed 1 ft drop in 20 ft (0.3 m drop in 6 m), and the design limitations of the fire apparatus of the Fire Department shall be subject to approval by the AHJ. (CFC 503 and MVMC 8.36.060)

60. Prior to construction, all locations where structures are to be built shall have an

approved Fire Department access based on street standards approved by the Public Works Director and the Fire Prevention Bureau. (CFC 501.4)

61. Prior to issuance of Building Permits, the applicant/developer shall provide the Fire Prevention Bureau with an approved site plan for Fire Lanes and signage. (CFC 501.3)

62. Prior to issuance of Certificate of Occupancy or Building Final, "Blue Reflective Markers" shall be installed to identify fire hydrant locations in accordance with City specifications. (CFC 509.1 and MVLT 440A-0 through MVLT 440C-0)

63. Prior to issuance of building permits, plans specifying the required structural materials for building construction in high fire hazard severity zones shall be submitted to the Fire Prevention Bureau for approval. (CFC, 4905)

64. Prior to issuance of Certificate of Occupancy or Building Final, all commercial buildings shall display street numbers in a prominent location on the street side and rear access locations. The numerals shall be a minimum of twelve inches in height. (CFC 505.1, MVMC 8.36.060[I])

65. Prior to issuance of Certificate of Occupancy, approval shall be required from the County of Riverside Community Health Agency (Department of Environmental Health) and Moreno Valley Fire Prevention Bureau to maintain, store, use, handle materials, or conduct processes which produce conditions hazardous to life or property, and to install equipment used in connection with such activities. (CFC 105)

66. Existing fire hydrants on public streets are allowed to be considered available. Existing fire hydrants on adjacent properties shall not be considered available unless fire apparatus access roads extend between properties and easements are established to prevent obstruction of such roads. (CFC 507, 501.3) a - After the local water company signs the plans, the originals shall be presented to the Fire Prevention Bureau for signatures. The required water system, including fire hydrants, shall be installed, made serviceable, and be accepted by the Moreno Valley Fire Department prior to beginning construction. They shall be maintained accessible.

67. Final fire and life safety conditions will be addressed when the Fire Prevention Bureau reviews building plans. These conditions will be based on occupancy, use, California Building Code (CBC), California Fire Code (CFC), and related codes, which are in effect at the time of building plan submittal.

68. Prior to issuance of Certificate of Occupancy or Building Final, the applicant/developer shall install a fire alarm system monitored by an approved Underwriters Laboratory listed central station based on a requirement for monitoring

the sprinkler system, occupancy or use. Fire alarm panel shall be accessible from exterior of building in an approved location. Plans shall be submitted to the Fire Prevention Bureau for approval prior to installation. (CFC Chapter 9 and MVMC 8.36.100)

69. The Fire Code Official is authorized to enforce the fire safety during construction requirements of Chapter 33. (CFC Chapter 33 & CBC Chapter 33)

70. Fire lanes and fire apparatus access roads shall have an unobstructed width of not less than twenty–four (24) feet and an unobstructed vertical clearance of not less the thirteen (13) feet six (6) inches. (CFC 503.2.1 and MVMC 8.36.060[E])

71. Prior to issuance of Certificate of Occupancy or Building Final, the applicant/developer shall install a fire sprinkler system based on square footage and type of construction, occupancy or use. Fire sprinkler plans shall be submitted to the Fire Prevention Bureau for approval prior to installation. (CFC Chapter 9, MVMC 8.36.100[D])

72. Prior to issuance of the building permit for development, independent paved access to the nearest paved road, maintained by the City shall be designed and constructed by the developer within the public right of way in accordance with City Standards. (MVMC 8.36.060, CFC 501.4)

73. Prior to issuance of a Certificate of Occupancy or Building Final, a “Knox Box Rapid Entry System” shall be provided. The Knox-Box shall be installed in an accessible location approved by the Fire Code Official. All exterior security emergency access gates shall be electronically operated and be provided with Knox key switches for access by emergency personnel. (CFC 506.1)

74. The minimum number of fire hydrants required, as well as the location and spacing of fire hydrants, shall comply with the C.F.C., MVMC, and NFPA 24. Fire hydrants shall be located no closer than 40 feet to a building. A fire hydrant shall be located within 50 feet of the fire department connection for buildings protected with a fire sprinkler system. The size and number of outlets required for the approved fire hydrants are (6” x 4” x 2 ½” x 2 ½”) (CFC 507.5.1, 507.5.7, Appendix C, NFPA 24-7.2.3, MVMC 912.2.1)

75. Fire Department access driveways over 150 feet in length shall have a turn-around as determined by the Fire Prevention Bureau capable of accommodating fire apparatus. (CFC 503 and MVMC 8.36.060, CFC 501.4)

76. During phased construction, dead end roadways and streets which have not been completed shall have a turn-around capable of accommodating fire apparatus. (CFC 503.1 and 503.2.5)

77. If construction is phased, each phase shall provide an approved emergency vehicular access way for fire protection prior to any building construction. (CFC 501.4)

78. Prior to issuance of Building Permits, plans for structural protection from vegetation fires shall be submitted to the Fire Prevention Bureau for review and approval. Measures shall include, but are not limited to: noncombustible barriers (cement or block walls), fuel modification zones, etc. (CFC Chapter 49)

79. Plans for private water mains supplying fire sprinkler systems and/or private fire hydrants shall be submitted to the Fire Prevention Bureau for approval. (CFC 105 and CFC 3312.1)

80. The Fire Prevention Bureau is required to set a minimum fire flow for the remodel or construction of all commercial buildings per CFC Appendix B and Table B105.1. The applicant/developer shall provide documentation to show there exists a water system capable of delivering said waterflow for 2 hour(s) duration at 20-PSI residual operating pressure. The required fire flow may be adjusted during the approval process to reflect changes in design, construction type, or automatic fire protection measures as approved by the Fire Prevention Bureau. Specific requirements for the project will be determined at time of submittal. (CFC 507.3, Appendix B)

81. Dead-end streets and/or fire apparatus access roads in excess of 150 feet in length shall be provided with an approved turnaround for fire apparatus.

82. Prior to construction, all traffic calming designs/devices must be approved by the Fire Marshal and City Engineer.

83. Prior to building construction, dead end roadways and streets which have not been completed shall have a turnaround capable of accommodating fire apparatus. (CFC 503.2.5)

84. Prior to issuance of Certificate of Occupancy or Building Final, the applicant/developer shall be responsible for obtaining underground and/or above ground tank permits for the storage of combustible liquids, flammable liquids, or any other hazardous materials from both the County of Riverside Community Health Agency Department of Environmental Health and the Fire Prevention Bureau. (CFC 105)

85. Prior to issuance of Building Permits, the applicant/developer shall furnish one copy of the water system plans to the Fire Prevention Bureau for review. Plans shall: a. Be signed by a registered civil engineer or a certified fire protection engineer; b. Contain a Fire Prevention Bureau approval signature block; and c. Conform to hydrant type, location, spacing of new and existing hydrants and minimum fire flow required as determined by the Fire Prevention Bureau. The required water system,

including fire hydrants, shall be installed, made serviceable, and be accepted by the Moreno Valley Fire Department prior to beginning construction. They shall be maintained accessible.

PUBLIC WORKS DEPARTMENT

Land Development

86. Aggregate slurry, as defined in Section 203-5 of Standard Specifications for Public Works Construction, shall be required prior to 90% security reduction or the end of the one-year warranty period of the public streets as approved by the City Engineer. If slurry is required, a slurry mix design shall be submitted for review and approved by the City Engineer. The latex additive shall be Ultra Pave 70 (for anionic) or Ultra Pave 65 K (for cationic) or an approved equal per the geotechnical report. The latex shall be added at the emulsion plant after weighing the asphalt and before the addition of mixing water. The latex shall be added at a rate of two to two-and-one-half (2 to 2½) parts to one-hundred (100) parts of emulsion by volume. Any existing striping shall be removed prior to slurry application and replaced per City standards.

87. The developer shall comply with all applicable City ordinances and resolutions including the City's Municipal Code (MC) and if subdividing land, the Government Code (GC) of the State of California, specifically Sections 66410 through 66499.58, said sections also referred to as the Subdivision Map Act (SMA). [MC 9.14.010]

88. The final approved conditions of approval (COAs) issued and any applicable Mitigation Measures by the Planning Division shall be photographically or electronically placed on mylar sheets and included in the Grading and Street Improvement plans.

89. The developer shall monitor, supervise and control all construction related activities, so as to prevent these activities from causing a public nuisance, including but not limited to, insuring strict adherence to the following:
(a) Removal of dirt, debris, or other construction material deposited on any public street no later than the end of each working day.
(b) Observance of working hours as stipulated on permits issued by the Land Development Division.
(c) The construction site shall accommodate the parking of all motor vehicles used by persons working at or providing deliveries to the site.
(d) All dust control measures per South Coast Air Quality Management District (SCAQMD) requirements during the grading operations.
Violation of any condition, restriction or prohibition set forth in these conditions shall subject the owner, applicant, developer or contractor(s) to remedy as noted in City

Municipal Code 8.14.090. In addition, the City Engineer or Building Official may suspend all construction related activities for violation of any condition, restriction or prohibition set forth in these conditions until such time as it has been determined that all operations and activities are in conformance with these conditions.

90. Drainage facilities (e.g., catch basins, water quality basins, etc.) with sump conditions shall be designed to convey the tributary 100-year storm flows. Secondary emergency escape shall also be provided.

91. The developer shall protect downstream properties from damage caused by alteration of drainage patterns (i.e. concentration or diversion of flow, etc). Protection shall be provided by constructing adequate drainage facilities, including, but not limited to, modifying existing facilities or by securing a drainage easement. [MC 9.14.110]

92. This project shall submit civil engineering design plans, reports and/or documents (prepared by a registered/licensed civil engineer) for review and approval by the City Engineer per the current submittal requirements, prior to the indicated threshold or as required by the City Engineer. The submittal consists of, but is not limited to, the following:
    a. Rough grading w/ erosion control plan (prior to grading permit issuance);
    b. Precise grading w/ erosion control plan (prior to grading permit issuance);
    c. Public improvement plans (e.g., street with striping, etc.) (prior to encroachment permit issuance);
    d. Final drainage study (prior to grading plan approval);
    e. Final WQMP (prior to grading plan approval);
    f. legal documents (e.g., dedication(s), etc.) (prior to building permit issuance);
    g. As-Built revision for all plans (prior to Occupancy release);

<u>Prior to Grading Plan Approval</u>

93. A final detailed drainage study (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer. The study shall include, but not be limited to: existing and proposed hydrologic conditions as well as hydraulic calculations for all drainage control devices and storm drain lines. The study shall analyze 1, 3, 6 and 24-hour duration events for the 2, 5, 10 and 100-year storm events [MC 9.14.110(A.1)]. A digital (pdf) copy of the approved drainage study shall be submitted to the Land Development Division.

94. Emergency overflow areas shall be shown at all applicable drainage improvement locations in the event that the drainage improvement fails or exceeds full capacity.

95. The developer shall ensure compliance with the City Grading ordinance, these Conditions of Approval and the following criteria:

a. The project street and lot grading shall be designed in a manner that perpetuates the existing natural drainage patterns with respect to tributary drainage area and outlet points. Unless otherwise approved by the City Engineer, lot lines shall be located at the top of slopes.

b. Any grading that creates cut or fill slopes adjacent to the street shall provide erosion control, sight distance control, and slope easements as approved by the City Engineer.

c. All improvement plans are substantially complete and appropriate clearance letters are provided to the City.

d. A soils/geotechnical report (addressing the soil's stability and geological conditions of the site) shall be submitted to the Land Development Division for review. A digital (pdf) copy of the soils/geotechnical report shall be submitted to the Land Development Division.

96. Grading plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

97. The developer shall select Low Impact Development (LID) Best Management Practices (BMPs) designed per the latest version of the Water Quality Management Plan (WQMP) - a guidance document for the Santa Ana region of Riverside County.

98. The developer shall pay all remaining plan check fees.

99. A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared in conformance with the State's current Construction Activities Storm Water General Permit. A copy of the current SWPPP shall be kept at the project site and be available for review upon request.

100. Any proposed trash enclosure shall include a solid cover (roof) and sufficient size for dual bin (one for trash and one for recyclables). The architecture shall be approved by the Planning Division and any structural approvals shall be made by the Building & Safety Division.

101. A final project-specific Water Quality Management Plan (WQMP) shall be submitted for review and approved by the City Engineer, which:

a. Addresses Site Design Best Management Practices (BMPs) such as minimizing impervious areas, maximizing permeability, minimizes directly connected impervious areas to the City's street and storm drain systems, and conserves natural areas;

b. Incorporates Source Control BMPs and provides a detailed description of their implementation;

c. Describes the long-term operation and maintenance requirements for BMPs requiring maintenance; and

d. Describes the mechanism for funding the long-term operation and

maintenance of the BMPs.
A copy of the final WQMP template can be obtained on the City's Website or by contacting the Land Development Division. A digital (pdf) copy of the approved final project-specific Water Quality Management Plan (WQMP) shall be submitted to the Land Development Division.

102. For projects that will result in discharges of storm water associated with construction with a soil disturbance of one or more acres of land, the developer shall submit a Notice of Intent (NOI) and obtain a Waste Discharger's Identification number (WDID#) from the State Water Quality Control Board (SWQCB) which shall be noted on the grading plans.

Prior to Grading Permit

103. A receipt showing payment of the Area Drainage Plan (ADP) fee to Riverside County Flood Control and Water Conservation District shall be submitted. [MC 9.14.100(O)]

104. For non-subdivision projects, a copy of the Covenants, Conditions and Restrictions (CC&Rs) shall be submitted for review by the City Engineer. The CC&Rs shall include, but not be limited to, access easements, reciprocal access, private and/or public utility easements as may be relevant to the project.

105. Security, in the form of a cash deposit (preferable), bond or letter of credit shall be submitted as a guarantee of the implementation and maintenance of erosion control measures. At least twenty-five (25) percent of the required security shall be in the form of a cash deposit with the City. [MC 8.21.160(H)]

106. Security, in the form of a cash deposit (preferable), bond or letter of credit shall be submitted as a guarantee of the completion of the grading operations for the project. [MC 8.21.070]

Prior to Improvement Plan Approval

107. The developer is required to bring any existing access ramps adjacent to and fronting the project to current ADA (Americans with Disabilities Act) requirements. However, when work is required in an intersection that involves or impacts existing access ramps, all access ramps in that intersection shall be retrofitted to comply with current ADA requirements, unless otherwise approved by the City Engineer.

108. The developer shall submit clearances from all applicable agencies, and pay all applicable plan check fees.

109. The street improvement plans shall comply with current City policies, plans and

applicable City standards (i.e. MVSI-160 series, etc.) throughout this project.

110. All public improvement plans (prepared by a licensed/registered civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

111. Any missing or deficient existing improvements along the project frontage within shall be constructed or secured for construction. The City Engineer may require the ultimate structural section for pavement to half-street width plus 18 feet or provide core test results confirming that existing pavement section is per current City Standards; additional signing & striping to accommodate increased traffic imposed by the development, etc.

112. The plans shall indicate any restrictions on trench repair pavement cuts to reflect the City's moratorium on disturbing newly-constructed pavement less than three (3) years old and recently slurry sealed streets less than one (1) year old. Pavement cuts may be allowed for emergency repairs or as specifically approved in writing by the City Engineer. Special requirements shall be imposed for repaving, limits to be determined by the City Engineer.

113. All dry and wet utilities shall be shown on the plans and any crossings shall be potholed to determine actual location and elevation. Any conflicts shall be identified and addressed on the plans. The pothole survey data shall be submitted to Land Development with the public improvement plans for reference purposes only. The developer is responsible to coordinate with all affected utility companies and bear all costs of any utility relocation.

114. The driveway approach on Sunnymead Blvd. shall be per standard MVSI-112A-0. The driveway approach on Graham shall be per standard MVSI-112C-0.

115. The developer shall be required to install street lights within the public right-of-way per standard MVLT-400B-0 along Graham Street and Sunnymead Blvd.

<u>Prior to Encroachment Permit</u>

116. A digital (pdf) copy of all approved improvement plans shall be submitted to the Land Development Division, if applicable.

117. All applicable inspection fees shall be paid.

118. The plans shall indicate any restrictions on trench repair pavement cuts to reflect the City's moratorium on disturbing newly-constructed pavement less than three (3) years old and recently slurry sealed streets less than one (1) year old. Pavement cuts may be allowed for emergency repairs or as specifically approved in writing by

the City Engineer. Special requirements shall be imposed for repaving, limits to be determined by the City Engineer.

119. Any work performed within public right-of-way requires an encroachment permit.

Prior to Building Permit

120. An engineered-fill certification, rough grade certification and compaction report shall be submitted for review and approved by the City Engineer. A digital (pdf) copy of the approved compaction report shall be submitted to the Land Development Division. All pads shall meet pad elevations per approved grading plans as noted by the setting of "blue-top" markers installed by a registered land surveyor or licensed civil engineer.

121. For Commercial/Industrial projects, the owner may have to secure coverage under the State's General Industrial Activities Storm Water Permit as issued by the State Water Resources Control Board.

122. A walk through with a Land Development Inspector shall be scheduled to inspect existing improvements within public right of way along project frontage. Any missing, damaged or substandard improvements including ADA access ramps that do not meet current City standards shall be required to be installed, replaced and/or repaired. The applicant shall post security to cover the cost of the repairs and complete the repairs within the time allowed in the public improvement agreement used to secure the improvements.

Prior to Occupancy

123. All required as-built plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

124. The final/precise grade certification shall be submitted for review and approved by the City Engineer.

125. For commercial, industrial and multi-family projects, in compliance with Proposition 218, the developer shall agree to approve the City of Moreno Valley NPDES Regulatory Rate Schedule that is in place at the time of certificate of occupancy issuance. Under the current permit for storm water activities required as part of the National Pollutant Discharge Elimination System (NPDES) as mandated by the Federal Clean Water Act, this project is subject to the following requirements:

a. Select one of the following options to meet the financial responsibility to provide storm water utilities services for the required continuous operation, maintenance, monitoring system evaluations and enhancements, remediation and/or replacement, all in accordance with Resolution No. 2002-46.

i. Participate in the mail ballot proceeding in compliance with Proposition 218, for the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule and pay all associated costs with the ballot process; or

ii. Establish an endowment to cover future City costs as specified in the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule.

b. Notify the Special Districts Division of the intent to request building permits 90 days prior to their issuance and the financial option selected. The financial option selected shall be in place prior to the issuance of certificate of occupancy. [California Government Code & Municipal Code]

126. The developer shall complete all public improvements in conformance with current City standards, except as noted in the Special Conditions, including but not limited to the following:

a. Street improvements including, but not limited to: pavement, base, curb and/or gutter, cross gutters, spandrel, sidewalks, drive approaches, pedestrian ramps, street lights (SCE: LS-2), signing, striping, under sidewalk drains, landscaping and irrigation, medians, pavement tapers/transitions and traffic control devices as appropriate.

b. Storm drain facilities including, but not limited to: storm drain pipe, storm drain laterals, open channels, catch basins and local depressions.

c. City-owned utilities.

d. Sewer and water systems including, but not limited to: sanitary sewer, potable water and recycled water.

e. Under grounding of all existing and proposed utilities adjacent to and on-site. [MC 9.14.130]

f. Relocation of overhead electrical utility lines including, but not limited to: electrical, cable and telephone.

127. The applicant shall ensure the following, pursuant to Section XII. I. of the 2010 NPDES Permit:

a. Field verification that structural Site Design, Source Control and Treatment Control BMPs are designed, constructed and functional in accordance with the approved Final Water Quality Management Plan (WQMP).

b. Certification of best management practices (BMPs) from a state licensed civil engineer. An original WQMP BMP Certification shall be submitted for review and approved by the City Engineer.

128. The Developer shall comply with the following water quality related items:

a. Notify the Land Development Division prior to construction and installation of all structural BMPs so that an inspection can be performed.

b. Demonstrate that all structural BMPs described in the approved final project-specific WQMP have been constructed and installed in conformance with the approved plans and specifications;

c. Demonstrate that Developer is prepared to implement all non-structural BMPs described in the approved final project-specific WQMP; and

d. Demonstrate that an adequate number of copies of the approved final project-specific WQMP are available for future owners/occupants.

e. Clean and repair the water quality BMP's, including re-grading to approved civil drawing if necessary.

f. Obtain approval and complete installation of the irrigation and landscaping.

129. All outstanding fees shall be paid.

Special Districts Division

130. NEW STREET LIGHT INSTALLATION FEES. Prior to the issuance of the first building permit for this project, the Developer shall pay New Street Light Installation Fees for all applicable Residential and Arterial Street Lights required for this development. Payment shall be made to the City of Moreno Valley and collected by the Land Development Division. Fees are based upon the Advanced Energy fee rate in place at the time of payment, as set forth in the current Listing of City Fees, Charges, and Rates adopted by City Council. The Developer shall provide a copy of the receipt to the Special Districts Division (specialdistricts@moval.org). Any change in the project which may increase the number of street lights to be installed will require payment of additional Advanced Energy fees at the then current fee. Questions may be directed to the Special Districts Division at 951.413.3480 or specialdistricts@moval.org.

131. This project is conditioned for a proposed district to provide a funding source for the operation and maintenance of public improvements and/or services associated with new development in that territory. The Developer shall satisfy this condition with one of the options outlined below.

a. Participate in a special election for maintenance/services and pay all associated costs of the election process and formation, if any. Financing may be structured through a Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or

b. Establish an endowment fund to cover the future maintenance and/or service costs.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance. If the first building permit is pulled prior to formation of the district, this condition will not apply. If the district has been or is in the process of being formed the Developer must inform the Special Districts Division of its selected financing option (a. or b. above). The option for participating in a special election requires 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

The financial option selected shall be in place prior to the issuance of the first certificate of occupancy for the project.

132. This project is conditioned to provide a funding source for the following special financing program(s):

a. Street Lighting Services for capital improvements, energy charges, and maintenance.

The Developer's responsibility is to provide a funding source for the capital improvements and the continued maintenance. The Developer shall satisfy this condition with one of the options below.

i. Participate in a special election (mail ballot proceeding) and pay all associated costs of the special election and formation, if any. Financing may be structured through a Community Services District zone, Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or

ii. Establish a Property Owner's Association (POA) or Home Owner's Association (HOA) which will be responsible for any and all operation and maintenance costs

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option when submitting the application for building permit issuance. The option for participating in a special election requires approximately 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

The financial option selected shall be in place prior to the issuance of the first certificate of occupancy for the project.

133. Commercial (BP) If Land Development, a Division of the Public Works Department, requires this project to supply a funding source necessary to provide for, but not limited to, stormwater utilities services for the continuous operation, remediation and/or replacement, monitoring, systems evaluations and enhancement of on-site facilities and performing annual inspections of the affected areas to ensure

compliance with state mandated stormwater regulations, a funding source needs to be established. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option for the National Pollution Discharge Elimination System (NPDES) program when submitting the application for the first building permit issuance (see Land Development's related condition). Participating in a special election the process requires a 90 day period prior to the City's issuance of a building permit. This allows adequate time to be in compliance with the provisions of Article 13D of the California Constitution. (California Health and Safety Code Sections 5473 through 5473.8 (Ord. 708 Section 3.1, 2006) & City of Moreno Valley Municipal Code Title 3, Section 3.50.050.)

134. This project has been identified to be included in the formation of a Community Facilities District (Mello-Roos) for Public Safety services, including but not limited to Police, Fire Protection, Paramedic Services, Park Rangers, and Animal Control services. The property owner(s) shall not protest the formation; however, they retain the right to object to the rate and method of maximum special tax. In compliance with Proposition 218, the property owner shall agree to approve the mail ballot proceeding (special election) for either formation of the CFD or annexation into an existing district. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance to determine the requirement for participation. If the first building permit is pulled prior to formation of the district, this condition will not apply. If the condition applies, the special election will require a minimum of 90 days prior to issuance of the first building permit. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution. (California Government Code Section 53313 et. seq.)

135. The existing parkway/median along the frontage of the project shall be brought to current City Standards. Improvements may include but are not limited to: plant material, irrigation, and hardscape.

136. Inspection fees for the monitoring of landscape installation associated with the City of Moreno Valley maintained parkways/medians are due prior to the required pre-construction meeting. (MC 3.32.040)

137. The ongoing maintenance of any landscaping required to be installed behind the curb shall be the responsibility of the property owner.

138. Modification of existing irrigation systems for parkway improvements may be required per the direction of, approval by and coordination with the Special Districts Division. Please contact Special District Division staff at 951.413.3480 or specialdistricts@moval.org to coordinate the modifications.

139. Any damage to existing landscape areas maintained by the City of Moreno Valley

due to project construction shall be repaired/replaced by the Developer, or Developer's successors in interest, at no cost to the City of Moreno Valley.

140. MAJOR INFRASTRUCTURE FINANCING DISTRICT. This project has been identified to potentially be included in the formation of a special financing district for the construction and maintenance of major infrastructure improvements which may include but are not limited to thoroughfares, bridges, and certain flood control improvements. The property owner(s) shall participate in such district and pay any special tax, assessment, or fee levied upon the project property for such district. At the time of the public hearing to consider formation of or annexation into the district, the qualified elector(s) will not protest the formation or annexation, but will retain the right to object to any eventual tax/assessment/fee that is not equitable should the financial burden of the tax/assessment/fee not be reasonably proportionate to the benefit the affected property obtains from the improvements to be installed and/or maintained. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting an application for the first building permit to determine whether the development will be subjected to this condition. If subject to the condition, the special election requires a minimum 90-day process in compliance with the provisions of Article 13C of the California Constitution.

141. The parcel(s) associated with this project have been incorporated into the Moreno Valley Community Services District Zone A (Parks & Community Services), Zone C (Arterial Street Lighting), and Zone S (Sunnymead Boulevard Maintenance). All assessable parcels therein shall be subject to annual parcel taxes for Zone A and Zone C and the annual parcel charge for Zone S for operations and capital improvements.

142. The removal of existing trees with four-inch or greater trunk diameters (calipers), shall be replaced, at a three to one ratio, with minimum twenty-four (24) inch box size trees of the same species, or a minimum thirty-six (36) inch box for a one to one replacement, where approved. (MC 9.17.030)

143. PARKS MAINTENANCE FUNDING. Prior to applying for the 1st Building Permit, the qualified elector (e.g. property owner) must initiate the process (i.e. pay the annexation fee or fund an endowment) to provide an ongoing funding source for the continued maintenance, enhancement, and or retrofit of parks, open spaces, linear parks, and/or trails systems, and programs.

This condition must be fully satisfied prior to issuance of the 1st Certificate of Occupancy. This condition will be satisfied with the successful annexation/formation (i.e. special election process) into a special financing district and payment of all costs associated with the special election process. Annexation into a special financing district requires an annual payment of the annual special tax, assessment, or fee levied against the property tax bill, or other lawful means, of the parcels of the project for such district. At the time of the public hearing to consider annexation into or formation of the district, the qualified elector(s) will not protest the annexation or formation, but will retain the right to object to any eventual tax/assessment/fee that is not equitable should the financial burden of the tax/assessment/fee not be reasonably proportionate to the benefit the affected property receives from the improvements to be installed and/or maintained or services provided. The special election requires a minimum 90-day process in compliance with the provisions of Article 13C of the California Constitution, Proposition 218, or other applicable legislation, and consistent with the scheduling for City Council meetings.

Alternatively, the condition can be satisfied by the Developer funding an endowment in an amount sufficient to yield an annual revenue stream that meets the annual obligation. The Developer must contact Special Districts Administration at 951.413.3470 or at SDAdmin@moval.org to satisfy this condition.

144. Landscape and irrigation on corner of Sunnymead Blvd. and Graham St. currently maintained by the City as part of Zone S, will be removed and replaced with on-site landscaping as per the plans.

<u>Transportation Engineering Division</u>

145. Conditions of approval may be modified or added if a phasing plan is submitted for this development.

146. All project driveways shall conform to Section 9.11.080, and Table 9.11.080-14 of the City's Development Code – Design Guidelines and City of Moreno Valley Standard Plans No. MVSI-112A~D-0 for commercial driveway approaches. Access at the project driveways shall be as follows:
-Graham Street shall have a 50-ft driveway per City Standard No. MVSI-112C-0 with full access.
-Sunnymead Boulevard shall have a 40-ft driveway per City Standard No. MVSI-112A-0 with right in/right out access only.

147. Sight distance at the proposed roadways and driveways shall conform to City of Moreno Valley Standard No. MVSI-164A,B,C-0 at the time of preparation of final grading, landscape, and street improvement plans.

148. Prior to issuance of a Building Final or Certificate of Occupancy, all approved signing and striping shall be installed per current City Standards

149. All proposed on-site traffic signing and striping should be accordance with the latest California Manual on Uniform Traffic Control Devices (CAMUTCD).

150. The first parking stall/drive aisle juncture shall be 60 feet from the property line per Municipal Code Section 9.11.080 - A.18 or as approved by the City Engineer.

151. Prior to the final approval of the street improvement plans, a signing and striping modification plan shall be prepared for the following street segments:

 -Sunnymead Boulevard along the project frontage
 -Graham Street along the project frontage

 A "One Way" sign (R6-1) shall be installed on the existing median island facing the proposed driveway on Sunnymead Boulevard. All signing and striping plans shall be prepared per the latest edition of the California Manual on Uniform Traffic Control Devices (CAMUTCD) and current City of Moreno Valley Standard Plans by a qualified registered Civil or Traffic engineer shall be required for plan approval or as required by the City Traffic Engineer.

152. Communication conduit along project frontages may be required per City Standard Plan No. MVSI-186-0.

153. Prior to the issuance of Building Permit, the project applicant shall make a fair-share payment to the City of Moreno Valley for 39% of the construction costs to extend the westbound left turn lane storage length to 280 feet minimum at the Sunnymead Boulevard/Graham Street intersection, as identified in the project Traffic Study.

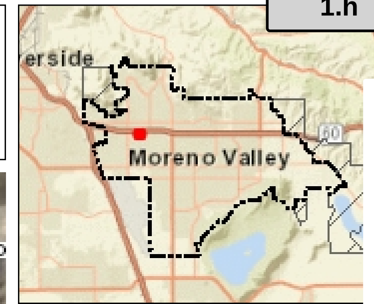
154. Prior to issuance of a construction permit, construction traffic control plans prepared by a qualified, registered Civil or Traffic engineer may be required for plan approval or as required by the City Traffic Engineer.

155. No on-street parking shall be permitted along Sunnymead Boulevard and Graham Street. Appropriate signage shall be installed.

156. Prior to issuance of a Building Final or Certificate of Occupancy, all approved street improvements shall be installed to the satisfaction of the City Engineer.

MORENO VALLEY
WHERE DREAMS SOAR

Aerial Map



Legend

Public Facilities

- Public Facilities
- Fire Stations

Parcels

City Boundary

Sphere of Influence

Image Source: Nearmap

Notes:

315.5 0 157.74 315.5 Feet

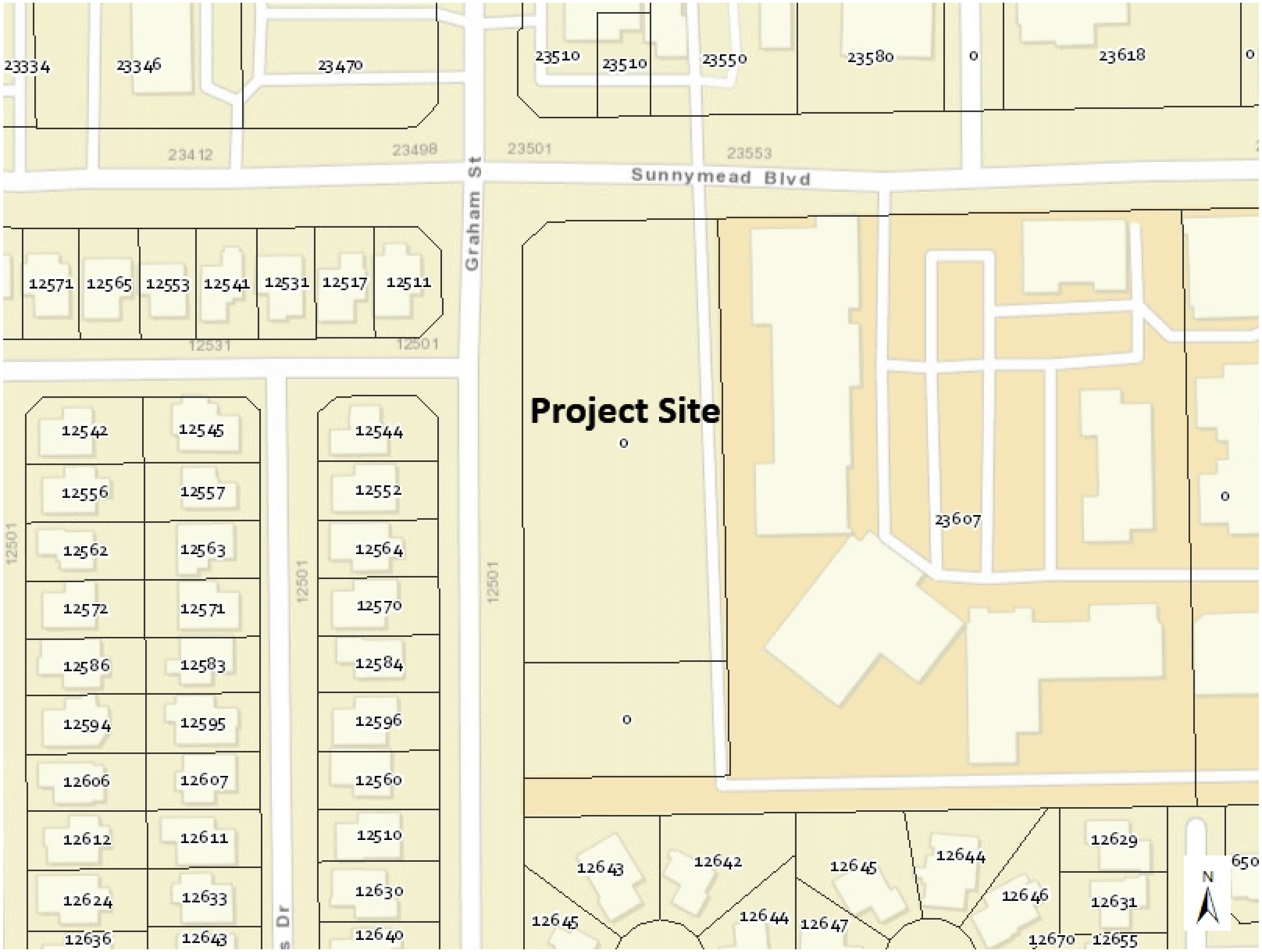
WGS_1984_Web_Mercator_Auxiliary_Sphere

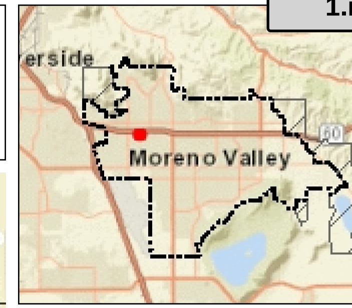
Print Date: 7/8/2021

DISCLAIMER: The information shown on this map was compiled from the City of Moreno Valley GIS and Riverside County GIS. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Riverside County and City of Moreno Valley will not be held responsible for any claims, losses or damages resulting from the use of this map.

MORENO VALLEY
WHERE DREAMS SOAR

Location Map





Legend

Public Facilities

- Public Facilities
- Fire Stations

Parcels

City Boundary

Sphere of Influence

Notes:

315.5 0 157.74 315.5 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

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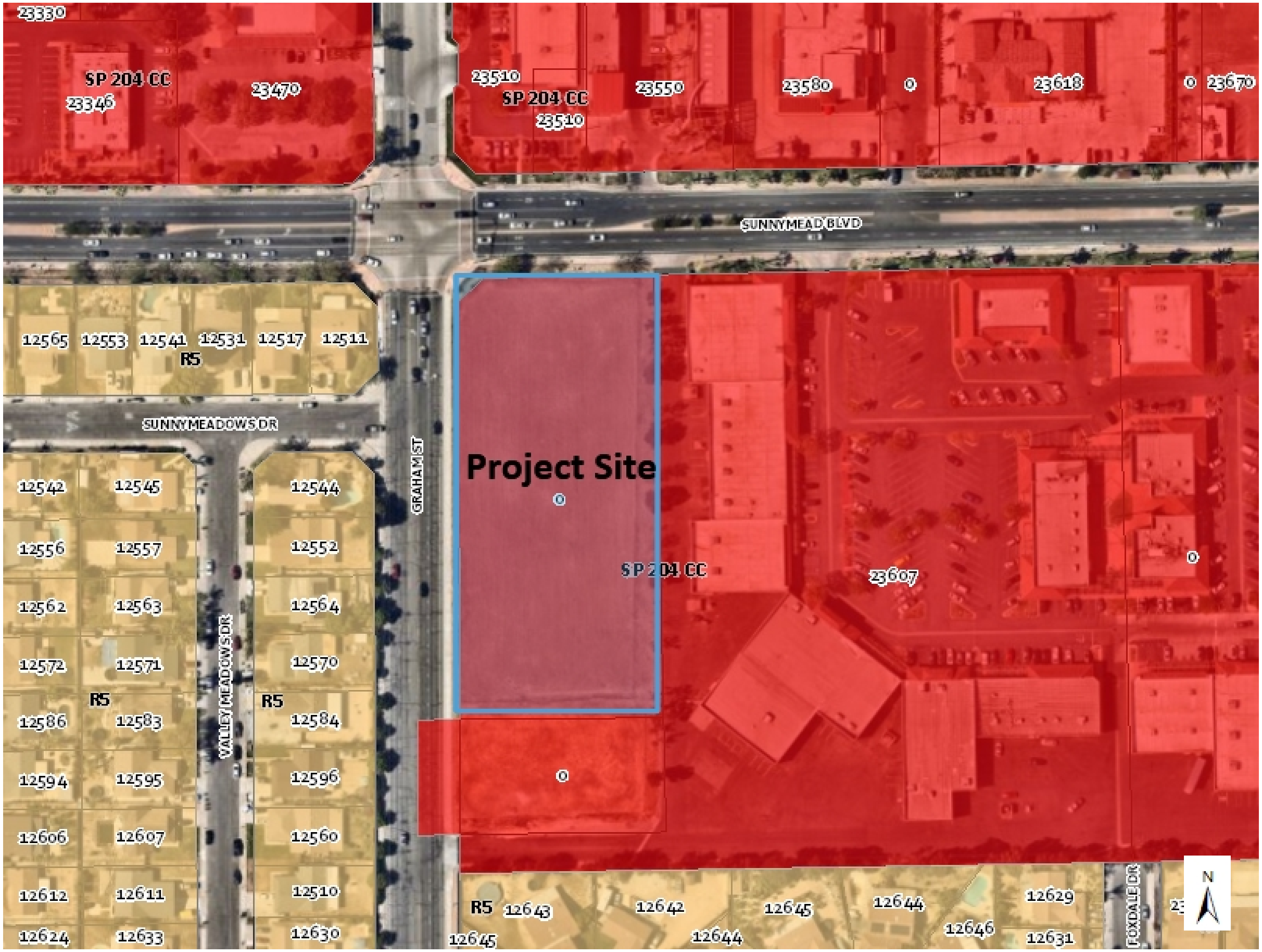
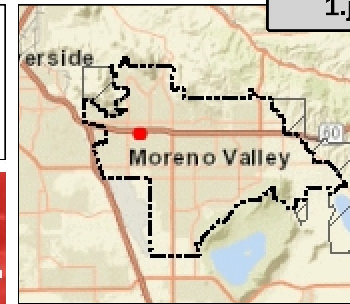
MORENO VALLEY
WHERE DREAMS SOAR

Zone: SP204CC





Legend

Zoning

- Commercial
- Industrial/Business Park
- Public Facilities
- Office
- Planned Development
- Large Lot Residential
- Residential Agriculture 2 DU/AC
- Residential 2 DU/AC
- Suburban Residential
- Multi-family
- Open Space/Park

Master Plan of Trails

- Bridge
- Improved
- Multiuse
- Proposed
- Regional
- State

Road Labels

Parcels

City Boundary

Sphere of Influence

Image Source: Nearmap

Notes:

315.5 0 157.74 315.5 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

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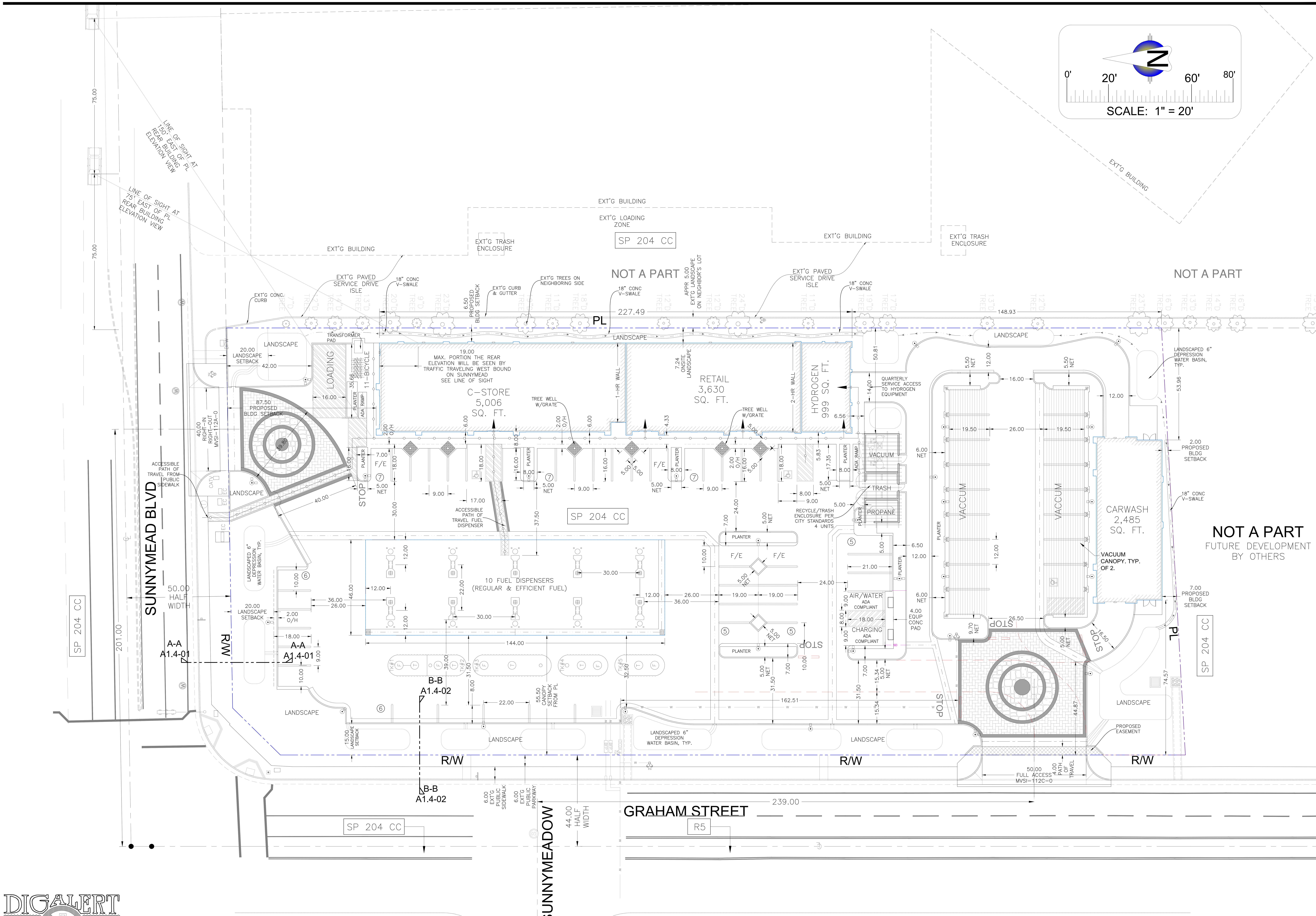


A1.1- 01 PROPOSED SITE PLAN

SCALE: 1"=20'-0"

RamCam

RAMCAM ENGINEERING GROUP, INC.
PLANNING & ENGINEERING
670 E. PARKRIDGE AVENUE, SUITE 101
CORONA, CA 92819
951.734.6330

GO FRESH, LLC
1835 MOUNT LANGLEY STREET
FOUNTAIN VALLEY, CA 92708

GO FRESH GAS
SEC OF SUNNYMEAD BLVD AND GRAHAM ST
MORENO VALLEY, CALIFORNIA

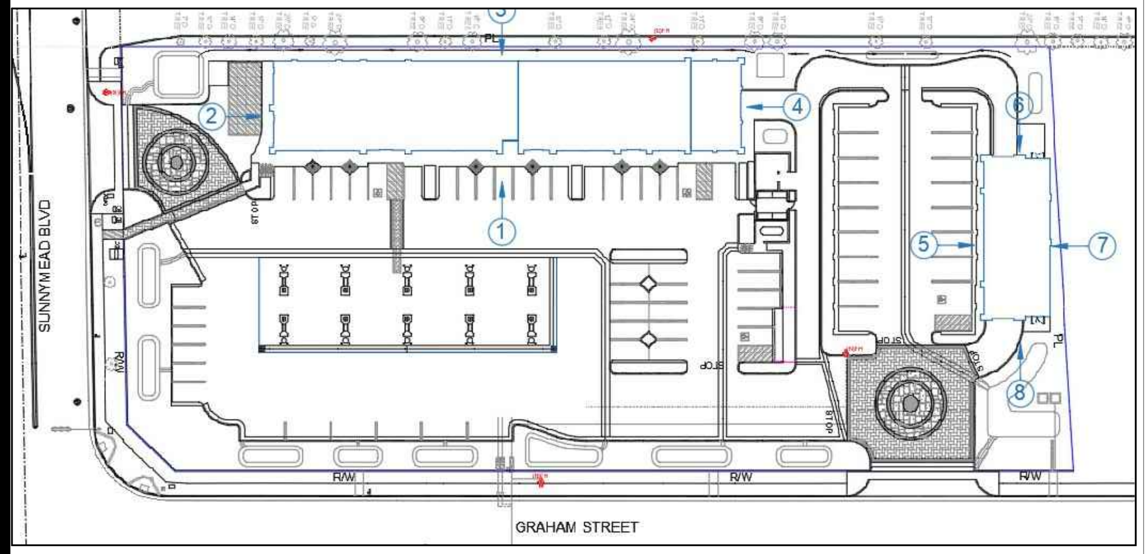
04/27/2021

- PEN20-0141
- PEN20-0142
- PEN20-0143

PROPOSED SITE PLAN

A1.1

GO FRESH-GAS STATION RENDERINGS



A5.0- 01 BIRDS EYE VIEW AND KEY PLAN

A5.0- 02 IMAGE #1

A5.0- 03 IMAGE #2

A5.0- 04 IMAGE #3

A5.0- 05 IMAGE #3

A5.0- 06 IMAGE #4

A5.0- 07 IMAGE #5

A5.0- 08 IMAGE #7

A5.0- 09 IMAGE #8

DIGALERT 811 TWO WORKING DAYS BEFORE YOU DIG

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RAMCAM ENGINEERING GROUP, INC.
PLANNING & ENGINEERING
670 E. PARKRIDGE AVENUE, SUITE 101
CORONA, CA 92819
951.734.6330

Attachment: Colored Elevations (4469 : PEN20-0141 Plot Plan & PEN20-0142 Conditional Use Permit)

GO FRESH, LLC
1835 MOUNT LANGLEY STREET
FOUNTAIN VALLEY, CA 92708

GO FRESH GAS
SEC OF SUNNYMEAD BLVD
AND
GRAHAM ST
MORENO VALLEY, CALIFORNIA

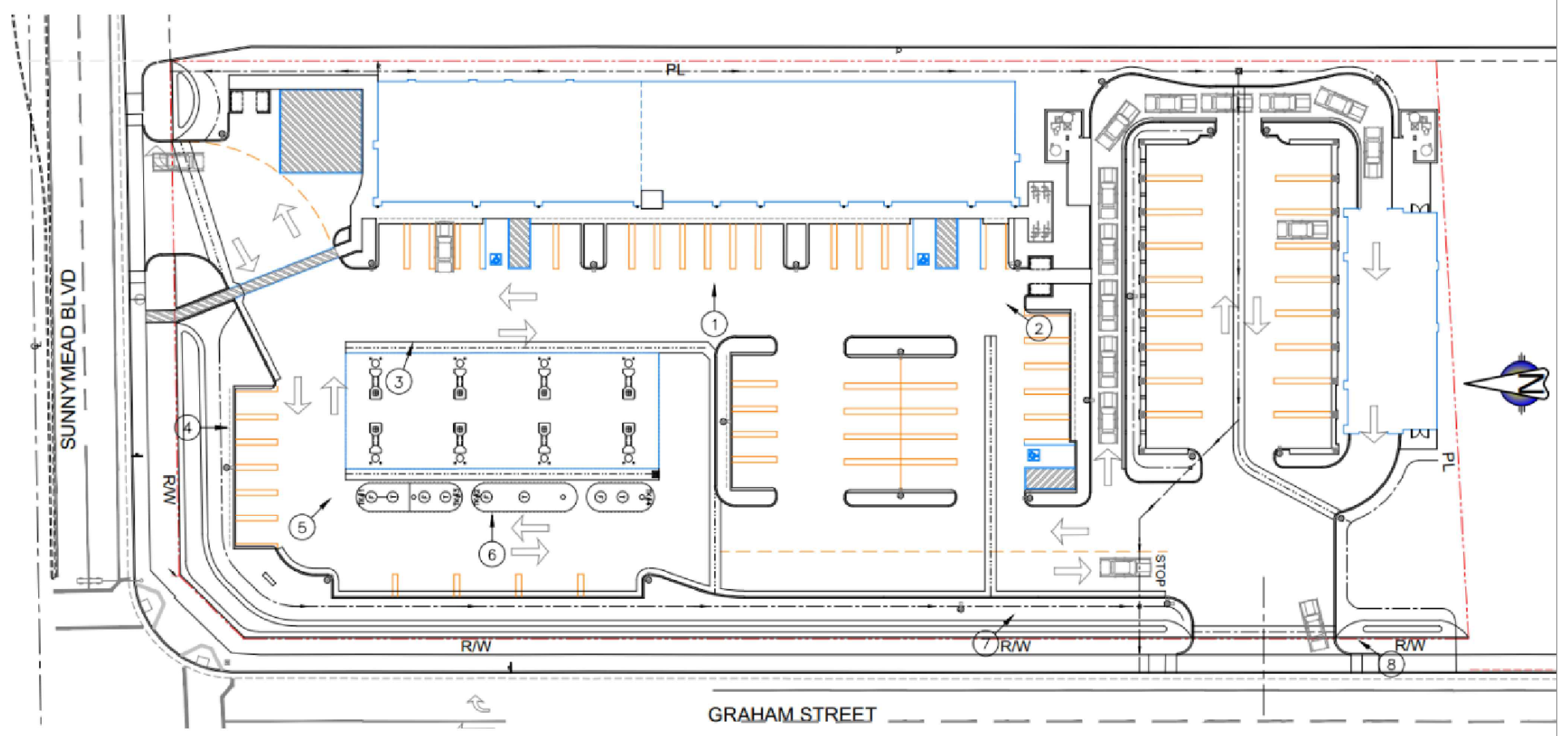
04/27/2021

- PEN20-0141
- PEN20-0142
- PEN20-0143

GO-FRESH GAS STATION COLOR ELEVATIONS

A5.0

GO FRESH-GAS STATION RENDERINGS



A5.1 - 01 BIRDS EYE VIEW AND KEY PLAN

A5.1 - 02 IMAGE #1

A5.1 - 03 IMAGE #2

A5.1 - 04 IMAGE #3

A5.1 - 05 IMAGE #4

A5.1 - 06 IMAGE #5

A5.1 - 07 IMAGE #6

A5.1 - 08 IMAGE #7

A5.1 - 09 IMAGE #8

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1.m

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PLANNING & ENGINEERING
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CORONA, CA 92819
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GO FRESH, LLC
1835 MOUNT LANGLEY STREET
FOUNTAIN VALLEY, CA 92708

GO FRESH GAS
SEC OF SUNNYMEAD BLVD
AND
GRAHAM ST
MORENO VALLEY, CALIFORNIA

04/27/2021

- PEN20-0141
- PEN20-0142
- PEN20-0143

GO-FRESH GAS STATION RENDERINGS

A5.1

Attachment: 3D Renderings (4469 : PEN20-0141 Plot Plan & PEN20-0142 Conditional Use Permit)

File: z:\ramcam engineering\2-go fresh\rc19031580-go fresh moreno valley\engineering\04-planning phase\03-cup\03-cup 4th submittal\01-architectural\rc19031580-a5.1 3d renderings-20210427v4.dwg Saved: 4/27/2021 1:12 PM (rutht) Plotted: 4/27/2021 1:41 PM

NO WORK SHALL BE DONE ON THIS SITE UNTIL BELOW AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE.

DIGALERT

CALL
811 or
1-800-422-4133
2 Working Days Before You Dig
WWW.CALL811.COM

NOTE:

1. FUELING AREA MUST HAVE AN OVERHEAD CANOPY EXTENDS A MINIMUM OF 12' FROM THE CENTER OF FUEL DISPENSERS.
2. ALL CANOPY ROOF WATER MUST DRAIN ONTO THE BIORETENTION AREAS PER WQMP.
3. ALL SURFACE WATER OR SPILLED FUEL (IF ANY) UNDER CANOPY MUST FLOW INTO A DEAD END SUMP FOR CLEAN-UP AND COLLECTION.
4. ALL SURROUNDING SURFACE WATER MUST BE DIVERTED AWAY FROM FUELING AREA AS SHOWN.

3'WPKWY DRAIN PER CITY STD
MVSI-150A-0 TYPE 1
DESIGN FLOW Q_{10} =1.91CFS
MAX FLOW Q_{100} =2.85CFS
TC_{10} =6.95 MIN
TC_{100} =6.75 MIN

3'WPKWY DRAIN PER CITY STD
MVSI-150A-0 TYPE 1
DESIGN FLOW Q_{10} =2.86CFS
MAX FLOW Q_{100} =4.27CFS
TC_{10} =6.34 MIN
TC_{100} =6.20 MIN

PAXX-XXXX OR PENXX-XXXX

BENCHMARK

RIVERSIDE COUNTY BENCHMARK DESIGNATION: M-76
ELEVATION = 1588.292 FEET (NGVD 29) 1972
MARK IS SET ON SW CORNER OF COTTONWOOD AVE. AND PERRIS BLVD. 62.5 FEET WEST OF PERRIS BLVD 64 FEET SOUTH OF COTTONWOOD AVE. 4 FEET EAST OF THE NORTHEAST CORNER OF CONCRETE BUILDING OF EMWD PUMPING STATION A STANDARD DISK SET IN A CONCRETE POST 1 FOOT SOUTH OF A MARKER POST AND 4 INCHES ABOVE GROUND MARKED M-76 RESET 1972.

BASIS OF BEARING

THE BEARINGS SHOWN HEREON ARE BASED UPON THE CENTER LINE OF GRAHAM STREET, BEING N 00° 09' 07" W AS SHOWN ON PARCEL MAP NO. 19635, FILED IN BOOK 8, PAGES 8 AND 9, OF PARCEL MAPS, RECORDS OF RIVERSIDE COUNTY.

REVIEW BY CITY STAFF

OFFICE	INITIAL	DATE
ENGINEERING DIVISION MANAGER		
LAND DEVELOPMENT		
PLANNING		
TRANSPORTATION		
PARKS AND COMMUNITY SERVICES		
SPECIAL DISTRICTS		
STORM WATER MANAGEMENT PRGM		

MARK	DATE	INITIAL	DESCRIPTION	REC	APPR	DATE
		EOR	REVISION			

CITY OF MORENO VALLEY APPROVALS

RECOMMENDED:

MICHAEL D. LLOYD, PE — DATE
ENGINEERING DIVISION MANAGER/
ASSISTANT CITY ENGINEER
RCE 69563

APPROVED:

MICHAEL L. WOLFE, PE — DATE
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE 65623

ENGINEER OF RECORD'S SEAL

REGISTERED PROFESSIONAL ENGINEER
IMAD ABU-GHARBIEH
No. RCE 52001
EXP. 12-31-2022
CIVIL
STATE OF CALIFORNIA

PREPARED BY:

RamCam
670 E. Parkridge, Avenue, #101
Corona, California 92879
Tel 951-734-6330

UNDER THE SUPERVISION OF:

IMAD ABU-GHARBIEH
RCE 52001
DATE 04/09/2021

CITY OF MORENO VALLEY

PRELIMINARY GRADING PLAN

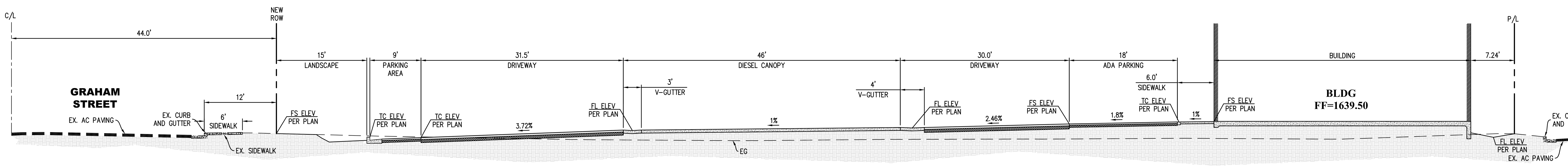
23610 SUNNYMEAD BLVD MORENO VALLEY, CA 92570

SHEET 1 OF 2

CITY ID No

SECTION A-A

SCALE: 1"=8'



SECTION B-B

SCALE: 1"=8'

NO WORK SHALL BE DONE ON THIS SITE UNTIL BELOW AGENCY IS NOTIFIED OF INTENTION TO GRADE OR EXCAVATE.

DIGALERT

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811 or
1-800-422-4133
2 Working Days Before You Dig
WWW.CALL811.COM

PAXX-XXXX OR PENXX-XXXX

BENCHMARK

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ELEVATION = 1588.292 FEET (NGVD 29) 1972 MARK IS SET ON SW CORNER OF COTTONWOOD AVE. AND PERRIS BLVD. 62.5 FEET WEST OF PERRIS BLVD 64 FEET SOUTH OF COTTONWOOD AVE. 4 FEET EAST OF THE NORTHEAST CORNER OF CONCRETE BUILDING OF EMWD PUMPING STATION A STANDARD DISK SET IN A CONCRETE POST 1 FOOT SOUTH OF A MARKER POST AND 4 INCHES ABOVE GROUND MARKED M-76 RESET 1972.

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REVIEW BY CITY STAFF

OFFICE	INITIAL	DATE
ENGINEERING DIVISION MANAGER		
LAND DEVELOPMENT		
PLANNING		
TRANSPORTATION		
PARKS AND COMMUNITY SERVICES		
SPECIAL DISTRICTS		
STORM WATER MANAGEMENT PRGM		

MARK	DATE	INITIAL	DESCRIPTION	REC	APPR	DATE
		EOR	REVISION			

CITY OF MORENO VALLEY APPROVALS

RECOMMENDED:

MICHAEL D. LLOYD, PE — DATE
ENGINEERING DIVISION MANAGER/ ASSISTANT CITY ENGINEER
RCE 69563

APPROVED:

MICHAEL L. WOLFE, PE — DATE
PUBLIC WORKS DIRECTOR/CITY ENGINEER
RCE 65623

ENGINEER OF RECORD'S SEAL

REGISTERED PROFESSIONAL ENGINEER
IMAD ABU-GHARBIEH
No. RCE 52001
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STATE OF CALIFORNIA

PREPARED BY:

RamCam
670 E. Parkridge, Avenue, #101
Corona, California 92879
Tel 951-734-6330

UNDER THE SUPERVISION OF:

IMAD ABU-GHARBIEH
RCE 52001
DATE 04/09/2021

CITY OF MORENO VALLEY

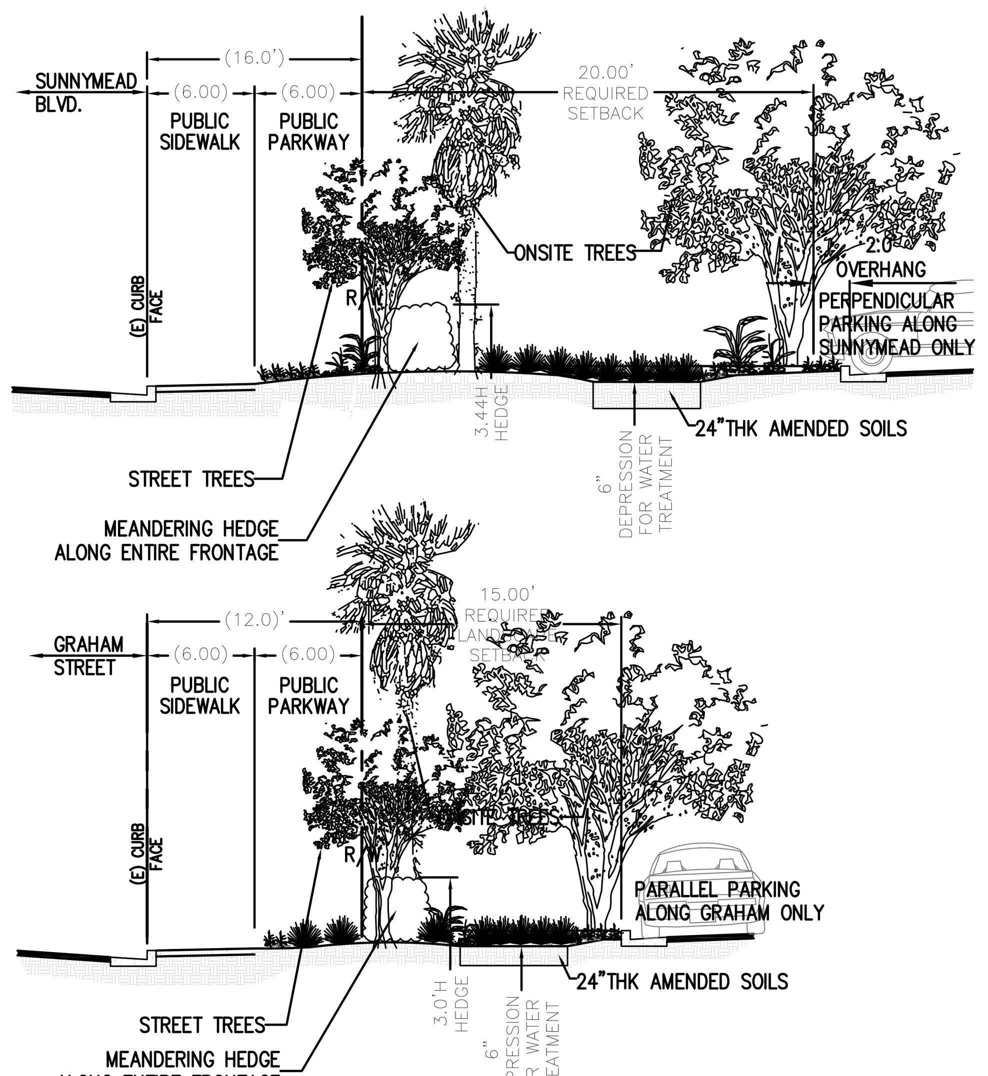
PRELIMINARY GRADING PLAN

23610 SUNNYMEAD BLVD MORENO VALLEY, CA 92570

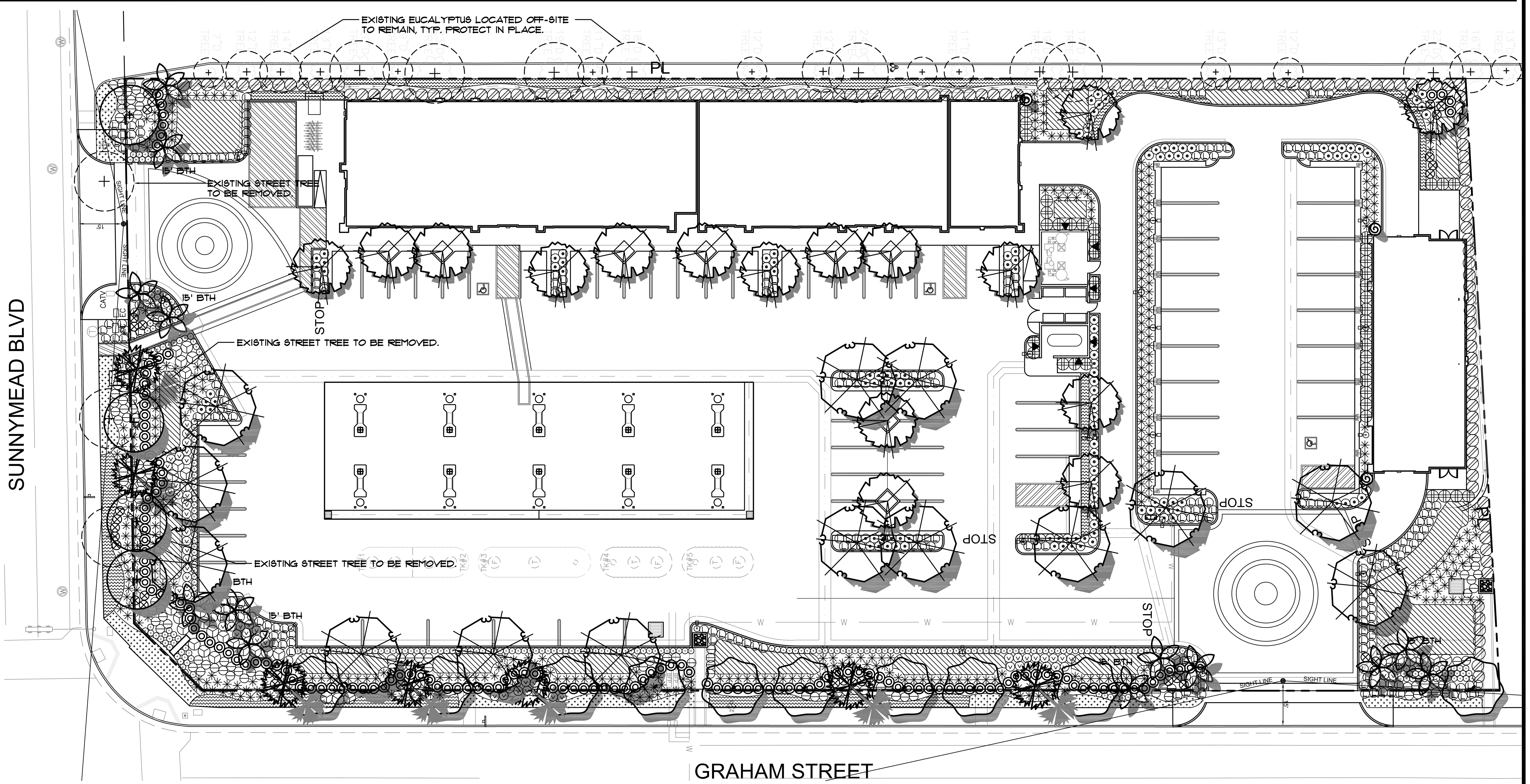
PRELIMINARY GRADING SECTIONS

SHEET 2 OF 2

CITY ID No



SECTIONS
SCALE: N.T.S.



PLANT LEGEND

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS	WUCOLS IV
	PROPOSED TREES				REGION 4
	KOELREUTERIA PANICULATA	GOLDEN RAINTREE	36" BOX	DOUBLE STAKE	MODERATE
	LAGERSTROEMIA INDICA X X 'TUSCARORA'	CRAPE MYRTLE	24" BOX	DOUBLE STAKE	MODERATE
	PODOCARPUS 'MONMAL'	ICEE BLUE YELLOW-WOOD	24" BOX	STANDARD DOUBLE STAKE	MODERATE
	PLATANUS ACERIFOLIA 'BLOODGOOD'	LONDON PLANE TREE	24" BOX	NATURAL DOUBLE STAKE	MODERATE
	QUERCUS ILEX	HOLLY OAK	24" BOX	NATURAL DOUBLE STAKE	LOW
	SYAGRUS ROMANZOFFIANUM	QUEEN PALM	15' BTH 12' BTH	BROWN TRUNK HEIGHT 15' SIZE NOTED ON PLAN	LOW
	WASHINGTONIA ROBUSTA	MEXICAN FAN PALM	15' BTH	BROWN TRUNK HEIGHT	LOW
	PROPOSED SHRUBS AND GROUNDCOVERS				
	AGAVE ATTENUATA	FOX TAIL AGAVE	5 GAL.	AS SHOWN	LOW
	CALLISTEMON CITRINUS 'LITTLE JOHN'	DWARF BOTTLEBRUSH	5 GAL.	3'-0" O.C.	LOW
	DIANELLA TASMANICA 'VARIEGATA'	VARIEGATED FLAX LILY	5 GAL.	2'-0" O.C.	LOW
	JUNIPERUS CONFERTUS	CARPET JUNIPER	1 GAL.	2'-0" O.C.	LOW
	LEUCOPHYLLUM FRUTESCENS	TEXAS RANGER	5 GAL.	3'-0" O.C.	LOW
	LANTANA 'NEW GOLD'	TRAILING YELLOW LANTANA	1 GAL.	3'-0" O.C.	LOW
	MUHLENBERGIA CAPILLARIS 'REGAL MIST'	DEER GRASS	5 GAL.	2'-6" O.C.	LOW
	MYOPORUM PARVIFOLIUM 'PINK'	PINK CREEPING MYOPORUM	FLATS	2'-0" O.C.	LOW
	PHORMIUM TENAX 'RUBRUM'	PURPLE NEW ZEALAND FLAX	5 GAL.	4'-0" O.C.	LOW
	RHAPHIOLEPIS INDICA 'CLARA'	INDIAN HAWTHORN	5 GAL.	3'-6" O.C.	LOW
	ROSA 'ICEBERG' (WHITE/BURGUNDY MIX)	ICEBERG ROSE	5 GAL.	3'-0" O.C.	LOW
	SALVIA GREGGII 'FURMANS RED'	AUTUMN SAGE	5 GAL.	3'-0" O.C.	LOW
	SALVIA LEUCANTHA	MEXICAN BUSH SAGE	5 GAL.	3'-0" O.C.	LOW
	WESTRINGIA FRUTICOSA 'MORNING LIGHT'	COAST ROSEMARY	5 GAL.	4'-0" O.C.	LOW
	CAREX TUMULICOLA	FOOTHILL SEDGE	1 GAL.	1'-6" O.C.	LOW
	PROPOSED VINES				
▼	PARTHENOCISSUS TRICUPIDATA	BOSTON IVY	15 GAL.	TRAIN TO WALL	LOW

DIGALERT
811
TWO WORKING DAYS BEFORE YOU DIG

GENERAL NOTES:

A. ALL FLAT, SHRUB AND GROUNDCOVER AREAS TO BE TOP DRESSED WITH 3" LAYER OF SHREDDED BARK MULCH. ALL TOP DRESSING TO BE FLUSH WITH TOP OF WALK. PROVIDE SAMPLE TO LANDSCAPE ARCHITECT PRIOR TO DELIVERY ON-SITE.

B. ALL STREET TREES AND ALL TREES WITHIN 6' OR WITHIN 10' OF PUBLIC RIGHT-OF-WAY OF HARDSCAPE ELEMENTS, SUCH AS CURBS, WALLS, BUILDINGS OR WALKS, SHALL BE PROVIDED WITH APPROVED ROOT BARRIER CONTROL DEVICES SUCH AS MODEL NO. UB 24-2, AVAILABLE FROM DEEPROOT: 800-458-7668 OR www.deeproot.com. INSTALLATION TO BE PER MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS AND BE A MINIMUM OF 10 LINEAL FEET.

C. CONTRACTOR TO REPAIR OR REPLACE ANY EXISTING WORK DONE BY OTHERS DAMAGED DUE TO CONSTRUCTION.

D. CONTRACTOR TO VERIFY ALL UTILITIES AND EXISTING CONDITIONS IN FIELD PRIOR TO CONSTRUCTION.

E. AN AUTOMATIC IRRIGATION SYSTEM SHALL BE INSTALLED TO PROVIDE COVERAGE FOR ALL PLANTING AREAS SHOWN ON PLAN. LOW VOLUME EQUIPMENT SHALL FOLLOW THE CITY OF MORENO VALLEY GUIDELINES AND WATER CONSERVATION ORDINANCE.

F. ALL PLANTING AND IRRIGATION TO COMPLY WITH CITY OF MORENO VALLEY LANDSCAPE GUIDELINES AND CURRENT MWELO (MODEL WATER EFFICIENT LANDSCAPE ORDINANCE).

G. ALL PROPOSED GAS METERS, BACK FLOW DEVICES, TRANSFORMERS OR ANY OTHER ABOVE GROUND EQUIPMENT WILL BE SCREENED WITH SHRUBS OR OTHER LANDSCAPING PER CITY GUIDELINES.

H. LANDSCAPE ARCHITECT SHALL BE AWARE OF UTILITY, SEWER, STORM DRAIN EASEMENTS AND PLACE PLANTING LOCATIONS ACCORDINGLY TO MEET CITY OF MORENO VALLEY REQUIREMENTS.

I. ALL REQUIRED LANDSCAPE AREAS SHALL BE MAINTAINED BY OWNER.

WATER USE CALCULATIONS:

MAXIMUM ANNUAL APPLIED WATER ALLOWANCE

PROJECT LANDSCAPE AREA: 21,031 S.F.

MAXIMUM WATER BUDGET: = (ETO) (0.45) (AREA) (.62)
+ (ETO) (SLA) (0.55) (.62)
= (56.4) (0.45) (21,031) (.62)
+ 0

MAWA = 330,935 (GALLONS/YEAR)

ESTIMATED ANNUAL APPLIED WATER USE

ESTIMATED WATER USE: HYDROZONE 1 (DRIP) = (ETO) (KC) (AREA) (.62) / (IE)
= (56.4) (.30) (20,581) (.62) / (.81)
= 266,541 (GALLONS/YEAR)

ESTIMATED WATER USE: HYDROZONE 2 (BUBBLERS FOR TREES) = (ETO) (KC) (AREA) (.62) / (IE)
= (56.4) (.50) (450) (.62) / (.75)
= 10,490 (GALLONS/YEAR)

TOTAL ESTIMATED WATER USE: = 277,037 GALLONS/YEAR)

PLANTING NOTES:

THE SELECTION OF PLANT MATERIAL IS BASED ON CULTURAL, AESTHETIC, AND MAINTENANCE CONSIDERATIONS. ALL PLANTING AREAS SHALL BE PREPARED WITH APPROPRIATE SOIL AMENDMENTS, FERTILIZERS, AND APPROPRIATE SUPPLEMENTS BASED UPON A SOILS REPORT FROM AN AGRICULTURAL SUITABILITY SOIL SAMPLE TAKEN FROM SITE. GROUND COVER OR BARK MULCH SHALL FILL IN BETWEEN THE SHRUBS TO SHIELD THE SOIL FROM THE SUN, EVAPOTRANSPIRATION AND RUN-OFF. ALL THE FLOWER AND SHRUB BEDS SHALL BE MULCHED TO A 3" DEPTH TO HELP CONSERVE WATER, LOWER THE SOILS TEMPERATURE AND REDUCE WEED GROWTH. THE SHRUBS SHALL BE ALLOWED TO GROW IN THEIR NATURAL FORMS. ALL LANDSCAPE IMPROVEMENTS SHALL FOLLOW THE CITY OF MORENO VALLEY GUIDELINES.

IRRIGATION NOTES:

AN AUTOMATIC IRRIGATION SYSTEM SHALL BE INSTALLED TO PROVIDE COVERAGE FOR ALL PLANTING AREAS SHOWN ON PLANS. LOW VOLUME EQUIPMENT SHALL PROVIDE SUFFICIENT WATER FOR PLANT GROWTH WITH A MINIMUM WATER LOSS DUE TO WATER RUN-OFF. IRRIGATION SYSTEMS SHALL USE HIGH QUALITY, AUTOMATIC CONTROL VALVES, CONTROLLERS AND OTHER NECESSARY IRRIGATION EQUIPMENT. ALL SHALL BE NON-CORROSIVE MATERIAL. ALL DRIP SYSTEMS SHALL BE ADEQUATELY FILTERED AND REGULATED PER MANUFACTURER'S RECOMMENDED DESIGN PARAMETERS. ALL IRRIGATION IMPROVEMENTS SHALL FOLLOW THE CITY OF MORENO VALLEY GUIDELINES AND WATER CONSERVATION ORDINANCE. IRRIGATION SYSTEM SHALL BE A POINT TO POINT (POINT SOURCE) DRIP IRRIGATION FOR SHRUBS/GROUNDCOVERS AND SUBGRADE BUBBLERS FOR TREES.

STREET TREES AND OTHER TREES SHALL BE SPACED:

- 8 FEET (PREVIOUSLY 3 FEET) FROM TRANSFORMERS, CABLE, AND PULL BOXES.
- 5 FEET FROM MAILBOXES.
- 5 FEET FROM FIRE HYDRANTS (ALL SIDES).
- 10 FEET FROM CENTERLINE (PREVIOUSLY 7 FEET) OF ALL UTILITY LINES (WITHOUT EASEMENT) (SEWER, WATER, STORM DRAINS, DOUBLE-CHECK DETECTORS, AIR RELIEF VALVES AND GAS).
- 10 FEET FROM EASEMENT BOUNDARIES (SEWER, WATER, STORM DRAINS, ACCESS OR OTHER UTILITIES).
- 10 FEET FROM DRIVEWAYS (UNLESS A LINE OF SIGHT IS DETERMINED BY THE TRAFFIC DIVISION TO BE OTHERWISE).
- 10 FEET FROM TRAFFIC AND DIRECTIONAL SIGNS.
- 15 FEET (MINIMUM) FROM STREETLIGHTS, OTHER UTILITY POLES, (DETERMINED BY SPECIFICATIONS).
- STREET TREES SHALL BE PLANTED 3-FEET OUTSIDE RIGHT-OF-WAY IF THE RIGHT-OF-WAY DOES NOT ALLOW SPACE, SUBJECT TO THE CITY ENGINEERS APPROVAL.
- LINE OF SIGHT AT ARTERIOLES, COLLECTOR AND LOCAL STREETS SHALL BE REVIEWED AND DETERMINED BY TRAFFIC ENGINEER A MINIMUM OF TWENTY-FIVE FEET (25') FROM STREET INTERSECTION OR AS APPROVED BY THE TRAFFIC ENGINEER.
- MINIMUM FIFTEEN FEET (15') STREETLIGHT AND STOP SIGN OR CLEARANCE DETERMINED BY SPECIFICATIONS.
- SCREEN ALL UTILITIES ACCORDING TO SPECIFIC AGENCY REQUIREMENTS.

PRELIMINARY PLANTING PLAN
SCALE: 1"=20'-0"

0 20' 40' 60'

RamCam

RAMCAM ENGINEERING GROUP, INC.
PLANNING & ENGINEERING
670 E. PARKRIDGE AVENUE, SUITE 101
CORONA, CA 92819
951.734.6330

R. DALE HADFIELD
LANDSCAPE ARCHITECT
28311 LAKEWOOD DRIVE
LAGUNA NIGUEL, CALIFORNIA 92677
(949) 367-9275 • dale@rdhla.com

NOT VALID FOR CONSTRUCTION TILL APPROVED BY CITY AND SIGNED BY DESIGN ENGINEER

GO FRESH, LLC
1835 MOUNT LANGLEY STREET
FOUNTAIN VALLEY, CA 92708

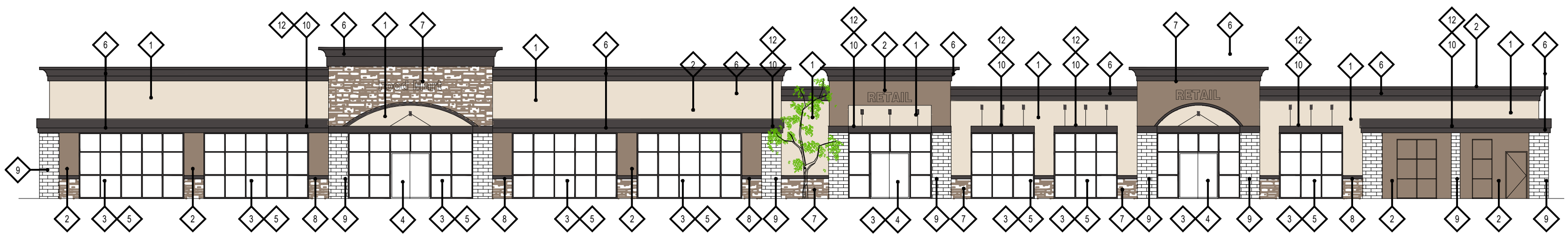
GO FRESH GAS
SEC OF SUNNYMEAD BLVD AND GRAHAM ST
MORENO VALLEY, CALIFORNIA

4.26.2021

REGISTERED LANDSCAPE ARCHITECT
DALE HADFIELD
Signature
2/28/22
Renewal Date
4/26/2021
Date
STATE OF CALIFORNIA

PRELIMINARY LANDSCAPE PLAN

L1.1



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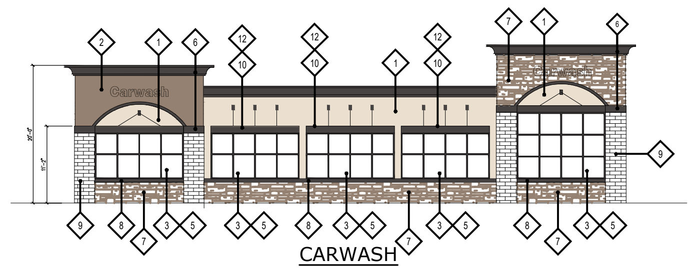

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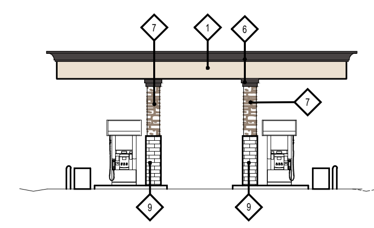

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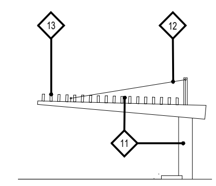
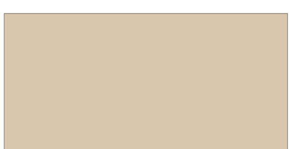


VACUUM CANOPY

MATERIALS & COLORS



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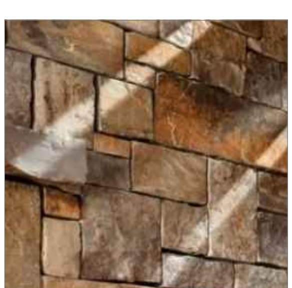

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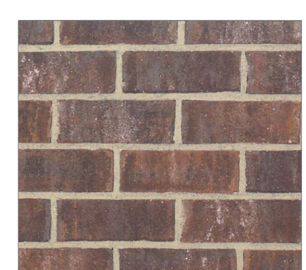

9

1. "FINE SAND" STEEL TROWEL STUCCO FINISH. COLOR: BERH # ECC-54-1 NEW KHAKI FLAT EXTERIOR PAINT
2. "FINE SAND" STEEL TROWEL STUCCO FINISH. COLOR: BERH # N190-6 NUT BROWN MATTE EXTERIOR PAINT
3. DARK BRONZE ANODIZED ALUMINUM STOREFRONT/WINDOW SYSTEM
4. TRANSPARENT TEMPERED GLASS DOOR TO MATCH STOREFRONT.
5. LOW 'E' TRANSPARENT $\frac{1}{4}$" GLAZING-TEMPERED
6. CROWN MOLDING OR COLUMN CAPITAL. COLOR: TO MATCH STOREFRONT
7. THOMPSON'S CHIEF CLIFF BLENDS STONE COLOR: TAN
8. STUCCO WAINSCOT CAP. COLOR: TO MATCH STOREFRONT
9. THOMPSON'S-THIN BRICK VENEER -JENKINS HAMPSTEAD QUEEN.
10. METAL AWNING. COLOR: TO MATCH STOREFRONT
11. STRUCTURAL STEEL. COLOR: TO MATCH STOREFRONT
12. METAL HANGERS. COLOR: TO MATCH STOREFRONT
13. 4X WOOD JOIST, ROUGH SAWN. COLOR: BERH # N190-6 NUT BROWN MATTE EXTERIOR PAINT. TYP.
14.

RamCam

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T 951.734.6330 ALEX@RCGROUP.US

GO FRESH GAS
SEC. OF SUNNEYMEAD BLVD. AND GRAHAM ST. MORENO VALLEY, CA.

11.09.2020

MATERIALS & COLORS BOARD

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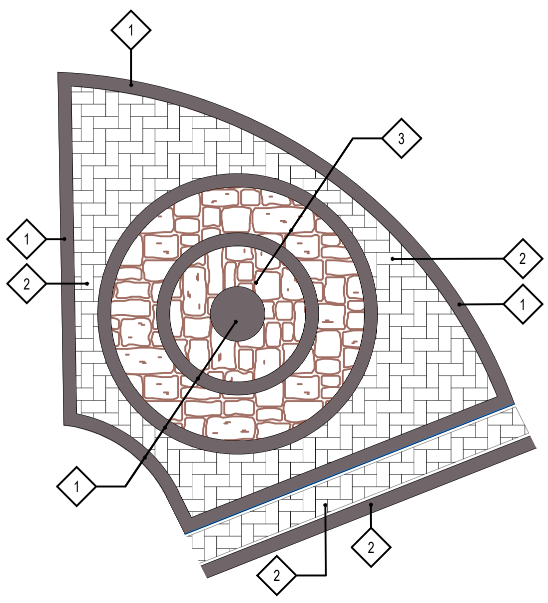

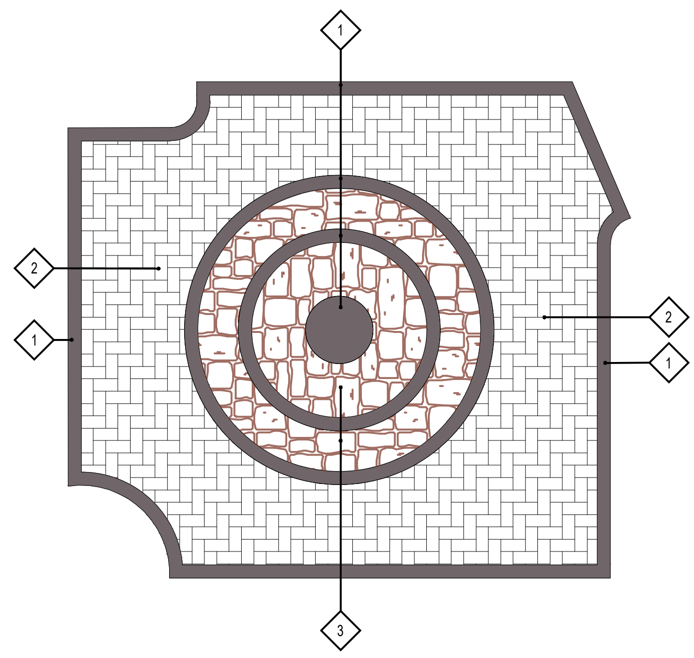

MATERIALS & COLORS


1

1. PAVER RIBBON. COLOR: DARK GRAY
2. INTERLOCK PAVER
3. STAMPED CONCRETE


3


2

RAMCAM ENGINEERING GROUP, INC.
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MATERIALS & COLORS BOARD

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Attachment: Material Color Board 2 (4469 : PEN20-0141 Plot Plan & PEN20-0142 Conditional Use Permit)

PLANNING COMMISSION

STAFF REPORT

Meeting Date: July 22, 2021

PEN21-0086 CONDITIONAL USE PERMIT FOR A FAST FOOD DRIVE-THROUGH RESTAURANT LOCATED IN THE STONERIDGE TOWN CENTER

Case:	PEN21-0086 Conditional Use Permit
Applicant:	InSite Development Services, LLC.
Property Owner	MCA Stoneridge, LLC
Representative	Ryan Solum
Location:	Stoneridge Town Center (488-400-008)
Case Planner:	Julia Descoteaux
Council District:	3
Proposal	Conditional Use Permit for an approximately 2,348 square foot fast food drive-through restaurant located in the existing Stoneridge Town Center.

SUMMARY

InSite Development Services, LLC ("Applicant") is requesting approval of a Conditional Use Permit for a fast food drive-through restaurant located in the Stoneridge Town Center.

PROJECT DESCRIPTION

Project

The applicant proposes to develop an additional 2,348 square foot drive-through restaurant ("Project") on a vacant pad located within the existing Stoneridge Town Center.

The Project site is located in the southeastern area of the existing Stoneridge Town Center at the intersection of Eucalyptus Avenue and Stoneridge Ranch roadway, which is located within the shopping center ("Project Site"). The Project Site has a Commercial (C) General Plan land use designation and Community Commercial (CC) zoning. The shopping center currently includes various retail/commercial establishments, such as retail stores, restaurants, fast food drive-through restaurants, fueling stations, banks and several other uses. All the aforementioned uses are consistent with the Stoneridge Shopping Center.

The proposed drive-through restaurant is a permitted use within the Community Commercial zone. Since it will be located within 300-feet of a residential zone or residential use, a Conditional Use Permit (CUP) is required. The CUP will ensure the drive-through/fast food restaurant is located and operated in such a manner that does not result in an adverse impact on the residential uses to the south.

The building will be setback from Eucalyptus Avenue approximately forty-seven feet (47'). Within this setback area, there will be the Project's front landscaping and a drive-through lane. There will also be additional on-site and off-site landscaping installed. The drive-through speaker will be located more than 136 feet from the residential development situated across Eucalyptus Avenue, which exceeds the 100-foot requirement for a drive-through restaurant as set forth in Municipal Code Section 9.09.080 (Drive-in, Drive-through, Fast Food And Take-Out Restaurants). The speaker system will also be required to comply with the City's noise restrictions. Additional noise mitigation will be provided by the new onsite landscaping, existing perimeter landscaping, the existing block wall surrounding the perimeter of the nearby residential development, and Eucalyptus Avenue. In short, all of the requirements of Section 9.08.080 for drive-through restaurants will be more than adequately addressed in the Conditional Use Permit as conditions of approval.

Surrounding Area/Access/Parking

The Project Site is located in the existing shopping center with street frontage on Eucalyptus Avenue. All properties to the north, east and west are within the shopping center with developed and un-developed commercial pads/parcels. Properties to the south are developed with residential uses.

The Project Site can be accessed internally within the shopping center from existing ingress/egress driveways located at Fir Avenue, Nason Street and Eucalyptus Avenue. The Project Site's closest ingress/egress driveway is at the internal Stoneridge Ranch roadway which connects to Eucalyptus Avenue.

Sufficient drive-through stacking and parking are proposed on site. In addition, the Project is designed to provide reciprocal access and reciprocal parking within the shopping center.

Design/Landscaping

The architectural theme of the building includes the company's corporate design using orange, teal, brown, and cream colors. Multiple building materials include stucco, stone fiber paneling and brick with orange and teal metal awnings for accents. The material and design of the Project are consistent with the requirements of the City's design standards and the existing prevailing architectural theme of the Stoneridge Town Center.

REVIEW PROCESS

The Project has been considered by all appropriate agencies within and outside of the City, consistent with the standard review process required for these types of development applications. The Project was reviewed by the Project Review Staff Committee as required by the Municipal Code. Following subsequent revisions and review by various staff, the Project's entitlement package was deemed complete for processing for Planning Commission review and consideration, and staff is recommending approval of the Project as designed and conditioned.

ENVIRONMENTAL

The Project has been evaluated under the criteria set forth in the California Environmental Quality Act (CEQA) and the CEQA Guidelines. As designed and conditioned, the proposed Project is exempt from the provisions of the California Environmental Quality Act (CEQA) under CEQA Guidelines 15332 for In-Fill Development as the project site is less than 5 acres in size and surrounded by existing development.

NOTIFICATION

Notice of the public hearing was sent to all property owners of record within 600 feet of the Project Site. The public hearing notice was also posted on the project site and published in the Press Enterprise newspaper.

REVIEW AGENCY COMMENTS

Staff has coordinated with outside agencies where applicable, as is the standard review process with these types of development applications.

STAFF RECOMMENDATION

Staff recommends that the Planning Commission APPROVE Resolution No. 2021-23, and thereby:

1. **FIND AND DETERMINE** that Conditional Use Permit PEN21-0086 is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) as a Class 32 Exemption (Section 15332, In-Fill Development Projects); and

2. **APPROVE** Conditional Use Permit PEN21-0086 subject to the attached Conditions of Approval included as Exhibit A to the Resolution.

Prepared by:
Julia Descoteaux
Associate Planner

Approved by:
Patty Nevins
Planning Official

ATTACHMENTS

1. Resolution No. 2021-23 Conditional Use Permit
2. Exhibit A to 2021-23 Conditions of Approval
3. Location Map
4. CC Zoning
5. Project Plans
6. PEN21-0086 600ft Project Mailing Notice

RESOLUTION NUMBER 2021-23

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, APPROVING A CONDITIONAL USE PERMIT (PEN21-0086) FOR A FAST FOOD DRIVE-THROUGH RESTAURANT LOCATED IN THE STONERIDGE TOWN CENTER ON EUCALYPTUS AVENUE (APN 488-400-008)

WHEREAS, the City of Moreno Valley ("City") is a general law city and a municipal corporation of the State of California; and

WHEREAS, InSite Development Services, LLC., ("Applicant") has filed an application for the approval of Conditional Use Permit PEN21-0086 ("Application") for the development of a new fast food drive-through restaurant ("Project") located at in the existing Stoneridge Town Center APN 488-400-008 ("Project Site"); and

WHEREAS, Section 9.02.060 (Conditional Use Permits) of the Moreno Valley Municipal Code acknowledges that the purpose of conditional use permits is to allow the establishment of uses that may have special impacts or uniqueness such that their effect on the surrounding environment cannot be determined in advance of the use being proposed for a particular location and that the conditional use permit application process involves the review of location, design and configuration of improvements related to the project, and the potential impact of the project on the surrounding area based on fixed and established standards; and

WHEREAS, the Application has been evaluated in accordance with Section 9.02.060 (Conditional Use Permits) of the Municipal Code with consideration given to the City's General Plan, Zoning Ordinance, and other applicable laws and regulations; and

WHEREAS, Section 9.02.060 of the Municipal Code imposes conditions of approval upon projects for which a CUP is required, which conditions may be imposed by the Planning Commission to address on-site improvements, off-site improvements, the manner in which the site is used and any other conditions as may be deemed necessary to protect the public health, safety and welfare to ensure that the proposed Project will be developed in accordance with the purpose and intent of Title 9 (Planning and Zoning) of the Municipal Code; and

WHEREAS, pursuant to the provisions of Section 9.02.200 (Public Hearing and Notification Procedures) of the Municipal Code and Government Code Section 65905, a public hearing was scheduled for July 22, 2021, and notice thereof was duly published and posted, and mailed to all property owners of record within 600 feet of the Site; and

WHEREAS, on July 22, 2021, the public hearing to consider the Application was duly conducted by the Planning Commission at which time all interested persons were provided with an opportunity to testify and to present evidence; and

WHEREAS, consistent with the requirements of Section 9.02.060 (Conditional Use Permits) of the Municipal Code, at the public hearing the Planning Commission considered the proposed Conditions of Approval set forth in Conditional Use Permit PEN21-0086 ("CUP"), which conditions were prepared by Planning Division staff who deemed said conditions to be necessary to protect the public health, safety and welfare and to ensure the proposed Project will be developed in accordance with the purpose and intent of Title 9 (Planning and Zoning) of the Municipal Code; and

WHEREAS, at the public hearing, the Planning Commission reviewed and considered the Planning Division's recommendation that the proposed Project is Categorically Exempt from the provisions of the California Environmental Quality Act (CEQA) as set forth in Public Resources Code Sections 21000 – 21177 and the CEQA Guidelines as set forth in 14 California Code of Regulations Sections 15000-15387, under CEQA Guidelines[1] Section 15332 (In-Fill Development Projects) which can be applied to a project when the project is: 1) consistent with the applicable General Plan designation and applicable policies: 2) occurs on a site that is less than five acres in size; 3) the site has no valuable habitat for rare or endangered species; 4) the project will not result in significant effects related to traffic, noise, air quality, or water quality; and 5) the site is adequately served by utilities and public services; and

WHEREAS, at the public hearing, the Planning Commission reviewed and considered whether each of the requisite findings specified in Section 9.02.060 of the Municipal Code and set forth herein could be made with respect to the proposed Project as conditioned by the Conditions of Approval.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF MORENO VALLEY, CALIFORNIA, DOES HEREBY RESOLVE AS FOLLOWS:

Section 1. **Recitals and Exhibits**

That the foregoing Recitals and attached Exhibits are true and correct and are hereby incorporated by this reference.

Section 2. **Notice**

That pursuant to Government Code section 66020(d)(1), notice is hereby given that the proposed Project is subject to certain fees, dedications, reservations and other exactions as provided herein.

Section 3. **Evidence**

That the Planning Commission has considered all of the evidence submitted into the administrative record for the proposed CUP, including, but not limited to, the following:

(a) Moreno Valley General Plan and all other relevant provisions contained therein;
(b) Title 9 (Planning and Zoning) of the Moreno Valley Municipal Code and all other relevant provisions referenced therein;
(c) Application for the approval of Conditional Use Permit (CUP) PEN21-0086 and all documents, records and references contained therein;

[1] 14 California Code of Regulations §§15000-15387

(d) Conditions of Approval for CUP PEN21-0086, attached hereto as Exhibit A;
(e) Staff Report prepared for the Planning Commission's consideration and all documents, records and references related thereto, and Staff's presentation at the public hearing;
(f) Staff's determination that the proposed Project is categorically exempt under the California Environmental Quality Act (CEQA) and CEQA Guidelines;
(g) Testimony and/or comments from Applicant and its representatives during the public hearing; and
(h) Testimony and/or comments from all persons that was provided in written format or correspondence, at, or prior to, the public hearing.

Section 4. Findings

That based on the content of the foregoing Recitals and the Evidence contained in the Administrative Record as set forth above, the Planning Commission makes the following findings:

(a) The proposed Project is consistent with the goals, objectives, policies and programs of the General Plan;
(b) The proposed Project complies with all applicable zoning and other regulations;
(c) The proposed Project will not be detrimental to the public health, safety or welfare or materially injurious to properties or improvements in the vicinity; and
(d) The location, design and operation of the proposed Project will be compatible with existing and planned land uses in the vicinity.

Section 5. Determination of Categorical Exemption

That the Planning Commission hereby determines that the proposed Project is categorically exempt from the provisions of the California Environmental Quality Act (CEQA) under CEQA Guidelines Section 15332 (In-Fill Development Projects).

Section 6. Notice of Exemption

That the Planning Division is hereby directed to prepare, execute, and file a Notice of Exemption as required by Section 5.2 (Noticing Requirements) of the City's Rules and Procedures for the Implementation of the California Environmental Quality Act and CEQA Guidelines Section 15062.

Section 7. Approval

That based on the foregoing Recitals, Administrative Record and Findings, the Planning Commission hereby approves CUP PEN21-0086 subject to the Conditions of Approval for CUP PEN21-0086, attached hereto as Exhibit A.

Section 8. Repeal of Conflicting Provisions

That all the provisions as heretofore adopted by the Planning Commission that are in conflict with the provisions of this Resolution are hereby repealed.

Section 9. Severability

That the Planning Commission declares that, should any provision, section, paragraph, sentence or word of this Resolution be rendered or declared invalid by any final court action in a court of competent jurisdiction or by reason of any preemptive legislation, the remaining provisions, sections, paragraphs, sentences or words of this Resolution as hereby adopted shall remain in full force and effect.

Section 10. Effective Date

That this Resolution shall take effect immediately upon the date of adoption.

PASSED AND ADOPTED THIS 22nd day of July, 2021.

CITY OF MORENO VALLEY
PLANNING COMMISSION

____
Patricia Korzec, Chairperson

ATTEST:

____
Patty Nevins,
Planning Official

APPROVED AS TO FORM:

____
Steven B. Quintanilla,
Interim City Attorney

Exhibits:
Exhibit A: Conditions of Approval

Exhibit A

CONDITIONS OF APPROVAL

CITY OF MORENO VALLEY
CONDITIONS OF APPROVAL
Conditional Use Permit (PEN21-0086)

EFFECTIVE DATE:
EXPIRATION DATE:

COMMUNITY DEVELOPMENT DEPARTMENT

Planning Division

1. A change or modification to the land use or the approved site plans may require a separate approval. Prior to any change or modification, the property owner shall contact the City of Moreno Valley Community Development Department to determine if a separate approval is required.

2. Any expansion to this use or exterior alterations will require the submittal of a separate application(s) and shall be reviewed and approved under separate permit(s). (MC 9.02.080)

3. The developer, or the developer's successor-in-interest, shall be responsible for maintaining any undeveloped portion of the site in a manner that provides for the control of weeds, erosion and dust. (MC 9.02.030)

4. This approval shall expire three years after the approval date of this project unless used or extended as provided for by the City of Moreno Valley Municipal Code; otherwise it shall become null and void and of no effect whatsoever. Use means the beginning of substantial construction contemplated by this approval within the three-year period, which is thereafter pursued to completion, or the beginning of substantial utilization contemplated by this approval. (MC 9.02.230)

5. In the event the use hereby permitted ceases operation for a period of one (1) year or more, or as defined in the current Municipal Code, this permit may be revoked in accordance with provisions of the Municipal Code. (applicable to CUP's)

6. All landscaped areas shall be maintained in a healthy and thriving condition, free from weeds, trash and debris. (MC 9.02.030)

7. The site shall be developed in accordance with the approved plans on file in the Community Development Department - Planning Division, the Municipal Code regulations, General Plan, and the conditions contained herein. Prior to any use of the project site or business activity being commenced thereon, all Conditions of Approval shall be completed to the satisfaction of the Planning Official. (MC 9.14.020)

8. Any signs indicated on the submitted plans are not included with this approval. Any signs, whether permanent (e.g. wall, monument) or temporary (e.g. banner, flag), require separate application and approval by the Planning Division. No signs are permitted in the public right of way. A Sign Program Amendment will be required to be submitted, reviewed and approved for any signs not allowed with the existing sign program. This includes the "love that chicken" sign included on the elevation plans must be removed unless the modification is reviewed and approved through a sign program amendment and sign application. (MC 9.12)

9. All site plans, grading plans, landscape and irrigation plans, fence/wall plans, lighting plans and street improvement plans shall be coordinated for consistency with this approval.

<u>Special Conditions</u>

10. Drive-up or drive-through speaker system shall not be detectable above daytime ambient noise levels beyond the property line boundaries, and shall not exceed fifty-five (55) dBA at any one time beyond the boundaries of the property line. (MC9.09.080 C.6 and 9.10.140)

11. The shopping center parking lot lighting shall be maintained in good repair and shall comply with the Municipal Code lighting standards.

12. Prior to the start of any construction, temporary security fencing shall be erected. The fencing shall be a minimum of six (6) feet high with locking, gated access and shall remain through the duration of construction. Security shall remain in place until the project is completed or the above conditions no longer exist. (Security fencing is required if there is: construction, unsecured structures, unenclosed storage of materials and/or equipment, and/or the condition of the site constitutes a public hazard).

13. The site has been approved for a Conditional Use Permit for an approximate 2,348 square foot fast food restaurant located in the existing Stoneridge Town Center per the approved plans. A change or modification shall require separate approval. For a Conditional Use Permit, violation may result in revocation of the Conditional Use Permit.

14. One outdoor trash receptacle shall be provided shall be provided for every ten (10) required parking spaces, with a minimum of one receptacle provided to be located front portion of the site for use by patrons. (MC 9.09.080 C 5.)

15. Building elevations shall be updated to include veneer material on the rear elevation and the addition of the required roof material on the trash enclosure complementary

and consistent with the proposed elevations and the shopping center as approved by the Community Development Director.

Prior to Building Permit

16. Prior to issuance of any building permit, all Conditions of Approval shall be printed on the building plans.

17. Prior to the issuance of building permits, proposed covered trash enclosures shall be included in the Planning review of the Building Plan review. The trash enclosure(s), including the roof materials, shall be compatible with the architecture, color and materials of the building(s) design. Trash enclosure areas shall include landscaping on three sides. (Fence and Wall or building design plans). (GP Objective 43.6, DG)

18. Prior to issuance of any building permits, final landscaping and irrigation plans shall be submitted for review and approved by the Planning Division. After the third plan check review for landscape plans, an additional plan check fee shall apply. The plans shall be prepared in accordance with the City's Landscape Requirements and be consistent with the existing landscaping in the Stoneridge Shopping Center.

19. Prior to building final, the developer/owner or developer's/owner's successor-in-interest shall pay all applicable impact fees, including but not limited to Transportation Uniform Mitigation fees (TUMF), and the City's adopted Development Impact Fees. (Ord)

20. Included in the Building plan check, a detailed, on-site, computer generated, point-by-point comparison lighting plan, including exterior building, parking lot, and landscaping lighting, shall be submitted for Planning review and approval prior to the issuance of a building permit. The lighting plan shall be generated on the plot plan and shall be integrated with the final landscape plan. The plan shall indicate the manufacturer's specifications for light fixtures used, shall include style, illumination, location, height and method of shielding per the City's Municipal Code requirements. After the third plan check review for lighting plans, an additional plan check fee will apply. (MC 9.08.100, 9.16.280)

21. If damaged during construction, existing drive ways shall be repurposed with decorative hardscape (e.g. colored concrete, stamped concrete, pavers or as approved by the Planning Official) consistent and compatible with the existing design, color and materials of the shopping center.

22. Prior to issuance of grading permits, any proposed fences or walls plans shall be submitted to the Planning Division for review and approval.

23. Prior to issuance of building permits, the Planning Division shall review and approve the location and method of enclosure or screening of transformer cabinets, commercial gas meters and back flow preventers as shown on the final working drawings. Location and screening shall comply with the following criteria: transformer cabinets and commercial gas meters shall not be located within required setbacks and shall be screened from public view either by architectural treatment or landscaping; multiple electrical meters shall be fully enclosed and incorporated into the overall architectural design of the building(s); back-flow preventers shall be screened by landscaping. (GP Objective 43.30)

24. Prior to issuance of building permits, screening details shall be addressed on the building plans for roof top equipment submitted for Planning Division review and approval through the building plan check process. All equipment shall be completely screened so as not to be visible from public view, and the screening shall be an integral part of the building.

Prior to Building Final or Occupancy

25. Prior to building final, all required landscaping and irrigation shall be installed per plan, certified by the Landscape Architect and inspected by the Planning Division. (MC 9.03.040, MC 9.17).

26. Prior to building final, all required and proposed fences and walls shall be constructed according to the approved plans on file in the Planning Division. (MC 9.080.070).

Building Division

27. The proposed non-residential project shall comply with the latest Federal Law, Americans with Disabilities Act, and State Law, California Code of Regulations, Title 24, Chapter 11B for accessibility standards for the disabled including access to the site, exits, bathrooms, work spaces, etc.

28. Prior to submittal, all new development, including residential second units, are required to obtain a valid property address prior to permit application. Addresses can be obtained by contacting the Building Safety Division at 951.413.3350.

29. Contact the Building Safety Division for permit application submittal requirements.

30. Any construction within the city shall only be as follows: Monday through Friday seven a.m. to seven p.m(except for holidays which occur on weekdays), eight a.m. to four p.m.; weekends and holidays (as observed by the city and described in the Moreno Valley Municipal Code Chapter 2.55), unless written approval is first

obtained from the Building Official or City Engineer.

31. Building plans submitted shall be signed and sealed by a California licensed design professional as required by the State Business and Professions Code.

32. The proposed development shall be subject to the payment of required development fees as required by the City's current Fee Ordinance at the time a building application is submitted or prior to the issuance of permits as determined by the City.

33. The proposed project will be subject to approval by the Eastern Municipal Water District and all applicable fees and charges shall be paid prior to permit issuance. Contact the water district at 951.928.3777 for specific details.

34. All new structures shall be designed in conformance to the latest design standards adopted by the State of California in the California Building Code, (CBC) Part 2, Title 24, California Code of Regulations including requirements for allowable area, occupancy separations, fire suppression systems, accessibility, etc.

35. The proposed project's occupancy shall be classified by the Building Official and must comply with exiting, occupancy separation(s) and minimum plumbing fixture requirements. Minimum plumbing fixtures shall be provided per the California Plumbing Code, Table 422.1. The occupant load and occupancy classification shall be determined in accordance with the California Building Code.

36. Prior to permit issuance, every applicant shall submit a properly completed Waste Management Plan (WMP), as a portion of the building or demolition permit process. (MC 8.80.030)

FIRE DEPARTMENT

Fire Prevention Bureau

37. Prior to issuance of Building Permits, the applicant/developer shall provide the Fire Prevention Bureau with an approved site plan for Fire Lanes and signage. (CFC 501.3)

38. Prior to issuance of building permits, plans specifying the required structural materials for building construction in high fire hazard severity zones shall be submitted to the Fire Prevention Bureau for approval. (CFC, 4905)

39. Prior to issuance of Certificate of Occupancy or Building Final, all commercial buildings shall display street numbers in a prominent location on the street side and rear access locations. The numerals shall be a minimum of twelve inches in height.

(CFC 505.1, MVMC 8.36.060[I])

40. Final fire and life safety conditions will be addressed when the Fire Prevention Bureau reviews building plans. These conditions will be based on occupancy, use, California Building Code (CBC), California Fire Code (CFC), and related codes, which are in effect at the time of building plan submittal.

41. The Fire Code Official is authorized to enforce the fire safety during construction requirements of Chapter 33. (CFC Chapter 33 & CBC Chapter 33)

42. Fire lanes and fire apparatus access roads shall have an unobstructed width of not less than twenty–four (24) feet and an unobstructed vertical clearance of not less the thirteen (13) feet six (6) inches. (CFC 503.2.1 and MVMC 8.36.060[E])

43. Prior to issuance of a Certificate of Occupancy or Building Final, a "Knox Box Rapid Entry System" shall be provided. The Knox-Box shall be installed in an accessible location approved by the Fire Code Official. All exterior security emergency access gates shall be electronically operated and be provided with Knox key switches for access by emergency personnel. (CFC 506.1)

44. The Fire Prevention Bureau is required to set a minimum fire flow for the remodel or construction of all commercial buildings per CFC Appendix B and Table B105.1. The applicant/developer shall provide documentation to show there exists a water system capable of delivering said waterflow for 2 hour(s) duration at 20-PSI residual operating pressure. The required fire flow may be adjusted during the approval process to reflect changes in design, construction type, or automatic fire protection measures as approved by the Fire Prevention Bureau. Specific requirements for the project will be determined at time of submittal. (CFC 507.3, Appendix B)

45. Prior to construction, all traffic calming designs/devices must be approved by the Fire Marshal and City Engineer.

PUBLIC WORKS DEPARTMENT

Land Development

46. The developer shall comply with all applicable City ordinances and resolutions including the City's Municipal Code (MC) and if subdividing land, the Government Code (GC) of the State of California, specifically Sections 66410 through 66499.58, said sections also referred to as the Subdivision Map Act (SMA). [MC 9.14.010]

47. The final approved conditions of approval (COAs) issued and any applicable Mitigation Measures by the Planning Division shall be photographically or electronically placed on mylar sheets and included in the Grading and Street

Improvement plans.

48. The developer shall monitor, supervise and control all construction related activities, so as to prevent these activities from causing a public nuisance, including but not limited to, insuring strict adherence to the following:
(a) Removal of dirt, debris, or other construction material deposited on any public street no later than the end of each working day.
(b) Observance of working hours as stipulated on permits issued by the Land Development Division.
(c) The construction site shall accommodate the parking of all motor vehicles used by persons working at or providing deliveries to the site.
(d) All dust control measures per South Coast Air Quality Management District (SCAQMD) requirements during the grading operations.
Violation of any condition, restriction or prohibition set forth in these conditions shall subject the owner, applicant, developer or contractor(s) to remedy as noted in City Municipal Code 8.14.090. In addition, the City Engineer or Building Official may suspend all construction related activities for violation of any condition, restriction or prohibition set forth in these conditions until such time as it has been determined that all operations and activities are in conformance with these conditions.

49. The developer shall protect downstream properties from damage caused by alteration of drainage patterns (i.e. concentration or diversion of flow, etc). Protection shall be provided by constructing adequate drainage facilities, including, but not limited to, modifying existing facilities or by securing a drainage easement. [MC 9.14.110]

50. This project shall submit civil engineering design plans, reports and/or documents (prepared by a registered/licensed civil engineer) for review and approval by the City Engineer per the current submittal requirements, prior to the indicated threshold or as required by the City Engineer. The submittal consists of, but is not limited to, the following:

    a. Precise grading w/ erosion control plan (prior to grading permit issuance);
    b. As-Built revision for all plans (prior to occupancy release);

<u>Prior to Grading Plan Approval</u>

51. Resolution of all drainage issues shall be as approved by the City Engineer.

52. The developer shall ensure compliance with the City Grading ordinance, these Conditions of Approval and the following criteria:
    a. The project street and lot grading shall be designed in a manner that perpetuates the existing natural drainage patterns with respect to tributary drainage area and outlet points. Unless otherwise approved by the City Engineer, lot lines

shall be located at the top of slopes.

b. Any grading that creates cut or fill slopes adjacent to the street shall provide erosion control, sight distance control, and slope easements as approved by the City Engineer.

c. All improvement plans are substantially complete and appropriate clearance letters are provided to the City.

d. A soils/geotechnical report (addressing the soil's stability and geological conditions of the site) shall be submitted to the Land Development Division for review. A digital (pdf) copy of the soils/geotechnical report shall be submitted to the Land Development Division.

53. Grading plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

54. The developer shall pay all remaining plan check fees.

55. Any proposed trash enclosure shall include a solid cover (roof) and sufficient size for dual bin (one for trash and one for recyclables). The architecture shall be approved by the Planning Division and any structural approvals shall be made by the Building & Safety Division.

Prior to Grading Permit

56. A digital (pdf) copy of all approved grading plans shall be submitted to the Land Development Division.

57. Security, in the form of a cash deposit (preferable), bond or letter of credit shall be submitted as a guarantee of the implementation and maintenance of erosion control measures. At least twenty-five (25) percent of the required security shall be in the form of a cash deposit with the City. [MC 8.21.160(H)]

58. Security, in the form of a cash deposit (preferable), bond or letter of credit shall be submitted as a guarantee of the completion of the grading operations for the project. [MC 8.21.070]

59. The developer shall pay all applicable inspection fees.

Prior to Building Permit

60. An engineered-fill certification, rough grade certification and compaction report shall be submitted for review and approved by the City Engineer. A digital (pdf) copy of the approved compaction report shall be submitted to the Land Development Division. All pads shall meet pad elevations per approved grading plans as noted

by the setting of "blue-top" markers installed by a registered land surveyor or licensed civil engineer.

61. For Commercial/Industrial projects, the owner may have to secure coverage under the State's General Industrial Activities Storm Water Permit as issued by the State Water Resources Control Board.

Prior to Occupancy

62. All outstanding fees shall be paid.

63. All required as-built plans (prepared by a registered/licensed civil engineer) shall be submitted for review and approved by the City Engineer per the current submittal requirements.

64. The final/precise grade certification shall be submitted for review and approved by the City Engineer.

65. For commercial, industrial and multi-family projects, in compliance with Proposition 218, the developer shall agree to approve the City of Moreno Valley NPDES Regulatory Rate Schedule that is in place at the time of certificate of occupancy issuance. Under the current permit for storm water activities required as part of the National Pollutant Discharge Elimination System (NPDES) as mandated by the Federal Clean Water Act, this project is subject to the following requirements:

a. Select one of the following options to meet the financial responsibility to provide storm water utilities services for the required continuous operation, maintenance, monitoring system evaluations and enhancements, remediation and/or replacement, all in accordance with Resolution No. 2002-46.

i. Participate in the mail ballot proceeding in compliance with Proposition 218, for the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule and pay all associated costs with the ballot process; or

ii. Establish an endowment to cover future City costs as specified in the Common Interest, Commercial, Industrial and Quasi-Public Use NPDES Regulatory Rate Schedule.

b. Notify the Special Districts Division of the intent to request building permits 90 days prior to their issuance and the financial option selected. The financial option selected shall be in place prior to the issuance of certificate of occupancy. [California Government Code & Municipal Code]

Special Districts Division

66. This project is conditioned for a proposed district to provide a funding source for the

operation and maintenance of public improvements and/or services associated with new development in that territory. The Developer shall satisfy this condition with one of the options outlined below.

a. Participate in a special election for maintenance/services and pay all associated costs of the election process and formation, if any. Financing may be structured through a Community Facilities District, Landscape and Lighting Maintenance District, or other financing structure as determined by the City; or

b. Establish an endowment fund to cover the future maintenance and/or service costs.

The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance. If the first building permit is pulled prior to formation of the district, this condition will not apply. If the district has been or is in the process of being formed the Developer must inform the Special Districts Division of its selected financing option (a. or b. above). The option for participating in a special election requires 90 days to complete the special election process. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution.

The financial option selected shall be in place prior to the issuance of the first certificate of occupancy for the project.

67. Commercial (BP) If Land Development, a Division of the Public Works Department, requires this project to supply a funding source necessary to provide for, but not limited to, stormwater utilities services for the continuous operation, remediation and/or replacement, monitoring, systems evaluations and enhancement of on-site facilities and performing annual inspections of the affected areas to ensure compliance with state mandated stormwater regulations, a funding source needs to be established. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org of its selected financial option for the National Pollution Discharge Elimination System (NPDES) program when submitting the application for the first building permit issuance (see Land Development's related condition). Participating in a special election the process requires a 90 day period prior to the City's issuance of a building permit. This allows adequate time to be in compliance with the provisions of Article 13D of the California Constitution. (California Health and Safety Code Sections 5473 through 5473.8 (Ord. 708 Section 3.1, 2006) & City of Moreno Valley Municipal Code Title 3, Section 3.50.050.)

68. This project has been identified to be included in the formation of a Community Facilities District (Mello-Roos) for Public Safety services, including but not limited to Police, Fire Protection, Paramedic Services, Park Rangers, and Animal Control

services. The property owner(s) shall not protest the formation; however, they retain the right to object to the rate and method of maximum special tax. In compliance with Proposition 218, the property owner shall agree to approve the mail ballot proceeding (special election) for either formation of the CFD or annexation into an existing district. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting the application for building permit issuance to determine the requirement for participation. If the first building permit is pulled prior to formation of the district, this condition will not apply. If the condition applies, the special election will require a minimum of 90 days prior to issuance of the first building permit. This allows adequate time to be in compliance with the provisions of Article 13C of the California Constitution. (California Government Code Section 53313 et. seq.)

69. The ongoing maintenance of any landscaping required to be installed behind the curb shall be the responsibility of the property owner.

70. MAJOR INFRASTRUCTURE FINANCING DISTRICT. This project has been identified to potentially be included in the formation of a special financing district for the construction and maintenance of major infrastructure improvements which may include but are not limited to thoroughfares, bridges, and certain flood control improvements. The property owner(s) shall participate in such district and pay any special tax, assessment, or fee levied upon the project property for such district. At the time of the public hearing to consider formation of or annexation into the district, the qualified elector(s) will not protest the formation or annexation, but will retain the right to object to any eventual tax/assessment/fee that is not equitable should the financial burden of the tax/assessment/fee not be reasonably proportionate to the benefit the affected property obtains from the improvements to be installed and/or maintained. The Developer must notify the Special Districts Division at 951.413.3480 or at specialdistricts@moval.org when submitting an application for the first building permit to determine whether the development will be subjected to this condition. If subject to the condition, the special election requires a minimum 90-day process in compliance with the provisions of Article 13C of the California Constitution.

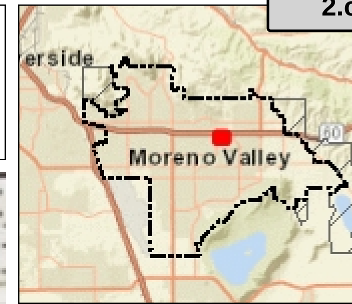
71. PARKS MAINTENANCE FUNDING. Prior to applying for the 1st Building Permit, the qualified elector (e.g. property owner) must initiate the process (i.e. pay the annexation fee or fund an endowment) to provide an ongoing funding source for the continued maintenance, enhancement, and or retrofit of parks, open spaces, linear parks, and/or trails systems, and programs.

This condition must be fully satisfied prior to issuance of the 1st Certificate of Occupancy. This condition will be satisfied with the successful annexation/formation (i.e. special election process) into a special financing district and payment of all costs associated with the special election process. Annexation into a special financing district requires an annual payment of the annual special tax, assessment, or fee levied against the property tax bill, or other lawful means, of the parcels of the project for such district. At the time of the public hearing to consider annexation into or formation of the district, the qualified elector(s) will not protest the annexation or formation, but will retain the right to object to any eventual tax/assessment/fee that is not equitable should the financial burden of the tax/assessment/fee not be reasonably proportionate to the benefit the affected property receives from the improvements to be installed and/or maintained or services provided. The special election requires a minimum 90-day process in compliance with the provisions of Article 13C of the California Constitution, Proposition 218, or other applicable legislation, and consistent with the scheduling for City Council meetings.

Alternatively, the condition can be satisfied by the Developer funding an endowment in an amount sufficient to yield an annual revenue stream that meets the annual obligation. The Developer must contact Special Districts Administration at 951.413.3470 or at SDAdmin@moval.org to satisfy this condition.

72. The parcel(s) associated with this project have been incorporated into the Moreno Valley Community Services District Zone A (Parks & Community Services) and Zone C (Arterial Street Lighting). All assessable parcels therein shall be subject to annual parcel taxes for Zone A and Zone C for operations and capital improvements.

Your Title



Legend

Master Plan of Trails

- Bridge
- Improved
- Multiuse
- Proposed
- Regional
- State

Road Labels

- Parcels
- City Boundary
- Sphere of Influence

Image Source: Nearmap

Notes:

631.0 0 315.48 631.0 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

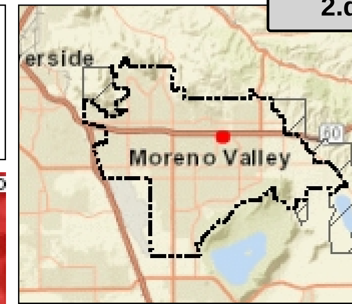
Print Date: 6/11/2021

DISCLAIMER: The information shown on this map was compiled from the City of Moreno Valley GIS and Riverside County GIS. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Riverside County and City of Moreno Valley will not be held responsible for any claims, losses or damages resulting from the use of this map.

Attachment: Location Map (4464 : PEN21-0086 Conditional Use Permit)

MORENO VALLEY
WHERE DREAMS SOAR

PEN21-0086 Community Commercial Zoning



Legend

Zoning
- Commercial
- Industrial/Business Park
- Public Facilities
- Office
- Planned Development
- Large Lot Residential
- Residential Agriculture 2 DU/AC
- Residential 2 DU/AC
- Suburban Residential
- Multi-family
- Open Space/Park

Master Plan of Trails
- Bridge
- Improved
- Multiuse
- Proposed
- Regional
- State

Road Labels

Parcels

City Boundary

Sphere of Influence

Image Source: Nearmap

Notes:

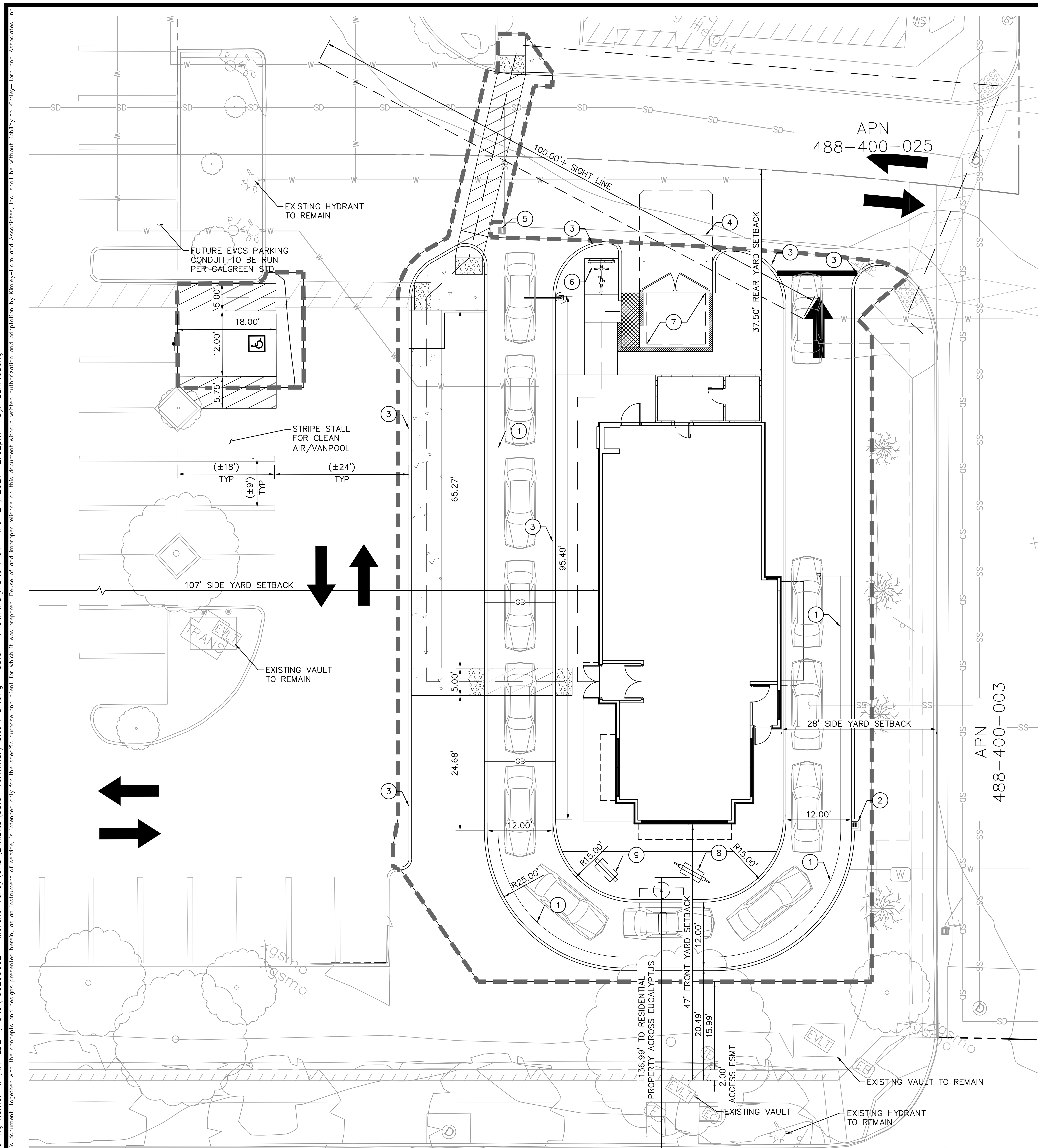
315.5 0 157.74 315.5 Feet

WGS_1984_Web_Mercator_Auxiliary_Sphere

Print Date: 6/10/2021

DISCLAIMER: The information shown on this map was compiled from the City of Moreno Valley GIS and Riverside County GIS. The land base and facility information on this map is for display purposes only and should not be relied upon without independent verification as to its accuracy. Riverside County and City of Moreno Valley will not be held responsible for any claims, losses or damages resulting from the use of this map.

Attachment: CC Zoning (4464 : PEN21-0086 Conditional Use Permit)



LEGEND

- CENTER LINE
- PROPERTY LINE
- RIGHT-OF-WAY LINE
- EASEMENT LINE
- GRADING LIMIT OF WORK LINE
- R — PROPOSED RIDGE LINE
- GB — PROPOSED GRADE BREAK LINE
- 925.00 TC / 924.50 FS — PROPOSED SPOT ELEVATION
- (925.00 TC) / (924.50 FS) — EXISTING SPOT ELEVATION
- PROPOSED FLOW LINE
- ADA PATH OF TRAVEL

SITE DATA

DEVELOPER/APPLICANT	INSITE DEVELOPMENT SERVICES, LLC 1400 SIXTEENTH STREET, SUITE #300 OAK BROOK, ILLINOIS 60523 630-617-9100
PLAN PREPARED BY	KIMLEY-HORN AND ASSOCIATES 3880 LEMON STREET, SUITE 420 RIVERSIDE, CA 92501 951-543-9868
SITE ADDRESS	27140 EUCALYPTUS AVE MORENO VALLEY, CA
ZONING DISTRICT	CC COMMUNITY COMMERCIAL DISTRICT
ASSESSOR'S PARCEL NUMBER	488-400-008 AND 488-400-027
LOT AREA	±28,313 SF (± 0.65 ACRES)
PERMITTED USES	RESTAURANTS (FAST-FOOD), WITH DRIVE-THROUGH (CONDITIONAL USE PERMIT FOR 300' OR LESS FROM RESIDENTIAL ZONE OR USE)
FEMA FLOOD ZONE DESIGNATIONS	ZONE X
EXISTING USE	VACANT LOT
PROPOSED USE	FAST FOOD RESTAURANT WITH DRIVE THROUGH FACILITY
BUILDING AREA	2,348 SF
TOTAL PARKING/PAVED AREA	15,600 SF
LANDSCAPE AREA	2,740 SF
OPEN SPACE AREA	0 SF
DRIVE-THRU STACKING	12 VEHICLES

LEGAL DESCRIPTION:

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

PARCEL A:

PROPOSED PARCEL 4 AS SHOWN ON THE LOT LINE ADJUSTMENT NO. 911/AND CERTIFICATE OF COMPLIANCE, AS EVIDENCED BY DOCUMENT RECORDED NOVEMBER 27, 2007 AS INSTRUMENT NO. 2007-0713736 OF OFFICIAL RECORDS, PARTICULARLY DESCRIBED AS FOLLOWS:

PARCEL 13 OF PARCEL MAP NO 34411, IN THE CITY OF MORENO VALLEY, COUNTY OF RIVERSIDE, STATE OF CALIFORNIA, AS PER PLAT RECORDED IN BOOK 217 OF PARCEL MAPS, PAGES 67 THROUGH 72, INCLUSIVE, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY.

TOGETHER WITH THAT PORTION OF PARCEL 15 OF SAID PARCEL MAP 34411 LYING NORTHEASTERLY OF THE NORTHWESTERLY PROLONGATION OF THE NORTHEASTERLY LINE OF SAID PARCEL 15, SHOWN ON SAID MAP AS HAVING A BEARING AND DISTANCE OF NORTH 33° 09' 42" WEST, 86.53 FEET.

EXCEPT AN UNDIVIDED ¼ INTEREST IN AND TO ALL OIL, MINERAL, GAS AND OTHER HYDROCARBON SUBSTANCES IN AND UNDER SAID LAND BELOW A DEPTH OF 500 FEET, BUT WITHOUT THE RIGHT TO ENTER UPON THE SURFACE OR WITHIN 500 FEET BELOW THE SURFACE OF SAID LAND, AS RESERVED BY WELLS FARGO BANK, N.A., FORMERLY BANK OF AMERICA, NT & SA, TRUSTEE UNDER THE ANTOINETTE J. WILSON TRUST AGREEMENT OF 1986 AND AS TRUSTEE UNDER THE ARLENE KATHERINE GONZALES TRUST AGREEMENT OF 1986, RECORDED OCTOBER 7, 1987 AS INSTRUMENT NO. 290570, OFFICIAL RECORDS.

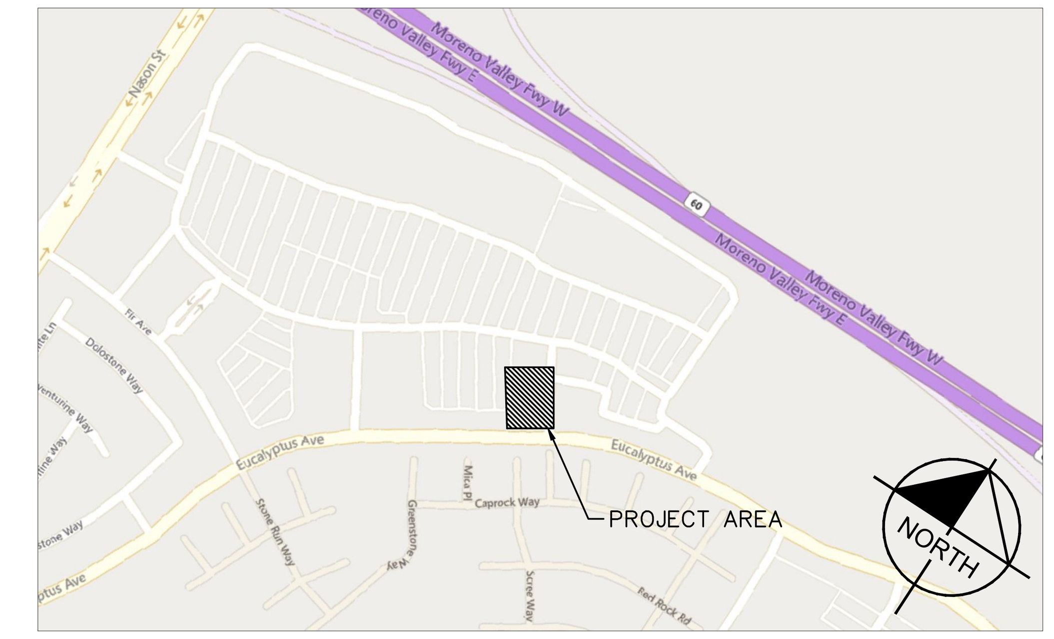
ALSO EXCEPT AN UNDIVIDED ¼ INTEREST IN AND TO ALL OIL, MINERAL, GAS AND OTHER HYDROCARBON SUBSTANCES IN AND UNDER SAID LAND BELOW A DEPTH OF 500 FEET, BUT WITHOUT THE RIGHT TO ENTER UPON THE SURFACE OR WITHIN 500 FEET BELOW THE SURFACE OF SAID LAND, AS RESERVED BY SAM PERRICONE, TRUSTEE, RECORDED OCTOBER 7, 1987 AS INSTRUMENT NO 290571, OFFICIAL RECORDS.

ALSO EXCEPT AN UNDIVIDED ¼ INTEREST IN AND TO ALL OIL, MINERAL, GAS AND OTHER HYDROCARBON SUBSTANCES IN AND UNDER SAID LAND BELOW A DEPTH OF 500 FEET, BUT WITHOUT THE RIGHT TO ENTER UPON THE SURFACE OR WITHIN 500 FEET BELOW THE SURFACE OF SAID LAND, AS RESERVED BY WELLS FARGO BANK, N.A., FORMERLY BANK OF AMERICA, NT & SA, TRUSTEE UNDER AGREEMENT WITH PERINA PISTONETTI DIBETTA, DATED AUGUST 7, 1974, RECORDED OCTOBER 7, 1987 AS INSTRUMENT NO. 209573, OFFICIAL RECORDS.

PARCEL B:

VARIOUS NON-EXCLUSIVE EASEMENTS AS DEFINED IN ARTICLE II OF THAT CERTAIN OPERATION AND BASEMENT AGREEMENT DATED JUNE 27, 2006, RECORDED JUNE 27, 2006 AS INSTRUMENT NO. 465183 OFFICIAL RECORDS, BUT ONLY TO THE EXTENT THAT SUCH EASEMENTS ARE APPURTENANT TO AND BENEFIT PARCEL A ABOVE, AS SUCH MAY BE MODIFIED OR AFFECTED BY THAT CERTAIN DECLARATION AND GRANT OF EASEMENTS DATED MARCH 16, 2018, RECORDED MARCH 16, 2018, AS INSTRUMENT NO 20180101138, OFFICIAL RECORDS AND BY THAT CERTAIN DECLARATION OF RESTRICTIVE COVENANTS DATED MARCH 16, 2018 RECORDED MARCH 16, 2018, AS INSTRUMENT NO. 20180101139, OFFICIAL RECORDS.

VICINITY MAP



NOT TO SCALE

CONSTRUCTION NOTES

1. CONCRETE CURB AND GUTTER.
2. PROPOSED STORM DRAIN INLET
3. CONCRETE CURB
4. EXISTING VALLEY GUTTER
5. EXISTING STORM DRAIN INLET
6. PROPOSED BIKE RACK
7. PROPOSED TRASH ENCLOSURE
8. PROPOSED MENUBOARD WITH SPEAKER
9. PROPOSED PREVIEW BOARD

PROJECT SPECIFIC INFO

	CODE	PLAN
F.A.R.	1.00	0.08
BLDG SETBACK		
FRONT YARD	10'	47'
CORNER SIDE YARD	10'	28'
INTERIOR SIDE YARD	3'	107'
REAR YARD	3'	37'
PARKING SETBACK		
FRONT YARD	20'	20'
CORNER YARD	15'	15'
INTERIOR SIDE YARD	10'	51'
REAR YARD	N/A	15'
PARKING REQUIREMENTS		
PARKING STALL COUNT	10	10+ (SHARED)
ADA STALL	1	1
PARKING STALL SIZE	9'X18'	9'X18'
DRIVE AISLE WIDTH	24'	24'
DRIVE-THRU STACKING	8'	12'

NORTH

GRAPHIC SCALE IN FEET
0 5 10 20

SCALE
1" = 20'
WHEN PRINTED AT FULL SIZE (24"X36")

DIGALERT
DIAL BEFORE YOU DIG
TWO WORKING DAYS BEFORE YOU DIG
TOLL FREE 1-800-227-2600
A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT

ISSUE	DATE	DESCRIPTION
	03/24/21	CITY SUBMITTAL

TB
DRAWN BY
SA
CHECKED BY
TH
RECOMMENDED

ENGINEERS SEAL
REGISTERED PROFESSIONAL ENGINEER SHEA-MONIQUE ANTI RCE NO. 78274 CIVIL STATE OF CALIFORNIA

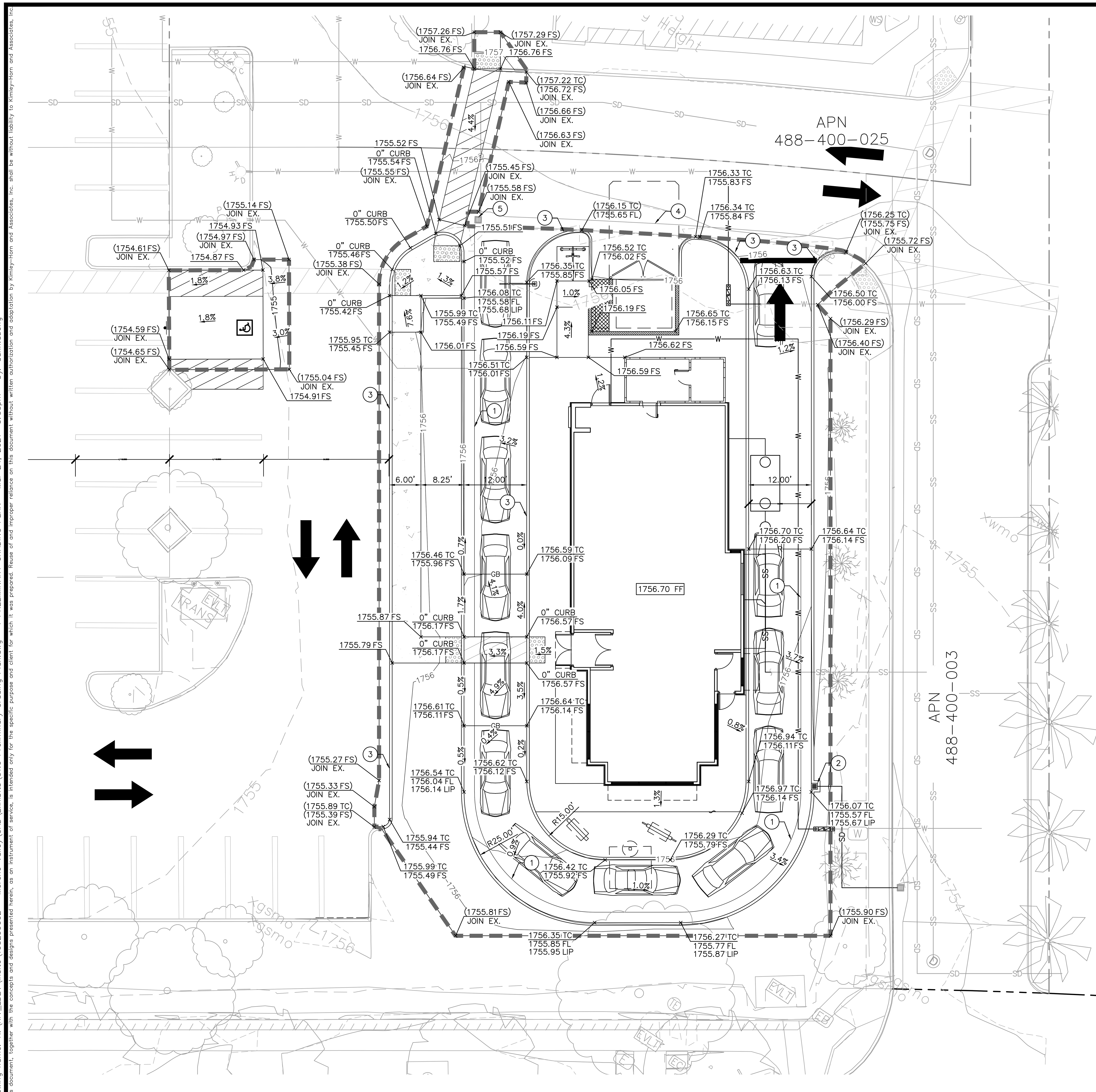
Kimley»Horn
3880 LEMON ST SUITE 420
RIVERSIDE, CA 92501 (951) 543-9868
PREPARED UNDER THE DIRECT SUPERVISION OF:
DATE:
SHEA ANTI, R.C.E. NO. XXXXX EXP. 12/31/22

CITY OF MORENO VALLEY
APPROVED BY:
MORENO VALLEY CITY ENGINEER DATE
REVIEWED AND RECOMMENDED BY: DATE

27140 EUCALYPTUS AVE
MORENO VALLEY,CA
92555

CITY OF MORENO VALLEY
PRELIMINARY SITE PLAN

SHEET 3 OF 4 SHEETS
CITY PROJECT NO.
PEN 21-0019



LEGEND

- CENTER LINE
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- 925.00 TC / 924.50 FS — PROPOSED SPOT ELEVATION
- (925.00 TC) / (924.50 FS) — EXISTING SPOT ELEVATION
- PROPOSED FLOW LINE

GRADING AND DRAINAGE NOTES

1. CONCRETE CURB AND GUTTER.
2. PROPOSED STORM DRAIN INLET
3. CONCRETE CURB
4. EXISTING VALLEY GUTTER
5. EXISTING STORM DRAIN INLET

ESTIMATED EARTHWORK QUANTITIES

CUT:	8 CY
FILL:	251 CY
NET:	243 CY (FILL)

NOTE: THE ABOVE QUANTITIES ARE APPROXIMATE IN PLACE VOLUMES CALCULATED FROM THE EXISTING GROUND TO THE PROPOSED FINISHED GRADE. EXISTING GROUND IS DEFINED BY THE CONTOURS AND SPOT GRADES ON THE BASE SURVEY. PROPOSED FINISHED GRADE IS DEFINED AS THE FINAL GRADE AS INDICATED ON THE GRADING PLAN(S).

THE EARTHWORK QUANTITIES ABOVE ARE FOR PERMIT PURPOSES ONLY. THEY HAVE NOT BEEN FACTORED TO ACCOUNT FOR CHANGES IN VOLUME DUE TO BULKING, CLEARING AND GRUBBING, SHRINKAGE, OVER- EXCAVATION AND RE-COMPACTION, AND CONSTRUCTION METHODS. NOR DO THEY ACCOUNT FOR THE THICKNESS OF PAVEMENT SECTIONS, FOOTINGS, SLABS, REUSE OF PULVERIZED MATERIALS THAT WILL UNDERLIE NEW PAVEMENTS, ETC. THE CONTRACTOR SHALL RELY ON THEIR OWN EARTHWORK ESTIMATES FOR BIDDING PURPOSES.

NORTH

GRAPHIC SCALE IN FEET
0 5 10 20

SCALE
1" = 20'
WHEN PRINTED AT FULL SIZE (24"X36")

ISSUE	DATE	DESCRIPTION
	03/24/21	CITY SUBMITTAL

TB
DRAWN BY
SA
CHECKED BY
TH
RECOMMENDED

ENGINEERS SEAL
REGISTERED PROFESSIONAL ENGINEER
SHEA-MICHAEL ANTI
RCE NO. 78274
CIVIL
STATE OF CALIFORNIA

Kimley»Horn
3880 LEMON ST SUITE 420
RIVERSIDE, CA 92501 (951) 543-9868
PREPARED UNDER THE DIRECT SUPERVISION OF:
DATE:
SHEA ANTI, R.C.E. NO. XXXXX EXP. 12/31/22

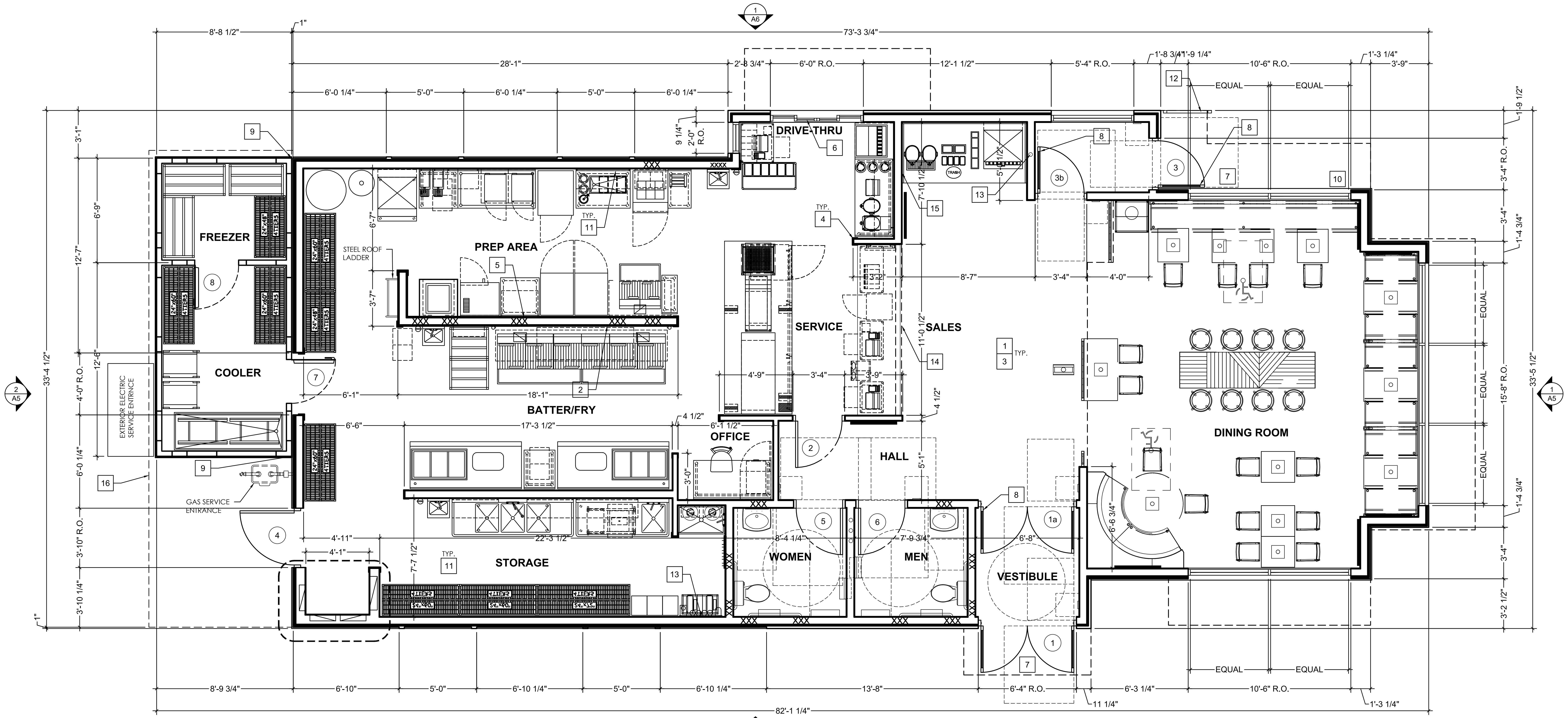
CITY OF MORENO VALLEY
APPROVED BY:
MORENO VALLEY CITY ENGINEER DATE
REVIEWED AND RECOMMENDED BY: DATE

27140 EUCALYPTUS AVE
MORENO VALLEY,CA
92555

CITY OF MORENO VALLEY

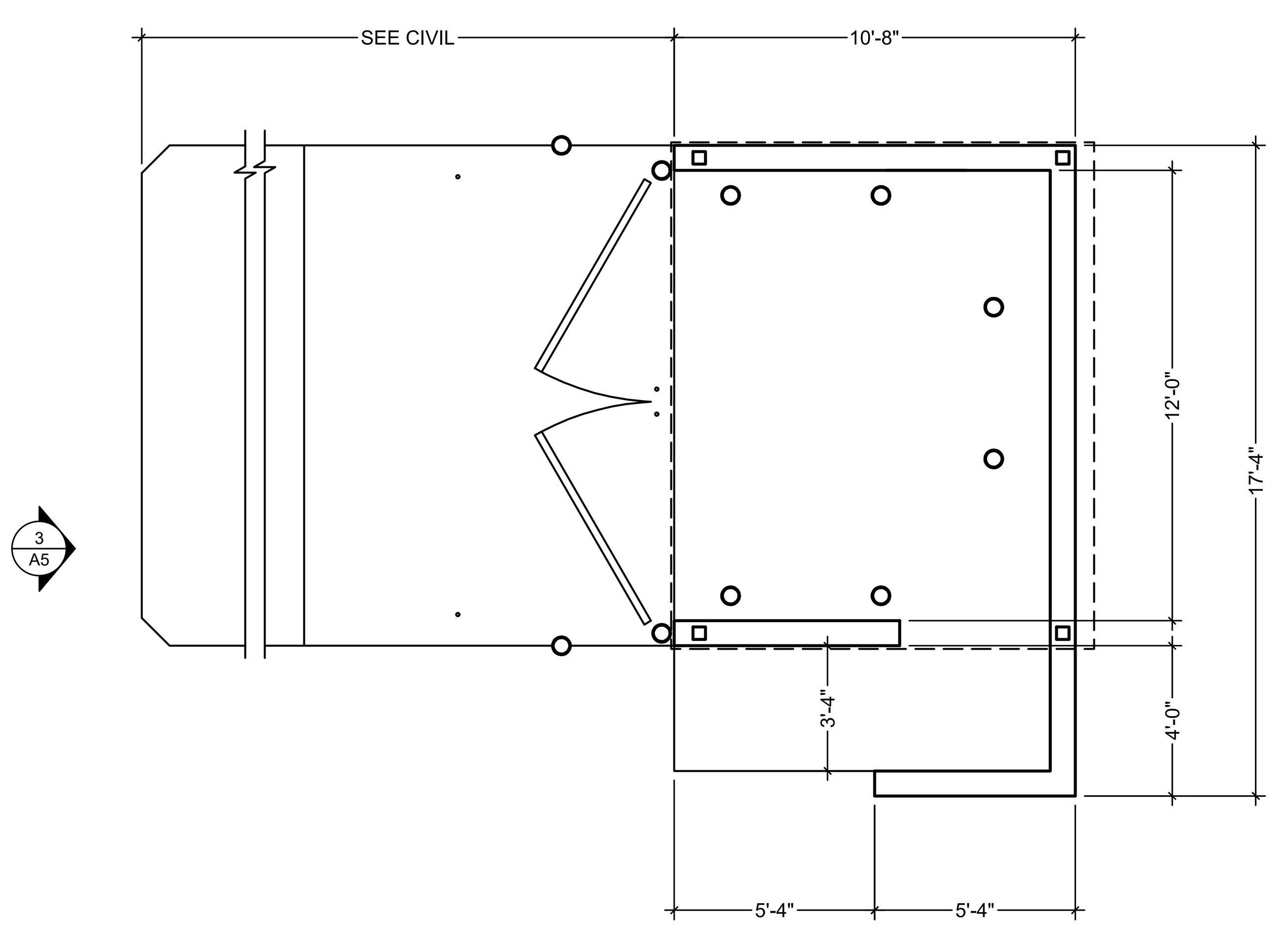
PRELIMINARY GRADING PLAN

SHEET 1 OF 4 SHEETS
CITY PROJECT NO.
PEN 21-0019



1 FLOOR PLAN
SCALE: 1/4" = 1'-0"

BUILDING AREA = 2,350 SQ.FT. GROSS / 2,180 SQ.FT. NET



2 T.E. PLAN
SCALE: 1/4" = 1'-0"

OCCUPANT LOAD CALCULATION

CALIFORNIA BUILDING CODE 2019 TABLE 1004.5
MAXIMUM FLOOR AREA ALLOWANCES PER OCCUPANT

FUNCTION OF SPACE	PER S.F.	AREA SQ. FT.	OCCUPANTS
ACCESSORY AREAS, CIRCULATION, RESTROOMS,WALLS, ETC.	0 GROSS	553 S.F.	0 OCCUPANTS
CUSTOMER SERVICE: (WAITING AREA)	(1/5)	74 S.F.	15 OCCUPANTS
DINING FIXED SEATS:	FIXED, PER CBC.1004.4	484 S.F.	42 OCCUPANTS
KITCHEN:	(1/200)	725 S.F.	4 OCCUPANTS
OFFICE:	(1/50)	32 S.F.	1 OCCUPANTS
STORAGE/ SUPPORT	(1/300)	312 S.F.	2 OCCUPANTS
TOTAL:			64 OCCUPANTS

EXIT REQUIREMENTS

CALIFORNIA BUILDING CODE 2019 TABLE SECTION 1006

	REQUIRED	PROVIDED
OCCUPANT LOAD >50	2	3

FRAMING SYMBOLS

- A 2X4 FRAMING @ 16" O.C.
- B 2X6 FRAMING @ 24" O.C.
- C 2X8 FRAMING @ 24" O.C.
- D 2X6 FRAMING @ 16" O.C. W/ 2 LAYERS TYPE X GWB

1 DOOR NUMBER. SEE SHEET A-10 FOR DETAILS

6 / A12 DETAIL NUMBER / SHEET NUMBER
PLAN DETAIL

1 / A3 DETAIL NUMBER / SHEET NUMBER
SECTION DETAIL - ARROW INDICATES DIRECTION OF VIEW

XXX DENOTES BLOCKING AS REQUIRED

CONSTRUCTION KEY NOTES

1. DIMENSIONS ARE SHOWN:
1) EXTERIOR WALLS; FROM INTERIOR FACE OF GYPSUM BOARD TO THE EXTERIOR FACE OF PLYWOOD.
2) INTERIOR WALLS; FROM THE FACE OF FINISH WALL TO THE FACE OF FINISH WALL, U.N.O..
2. INSTALL 3'-0" W X 8'-0" H X 18 GA STAINLESS STEEL PANEL BEHIND OVENS AND FRYERS. S/S SHALL EXTEND 18" BESIDE EQUIPMENT. REFER TO INTERIOR KITCHEN ELEVATIONS AND EQUIPMENT PLAN FOR EXACT LOCATION.
3. ALL GYPSUM WALL BOARD BELOW FINISHED CEILING HEIGHT IS TO BE PREPARED FOR PAINTING OR WALLCOVERING AS INDICATED ON INTERIOR ELEVATIONS AND FINISH SCHEDULE. SEE GEN. CONSTR. NOTES FOR DINING AREA
4. GENERAL CONTRACTOR (G.C.) TO PROVIDE 2"X2" FULL HEIGHT CORNER GUARDS ON ALL OUTSIDE CORNERS @ KITCHEN WALLS.
5. HOOD WALL TO BE CONSTRUCTED WITH 3-5/8" 16 GAUGE (GA.) METAL STUDS AT 24" O.C.. INSTALL 5/8" MOISTURE RESISTANT TYPE X GYPSUM WALL BOARD ON BOTH WALL SIDES FROM FINISHED FLOOR TO 18" AFF, AND 5/8" TYPE X GYPSUM FROM 18" AFF TO BEYOND CEILING.
6. ELECTRIC DRIVE-THRU WINDOW TO BE INSTALLED AT THE LOCATION SHOWN. VERIFY REQUIRED ROUGH-IN AND ELECTRICAL REQUIREMENTS WITH MANUFACTURER BEFORE PROCEEDING.
7. THE ARCHITECT AND ENGINEERS OF RECORD SHALL VERIFY ALL ACCESSIBLE APPROACHES AND ENTRANCES TO VERIFY THAT THEY COMPLY WITH ALL APPLICABLE CODES. G.C. TO ENSURE THAT ALL DIRECTIONS AND DIMENSIONS GIVEN ARE STRICTLY ADHERED TO. IF CHANGES ARE MADE THAT CONTRADICT WITH THE DRAWING, OR IF EXISTING FILED CONDITIONS MAKE THE DRAWINGS NOT APPLICABLE, THE ARCHITECT MUST BE CONTACTED IMMEDIATELY.
8. ALL DOORS SHALL BE ABLE TO BE OPENED FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY, SPECIAL KNOWLEDGE OR EFFORT, AND COMPLY WITH ALL CODES. MANUALLY OPERATED FLUSH BOLTS OR SURFACE BOLTS SHALL NOT BE USED.
9. PROVIDE A STAINLESS STEEL TRIM ENCLOSURE AT WALK-IN ABUTTING THE BUILDING AT THE REAR OPENING OF THE KITCHEN.
10. ALL GLAZING WITHIN A 24" ARC OF DOORS WHOSE BOTTOM IS LESS THAN 60" ABOVE THE FLOOR AND ALL GLAZING IN DOORS SHALL BE SAFETY TEMPERED.
11. PROVIDE 1/2" MOISTURE RESISTANT GYPSUM WALL BOARD ON ALL INTERIOR KITCHEN WALL SURFACES FROM FINISHED FLOOR TO 18" ABOVE FINISHED FLOOR, UNO. PROVIDE 1/2" ORIENTED STRAND BOARD FROM 18" AFF TO BEYOND CEILING ON ALL KITCHEN WALLS.
12. INSTALL GUARDRAIL ACCORDING TO THE MANUFACTURER'S SPECIDICATION, SEE DETAIL 3/A6.
13. SEE P1 SHEET FOR SODA LINE CHASES. VERIFY LOCATIONS WITH BEVERAGE PROVIDER.
14. INSTALL THE HALF WALL FOR THE FRONT COUNTER AFTER THE KITCHEN EQUIPMENT HAS BEEN BROUGHT IN. PROVIDE 1/2" GYPSUM WALL BOARD ON THE SIDE FACING THE DINING. PROVIDE 1/2" ORIENTED STRAND BOARD WITH FRP ON THE SIDE FACING THE KITCHEN.
15. INSTALL POPEYES CAR SIDING ON WALL SURFACE FROM TOP OF COUNTER TO BEYOND CEILING ON ALL WALLS AROUND THE SELF SERVE DRINK STATION. (VERIFY WITH THE HEALTH DEPARTMENT IS THIS SURFACE IS ALLOWED.)
16. PROVIDE MINIMUM 4" CONCRETE SLAB WITH WWF 6X6-W1.4 X W1.4 FOR THE INSTALLATION OF THE EXTERIOR COOLER/FREEZER. PREPARE SUBSTRATE AS SPECIFIED BY THE STRUCTURAL DRAWINGS.

POPEYES LOUISIANA KITCHEN
5505 BLUE LAGOON DRIVE
MIAMI, FL 33126

CLIENT: INSITE REALESTATE, LL
POPEYES FRANCHISEE
1400 16TH ST, SUITE 300
OAK BROOK, IL 60523-8854
PHONE:630-592-3198

designua
PLANNING AND DESIGN
153 E. City Place Dr. | Santa Ana | CA | 92705
Phone 714.892-3900 | robert.preece@dsignua.com

POPEYES
PLK 1846 PROTOTYPE
STUCCO/THIN BRICK
46 SEATS / DUAL-LINE PRODUCTION
27140 EUCALYPTUS AVE. MORENO VALLEY, CA

Attachment: Project Plans (4464 : PEN21-0086 Conditional Use Permit)

LOUISIANA 19 72 KITCHEN

POPEYES LOUISIANA KITCHEN

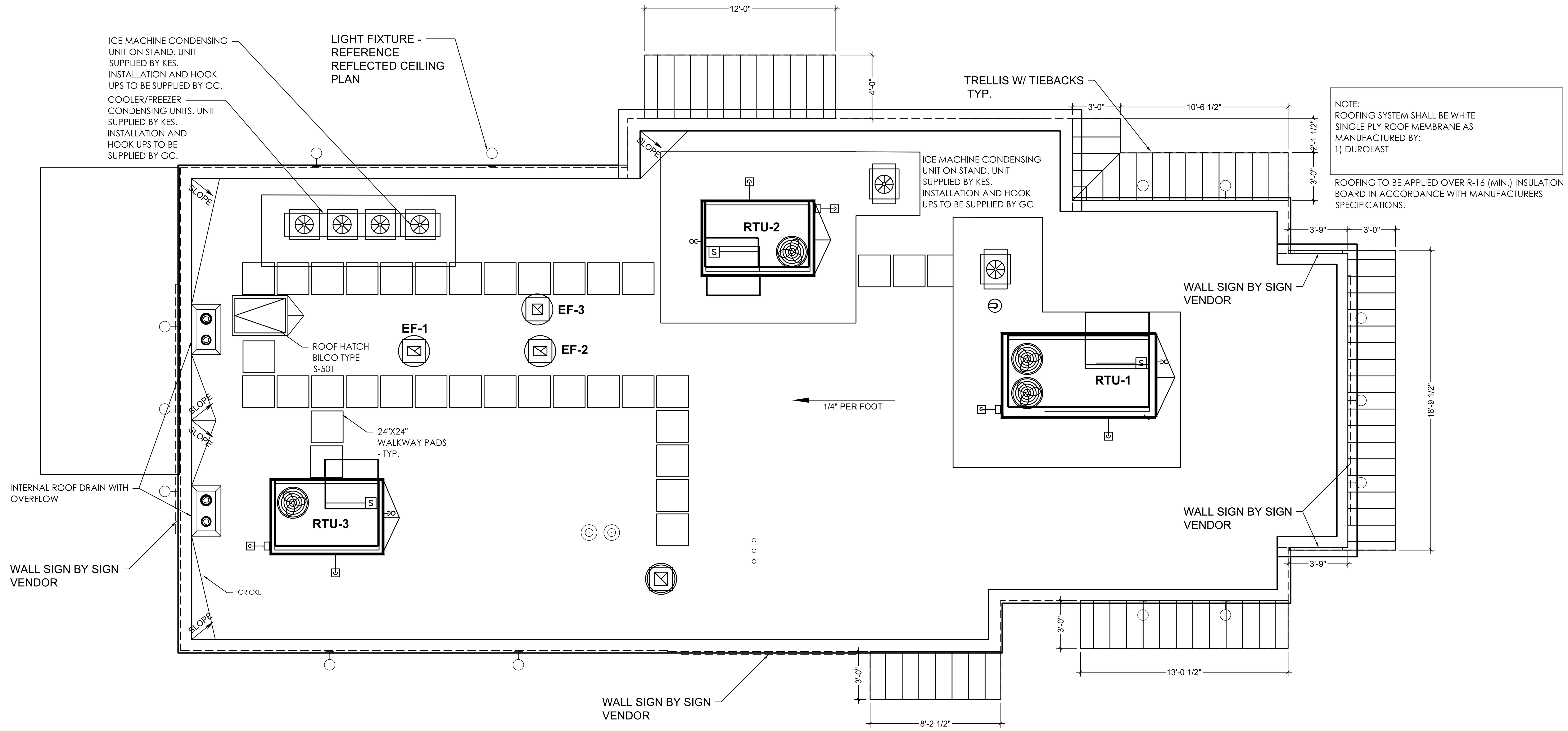
REVISIONS:

NO.	DATE	REVISION

FLOOR PLAN

A1

DATE: 6/10/2021
CHECKED:

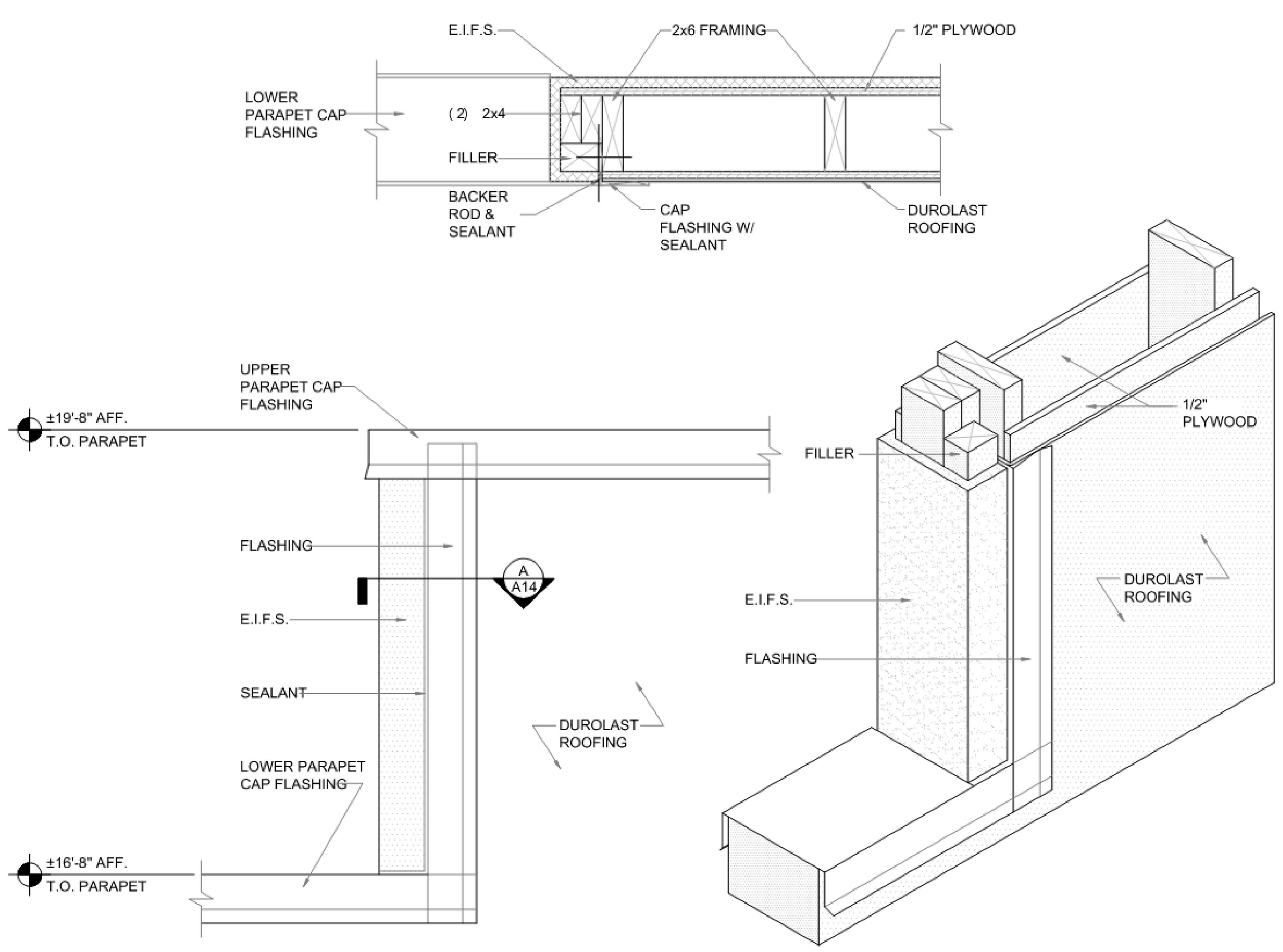


NOTE:
ROOFING SYSTEM SHALL BE WHITE SINGLE PLY ROOF MEMBRANE AS MANUFACTURED BY:
1) DUROLAST

ROOFING TO BE APPLIED OVER R-16 (MIN.) INSULATION BOARD IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.

1 ROOF PLAN

SCALE: 1/4" = 1'-0"



2 TYPICAL FRAMING DETAIL AT END OF PARAPET

SCALE: 1-1/2" = 1'-0"

2.e

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LOUISIANA 19 72 KITCHEN

POPEYES LOUISIANA KITCHEN

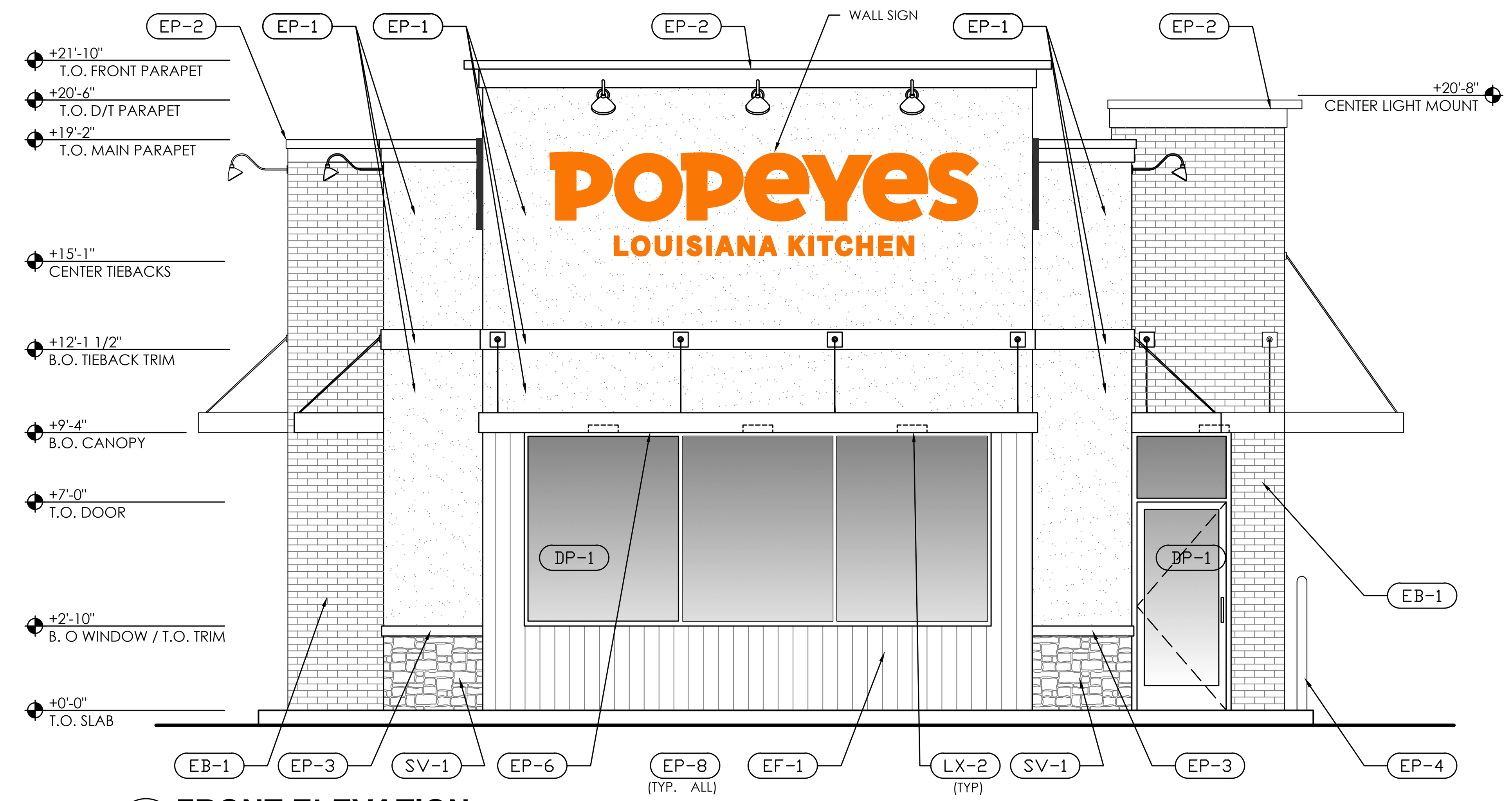
REVISIONS:

NO.	DATE	REVISION

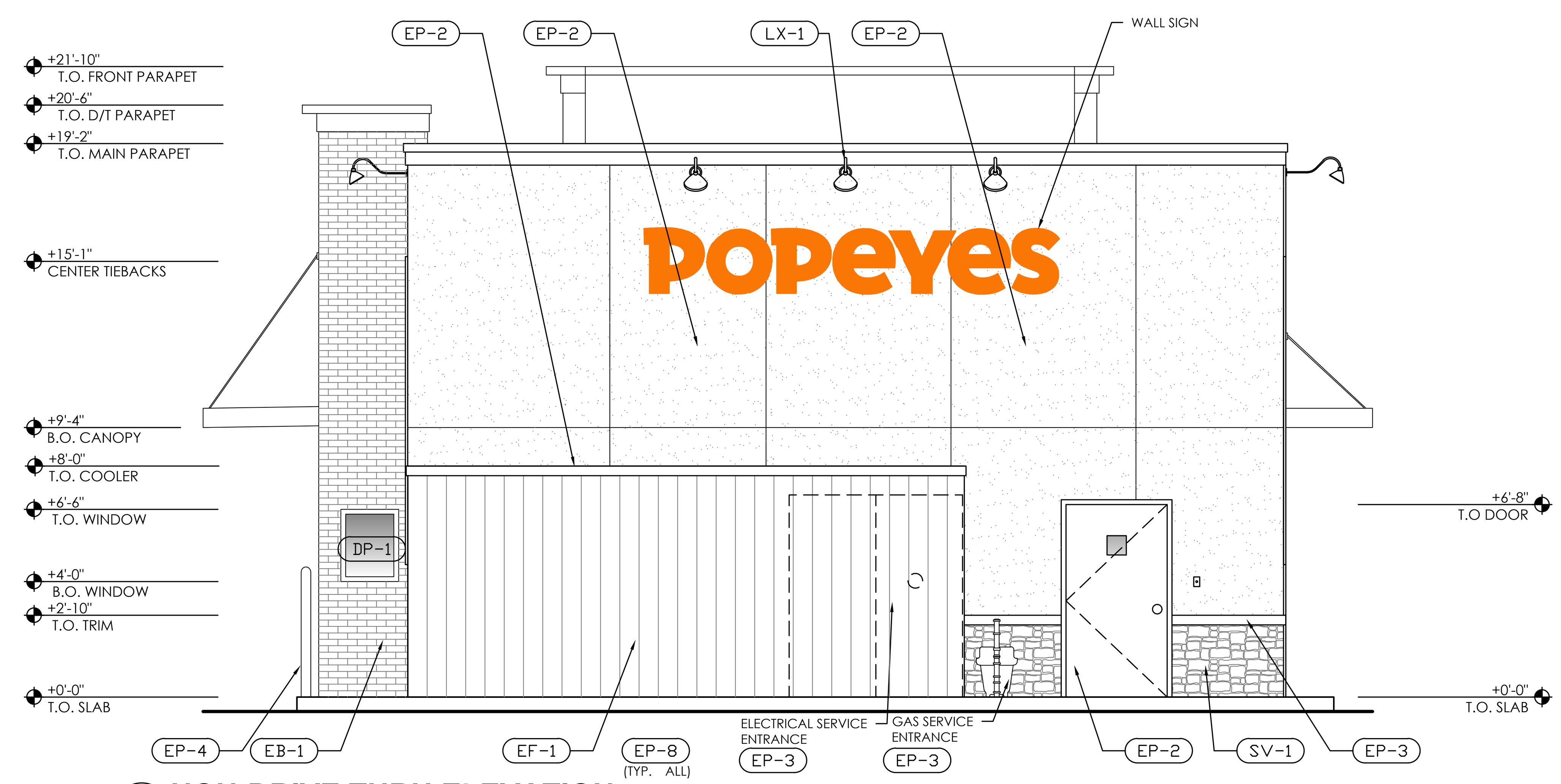
ROOF PLAN

A4

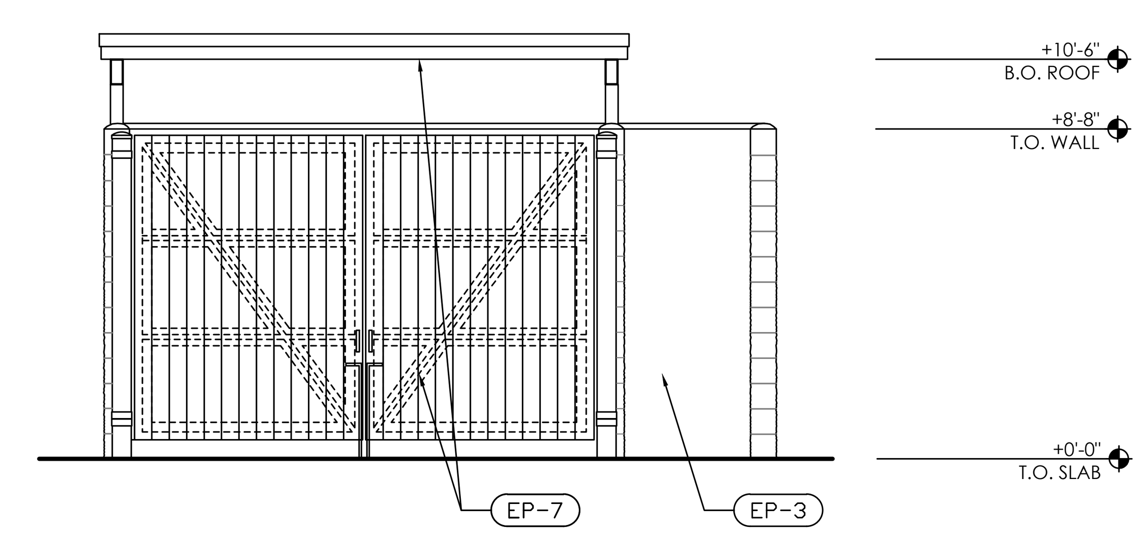
DATE: 6/10/2021
CHECKED:



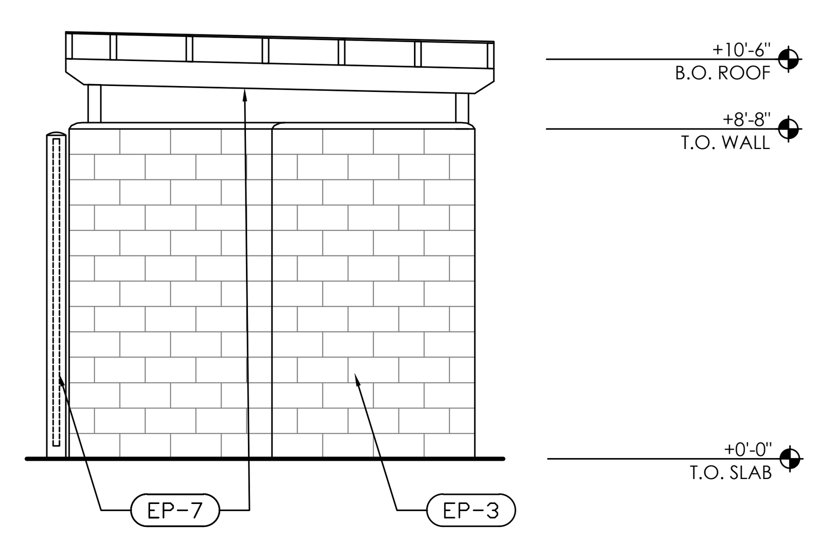
1 **FRONT ELEVATION**
SCALE: 1/4" = 1'-0"



2 **NON-DRIVE THRU ELEVATION**
SCALE: 1/4" = 1'-0"



3 **TRASH ENCLOSURE ELEVATION**
SCALE: 1/4" = 1'-0"



4 **TRASH ENCLOSURE ELEVATION**
SCALE: 1/4" = 1'-0"

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LOUISIANA 19 72 KITCHEN

POPEYES LOUISIANA KITCHEN

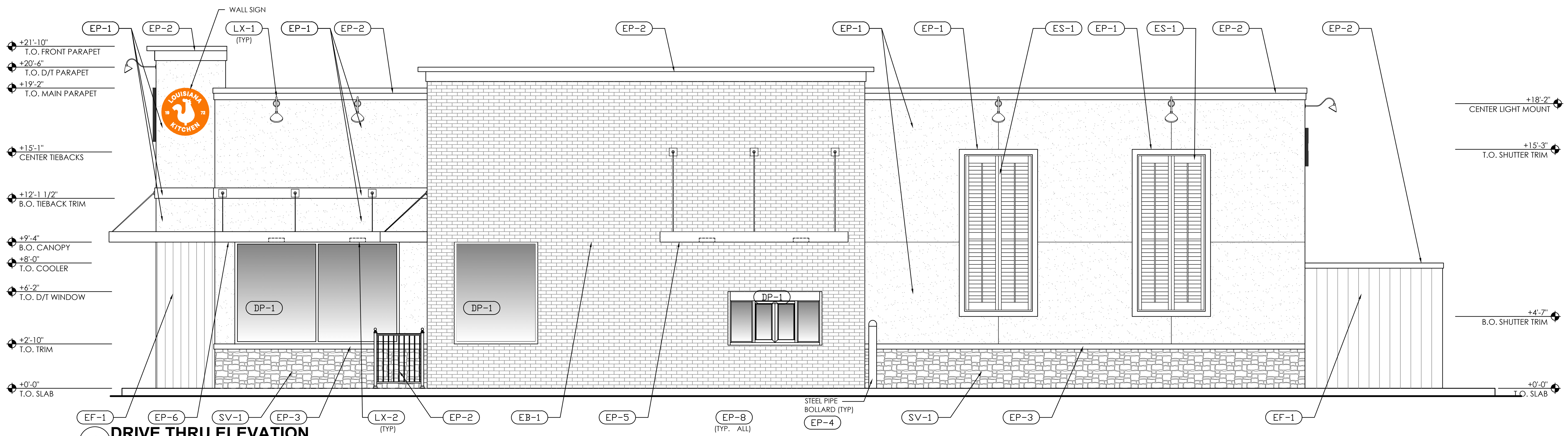
REVISIONS:

NO.	DATE	REVISION

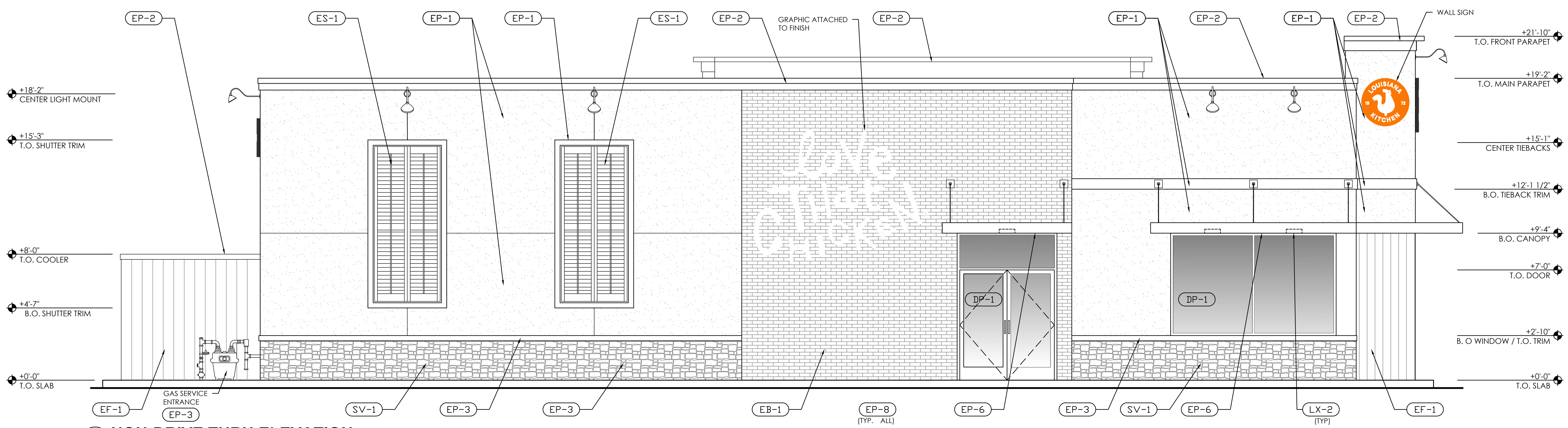
EXTERIOR ELEVATIONS

A5

DATE: 6/10/2021
CHECKED:



1 **DRIVE THRU ELEVATION**
SCALE: 1/4" = 1'-0"



2 **NON-DRIVE THRU ELEVATION**
SCALE: 1/4" = 1'-0"

2.e

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Attachment: Project Plans (4464 : PEN21-0086 Conditional Use Permit)

LOUISIANA 19 72 KITCHEN

POPEYES LOUISIANA KITCHEN

REVISIONS:

NO.	DATE	REVISION

EXTERIOR ELEVATIONS

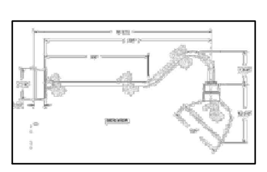
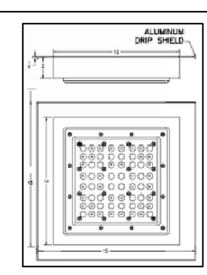
A6

DATE: 6/10/2021
CHECKED:

POPEYES LOUISIANA KITCHEN - EXTERIOR
EXTERIOR MATERIALS & FINISH SCHEDULE (NOT ALL SPECS ARE USED ON EVERY PROJECT)
05/06/2020

CODE	MATERIAL	LOCATION	MANUFACTURER	DESCRIPTION: PRODUCT	DESCRIPTION: COLOR	DESCRIPTION: DIMENSION	ADDITIONAL INFORMATION
EP-1	EXTERIOR PAINT	MAIN WALL SURFACE ABOVE WAINSCOT ACCENT TRIM	BENJAMIN MOORE SHERWIN WILLIAMS	ULTRA SPEC 500 EGGSHELL	WHITE OC-125 MOONLIGHT WHITE SW 7551 GREEK VILLA		CONTACT: ROGER LIPPMAN PHONE: (848) 702-0239 EMAIL: ROGER.LIPPMAN@BENJAMINMOORE.COM CONTACT: GLENN REMLER PHONE: (954) 547-1217 EMAIL: GLENN.J.REMLER@SHERWIN.COM
EP-2	EXTERIOR PAINT	BRICK TOWER METAL COPING	BENJAMIN MOORE SHERWIN WILLIAMS	ULTRA SPEC 500 EGGSHELL	ROOT BEER CANDY2105-20 SW 6062 RUGGED BROWN		
EP-3	EXTERIOR PAINT	EXTERIOR WAINSCOT SILL PAINT, DUMPSTER WALLS	BENJAMIN MOORE SHERWIN WILLIAMS	ULTRA SPEC 500 EGGSHELL	BEIGE HC-80 BLEEKER BEIGE (CONFIRM TO MATCH STONE) SW 6149 RELAXED KHAKI (CONFIRM TO MATCH STONE)		
EP-4	EXTERIOR PAINT	BOLLARDS, PYLON POLE, AND DIRECTIONAL SIGN POLES	BENJAMIN MOORE	SAFETY YELLOW			
EP-5	METAL/PAINT	DRIVE THRU WINDOW CANOPY	PROVIDED BY MANUFACTURER	PROVIDED BY MANUFACTURER	ORANGE, PANTONE #3564C		PROVIDED BY MANUFACTURER
EP-6	METAL/PAINT	BUILDING CANOPIES	PROVIDED BY MANUFACTURER	PROVIDED BY MANUFACTURER	TEAL, PANTONE #326C		PROVIDED BY MANUFACTURER
EP-7	EXTERIOR PAINT	DUMPSTER GATES	BENJAMIN MOORE SHERWIN WILLIAMS	ULTRA SPEC 500 EGGSHELL	FACTORY FINISH BLACK SW 6991 BLACK MAGIC		CONTACT: ROGER LIPPMAN PHONE: (848) 702-0239 EMAIL: ROGER.LIPPMAN@BENJAMINMOORE.COM
EP-8	EXTERIOR PAINT	ALL EXTERIOR WALLS	BENJAMIN MOORE	ALIPHATIC ACRYLIC URETHANE - GLOSS	ANTI-GRAFFITI COAT V500-00		CONTACT: GLENN REMLER PHONE: (954) 547-1217 EMAIL: GLENN.J.REMLER@SHERWIN.COM
EB-1	THIN BRICK	EXTERIOR WALLS	PINE HALL BRICK	THIN CLAD	WIRE CUT FULL RANGE MODULAR	STANDARD	CONTACT: THERESE BEANE PHONE: (800) 334-8689 EMAIL: TBEANE@PINEHALLBRICK.COM
SV-1	STONE VENEER	WAINSCOT BELOW TRIM	EL DORADO STONE (CONFIRM WITH CENTER DEVELOPER MANUFACTURER MATCHES)	CLIFFSTONE (CONFIRM WITH CENTER DEVELOPER SERIES MATCHES)	BOARDWALK (CONFIRM WITH CENTER DEVELOPER COLOR MATCHES)		
EF-1	EXTERIOR WOOD SIDING	FRONT FACADE EXTERIOR WALLS	NICHIHA FIBER CEMENT	VINTAGE WOOD AWP 3030	CEDAR	17 7/8" x 119 5/16"	CONTACT: MATT STEPHESON PHONE: (770) 805-9466 EMAIL: MSTEPHENSON@NICHIHA.COM
ES-1	SHUTTERS	EXTERIOR WALLS	PROVIDED BY MANUFACTURER	TO BE PURCHASED BY MANUFACTURER IN TEAL FINISH	TEAL, PANTONE #326C		PROVIDED BY MANUFACTURER
DP-1	ANODIZED ALUMINUM	EXTERIOR STOREFRONT	YKK AP	YB5N	FRAMES: DARK BRONZE ENTRY MAIN & SIDE DOORS: ORANGE PANTONE #3564C		21-28 DAYS

POPEYES LOUISIANA KITCHEN - EXTERIOR LIGHTING
EXTERIOR FIXTURE SCHEDULE (NOT ALL SPECS ARE USED ON EVERY PROJECT)
05/06/2020

TYPE		LOCATION	MANUFACTURER	CATALOG NUMBER	COLOR TEMP	WATTAGE	ADDITIONAL INFORMATION
LX-1		EXTERIOR WALL	HERMITAGE	MODEL: H-HLPP82A3Y044L FINISH: CUSTOM COLOR ORANGE 4000 LUMENS	LED2, 3500K	38W	
LX-2		FLAT CANOPY	HERMITAGE	MODEL: E-CONOLIGHT #E-CP2L04CS 36 LED MODULES / 4100 LUMENS	COOL WHITE 5000K	42W LED	

2.e

POPEYES LOUISIANA KITCHEN
5505 BLUE LAGOON DRIVE
MIAMI, FL 33126

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POPEYES
PLK 1846 PROTOTYPE
STUCCO/THIN BRICK
46 SEATS / DUAL-LINE PRODUCTION
27140 EUCALYPTUS AVE. MORENO VALLEY, CA

Attachment: Project Plans (4464 : PEN21-0086 Conditional Use Permit)

LOUISIANA 19 72 KITCHEN
POPEYES LOUISIANA KITCHEN

REVISIONS:

NO.	DATE	REVISION

EXTERIOR SCHEDULES
A7

DATE: 6/10/2021
CHECKED:

Front Elevation

Materials Legend

- Stone Veneer (Accent, Match Center)
  Cliffstone "Boardwalk" by El Dorado Stone
- Stucco / Metal (Main Color / Prefinished)
  Color "Moonlight White" by Benjamin Moore
- Fiber Reinforced Cement Panel (Accent)
  "Cedar" by Nichiha
- Metal / Paint
  Color "Factory Black" by Benjamin Moore
- Thin Brick (Accent)
  "Wire Cut Full Range Modular" by Pine Hall Brick
- Window Glazing
  "Clear"
- Aluminum Storefront (Prefinished Metal)
  Color "Dark Bronze" by YKK AP
- Stucco / Metal (Accent / Prefinished)
  Color "Root Beer" by Benjamin Moore
- Stucco (Accent)
  Color "Bleeker Beige" by Benjamin Moore
- Metal / Composite (Prefinished)
  Color "Teal" Pantone 326C
- Metal (Prefinished)
  Color "Orange" Pantone 3564C

Rear Elevation

Drive-Thru Side Elevation

Non-Drive-Thru Side Elevation

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153 E. City Place Dr. | Santa Ana | CA | 92705
Phone 714.892-3900 | robert.preece@designua.com

Proposed Popeyes Restaurant
27140 Eucalyptus Avenue
Moreno Valley, CA 92555
June 10, 2021

City of Moreno Valley
Community Development Department
Planning Division
City Hall Council Chamber
14177 Frederick Street
Moreno Valley, CA 92553

NOTICE OF PUBLIC HEARING

Notice of Public Hearing before the Planning Commission of the (of Moreno Valley for the following item(s):

MEETING INFORMATION: July 22, 2021 at 7:00 P.M.
Moreno Valley Council Chamber, 14177 Frederick Street

PROJECT LOCATION: Eucalyptus Avenue within the Stoner Town Center (488-400-008), District 3

CASE NUMBER(s): PEN21-0086

CASE PLANNER: Julia Descoteaux, Associate Planner (9 413 3209 or juliad@moval.org

<APN>
<Property Owner>
<Street Address>
<City, State, Zip>

NOTICE OF PUBLIC HEARING

PROPOSAL: Conditional Use Permit for an approximately 2,348 square foot fast food drive-through restaurant in the existin Stoneridge Town Center.

ENVIRONMENTAL DETERMINATION: The project has been evaluated against criteria set forth in the California Environmenta Quality Act (CEQA) Guidelines and it was determined that the project will not have a significant effect on the Environment. finding that the project is exempt from the provisions of CEQA as a Class 32 Categorical Exemption in accordance with CEQ Guidelines Section 15332 for In-fill Development Projects is recommended for the project.

PUBLIC HEARING: All interested parties will be provided an opportunity to submit oral testimony during the Public Hearin and/or provide written testimony during or prior to the Public Hearing. The application file and related environmental document may be inspected at the Community Development Department at 14177 Frederick Street, Moreno Valley, California during norma business hours (7:30 a.m. to 5:30 p.m., Monday through Thursday, and 7:30am to 4:30pm Friday).

PLEASE NOTE: The Planning Commission may consider and approve changes to the proposed items under consideration duri the Public Hearing.

GOVERNMENT CODE § 65009 NOTICE: If you challenge any of the proposed actions taken by the Planning Commission court, you may be limited to raising only those issues you or someone else raised during the Public Hearing described in th notice, or in written correspondence delivered to the Planning Division of the City of Moreno Valley during or prior to the Pub Hearing.

Upon request and in compliance with the Americans with Disabilities Act of 1990, any person with a disability who requires a modification o accommodation in order to participate in a meeting should direct such request to James Verdugo, ADA Coordinator, at 951.413.3350 at lea 48 hours before the meeting. The 48-hour notification will enable the City to make reasonable arrangements to ensure accessibility to this meeting.