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EIR Addendum to the Eucalyptus Business Park Specific Plan

4700 Chino Hills Parkway

December 2023

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µg/kg	micrograms per kilogram
µg/L	micrograms per liter
AST	aboveground storage tank
bgs	below ground surface
CalEPA	California Environmental Protection Agency
CCR	California Code of Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980, commonly known as Superfund
CFR	Code of Federal Regulations
DTSC	California Department of Toxic Substances Control
EIR	environmental impact report
ERA	ecological risk assessment
FS	feasibility study
gpm	gallons per minute
GPS	global positioning system
HHRA	human health risk assessment
IDW	investigation-derived waste
mg/kg	milligrams per kilogram
mg/L	milligrams per liter
NOAA	National Oceanic and Atmospheric Administration
O&M	operations and maintenance
OSWER	Office of Solid Waste and Emergency Response
PA	preliminary assessment
PAH	polynuclear (also polycyclic) aromatic hydrocarbons
PCB	polychlorinated biphenyl
QA	quality assurance
QC	quality control
RCRA	Resource Conservation and Recovery Act of 1976
RWQCB	Regional Water Quality Control Board
SAP	sampling and analysis plan
SARA	Superfund Amendments and Reauthorization Act of 1986; a CERCLA amendment
SVOC	semivolatile organic compound
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Services
USGS	U.S. Geological Survey
UST	underground storage tank
VOC	volatile organic compound

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Section 1 Introduction

This Addendum to the City of Chino's 1990 certified Eucalyptus Business Park Specific Plan Environmental Impact Report (1990 Certified EIR), State Clearinghouse No. 1989070310has been prepared in accordance with Section 21166 of the California Environmental Quality Act (CEQA) and sections 15162 and 15164 of the CEQA Guidelines. The City of Chino is the lead agency responsible for the EIR, and this Addendum for the Eucalyptus Business Park Specific Plan.

Orangethorpe Investment Partners LLC (Applicant) proposes to revise the existing entitlements of the Eucalyptus Business Park Specific Plan. The Proposed Project Site is located in an adopted housing overlay zone (Affordable Housing Overlay) as designated by the City's 6th Cycle Housing Element Update. This allows for residential use in the area currently zoned as Office Commercial.

1.1 Purpose of an Addendum

1.1.1 CEQA Requirements

Where a previous EIR has been prepared, subsequent activities within the EIR must be examined in light of that EIR to determine whether an additional environmental document must be prepared. (CEQA Guidelines Section 15168(c)). Where the subsequent activities involve site specific operations, the agency should use a written checklist to document the evaluation of the site and the activity to determine whether the environmental effects of the operation were covered in the EIR. (CEQA Guidelines Section 15168(c)(4)).

Pursuant to PRC Section 21166 and State CEQA Guidelines Section 15162, when an EIR has been certified or a negative declaration adopted for a project, no subsequent EIR or negative declaration shall be prepared for the project unless the lead agency determines that one or more of the following conditions are met:

1. Substantial project changes are proposed that will require major revisions of the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects;
2. Substantial changes would occur with respect to the circumstances under which the project is undertaken that require major revisions to the previous EIR or negative declaration due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
3. New information of substantial importance that was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified or the negative declaration was adopted shows any of the following:

a. The project will have one or more significant effects not discussed in the previous EIR or negative declaration.
b. Significant effects previously examined will be substantially more severe than identified in the previous EIR.
c. Mitigation measures or alternatives previously found not to be feasible would in fact be feasible and would substantially reduce one or more significant effects of the project, but the project proponent declines to adopt the mitigation measures or alternatives.
d. Mitigation measures or alternatives that are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponent declines to adopt the mitigation measures or alternatives.

An Addendum can be prepared to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 (above) calling for preparation of a subsequent EIR have occurred (CEQA Guidelines Section 15164).

Changes to the Eucalyptus Business Park Specific Plan (Approved Project) and regulatory conditions, described below under the Project Description would fulfill none of the conditions outlined in CEQA Guidelines Sections 15162(a)(1)-(3) as these changes would not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects requiring major revisions to the 1990 Certified EIR. Accordingly, this checklist provides the substantial evidence required by CEQA Guidelines Section 15164(e) to support the finding that a subsequent EIR is not required and an addendum to the 1990 Certified EIR is the appropriate environmental document to address the changes to the project.

As stated in CEQA Guidelines Section 15164 (Addendum to an EIR or Negative Declaration):

a. The lead agency or responsible agency shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred.
b. An addendum to an adopted negative declaration may be prepared if only minor technical changes or additions are necessary or none of the conditions described in Section 15162 calling for the preparation of a subsequent EIR or negative declaration have occurred.
c. An addendum need not be circulated for public review but can be included in or attached to the final EIR or adopted negative declaration.
d. The decision-making body shall consider the addendum with the final EIR or adopted negative declaration prior to making a decision on the project.
e. A brief explanation of the decision not to prepare a subsequent EIR pursuant to Section 15162 should be included in an addendum to an EIR, the lead agency's findings on the project, or elsewhere in the record. The explanation must be supported by substantial evidence.

After careful consideration of the potential environmental impacts of the Proposed Project, the City of Chino has determined that 1) none of the conditions requiring preparation of a subsequent or supplement to an EIR have occurred, and 2) the circumstances described in Section 15164 of the CEQA Guidelines exist. Therefore, an Addendum to the Eucalyptus Business Park Specific Plan EIR has been deemed appropriate.

1.1.2 Scope of Analysis in This Addendum

Changes to the Eucalyptus Business Park Specific Plan EIR ("Certified EIR") and regulatory conditions, described below under the Project Description would fulfill none of the conditions outlined in CEQA Guidelines Sections 15162(a)(1)–(3) as these changes would not result in new significant environmental effects or a substantial increase in the severity of previously identified significant effects requiring major revisions to the 1990 Certified EIR. Accordingly, this checklist provides the substantial evidence required by CEQA Guidelines Section 15164(e) to support the finding that a subsequent EIR is not required and an addendum to the 1990 Certified EIR is the appropriate environmental document to address changes to the project.

In order to implement the Proposed Project, a number of discretionary approvals from the City of Chino are required. for the Eucalyptus Business Park Specific Plan. The City's 6th Cycle Housing Element Update indicates the 4700 block of Chino Hills Parkway (the Proposed Project Site) within the Eucalyptus Business Park Specific Plan as a site to include in the City of Chino 2021-2029 Regional Housing Needs Allocation (RHNA) with an Affordable Housing Overlay. This would allow for residential use in the area currently zoned as Office Commercial. As lead agency under CEQA, the City of Chino is required to evaluate the environmental impacts associated with these discretionary approvals. The scope of the review for project-related impacts for this Addendum is limited to differences between impacts analyzed by the Certified EIR for implementation of the Eucalyptus Business Park Specific Plan (Approved Project) and the 4700 Chino Hills Parkway Addendum to the Eucalyptus Business Park Specific Plan EIR (Proposed Project). The Approved Project will serve as the "baseline" for the environmental impact analysis. The baseline includes all applicable mitigation measures from the adopted Mitigation Monitoring and Reporting Program (MMRP), approved in conjunction with the Certified EIR. As required by CEQA, this Addendum also addresses changes in circumstances or new information that would potentially involve new environmental impacts.

1.2 Content and Organization of This Addendum

This Addendum relies on the City of Chino's CEQA Checklist, which addresses environmental issues section by section. The completed checklist is included in Section 5.0, Environmental Analysis. Each environmental topic has the following subheadings:

- Summary of Previous Environmental Analysis (including the Eucalyptus Business Park Specific Plan EIR, and previous CEQA documentation; see description under Subsection 3.1, Project Background, of this Addendum)
- Impacts Associated with the Proposed Project (including environmental checklist)
- Adopted Mitigation Measures Applicable to the Proposed Project

1.3 Previous Environmental Documentation

For a detailed description of adopted land use planning documents that apply to the Certified EIR and associated environmental documentation, see Section 3.1, Project Background, of this Addendum.

Section 2 Environmental Setting

2.1 Project Location

2.1.1 Eucalyptus Business Park

The Project Site is located within the City of Chino (City) within the existing Eucalyptus Business Park Specific Plan which is located within the southwestern portion of San Bernardino County. The City of Chino is located approximately 37 miles east of Los Angeles, 115 miles north of San Diego, and 40 miles northeast of Orange County. Neighboring communities include the Chino Hills and the cities of Pomona, Montclair, and Ontario. This region is part of the Chino Basin which is formed by the San Bernardino Mountains, Jurupa Hills, and the Santa Ana Mountains. Figure 1, Regional Location, and Figure 2, Project Vicinity, depict the Project Site for depiction of the Project Site in a regional and local context. Regional accessibility for the Project Site is provided by Chino Valley Freeway (State Route 71) and Pomona Freeway (State Route 60). Chino Hills Freeway provides north-south regional circulation between Los Angeles, San Bernardino and Riverside Counties. The Pomona Freeway also provides a major route to Los Angeles on the west and Riverside and the desert areas to the east.

The City of Chino initiated the Eucalyptus Business Park Specific Plan in order to formulate a public/private development program for the specific plan area that will benefit both the City of Chino and area landowner. The City's purpose for initiating the specific plan program is to:

1. Strengthen the diversity of Chino's industrial base.
2. Improve the community's "jobs—housing" balance and provide a broader range of local employment opportunities for Chino residents.
3. Provide employee amenities and support services and facilities that would serve to attract quality businesses and industries who wish to locate within an attractive working environment.
4. Obtain more consistency in, and to strive for, high standards of design quality throughout the specific plan area.
5. Create an attractive development along Chino Valley Expressway that will contribute to and enhance the City's image.
6. Achieve a continuity of design within the specific plan area and a sense of identity within the specific plan area.
7. Create strong attractive entries into the specific plan area from Chino Hills Parkway and Central Avenue.
8. Create a cohesive and well-planned area which successfully addresses the needs of the future businesses within it and which successfully addresses the needs of the employees of these businesses.

2.1.2 Findings of the Eucalyptus Business Park Specific Plan EIR Addendum

The Final Environmental Impact Report and Statement of Overriding Considerations was approved and adopted on November 20, 1990. The Chino City Council certified the EIR and Addendum based on the following findings:

1. The Final Environmental Impact Report has been prepared in accordance with the California Environmental Quality Act and adequately covers all areas of reasonable environmental concern related to the Eucalyptus Business Park Specific Plan, General Plan Amendment No. 116, Zone Change No. 575, and Sign Ordinance Amendment No. 19.

2. As a result of information and mitigation measures presented in the Final EIR, the Eucalyptus Business Park Specific Plan has been revised to avoid or substantially lessen significant environmental effects to a level of insignificance or are found to be unavoidable. Those impacts determined to be unavoidable are determined to be acceptable and will be permitted without further mitigation due to the overriding considerations generally stated below and permitted pursuant to Section 15093 of the California Environmental Quality Act Guidelines :

    a. The implementation of the Eucalyptus Business Park Specific Plan will assist the City of Chino in meeting the Regional Growth Management Plan and the City's Jobs-Housing Balance.

    b. The project will enable the City to efficiently and comprehensive plan for the development of the project area in a manner which will enhance the City.

    c. The Project is significantly impacted by an adjacent, previously approved specific plan which will create an increase in storm water run-off which needs to be accommodated through a portion of the project site. The need to protect the flooding hazards associated with the storm water run-off outweighs the need to protect the riparian woodland habitat which exists along and within a portion of the channel.

2.1.3 Unavoidable Impacts of the Eucalyptus Business Park Specific Plan EIR Addendum

The Certified EIR for the Approved Project found the following significant unavoidable environmental effects:

1. Loss of prime agricultural soils,

2. Short-term air quality impacts,

3. Long-term air quality impacts, and

4. Loss of Riparian Woodland Habitat.

As required by Section 15091 of the California Environmental Quality Act, a Statement of Overriding Considerations was prepared as the Approved Project had one or more significant environmental effects identified which could not be mitigated. These findings concluded that with regard to loss of prime agricultural soils, the General Plan historically designated the project site for uses which would occur under the Approved Project. The findings ultimately found that with regard to short and long-term air quality impacts it would be economically and technically infeasible to further mitigate impacts. The findings also declared that it would also be economically and technically infeasible to further mitigate impacts with regard to the loss of Riparian Woodland Habitat.

2.1.4 Plan Area

The intent of the Eucalyptus Business Park Specific Plan (Approved Project) proposed to comprehensively develop approximately 430 acres of land for commercial and industrial uses. The EBPSP was approved by the City of Chino Planning Commission on September 17, 1990, and subsequently by the City Council on December 18, 1990. Since its adoption, various land holdings and market conditions have generated the request for the ability to develop a high quality large industrial, manufacturing and warehouse/distribution business park in the easterly portion of the specific plan boundaries. In an attempt to accommodate this land usage, an amendment to the specific plan was adopted that addressed these specific needs.

2.2 Environmental Setting

2.2.1 Existing Land Use and Zoning

The Plan Area includes the portion of the Specific Plan Area that has not yet been constructed. The Project Site is located in an area generally characterized by commercial use. Surface topography across the Project Site is generally flat with a slope towards the southeast. The Project Site consists of five parcels of landing totaling approximately 9.31 acres. Each parcel is largely unimproved land covered with grass or gravel, with limited trees along the northern property perimeter. A waterspout and sign marquee are located in the southwest portion of the Project Site. A black plastic service box is located near the waterspout. There are no paved or concrete areas and the landscaping on site consists of grassland. Existing land use and zoning designates the Project Site as Office Commercial.

2.2.2 Surrounding Land Use and Zoning

Table 1, Surrounding Land Uses and Setting shows the existing land use and zoning designations for the Project Site and surrounding area.

Table 1. Surrounding Land Uses and Setting

Location	Land Use/Zoning Designation
Project Site	Eucalyptus Business Park Specific Plan Area- Office Commercial Land Use District
North	Eucalyptus Business Park Specific Plan Area- Manufacturing Land Use District, General Industrial Land Use District, Commercial Land Use District
South	City Boundary
East	Eucalyptus Business Park Specific Plan Area- General Industrial Land Use District
West	Eucalyptus Business Park Specific Plan Area- Commercial Land Use District, Auto Mall Land Use District, Office Commercial Land Use District

The Specific Plan Area is surrounded by commercial, industrial, residential, vacant areas and the 2,500-acre California Institution for Men (CIM). To the north of the Specific Plan Area is the 380-acre Majestic Spectrum Specific Plan Area and various industrial developments. West of the site, along Chino Valley Freeway, is several retail establishments. Further northwest near Pipeline Avenue, are single family residences. Southeast of the Plan Area, near Central Avenue, is the Los Serranos Business Park. An industrial park and the Carbon Canyon Water Reclamation Facility are located south of the Specific Plan Area across the Chino Hills Parkway. Farming operations are located to the northwest and south.

Within the Specific Plan Area, the Project Site is also surrounded by commercial, industrial, residential, and vacant areas. To the north of the Project Site there are industrial uses and further north there are commercial uses. To the east of the Project Site the Carbon Canyon Water Recycling Facility and industrial uses exist. To the south of the Project Site, across from Chino Hills Parkway, there are commercial and industrial uses. Immediately west of the Project Site is vacant, with use as a temporary Christmas tree and pumpkin patch. Further west across Ramona Avenue is the Chino Hills Ford dealership.

2.2.3 Local and Regional Access

Access to the Plan Area is provided by the surrounding street grid system. The Project Site is directly accessed by Chino Hills Parkway and Commons Drive on the southern side of the Project Site, and Romana Avenue west of the Project Site. State Route 71 provides regional access to the Project Site.

2.2.4 General Plan Land Use and Zoning

2.2.4.1 City of Chino General Plan

The Project Site has an existing General Plan land use designation of Eucalyptus Business Park Specific Plan. The Plan Area's existing General Plan designation is Office Commercial in the City's General Plan Land Use map. The Proposed Project includes the development of 346,032 square feet of residential use with associated amenity uses and open space. The Proposed Project

Site is located in an adopted housing overlay zone (Affordable Housing Overlay) as designated by the City's 6th Cycle Housing Element Update. This allows for residential use in the area currently zoned as Office Commercial.

2.2.4.2 City of Chino Housing Element

The City is able to accommodate its above moderate and moderate-income RHNA allocation through existing specific plan capacity and the projected development of accessory dwelling units (ADUs). To accommodate a portion of the remaining lower income RHNA need, the City of Chino has established an Affordable Housing Overlay (AFFOV) over approximately 90.6 acres to meet a shortfall of 2,233 dwelling units at the very low and low income levels, including applicable development standards to facilitate maximum densities, permitted uses, and all other components required as part of the City's Zoning Code, which promotes the development of residential uses at up to 30 dwelling units per acre (du/ac) if the established affordability requirements are satisfied. The City will conduct a separate development process, including community outreach, in order to draft the specific standards associated with this overlay. All candidate sites identified are directly adjacent to existing public roadways with full infrastructure availability to service the sites.

Development standards for this zone must permit development at a density of up to 30 dwelling units per acre. The City has worked with local partners and stakeholders to implement this overlay zone with standards that can realistically promote residential development at affordable income levels. The City has completed the development standards and Zoning Code update necessary to allow development of the Affordable Housing and Mixed-Use Overlays. Once established, the City will apply the AFF-OV to the candidate housing sites identified in the City's 6th Cycle Housing Element Update. This permits residential development on these sites which demonstrates that the City can accommodate it's 2021-2029 RHNA allocation. The City has established this zone and completed the required application of the overlay. The City has already received strong interest from the development community regarding the candidate housing sites and has continued discussions which help to demonstrate the viability of the sites identified within the housing element.

On June 7, 2022, the people of the City of Chino adopted Measure Y to approve the Housing Element Update to include the application of the two identified overlay strategies encompassing affordable housing and mixed-uses that the City of Chino will use to meet its State-mandated Regional Housing Needs Assessment (RHNA) allocation as well as to file a Housing Element Update that complies with State law.

2.3 Regulatory Setting

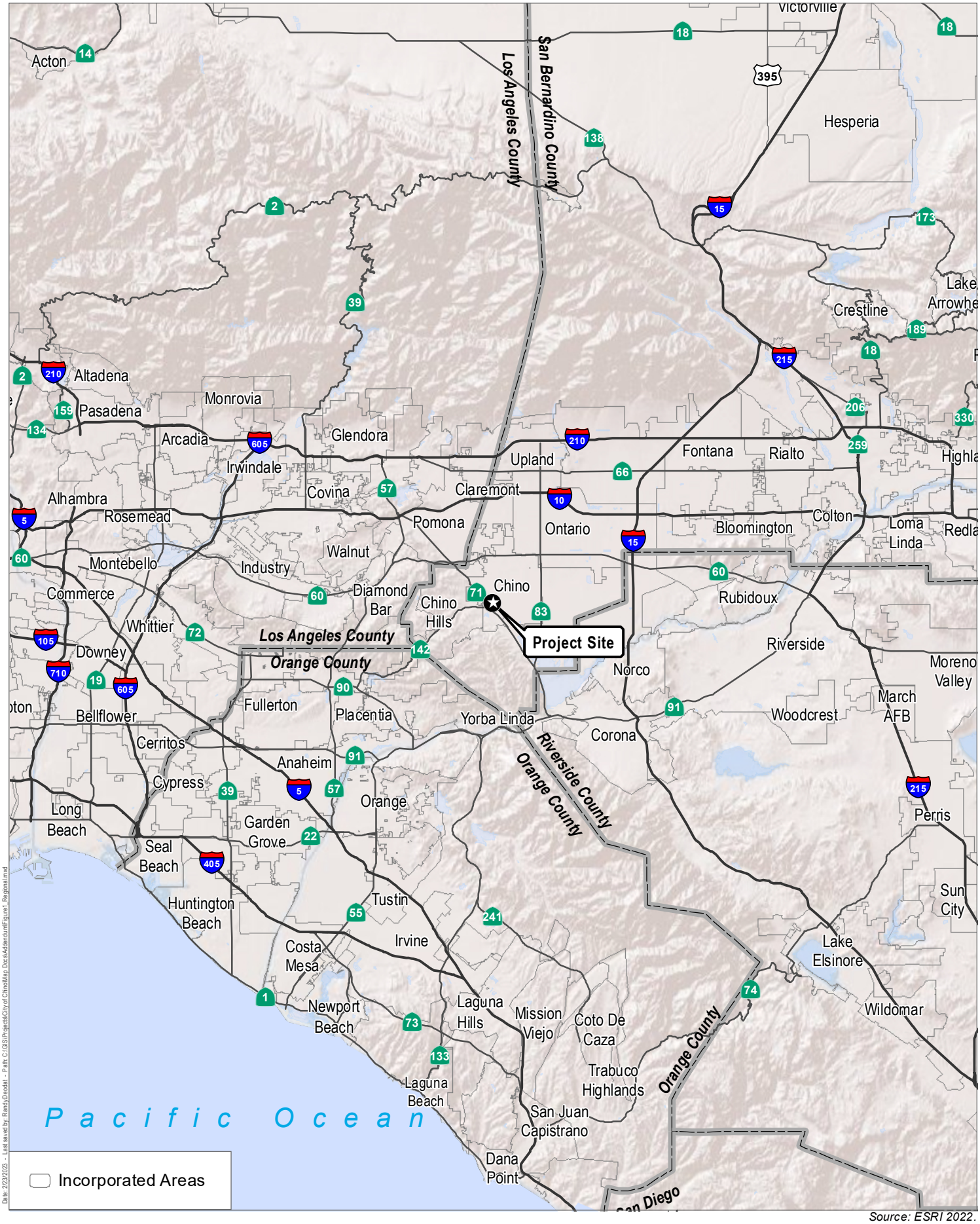
2.3.1 SB 330

Effective January 1, 2020, SB 330 aims to increase residential unit development, protect existing housing inventory, and expedite permit processing. Under this legislation, municipal and county agencies are restricted in ordinances and polices that can be applied to residential development. The revised definition of "Housing Development" now contains residential projects of two or more units, mixed-use projects (with two-thirds of the floor area designated for residential use), transitional, supportive, and emergency housing projects. SB330 sets a temporary five-year prohibition of residential density reduction associated with a "housing development project", from January 1, 2020, to January 1, 2025. For example, during this temporary prohibition, a residential triplex cannot be demolished and replaced with a duplex as this would be a net loss of one unit.

None of the housing strategy sites contain significant existing housing with low-income tenants who will be displaced if the sites redevelop. Therefore, no housing units must be replaced under the City's zoning ordinance or SB 330's replacement housing provisions (Government Code Section 66300).

The Proposed Project includes a vested SB 330 application.

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Source: ESRI 2022.

Harris & Associates

N

0 5 10

Miles

Figure 1

Regional Location

4700 Chino Hills Parkway

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Source: San Bernardino County 2020.

Harris & Associates

N

0 200 400

Feet

Figure 2

Project Vicinity

4700 Chino Hills Parkway

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Section 3 Project Description

3.1 Project Background

The Eucalyptus Business Park Specific Plan EIR was certified in 1990. The Approved Project consisted of the development of the 430-acre (7,420,000 square feet) Plan Area under a Specific Plan consisting of the construction of 203 acres of manufacturing uses, 52 acres of commercial/office uses, 73 acres of business park uses, 10 acres of commercial uses, 20 acres dedicated to auto mall use, and the remaining 72 acres dedicated to the channel, Southern California Edison (SCE) Easement, and streets. The Eucalyptus Business Park Specific Plan is bounded by Eucalyptus Avenue to the north, the Corona Expressway (SR-71) to the west, Chino Hills Parkway to the south, and Central Avenue to the east. The Eucalyptus Business Park Specific Plan was amended many times, bust most recently in 2019 to allow for warehousing uses within t the Manufacturing (M) land use designation and then again in 2022 to allow for recreational vehicle sales as a permitted use within the Auto Mall (AM) land use designation.

3.1.1 Previous Environmental Analysis

In 1990, the City of Chino certified the EIR for the Eucalyptus Business Park Specific Plan (State Clearinghouse No. 89070310), herein referred to as the "Certified EIR." The EIR determined that most potential impacts could be mitigated to a less than significant level. However, it concluded that the following topic areas would result in a significant unavoidable adverse impact even after mitigation:

- Air Quality. Implementation of the Approved project would result in short and long term air quality impacts.
- Agricultural Resources. It was found that development of the Approved Project would result in the loss of Prime agricultural soils in the City of Chino and County of San Bernardino.
- Biological Resources. It was found that development of the Approved Project would result in the loss of riparian Woodland habitat.

Implementation of the Eucalyptus Business Park Specific Plan, is herein referred to as the "Approved Project."

3.2 Project Description

The Proposed Project Site is located in an adopted housing overlay zone (Affordable Housing Overlay) as designated by the City's 6th Cycle Housing Element Update. This allows for residential use in the area currently zoned as Office Commercial. The Approved Project allowed for 339,406 square feet of office use and 84,847 square feet of commercial (retail) use, totaling 424,253 of building square footage for the 9.31-acre parcel. The Proposed Project includes 298 multifamily

residential dwelling units, consisting of 283 market-rate units and 15 affordable units. This would entail 346,032 square feet of residential use, 7,514 square feet of amenity uses, and 19,216 square feet of private open space. The gross building area would be 359,805 square feet for the 9.31-acre parcel, see Figure 3, Site Plan. The Proposed Project would result in a decrease 64,448 of building square footage when compared to the Approved Project. The Proposed Project includes 477 parking stalls, 386 of which are standard parking stalls, 91 are compact parking stalls, and 123 carport parking stalls. 10 parking stalls are reserved as accessible stalls. Building height would be 45 feet, floor area ratio would be 0.94, and lot coverage would be 0.24. See Figure 4a through 4e for elevations.

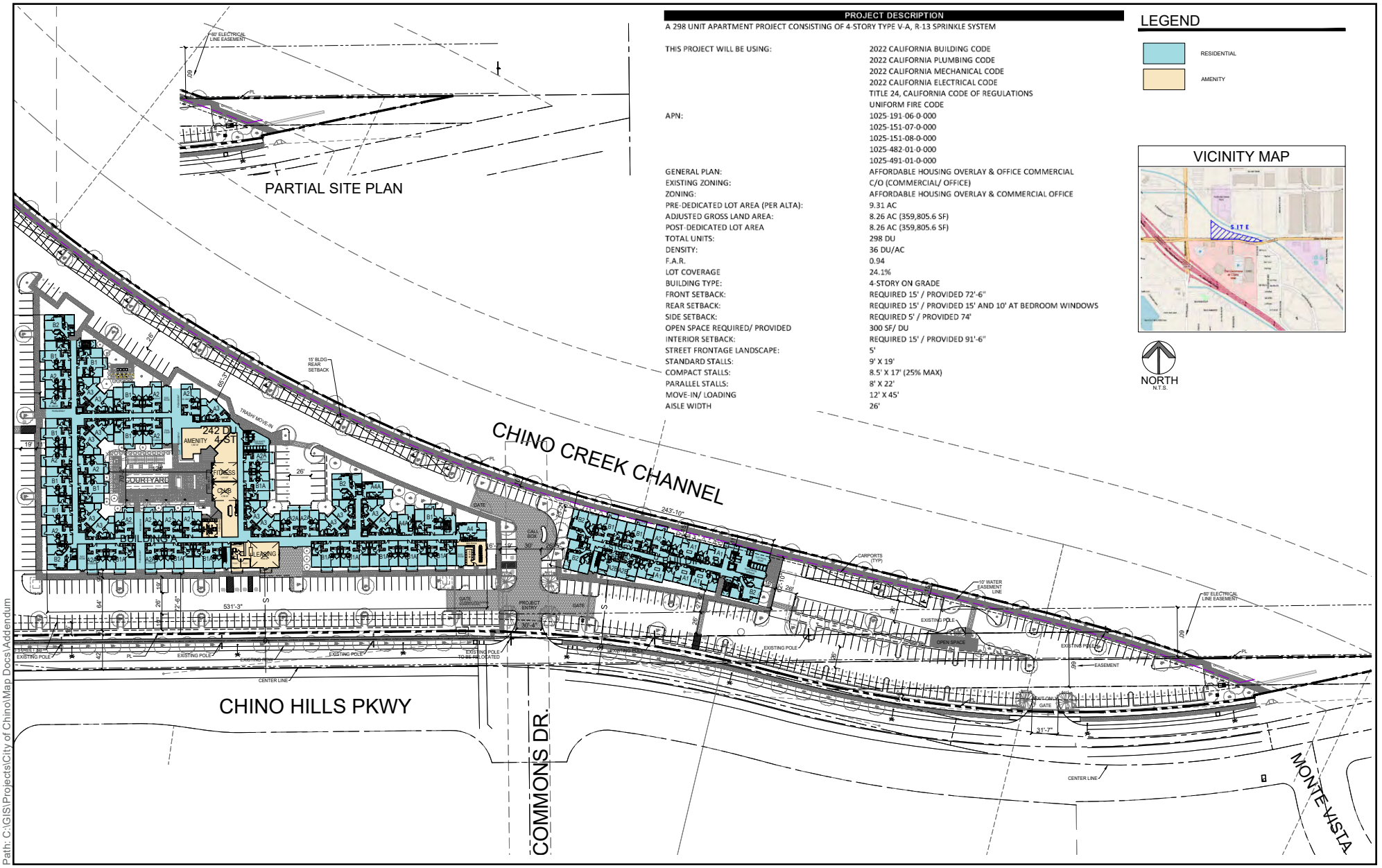
3.3 Project Phasing

The Proposed Project would occur in one phase upon approval of necessary discretionary actions and permits.

3.4 Discretionary Actions

This Addendum to the Certified EIR is intended to serve as the primary environmental document for all future actions associated with the Proposed Project, including all discretionary approvals requested or required to implement the Proposed Project. In addition, this Addendum is the primary reference document for the formulation and implementation of the MMRP. All the approved, applicable measures from the Certified EIR have been incorporated into this document. This document is intended to provide sufficient information to allow the City of Chino and any other permitting agencies to evaluate the potential impacts from construction and implementation of the Proposed Project. The following discretionary actions will be needed to implement the Proposed Project:

- Tentative Tract Map Modification
- Site Approval



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Source: Architecture Design Relationships 2023.

Harris & Associates

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Figure 3

Site Plan

4700 Chino Hills Parkway

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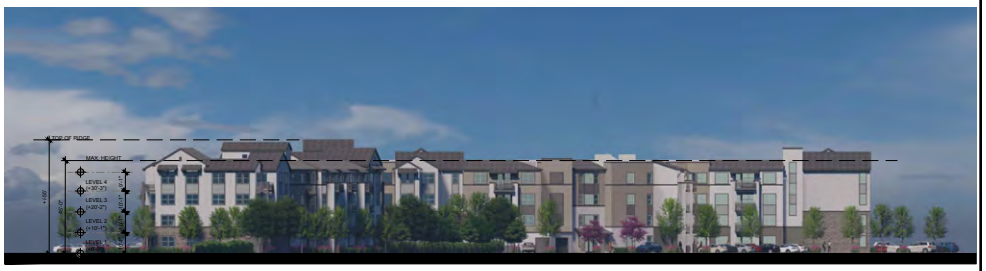
ELEVATION 7

ELEVATION 3

NORTH ELEVATION



ELEVATION 4
WEST ELEVATION



ELEVATION 6

ELEVATION 2

EAST ELEVATION



ELEVATION 1

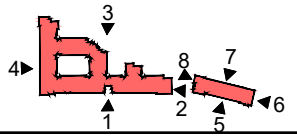
ELEVATION 5

SOUTH ELEVATION (CHINO HILLS PARKWAY)



ELEVATION 8
BUILDING B WEST ELEVATION

KEY MAP



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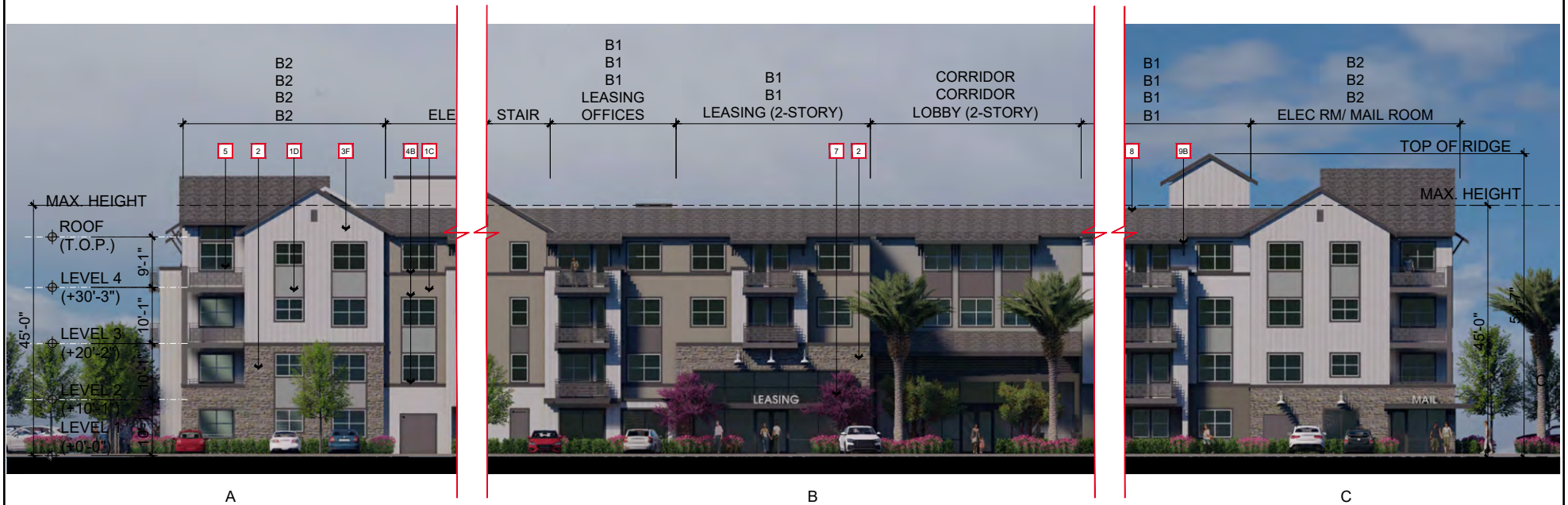
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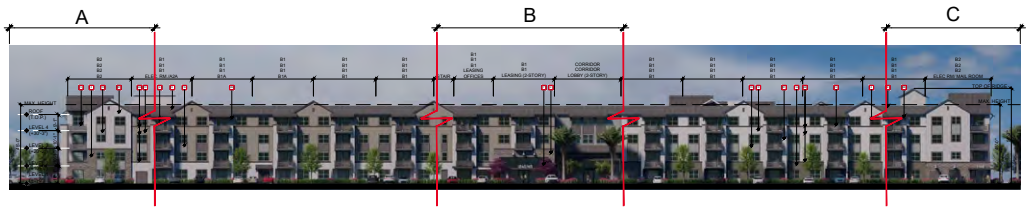
Harris & Associates

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Figure 4a
Exterior Elevations
4700 Chino Hills Parkway

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1) BUILDING 'A' SOUTH ELEVATION



MATERIAL LEGEND

1	LIGHT SAND FINISH STUCCO	6	VINYL WINDOW
2	STONE VENEER	7	ALUMINUM STOREFRONT
3	BOARD & BATTEN	8	ASPHALT ROOF AHINGLES
4	FOAM TRIM	9	WINDOW AWNING & BRACKETS
5	METAL RAILING		

COLOR LEGEND (ALL COLORS SHERMAN WILLIAMS OR EQUAL)

A	SW 6202 CAST IRON	D	SW 7652 MINERAL DEPOSIT
B	SW 6258 TRICORN BLACK	E	SW 7674 PEPPERCORN
C	SW 7642 PAVESTONE	F	SW 7004 SNOWBOUND

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Source: Architecture Design Relationships 2023.

Harris & Associates

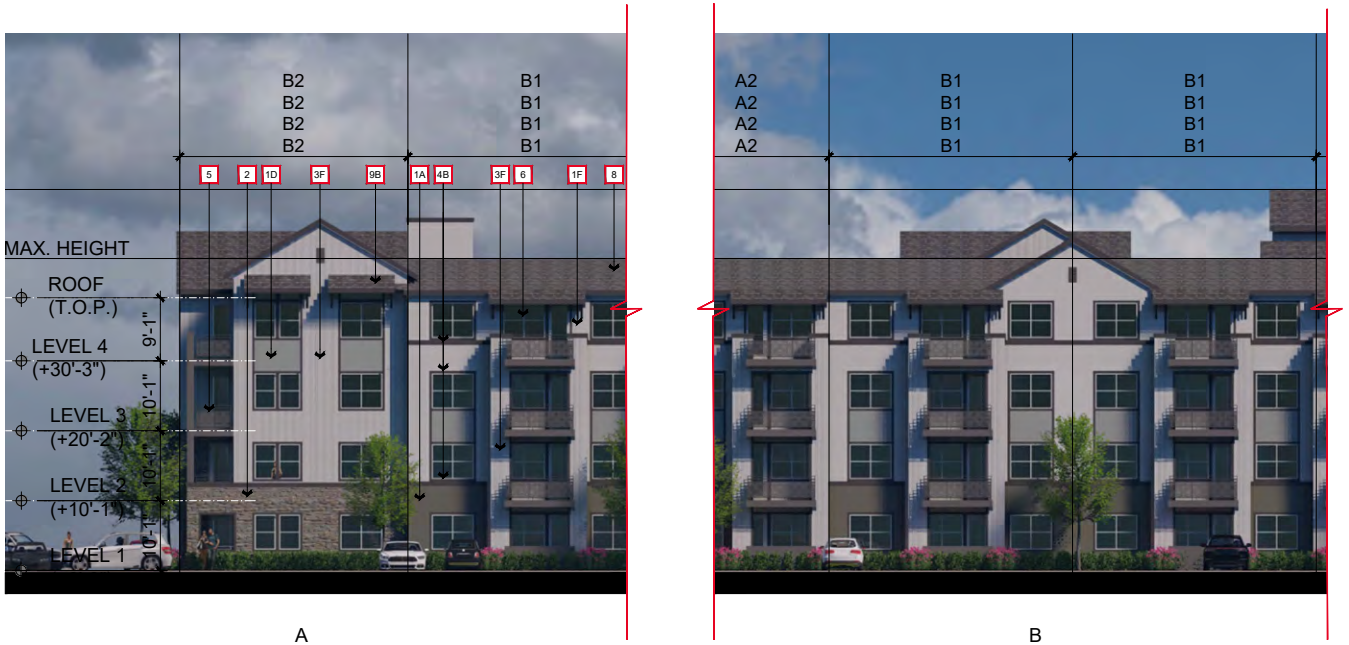
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Figure 4b

Exterior Elevations

4700 Chino Hills Parkway

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A B



2) BUILDING 'A' WEST ELEVATION



MATERIAL LEGEND

1 LIGHT SAND FINISH STUCCO	6 VINYL WINDOW
2 STONE VENEER	7 ALUMINUM STOREFRONT
3 BOARD & BATTEN	8 ASPHALT ROOF AHINGLES
4 FOAM TRIM	9 WINDOW AWNING & BRACKETS
5 METAL RAILING	

COLOR LEGEND (ALL COLORS SHERMAN WILLIAMS OR EQUAL)

A SW 6202 CAST IRON	D SW 7652 MINERAL DEPOSIT
B SW 6258 TRICORN BLACK	E SW 7674 PEPPERCORN
C SW 7642 PAVESTONE	F SW 7004 SNOWBOUND

Path: C:\GIS\Projects\City of Chino\Map Docs\Addendum

Source: Architecture Design Relationships 2023.

Harris & Associates

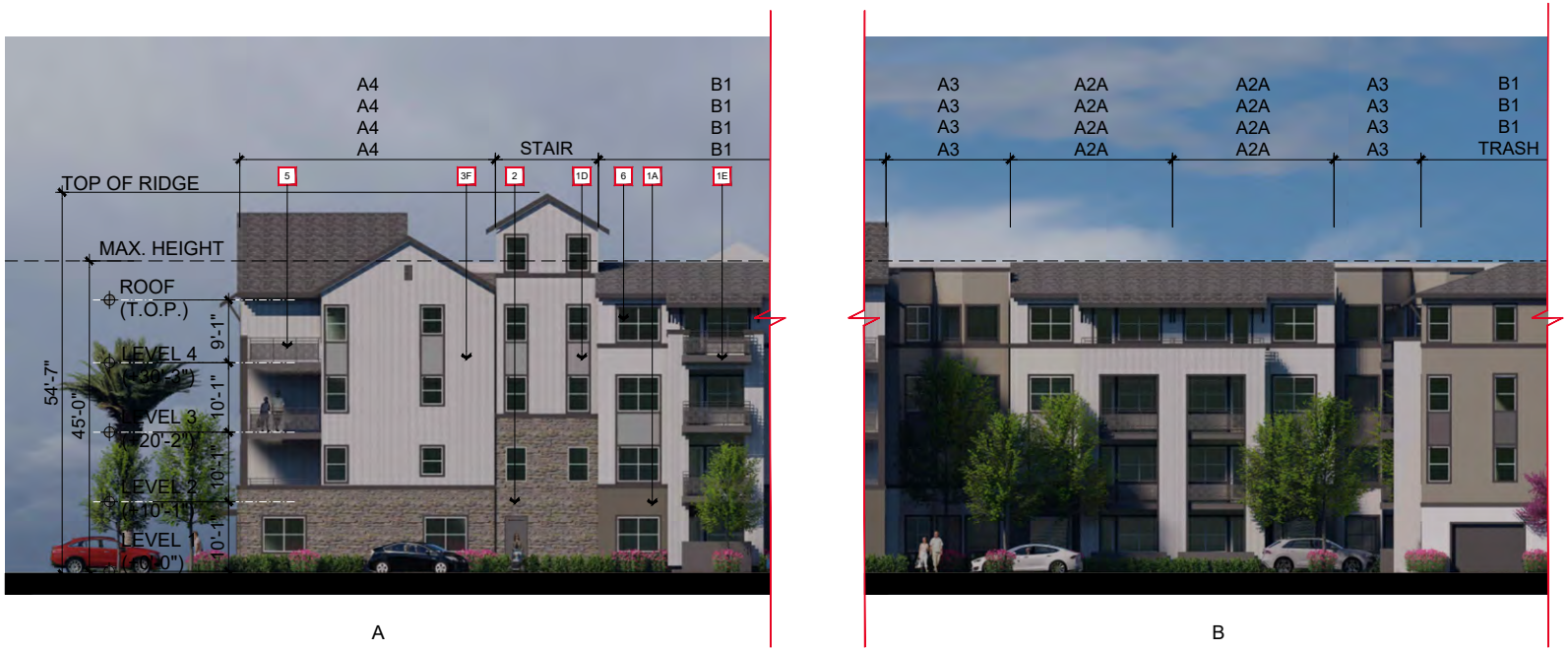
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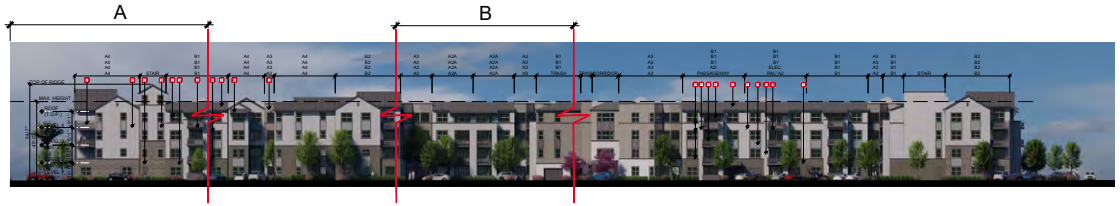
Figure 4c

Exterior Elevations

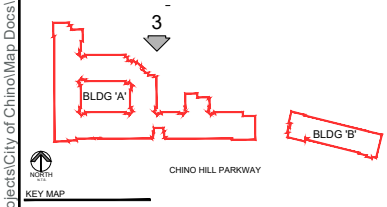
4700 Chino Hills Parkway

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3) BUILDING 'A' NORTH ELEVATION



MATERIAL LEGEND

1 LIGHT SAND FINISH STUCCO	6 VINYL WINDOW
2 STONE VENEER	7 ALUMINUM STOREFRONT
3 BOARD & BATTEN	8 ASPHALT ROOF AHINGLES
4 FOAM TRIM	9 WINDOW AWNING & BRACKETS
5 METAL RAILING	

COLOR LEGEND (ALL COLORS SHERMAN WILLIAMS OR EQUAL)

A SW 6202 CAST IRON	D SW 7652 MINERAL DEPOSIT
B SW 6258 TRICORN BLACK	E SW 7674 PEPPERCORN
C SW 7642 PAVESTONE	F SW 7004 SNOWBOUND

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Source: Architecture Design Relationships 2023.

Harris & Associates

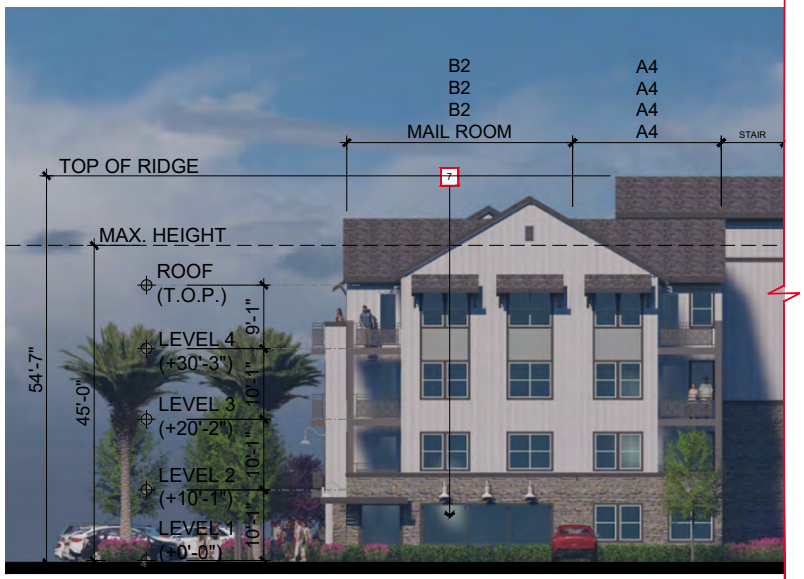
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Figure 4d

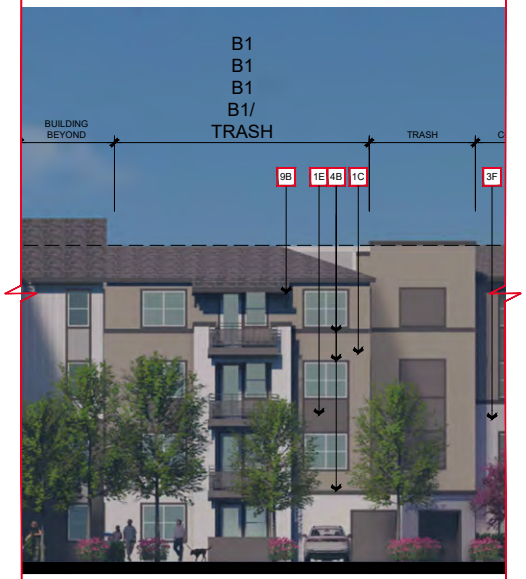
Exterior Elevations

4700 Chino Hills Parkway

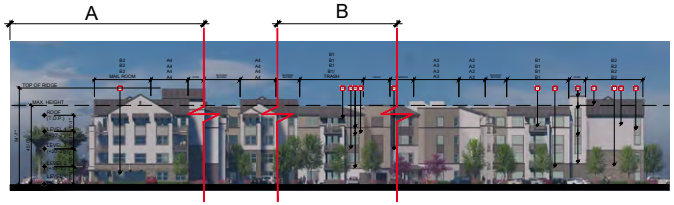
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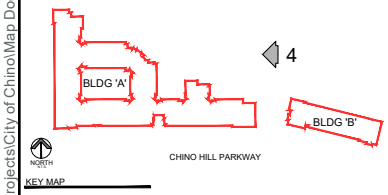
A



B



4) BUILDING 'A' EAST ELEVATION



MATERIAL LEGEND

1 LIGHT SAND FINISH STUCCO	6 VINYL WINDOW	
2 STONE VENEER	7 ALUMINUM STOREFRONT	
3 BOARD & BATTEN	8 ASPHALT ROOF AHINGLES	
4 FOAM TRIM	9 WINDOW AWNING & BRACKETS	
5 METAL RAILING		

COLOR LEGEND (ALL COLORS SHERMAN WILLIAMS OR EQUAL)

A SW 6202 CAST IRON	D SW 7652 MINERAL DEPOSIT
B SW 6258 TRICORN BLACK	E SW 7674 PEPPERCORN
C SW 7642 PAVESTONE	F SW 7004 SNOWBOUND

Path: C:\GIS\Projects\City of Chino\Map Docs\Addendum

Source: Architecture Design Relationships 2023.

Harris & Associates

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Figure 4e

Exterior Elevations

4700 Chino Hills Parkway

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Section 4 Environmental Checklist

4.1 Background

1. Project title:	4700 Chino Hills Parkway/Eucalyptus Business Park Specific Plan Addendum
2. Lead agency name and address:	City of Chino 13220 Central Avenue Chino, California 91710
3. Contact person name, address, and phone number:	Brian Sitton, Associate Planner City of Chino 13220 Central Avenue Chino, California 91710 (909) 334-3422/bsitton@cityofchino.org
4. Project location:	4700 Chino Hills Parkway 1025191060000, 1025151070000, 1025151080000, 1025482010000, 1025491010000
5 Project sponsor's name and address:	Gilad Ganish Orangethorpe Investment Partners LLC 2881 East La Cresta Avenue Anaheim, California 92806
6. General plan designation:	Eucalyptus Business Park Specific Plan (EBSP) Commercial Office.
7. Zoning:	EBSP- Commercial Office.
8. Description of project:	Refer to Section 1, Purpose of an Addendum, of this Addendum.
9. Surrounding land uses and setting:	Refer to Section 2 of this Addendum.
10. Other public agencies whose approval is required:	None.

4.2 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by the project, involving at least one impact that would represent a new significant environmental effect, a substantial

increase in the severity of a significant impact previously identified, or new information of substantial importance, as indicated by the checklist on the following pages.

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

4.3 Determination (to Be Completed by the Lead Agency)

On the basis of this initial evaluation:

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

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

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

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

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

Signature
Brian Sitton, Associate Planner, City of Chino

Date

4.4 Evaluation of Environmental Impacts

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

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 significant.

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Section 5 Environmental Analysis

This section provides evidence that no new significant impacts would occur as a result of either a change to the project or a change in circumstances. In accordance with Section 21166 of CEQA and 15162 of the CEQA Guidelines, and relevant case law, the baseline for this determination is the Approved Project. The section will briefly summarize the conclusions of the 1990 Certified EIR and then discuss whether or not the Proposed Project is consistent with the findings in that document. Applicable mitigation measures are referenced from the 1990 Certified EIR, are also provided in each section.

As discussed previously, this document is an addendum to the 1990 Certified EIR. The Proposed Project is located in the Eucalyptus Business Park Specific Plan Area.

The mitigation program identified to reduce potential impacts of the Proposed Project consists of Standard Requirements (SRs) and mitigation measures (MMs). The components of the mitigation program are described below.

- Standard Requirements. Existing SRs are based on local, state, or federal regulations or laws that are frequently required independently of CEQA review and also serve to offset or prevent specific impacts. Typical SRs include compliance with the provisions of the California and local building codes, South Coast Air Quality Management District rules, City ordinances, and local agency impact fees, among others.
- Mitigation Measures. Where a potentially significant environmental effect has been identified and is not reduced to a level considered less than significant through the application of SRs, mitigation measures have been provided. All applicable measures have been carried through from the 1990 Eucalyptus Business Park Specific Plan EIR. These mitigation measures have been incorporated into the MMRP for this Addendum. Any modifications to the mitigation measures from the Certified EIR are shown as ~~strikethrough~~ for deleted text and **bold** for new, inserted text.

The City may substitute, at its discretion, any mitigation measure (and timing thereof) that has: (1) The same or superior result as the original mitigation measure and (2) the same or superior effect on the environment. The City of Chino Planning Division, in conjunction with any appropriate agencies or City departments, shall determine the adequacy of any proposed "environmental equivalent timing" and, if deemed necessary, may refer said determination to the Planning Commission.

5.1 Aesthetics

5.1.1 Summary of Previous Environmental Analysis

The Certified EIR evaluated potential impacts to aesthetics based upon the adoption and implementation of the Eucalyptus Business Park Specific Plan. The Specific Plan included the development of 7.4 million square feet of manufacturing, industrial, warehouse/distribution, commercial, commercial/office, auto mall, and business park land uses within the City of Chino. Aesthetics and visual impacts for the Specific Plan are included in Section VI, Impacts Found Not to Be Significant, as the topic was evaluated previously in the Initial Study prepared for the Eucalyptus Business Park Specific Plan (Appendix A to the Certified EIR). It was determined that implementation of the Specific Plan would not result in a substantial negative aesthetic impact. It was also found that there would be no change to scenic views or vistas as views of existing residential areas, and public lands and roads would not be significantly impacted.

5.1.2 Impacts Associated with the Proposed Project

Except as provided in Public Resources Code Section 21099, would the project:

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒	☐
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☐	☒	☐

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☐	☒	☐

Comments

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Proposed Project Site is located in an adopted housing overlay zone (Affordable Housing Overlay) as designated by the City's 6th Cycle Housing Element Update. This allows for residential use in the area currently zoned as Office Commercial. The Project Site is currently vacant and contains no structures. The Proposed Project is in an urbanized portion of the City of Chino and would not be characterized as being as part of a scenic vista, nor would the Proposed Project block existing scenic vistas. Additionally, the Proposed Project when compared to the Approved Project would result in a reduction of 64,448 square feet of development.

The Proposed Project includes an overall reduction in development intensity compared to the Approved Project. Additionally, lighting and signage would continue to be in conformance with applicable Eucalyptus Business Park Specific Plan/City standards, and there would be no change to existing internal landscaping/screening which acts to soften potential visual and aesthetic impacts.

As such, no new impacts would occur due to construction of the Proposed Project and no additional mitigation measures are necessary. Accordingly, no new significant impacts or impacts of greater severity than those previously identified in the Certified EIR would occur. No changes or new information would require preparation of a subsequent EIR

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The two highways located in the vicinity of the Project Site (State Route 71 and State Route 142) are not designated as state scenic highways. The Project Site does not contain any State- or County-designated scenic highways. Nor are there any state- or County-designated scenic highways nearby. Therefore, as under the Approved Project, no impact would occur due to implementation

of the Proposed Project, and no additional mitigation is necessary. Accordingly, no new significant impacts or impacts of greater severity than those previously identified in the Certified EIR would occur. No changes or new information would require preparation of a subsequent EIR.

c) Would the project, 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?

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Certified EIR prepared for the Specific Plan concluded that implementation of the Specific Plan would not substantially degrade the existing visual character or quality of the Specific Plan Area. Like the Approved Project, the Proposed Project would change the site appearance as it would develop vacant land, however, as with the Approved Project, the Proposed Project would not result in a significant impact with regard to scenic quality. As previously discussed, the vacant Project Site is in an urbanized area with surrounding uses that included industrial, commercial, residential, and auto mall uses. The Proposed Project Site is located in an adopted housing overlay zone (Affordable Housing Overlay) as designated by the City's 6th Cycle Housing Element Update. This allows for residential use in the area currently zoned as Office Commercial. As with the Approved Project, the Proposed Project would be designed to create visually attractive and compatible uses consistent with the policies identified in the Eucalyptus Business Park Specific Plan. This would include conforming with the landscape concept plan and the site design guidelines identified in the Eucalyptus Business Park Specific Plan. Therefore, the change in visual character would not significantly impact the site or the surrounding area.

As such, no new impacts would occur due to construction of the Proposed Project and no additional mitigation measures are necessary. Accordingly, no new significant impacts or impacts of greater severity than those previously identified in the Certified EIR would occur. No changes or new information would require preparation of a subsequent EIR

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. As with the Approved Project, the Proposed Project would create new sources of light and glare in the Eucalyptus Business Park Specific Plan Area due to greater intensity and density of development as a result of implementation of the Approved Project. The Proposed Project would comply with the lighting specifications and implementation of design features as outlined in the "General Lighting Guidelines" identified in the Eucalyptus Business Park Specific Plan (Chapter V, Section F). Additionally, as development intensity for the Proposed Project would be reduced from the Approved Project, light and glare impacts would not be as severe as the uses identified under the Certified EIR. The Proposed Project would not modify the existing lighting, and lighting

on the Project site would continue to comply with the requirements of the Eucalyptus Business Park Specific Plan. Therefore, the Project would not introduce any new sources of lighting, nor would the Project create a new glare concern that was not already analyzed in the Certified EIR. No changes proposed by the Proposed Project would result in new impacts to light or glare as specified in the Approved Project. No changes or new information would require preparation of a subsequent EIR.

5.1.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

No mitigation was proposed in the Certified EIR.

5.2 Agriculture and Forest Resources

5.2.1 Summary of Previous Environmental Analysis

The Certified EIR evaluated potential impacts to agricultural and forestry resources with regard to implementation of the Eucalyptus Business Park Specific Plan. The Certified EIR concluded that implementation of the Specific Plan would result in the removal of Class I and Class III soils that would preclude their use for agricultural production and thereby contribute to the decline of agricultural soils in the City of Chino as well as the County of San Bernardino. The Certified EIR concluded that implementation of the Eucalyptus Business Park Specific Plan would result in a significant and unavoidable impact with regard to agricultural soils. In certifying the EIR for the Eucalyptus Business Park Specific Plan, the City adopted a Statement of Overriding Considerations pursuant to CEQA Guidelines § 15091, et seq., recognizing the Approved Project's impacts in this regard.

5.2.2 Impacts Associated with the Proposed Project

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:

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	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?	☐	☐	☐	☒	☐

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒	☐

Comments

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Certified EIR for the Eucalyptus Business Park Specific Plan concluded that implementation of the Specific Plan would result in a significant and unavoidable impact with regard to agricultural soils. As with the Approved Project, according to Figure OSC-1 of the Open Space and Conservation Element of the City's General Plan, the Proposed Project is in an area with Prime Farmland. However, the Proposed Project is within the envelope of development already analyzed, and therefore, no new significant impacts or impacts of greater severity than those previously identified in the Certified EIR would occur. No changes or new information would require preparation of a subsequent EIR.

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

No Impact. The Certified EIR prepared for the Specific Plan did not specifically address conflicts with zoning for agricultural use or Williamson Act Contracts. However, according to City of Chino General Plan Figure OSC-2 of the Open Space and Conservation Element of the City's General Plan, the Project Site is not engaged in a Williamson Act contract. As the Project Site is not zoned for agricultural use and no active Williamson Act contract applies to the Project Site, no impact would occur, and no mitigation is necessary. Accordingly, no new significant impacts or impacts of greater severity than those previously identified in the Certified EIR would occur. No changes or new information would require preparation of a subsequent EIR.

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

No Impact. The Certified EIR prepared for the Specific Plan did not specifically address conflict with zoning for forest land, timberland, or timberland zoned Timberland Production. However, the Project Site is not designated as forest land, is not forested or proposed for forestation. The proposed zone change from Office Commercial to Residential would not result in any conflicts with existing zoning for forest land, timberland, or timberland zoned Timberland Production. Therefore, no impact would occur, and no mitigation is necessary. Accordingly, no new significant impacts or impacts of greater severity than those previously identified in the Certified EIR would occur. No changes or new information would require preparation of a subsequent EIR.

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

No Impact. As previously discussed, the Certified EIR prepared for the Specific Plan did not specifically address impacts to forest land. However, neither the Project Site, nor the Planning Area as a whole, contains forest land. Implementation of the Proposed Project would not result in the loss of forest land or the conversion of forest land to non-forest uses. No impact would occur, and no mitigation is necessary. Accordingly, no new significant impacts or impacts of greater severity than those previously identified in the Certified EIR would occur. No changes or new information would require preparation of a subsequent EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. As previously discussed, significant impacts to agricultural resources were identified in the Certified EIR and were addressed in a Statement of Overriding Considerations adopted by the City. Like the Approved Project, the Proposed Project is also not designated or proximate to forest land. As

the Proposed Project is within the envelope of development already analyzed, no new significant impacts or impacts of greater severity than those previously identified in the Certified EIR would occur. No changes or new information would require preparation of a subsequent EIR.

5.2.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

No mitigation was proposed in the Certified EIR.

5.3 Air Quality

Since the certification of the 1990 Certified EIR for the Approved Project, the regulatory settings for the air quality have changed. The following discussion is provided to update conditions relative to development of the Proposed Project.

Regulatory Setting

Federal and State

The Clean Air Act (CAA) was passed in 1963 by the US Congress and has been amended several times. The 1990 Amendments represent the latest in a series of federal efforts to regulate the protection of air-quality in the United States. Geographic areas are classified under the national and California CAA as either in attainment or nonattainment for each criteria pollutant based on whether the ambient air-quality standards (AAQS) have been achieved. Both the State of California and the federal government have established health-based AAQS for seven air pollutants: ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), coarse inhalable particulate matter (PM_{10}), fine inhalable particulate matter ($PM_{2.5}$), and lead (Pb). Table 2 shows the most recently adopted AAQS.

Table 2. Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Ozone (O_3)[3]	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070 ppm	0.070 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	0.100 ppm	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	*	0.030 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	0.075 ppm	
	24 hours	0.04 ppm	0.14 ppm	
Respirable Coarse Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 µg/m^3	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	50 µg/m^3	150 µg/m^3	

Table 2. Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources
Respirable Fine Particulate Matter ($PM_{2.5}$)[4]	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	24 hours	*	35 µg/m^3	
Lead (Pb)	30-Day Average	1.5 µg/m^3	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	*	1.5 µg/m^3	
	Rolling 3-Month Average	*	0.15 µg/m^3	
Sulfates (SO_4)[5]	24 hours	25 µg/m^3	*	Industrial processes.
Visibility Reducing Particles	8 hours	ExCo =0.23/km visibility of 10≥ miles	No Federal Standard	Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.
Hydrogen Sulfide	1 hour	0.03 ppm	No Federal Standard	Hydrogen sulfide (H_2S) is a colorless gas with the odor of rotten eggs. It is formed during bacterial decomposition of sulfur-containing organic substances. Also, it can be present in sewer gas and some natural gas, and can be emitted as the result of geothermal energy exploitation.
Vinyl Chloride	24 hour	0.01 ppm	No Federal Standard	Vinyl chloride (chloroethene), a chlorinated hydrocarbon, is a colorless gas with a mild, sweet odor. Most vinyl chloride is used to make polyvinyl chloride (PVC) plastic and vinyl products. Vinyl chloride has been detected near landfills, sewage plants, and hazardous waste sites, due to microbial breakdown of chlorinated solvents.

Source: CARB 2016.

Notes: ppm: parts per million; µg/m^3: micrograms per cubic meter

* Standard has not been established for this pollutant/duration by this entity.

[1] California standards for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, and particulate matter (PM_{10}, $PM_{2.5}$, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

[2] National standards (other than O_3, PM, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The O_3 standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM_{10}, the 24-hour standard is attained when the expected number of days per calendar year

Table 2. Ambient Air Quality Standards for Criteria Pollutants

Pollutant	Averaging Time	California Standard[1]	Federal Primary Standard[2]	Major Pollutant Sources

with a 24-hour average concentration above 150 µg/m^3 is equal to or less than one. For $PM_{2.5}$, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

3 On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

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

5 On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. The 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

South Coast Air Quality Management District (SCAQMD)

The SCAQMD is the air pollution control agency for Orange County and the urban portions of the Counties of Los Angeles, Riverside, and San Bernardino, including Chino. The SCAQMD is the agency responsible for improving air quality in the South Coast Air Basin (SCAB) and ensuring that the National and California AAQS are attained and maintained. The attainment status for the SCAB is included in Table 3, *Attainment Status of Criteria Pollutants in the South Coast Air Basin*.

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

Pollutant	State	Federal
Ozone – 1-hour	**Nonattainment**	**Nonattainment[1]**
Ozone – 8-hour	**Nonattainment (Extreme)**	**Nonattainment (Extreme)**
PM_{10}	**Nonattainment (Serious)**	Attainment/Maintenance
$PM_{2.5}$	**Nonattainment**	**Nonattainment (Serious)**
CO	Attainment	Attainment
NO_2	Attainment	Attainment/Maintenance
SO_2	Attainment	Attainment
Lead	Attainment	Nonattainment (Los Angeles County only[1])
All Others	Attainment/Unclassified	Attainment/Unclassified

Source: SCAQMD 2022

1 The 1979 1-hour ozone NAAQS (0.12 ppm) was revoked, effective 6/15/2005; however, the SCAB has not attained this standard and therefore has some continuing obligations with respect to the revoked standard.

2 In 2010, the Los Angeles portion of the SCAB was designated nonattainment for lead under the new federal and existing state ambient air quality standards as a result of large industrial emitters. Remaining areas within the SCAB are unclassified.

The SCAQMD is responsible for preparing the Air Quality Management Plan (AQMP) for the SCAB in coordination with the Southern California Association of Governments (SCAG) to achieve the AAQS. Since 1979, a number of AQMPs have been prepared.

On December 2, 2022, the SCAQMD adopted the 2022 AQMP, an update to the 2016 AQMP. The 2022 AQMP addresses strategies and measures to attain federal ozone standards. The 2022 AQMP builds on the strategies of the 2016 AQMP, including, stationary and mobile source emission reductions from regulatory control measures, incentive-based programs, co-benefits from

climate programs, mobile source strategies, and reductions from federal sources such as aircrafts, locomotives, and ocean-going vessels. A key area of the 2022 AQMP is incentives for the accelerated deployment of zero emissions and low NOx technologies, as well as development of new technologies where low- and zero-emissions options are not currently available.

The 2022 AQMP proposes a total of 49 control measures for the 2022 AQMP. Thirty-one control measures target stationary sources, including NOx control measures, low-VOC measures, and leveraging co-benefits from climate and energy programs. The NOx measures are further grouped by residential, commercial, and large industrial combustion. As previously mentioned, many control measures focus on widespread deployment of low NOx technologies or development of new technologies, as well as implementation of State and local GHG emissions reduction regulations such as Title 24 energy code requirements and building electrification (e.g., Assembly Bill 3232). The remaining 18 control measures target mobile sources. They are facility-based mobile source measures, emission reductions from incentive programs, and partnerships with local, State, federal, and international entities.

The SCAQMD is also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws. Development projects in the City may be subject to the following SCAQMD rules (as well as others).

Rule 401, Visible Emissions. Prevents the discharge of pollutant emissions from an emissions source that results in visible emissions. Specifically, the rule prohibits the discharge of any air contaminant into the atmosphere by a person from any single source of emission for a period or periods aggregating more than 3 minutes in any 1 hour that is as dark as or darker than designated No. 1 on the Ringelmann Chart, as published by the U.S. Bureau of Mines.

Rule 402, Nuisance. Prevents the discharge of pollutant emissions from an emissions source that results in a public nuisance. Specifically, this rule prohibits any person from discharging quantities of air contaminants or other material from any source such that it would result in an injury, detriment, nuisance, or annoyance to any considerable number of people or to the public. Additionally, the discharge of air contaminants would also be prohibited where it would endanger the comfort, repose, health, or safety of any number of people or the public, or that 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. Reduces the amount of particulate matter entrained in the ambient air as a result of anthropogenic (human-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions.

Rule 1113, Architectural Coatings. Limits the VOC content of architectural coatings used on projects in the SCAQMD. Any person who supplies, sells, offers for sale, or manufactures any architectural coating for use on projects in the SCAQMD must comply with the current VOC standards set in this rule.

Rule 1403, Asbestos Emissions from Demolition/Renovation Activities. Specifies work practice requirements to limit asbestos emissions from building demolition and renovation activities, including the removal and associated disturbance of asbestos-containing materials.

5.3.1 Summary of Previous Environmental Analysis

The Certified EIR concluded that, even after the implementation of mitigation measures, the Approved Project would result in significant short-term and long-term air-quality impacts:

- **Short-term air quality impacts:** Construction of the Approved Project was determined to have the potential to result in significant and unavoidable impacts related to dust because dust levels and the potential reduction from best management practices could not be quantified.
- **Long-term air quality impacts:** Long-term operational impacts of the Approved Project were identified as a significant unavoidable impact due to project size, and the cumulative emissions contribution of 408,110 total daily vehicle miles. No adverse impacts were anticipated as a result of Approved Project energy use.

5.3.2 Impacts Associated with the Proposed Project

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 Proposed Project:

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impacts/No Changes or New Information Requiring Preparation of an EIR	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☐	☒	☐

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impacts/No Changes or New Information Requiring Preparation of an EIR	No Impact
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☐	☒	☐

Comments:

Methodology

The 1990 EIR did not quantify construction emissions, and operational emissions were estimated for the entire Eucalyptus Business Park Specific Plan Area. In order to compare estimated emissions for the project site only, construction and operation criteria pollutant emissions are calculated using the California Emissions Estimator Model (CalEEMod), Version 2022.1. CalEEMod default inputs are assumed for the Approved Project and the Proposed Project, except for trip generation data for the Proposed Project obtained from the project-specific traffic analysis (Appendix D, Traffic Study and VMT Memo). Detailed construction schedule, grading information, and project design are not available for the project site for the Approved or Proposed Project; however, estimated emissions provide a relative scale for emissions that would result from the land uses of the Proposed Project compared to the Approved Project. Modeling assumes compliance with SCAQMD Rule 403 (Appendix A, Air Quality and GHG Modeling).

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

Less Than Significant Impacts/No Changes or New Information Requiring Preparation of an EIR. The 1990 EIR did not evaluate project consistency with SCAQMD air quality plans. The current SCAQMD is the 2022 AQMP. As an approved project, preparation of emissions projections for the 2022 AQMP account for implementation of the Approved Project. As discussed below, the Proposed Project would result in reduced emissions compared to the Approved Project. Therefore, the Proposed Project would not result in emissions that were not accounted for in the 2022 AQMP and would not result in a conflict with the plan. Therefore, there are no changes or new significant information which would require preparation of an EIR.

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

Less Than Significant Impacts/No Changes or New Information Requiring Preparation of an EIR. The following describes changes in potential impacts from short-term construction activities and long-term operation of the Proposed Project compared to construction and operation of the Approved Project.

Construction Impacts

Construction emissions associated with the Approved Project were found to be significant and unavoidable in the 1990 EIR. Construction of the Proposed Project would also generate criteria air pollutants associated with construction equipment exhaust and fugitive dust from building construction, and pavement of asphalt and non-asphalt surfaces, and architectural coating. Overall construction would be similar or less intensive than that of the Approved Project (see Table 4). Therefore, there are no changes or new significant information which would require preparation of an EIR.

Table 4. Maximum Daily Construction Emissions

Year	Pollutants (lb/day)					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
Approved Project						
Demolition	3	27	25	<1	1	1
Site Preparation	4	40	37	<1	10	6
Grading	2	20	21	<1	4	2
Building Construction	2	16	27	<1	3	1
Paving	2	8	11	<1	1	1
Architectural Coating	199	1	3	<1	<1	<1
Maximum Daily Construction Emissions	**199**	**40**	**37**	**<1**	**10**	**6**
Proposed Project						
Demolition	3	27	25	<1	1	1
Site Preparation	4	40	37	<1	10	6
Grading	2	20	21	<1	4	2
Building Construction	3	14	34	<1	3	1
Paving	2	8	11	<1	1	1
Architectural Coating	109	1	5	<1	1	<1
Maximum Daily Construction Emissions	**109**	**40**	**37**	**<1**	**10**	**6**
SCAQMD Construction Threshold	**75**	**100**	**550**	**150**	**150**	**55**
Approved Exceeds Thresholds?	**Yes**	**No**	**No**	**No**	**No**	**No**
Proposed Exceeds Thresholds?	**Yes**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod Version 2022.1

Emissions totals may not equal 100 percent due to rounding.

Long-Term Operational Impacts

The Approved Project was identified to result in significant and unavoidable impacts, exceeding South Coast AQMD's operational thresholds. The Proposed Project would result in new construction, painted surfaces, and paved and landscaped surfaces that would generate air pollutant emissions from area sources, energy use, and mobile sources. However, due to proposed changes of land use numbers, emissions associated with the Proposed Project would be less than the Approved Project, primarily due to the decrease in vehicle trip generation (see Table 5). Therefore, there are no changes or new significant information which would require preparation of an EIR.

Table 5. Maximum Daily Regional Operation Emissions

Source	Maximum Daily Emissions (lbs/Day)					
	VOC	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Max Daily Emissions Approved Project						
Area	13	<1	19	<1	<1	<1
Energy	<1	3	2	<1	<1	<1
Mobile	30	31	294	1	25	5
Total	**43**	**34**	**315**	**1**	**25**	**5**
Max Daily Emissions Proposed Project						
Area	17	2	91	<1	11	10
Energy	<1	1	<1	<1	<1	<1
Mobile	6	5	52	<1	4	1
Total	23	8	143	<1	15	11
Net Change from Approved Project	-20	-26	-172	-1	-10	+6
SCAQMD Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Approved Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Proposed Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod Version 2022.1.

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

Less Than Significant Impacts/No Changes or New Information Requiring Preparation of an EIR. The 1990 EIR did not specifically evaluate impacts related sensitive receptors. However, as identified above, onsite construction activities would be similar to the Approved Project, and operational emission would be reduced compared to the Approved Project. Because vehicle traffic generation would be reduced compared to the Approved Project, the potential for carbon monoxide hot spots would be reduced under the Proposed Project. Therefore, the Proposed Project would not result in substantial changes requiring major revisions of the Approved Project. There are no changes or new significant information which would require preparation of an EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The 1990 EIR did not evaluate impacts related to odor. However, land uses and industrial operations associated with odor complaints include agricultural uses, wastewater treatment plants, food-processing plants, chemical plants, composting operations, refineries, landfills, dairies, and fiberglass molding facilities (CARB 2005). The Proposed Project does not include any such activities that would result in odor impacts as it proposes residential uses on site. Therefore, the Proposed Project would not result in substantial changes requiring major revisions of the Approved Project. No changes or new significant information which would require preparation of an EIR.

5.3.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

Construction Emissions

MM 3-1 The City will include a standard condition on all grading plans and mop approvals regarding dust control. This condition will help include but is not limited to regularly watering uncovered soil at least twice a day (late morning and after work) to form a crust on the surface, by paving dirt streets and roads, and by implementing other dust prevention measures outlined in the Air Quality Management District Rule Number 403.

5.4 Biological Resources

5.4.1 Summary of Previous Environmental Analysis

The Certified EIR evaluated potential impacts to biological resources for the implementation of the Eucalyptus Business Specific Plan. The Certified EIR determined that development of the site would result in the loss of existing natural and introduced vegetation and the wildlife they support. However, due to 96 percent of the land being occupied by disturbed pasture, this was not considered a significant impact. It was also determined that this land does support prey and forage for other wildlife species, specifically, for local raptors. Because the Chino Hills are located immediately west of the Plan Area, it was found that thousands of acres of suitable habitat and forage land would be provided for raptors and other wildlife species, and therefore would not result in a significant impact.

The Certified EIR prepared for the Eucalyptus Business Specific Plan identified the presence of ten burrowing owls within the Specific Plan Area, specifically along the San Antonio Channel. The Certified EIR concluded that development of the Specific Plan would remove habitat and displace the burrowing owls, thus resulting in a significant impact. However, mitigation via the dedication of open space along San Antonio Channel was implemented to reduce this impact to below a level of significance. The Certified EIR also concluded that no native wildlife species would be impacted by the loss of the 10 landscaped acres as it consisted of introduced species to this area. The Certified EIR identified that the Carbon Canyon flood control channel would remain undeveloped and would therefore, preserve the 1.8 acres of riparian wetland and the wildlife raptors it supports.

5.4.2 Impacts Associated with the Proposed Project

Would the project:

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
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	☐	☐	☐	☒	☐

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
or U.S. Fish and Wildlife Service?					
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒	☐
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒	☐

Comments

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The majority of the Eucalyptus Specific Plan Area has been developed. The Project Site itself is vacant, however it has already been studied under the 1990 Certified EIR. As with the Approved Project, the Proposed Project would include sensitive species on portions of the Plan Area that have not yet been developed, specifically the burrowing owl. As with the Approved Project, implementation of the Proposed Project would result in habitat modifications as the Project Site remains undeveloped. However, as the development footprint of the Proposed Project compared to this area of the Approved Project, has decreased, impacts to habitat modifications, on any species identified as a candidate, sensitive, or special status species would be less severe than what was identified in the Certified EIR. Therefore, the Proposed Project would have no new impact on these types of species. As such, no new impacts would occur due to construction of the Proposed Project and no additional mitigation measures are necessary. Accordingly, no new significant impacts or impacts of greater severity than those previously identified in the Certified EIR would occur. No changes or new information would require preparation of a subsequent EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Certified EIR prepared for the Specific Plan found a small area (1.8 acre) of willow riparian wetland vegetation along the earthen Carbon Canyon Channel that connects into the San Antonio Flood Control Channel. However, this channel is not located within the boundaries of the Proposed Project. Thus, implementation of the Proposed Project would not have a substantial adverse effect on any riparian or other sensitive habitat. Additionally, the development footprint for the Proposed Project is less intense than that of the Approved Project and therefore impacts to any riparian habitat or other sensitive natural community would be less severe than what was identified for the Approved Project. As such, no new impacts would occur due to construction of the Proposed Project and no additional mitigation measures are necessary. Accordingly, no new significant impacts or impacts of greater severity than those previously identified in the Certified EIR would occur. No changes or new information would require preparation of a subsequent EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. A biological survey was conducted as part of the Certified EIR and concluded that implementation of the Eucalyptus Business Park Specific Plan would not impact any area jurisdictional under Section 404 of the Clean Water Act. As the Proposed Project is within the envelope of development previously analyzed, no new impacts would occur due to the construction of the Proposed Project and no additional mitigation measures are necessary. Accordingly, no new significant impacts or impacts of greater severity than those previously identified in the Certified EIR would occur. No changes or new information would require preparation of a subsequent EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Certified EIR did not identify substantial interference with the movement of any native resident or migratory fish or wildlife species as a result of the implementation of the Eucalyptus Business Park Specific Plan. Additionally, the surrounding area for the Project Site is largely developed and therefore development of the Proposed Project would not impact a wildlife corridor. As the Proposed Project is within the envelope of development previously analyzed, no new impacts would occur due to the construction of the Proposed Project and no additional mitigation measures are necessary. Accordingly, no new significant impacts or impacts of greater severity than those previously identified in the Certified EIR would occur. No changes or new information would require preparation of a subsequent EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. Though the Certified EIR did not address this issue area, the Proposed Project would not conflict with the City's Municipal Code, specifically Chapter 20.19.040.D.3 which includes requirements for the removal of mature significant trees. The Proposed Project does not contain mature trees on site. As such, no new impacts would occur due to construction of the Proposed Project and no additional mitigation measures are necessary. Accordingly, no new significant impacts or impacts of greater severity than those previously identified in the Certified EIR would occur. No changes or new information would require preparation of a subsequent EIR.

f) Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Certified EIR did not address this issue area. There are three plans related to biological resources in the Chino region. They are the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), the County of San Bernardino Riparian Plan Conservation Ordinance, and The Preserve Resource Management Plan (RMP). However, none of these plans are applicable to the Specific Plan Area. Accordingly, no new significant impacts or impacts of greater severity than those previously identified in the Certified EIR would occur. No changes or new information would require preparation of a subsequent EIR.

5.4.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

The following mitigation measure from the Certified EIR is applicable to the Proposed Project. Revisions to the mitigation measure are shown in underline and ~~strikeout~~.

MM 4-1 Affected future developers shall retain a qualified biologist to help plan and monitor construction in or near the flood control/biological easement land. ~~The biologist will submit a report on the easement areas each year for three (3) years to the City Planning Department on the status of the Burrowing Owls.~~ Prior to issuance of grading permit, the applicant shall submit Burrowing Owl Survey to the City Planning Department.

5.5 Cultural Resources

5.5.1 Summary of Previous Environmental Analysis

Impacts to cultural resources for the Specific Plan are included in Section VI, Impacts Found Not to Be Significant, as the topic was evaluated previously in the Initial Study prepared for the Eucalyptus Business Park Specific Plan (Appendix A to the Certified EIR). It was determined that implementation of the Specific Plan would not cause a physical change affecting cultural resources.

5.5.2 Impacts Associated with the Proposed Project

Would the project:

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to § 15064.5?	☐	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?	☐	☐	☐	☒	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☐	☒	☐

Comments

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The proposed changes would not result in the development of any land that has not been previously analyzed in the Certified EIR, and the development footprint for the Proposed Project has decreased from that which was analyzed in the Approved Project. Therefore, development of the Project Site would result in the same, or less severe impacts, on cultural resources. As development footprint has decreased, changes for the Proposed Project would not cause any additional environmental impacts to the significance of historical resources. Impacts would be no more substantial that the impacts evaluated for the Certified EIR, and no additional mitigation is necessary. No changes or new information would require preparation of a subsequent EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The proposed changes would not result in the development of any land that has not been previously analyzed in the Certified EIR, and the development footprint for the Proposed Project has decreased from that which was analyzed in the Approved Project. Therefore, the discovery of an archaeological resource as a result of the development of the Proposed Project is unlikely. As intensity and scale of approved development has decreased, changes for the Proposed Project would not cause any additional environmental impacts to the significance of archaeological resources. Impacts would be no more substantial that the impacts evaluated for the Certified EIR, and no additional mitigation is necessary. No changes or new information would require preparation of a subsequent EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The proposed changes would not result in the development of any land that has not been previously analyzed in the Certified EIR, and the development footprint for the Proposed Project has decreased from that which was analyzed for this portion of the Specific Plan under the Approved Project. Therefore, impacts to human remains are not expected to occur. State Health and Safety Code Section 7050.5 and Public Resources Code Section 5097.98 provide guidance with regard to the accidental discovery of human remains. The Proposed Project would be required to comply with these requirements. Impacts would be no more substantial that the impacts evaluated for the Certified EIR, and no additional mitigation would be required. No changes or new information would require preparation of a subsequent EIR.

5.5.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

No mitigation was proposed in the Certified EIR.

5.6 Energy

5.6.1 Summary of Previous Environmental Analysis

The 1990 Certified EIR did not evaluate energy as a topic. At the time of certification of the EIR, the topic was not included in the State CEQA Guidelines. In January of 2018, the Governor's Office of Planning and Research (OPR) transmitted its proposal for the comprehensive updates to the CEQA Guidelines to the California Natural Resources Agency. California adopted amendments to the CEQA Guidelines on December 28, 2018, formalizing the consideration of Energy as a CEQA Guidelines topical issue. The current scientific information does not demonstrate that the Proposed Project will result in new or substantially greater significant impacts than those that would have resulted from implementation of the 1990 Approved Project. A change in significance thresholds does not qualify as "significant new information," as it does not show that the physical impact the project will have on the environment has changed.

5.6.2 Impacts Associated with the Proposed Project

Would the project:

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
a) Result potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☐	☒	☐
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒	☐

Comments

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Proposed Project, as with the Approved Project, and like all development, would be responsible for an incremental increase in the consumption of energy resources during construction due to on-site use of construction equipment and vehicle and truck trips. Construction activities that include

the use of natural gas, petroleum, or electricity would be temporary and negligible and would not have an adverse effect. Construction equipment would be required to comply with CARB emissions requirements for construction equipment, which includes measures to reduce fuel-consumption, such as imposing limits on idling and requiring older engines and equipment to be retired, replaced, or repowered. In addition, the project would be required to comply with goals and policies in the City's General Plan aimed at reducing energy impacts.

The Open Space and Conservations Element specifically includes the following objectives and policies with regard to energy conservation that apply to the Proposed Project:

Goal OSC-4 Minimize the consumption of energy and non-renewable resources, and promote environmental sustainability.

Objective OSC-4.1 – Incorporate green building practices throughout the City.

Policies

- **P1.** The City shall continue to comply with California Building Code (Title 24) provisions, including Part 11 of the Code, referred to as CALGreen or the California Green Building Standards Code and consider exceeding the standards where appropriate and as deemed necessary to meet the City's goals and/or legal obligations.
- **P6.** The City shall require that all new residences sold with appliances install all Energy Star-Rated appliances. All new residences shall use compact florescent lights in all standard light installations. Installation of these measures shall be confirmed.
- **P7.** The City shall encourage all new construction to use low- or no-toxicity building materials.

Goal OSC-5 Reduce greenhouse gas emissions by 15 percent below 2008 levels by 2020.

Objective OSC-5.1 – Take appropriate actions to reduce greenhouse gas emissions and Chino's contribution to global climate change.

Policies

- **P1.** The City shall promote strategic land use patterns, a diverse and efficient public transportation system, and other measures that reduce the number and length of motor vehicle trips.
- **P2.** The City shall seek to reduce greenhouse gas emissions associated with City operations, using measurements of its greenhouse gas emissions to quantify and improve the effectiveness of these efforts.
- **P3.** The City shall work with homeowners and business owners to support their efforts to reduce greenhouse gas emissions.

The Proposed Project would involve minimal new street and pathway lighting, and residential energy use. Indirect energy use would include wastewater treatment from the proposed residences and solid waste removal at off-site facilities. Nominal impacts are expected from project implementation. The Proposed Project does not include any features that would encourage the wasteful, inefficient, or unnecessary consumption of utilities. Additionally, the Proposed Project would result in a decrease in vehicle trips to and from the Project Site from what was analyzed in the 1990 Certified EIR. Therefore, operation of the Proposed Project would not substantially increase fuel use.

The Proposed Project would be subject to the Title 24 Building Energy Efficiency Standards, which apply to new construction and regulate energy consumed for heating, cooling, ventilation, water heating, and lighting, as further discussed below. Compliance with the most recent applicable Building Energy Efficiency Standards would ensure that the energy efficiency of the proposed buildings is maximized to the extent feasible. The most recent adopted standards, the 2022 Building Energy Efficiency Standards, include requirements for photovoltaic systems and features such as insulation requirements to reduce electricity demand from the energy grid.

The Proposed Project would not create a new significant impact or a substantial increase in the severity of previously identified effects. In addition, as described in this Addendum, no significant impacts are associated with the Proposed Project. Therefore, impacts related to energy would remain less than significant and no changes or new information would require preparation of a subsequent EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Proposed Project would be subject to state regulations for energy efficiency, namely, California's Building Energy Efficiency Standards and CALGreen, both of which are set forth in the California Code of Regulations, Title 24. California's Building Energy Efficiency Standards were established in 1978 and serve to enhance and regulate California's building standards. These standards include regulations for residential and nonresidential buildings constructed in California to reduce energy demand and consumption. The Building Energy Efficiency Standards are updated periodically (every 3 years) to incorporate and consider new energy efficiency technologies and methodologies. CALGreen institutes mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential, and state-owned buildings, as well as schools and hospitals. On August 11, 2021, the CEC adopted the 2022 Energy Code. In December, it was approved by the California Building Standards Commission for inclusion into the California Building Standards Code. The 2022 Energy Code encourages efficient electric heat pumps, establishes electric-ready requirements for new homes, expands solar photovoltaic and battery storage standards, strengthens ventilation standards, and more. Buildings whose permit

applications are applied for on or after January 1, 2023, must comply with the 2022 Energy Code. The 2022 Building Energy Efficiency Standards (Energy Code) went into effect January 1, 2023. The Proposed Project would meet Building Energy Efficiency Standards and CALGreen standards as required to reduce energy demand and increase energy efficiency.

At a regional level, the Proposed Project would be subject to the policies set forth in SCAG's 2016 RTP/SCS. The RTP/SCS is a regional growth-management strategy that targets per-capita GHG reduction from passenger vehicles and light-duty trucks in the Southern California region pursuant to Senate Bill (SB) 375. In addition to demonstrating the region's ability to attain and exceed the GHG emission-reduction targets set forth by CARB, the 2016 RTP/SCS outlines a series of actions and strategies for integrating the transportation network with an overall land use pattern that responds to projected growth, housing needs, changing demographics, and transportation demands. Thus, successful implementation of the 2016 RTP/SCS would result in more complete communities with a variety of transportation and housing choices, while reducing automobile use. With regard to individual developments, such as the Proposed Project, the strategies and policies set forth in the 2016 RTP/SCS include improved energy efficiency. The 2016 RTP/SCS goal is to actively encourage and create incentives for energy efficiency, where possible. As discussed previously, the Proposed Project would comply with the CALGreen standards and the Title 24 Building Energy Efficiency Standards. For these reasons, the Proposed Project would be consistent with the SCAG 2016 RTP/SCS.

The Proposed Project would follow applicable energy standards and regulations during construction. In addition, the Proposed Project would be built and operated in accordance with all existing, applicable regulations at the time of construction. As such, the Proposed Project would not conflict with existing energy standards and regulations. Electric and natural gas consumption practices for the Proposed Project would be in accordance with current City regulations and practices. As such, the Proposed Project would be considered consistent with the goals and policies of the City's Open Space and Conservation Element. Objectives from the Open Space and Conservation Element of the City's General Plan are consistent with Electricity and Natural Gas services for the Proposed Project. A less than significant impact will occur.

5.6.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

No mitigation was proposed in the Certified EIR.

5.7 Geology and Soils

5.7.1 Summary of Previous Environmental Analysis

The Certified EIR studied potential impacts with regard to geology and soils as a result of implementation of the Eucalyptus Business Park Specific Plan. No significant impacts were anticipated and any geologic impact would be associated with grading activities, however, sufficient mitigation is provided. It was ultimately concluded that the potentially active Central Avenue Fault traversed through the Plan Area but that compliance with the Uniform Building Code (UBC) and applicable City standards by future development would result in a less than significant impact. Additionally, implementation of mitigation measures outlined in the Certified EIR would ensure that impacts with regard to seismic-related ground failure or roil erosion would be reduced to a less than significant impact. No impacts were identified with regard to landslides, unstable soils, or septic systems.

5.7.2 Impacts Associated with the Proposed Project

Would the project:

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:					
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☐	☒	☐

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
iv) Landslides?	☐	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (2013), creating direct or indirect substantial risks to life or property?	☐	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☐	☒	☐

Soil liquefaction is the phenomenon in which water saturated cohesionless soil temporarily loses its strength when subjected to dynamic forces. The soils primarily vulnerable to liquefaction are saturated sands in a loose to medium dense condition. Liquefied soils may behave like liquids losing load bearing strength; however, they generally maintain some residual strength during and immediately after liquefaction. Structures located on liquefiable soils such as silt or sand may experience significant damage during an earthquake due to the instability of structural foundations and the moving earth. Liquefaction more often occurs in earthquake-prone areas underlain by young alluvium where the groundwater table is less than 50 feet below the ground surface. The probability of liquefaction occurring is relatively small because of the type of earthquake expected and the distance from active faults. The magnitude and nature of settlement due to liquefaction depends on

many factors, including the homogeneity of the liquefiable layers, the depth to the liquefiable layer, the magnitude of the triggering event, and the duration of the shaking.

Comments

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

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning map, issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Certified EIR disclosed that the potentially active Central Avenue Fault traversed through the Plan Area, however, this fault did not appear on the Alquist-Priolo Earthquake Fault Zoning Map. However, the implementation of seismic design provisions for structural safety will help minimize threats to human safety in the event of an earthquake. Additionally, the Geotechnical Investigation (see Appendix B) prepared for the Proposed Project found that the Project Site is not within a state-designated Alquist -Priolo Earthquake Fault Zone for fault rupture hazards. As with the Approved Project, for the Proposed Project, all structures will be designed in accordance with the seismic design provisions of the Uniform Building Codes to promote maximum safety in the event of an earthquake. Impacts would be no more substantial that what was evaluated for the Certified EIR, and no additional mitigation would be required. No changes or new information would require preparation of a subsequent EIR.

ii) Strong seismic ground shaking?

Significant Impact/No Changes or New Information Requiring Preparation of an EIR. As identified in the Certified EIR, seismic hazard from ground shaking is typical for large areas of Southern California. However, the implementation of seismic design provisions for structural safety will help minimize threats to human safety in the event of an earthquake. As with the Approved Project, the Geotechnical Investigation concluded that the effects of strong ground shaking could be mitigated if all structures were designed in accordance with the seismic design provisions of the Uniform Building Codes to promote maximum safety in the event of an earthquake. Impacts would be no more substantial that the impacts evaluated for the Certified EIR, and no additional mitigation would be required. No changes or new information would require preparation of a subsequent EIR.

iii) Seismic-related ground failure, including liquefaction?

Significant Impact/No Changes or New Information Requiring Preparation of an EIR. As with the Approved Project, the Proposed Project would occur in a location susceptible to liquefaction. As the

development for the Proposed Project would occur at the same location as the Approved Project, findings for liquefaction would be consistent with that which was already identified. Therefore, the Proposed Project would not result in any new impacts or increase the severity of impacts with respect to liquefaction compared to the Approved Project and impacts would be no more substantial that the impacts evaluated for the Certified EIR, and no additional mitigation would be required. No changes or new information would require preparation of a subsequent EIR.

iv) Landslides?

Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Certified EIR prepared for the Eucalyptus Business Park Specific Plan concluded that the Approved Project would not result in landslides because the Plan Area is relatively flat and not located on or adjacent to steep slopes. According to the Geotechnical Investigation, there are no known landslides near the site, nor is the site in the path of any known or potential landslides. Therefore, the potential for slope stability hazards to adversely affect the proposed development is considered low. As the Proposed Project falls within the envelope of development previously analyzed, impacts would be no more substantial that the impacts evaluated for the Certified EIR, and no additional mitigation would be required. No changes or new information would require preparation of a subsequent EIR.

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

Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Certified EIR prepared for the Eucalyptus Business Park Specific Plan did not identify soils for the Plan Area that would be characterized as having an extensive erosion potential. The Certified EIR also stated that during construction, erosion could occur if there were high wind conditions and exposed soils. With implementation of Mitigation Measure GEO-11, which implements measures to minimize project erosion during the construction phase, the impact would be reduced to a less than significant impact. Development of the Proposed Project would be required to adhere to the mitigation measures outlined in the Certified EIR. Impacts would be no more substantial that the impacts evaluated for the Certified EIR, and no additional mitigation would be required. No changes or new information would require preparation of a subsequent EIR.

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

Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Certified EIR prepared for the Eucalyptus Business Park Specific Plan did not identify the soils in the Specific Plan Area as being unstable or subject to landslide, lateral spreading, or subsidence. Additionally, the Plan Area, and therefore, the Proposed Project Site is relatively flat and in an urbanized area. Therefore, the potential for on- or off-site landslide is negligible. Additionally, like the Approved Project, the Proposed Project would be required to implement Mitigation Measure

GEO-5 to reduce impacts. Additionally, the Geotechnical Investigation found that the potential for regional subsidence to adversely impact the proposed structure is considered low. As the development for the Proposed Project would occur within the same location as the Approved Project, findings for unstable geologic unit or soil would be consistent with that which was already identified. Therefore, impacts would be no more substantial that the impacts evaluated for the Certified EIR, and no additional mitigation would be required. No changes or new information would require preparation of a subsequent EIR.

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

Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Certified EIR did not analyze this issue for the Eucalyptus Business Park Specific Plan as Table 18-1 of the UBC was not available at the time. The United States Department of Agriculture (USDA) analyzes the shrink-swell potential of each soil type, and categorizes it as "Low," "Moderate," "High," or "Very High." Where the shrink swell classification is moderate to very high, shrinking and swelling can damage buildings, roads and other structures. According to Figure 4.6-3 of the City's General Plan, the Project Site is within an area of low shrink-swell potential. Additionally, mitigation measures were identified in the Certified EIR that would further reduce potential impacts to a less than significant level. Consistent with the Approved Project, the Proposed Project would be required to use special design and construction precautions to minimize damage to structures. Implementation of current codes and regulations identified in the Municipal Code would ensure that potential impacts related to expansive soils would remain less than significant. This includes compliance with Standard Condition of Approval 3.6, requiring a detailed soil report to investigate the adequacy of building engineering for the local soil conditions. Further, implementation of Policy P1 under Objective SAF-1.1 requiring adequate mitigation measures would be included in all new development to reduce the risks from expansive soil would further reduce impacts. Finally impacts with regard to expansive soils would be reduced with implementation of Policies P2 and P3 under Objective SAF-1.1, outlining that new development would be required to adequately investigate all geological hazards.

There are no substantial changes in the circumstances or new information that was not known and could not have been known at the time of the adoption of the Approved Project that would require the preparation of a subsequent EIR. No additional mitigation would be required, and no changes or new information would require preparation of a subsequent EIR.

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

No Impact. The Certified EIR prepared for Eucalyptus Business Park Specific Plan did not address this issue. However, the Approved Project as well as the Proposed Project do not use septic tanks

or alternative wastewater disposal systems, nor are the use of them proposed. Therefore, no impact would occur. There are no substantial changes in the circumstances or new information that was not known and could not have been known at the time of the adoption of the Approved Project that would require the preparation of a subsequent EIR. No additional mitigation would be required, and no changes or new information would require preparation of a subsequent EIR.

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

Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Certified EIR prepared for Eucalyptus Business Park Specific Plan concluded that implementation of the Approved Project would not destruct, cover or modify any unique paleontological features. As the Proposed Project falls within the envelope of development previously analyzed, impacts would be no more substantial that the impacts evaluated for the Certified EIR, and no additional mitigation would be required. No changes or new information would require preparation of a subsequent EIR.

5.7.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

Geology

MM 7-1 Future developments shall acquire a Department of Army permit if the San Antonio Channel is affected by the particular project.

MM 7-2 Applicants for individual development projects shall prepare geotechnical reports to the City of Chino to determine the appropriate design of buildings, footings, foundations, etc., prior to issuance of a grading permit.

Seismicity

MM 7-3 All building plans shall be prepared and stamped by a qualified engineer to assure that new buildings will be constructed in conformance with the Uniform Building Code, specifically those standards pertaining to earthquake damage reduction.

MM 7-4 If determined necessary by the City, the applicant shall submit an analysis of potential seismic effects onsite, including estimated values of peak ground motion, in accordance with accepted engineering standards.

MM 7-5 In order to fully evaluate potential liquefaction hazard, as well as the possibility of seismicity induced settlement and ground lurching, applicants for individual development projects shall precisely locate the water table and collect soil samples so that the potential for seismic settling can be taken into account in project design, prior to issuance of grading permit. In addition, a Standard Penetration Test sampling of potentially liquefiable soils will also be conducted.

Soils

MM 7-6 The project engineers for individual projects within the specific plan area shall prepare grading plans to determine the cut and fill ratio required to minimize the amount of imported or exported soil needed.

MM 7-7 The nature and extent of suitable onsite alluvial materials shall be further examined as part of future geotechnical investigations for individual projects prior to issuance of grading permits.

MM 7-8 To mitigate the potential settlement of compressible soils, these materials shall either be removed prior to fill placement or compacted in place.

MM 7-9 Individual project applicants and their contractors shall comply with all applicable provisions of the City's construction standards and guidelines.

MM 7-10 Future developments shall prepare foundation studies to determine if their particular project is located on soils characterized with sufficient bearing strength.

MM 7-11 Individual project applicants shall, to the satisfaction of the City, implement measures to minimize project erosion during the construction phase. Erosion control measures include, but are not limited to the following:

- Place sandbags around the perimeter of the site prior to initial grading if grading is to be undertaken during the rainy season.
- Minimize the length of time soils lay exposed.
- Water down all exposed soils periodically.
- Revegetate grading areas under the direction of a licensed landscape architect.

5.8 Greenhouse Gas Emissions

5.8.1 Summary of Previous Environmental Analysis

The 1990 Certified EIR did not evaluate the effects of GHG emissions. At the time of certification of the EIR, the topic was not included in the State CEQA Guidelines. Senate Bill 97 required the Governor's Office of Planning and Research (OPR) to develop and the California Natural Resources Agency (Agency) to adopt, amendments to the CEQA Guidelines addressing the analysis and mitigation of greenhouse gas emissions. Such amendments became effective on March 18, 2010. The information provided in this section includes the most current scientific data on GHG and global climate change but does not change the conclusions of the 1990 Certified EIR. Current information on GHG emissions and global climate change do not trigger the need for preparation of a subsequent or supplemental EIR pursuant to Public Resources Section 21166 and CEQA Guidelines Section 15162. The current scientific information does not demonstrate that the

Proposed Project will result in new or substantially greater significant impacts than those that would have resulted from implementation of the 1990 Approved Project. A change in significance thresholds does not qualify as "significant new information," as it does not show that the physical impact the project will have on the environment has changed.

5.8.2 Impacts Associated with the Proposed Project

Would the project:

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒	☐

The environmental and regulatory settings for the Proposed Project have changed since certification of the EIR for the Approved Project. The following discussion is provided to update conditions relative to development of the Proposed Project.

Environmental Setting

Greenhouse Gases and Climate Change

A GHG is any gas that absorbs infrared radiation and traps heat in the atmosphere. GHGs are produced from natural processes and human activities. The accumulation of GHGs in the atmosphere influences the long-term atmospheric temperatures and contributes to global climate change. Carbon dioxide (CO_2) accounts for the largest amount of GHG emissions, and CO_2, methane (CH_4), and nitrous oxide (N_2O), collectively, amount to 80 percent of the total radiative forcing from well-mixed GHGs (CARB 2014).

For each GHG, a global warming potential has been calculated to reflect how long emissions remain in the atmosphere and how strongly each GHG absorbs energy on a per-kilogram basis relative to CO_2. For example, 1 pound of CH_4 has 25 times more heat-capturing potential than 1 pound of CO_2. To simplify reporting and analysis, GHG emissions are typically reported in metric

tons of carbon dioxide equivalent (MT CO_2e) units. Global warming potential is a metric that indicates the relative climate forcing of a kilogram of emissions when averaged over the period of interest. Table 6, Global Warming Potential for Select Greenhouse Gases, identifies the CO_2e and atmospheric lifetimes of basic GHGs.

Table 6. Global Warming Potential for Select Greenhouse Gases

Pollutant	Atmospheric Lifetime (years)	Global Warming Potential (100-year)[a]
CH_4	12	28
CO_2	~100[b]	1
N_2O	121	265

Source: CAPCOA 2021.

Notes: CH_4 = methane; CO_2 = carbon dioxide; N_2O = nitrous oxide

[a] The warming effects over a 100-year period relative to other GHGs.

[b] CO_2 has a variable atmospheric lifetime and cannot be readily approximated as a single number.

Regulatory Setting

State

California has enacted a variety of legislation relating to climate change, much of which has set aggressive goals for GHG emissions reductions throughout the state. Executive Order S-03-05 (2005) established the goal of reducing GHG emissions to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050. In September 2006, Governor Arnold Schwarzenegger signed the Global Warming Solutions Act of 2006 (Assembly Bill 32), requiring the California Air Resources Board to establish a statewide GHG emissions cap for 2020 based on 1990 emissions and to adopt mandatory reporting rules for significant sources of GHG emissions. In April 2015, Governor Jerry Brown signed Executive Order B-30-15, which established the goal of reducing GHG emissions to 40 percent below 1990 levels by 2030. This goal was set into law in Senate Bill 32. Assembly Bill 1279, the California Climate Crisis Act, enacted in September 2022, updates the goals of Assembly Bill 32. The bill established a statewide goal to achieve net-zero GHG emissions by 2045 and to achieve and maintain net-negative GHG emissions thereafter. Additionally, the bill established a specific target for statewide anthropogenic GHG emissions to be reduced to at least 85 percent below the 1990 levels by 2045.

Local

The City of Chino adopted a Climate Action Plan in November 2013. An updated plan, the 2020 to 2030 Climate Action Plan Update (CAP) was adopted in November 2020. The CAP included a 2016 inventory of community GHG emissions, forecasted 2020 and 2030 community GHG emissions, and established a target to reduce GHG emissions by 46 percent below 2008 levels by 2030. This goal would put the City on a path toward the State's long-term goal to achieve statewide carbon neutrality (zero net emissions) by 2045. The CAP includes reduction measures related to energy efficiency, water conservation, alternative transportation, solid waste reduction, and clean

energy to achieve the CAP target. The CAP is a qualified CAP under CEQA Guidelines Section 15183.5(b). The CAP outlines a GHG Development Review process to determine whether a project is consistent with the CAP.

Comments

Methodology

Projected operation-related GHG emissions are calculated using the California Emissions Estimator Model (CalEEMod), Version 2022.1 based on assumptions consistent with the Air Quality analysis above. GHG emissions were not quantified for the previous project. For comparison purposes, the GHG emissions from the 1990 Approved Project are modeled using CalEEMod based on default modeling assumptions.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The significance of project GHG emissions is based on consistency with the City's CAP Development Review Process. Appendix A to the Greenhouse Gas Emissions Screening Tables (LSA 2020) contains a flow chart that diagrams this development review process. The first step is to determine whether a project is exempt from CEQA. The Proposed Project is not exempt from CEQA and is subject to the next step in the flow chart. The second step is to determine if the project relies on an addendum to a previous CEQA document. Because an EIR Addendum is the appropriate level of CEQA review for the Proposed Project, the Proposed Project answers "Yes" to this step of the flow chart, and GHG emissions are determined to be less than significant. Additionally, the Proposed Project reduces the proposed development intensity on the project site compared to the 1990 Approved Project. Operational GHG emissions from the Proposed Project compared to the 1990 Approved Project are compared in Table 7. As such, GHG emissions would be reduced under Proposed Project development compared to planned GHG emissions under the 1990 Approved Project. This impact would be less than significant.

Table 7. Estimated Operation Greenhouse Gas Emissions

Emissions Source	Emissions (MT CO_2e)
Estimated 1990 Approved Project Annual Operation Emissions	
Area	9
Energy	1,614
Mobile	9,883
Waste	126
Water	163
Total	**11,795**
Estimated Proposed Project Annual Operation Emissions	
Area	28
Energy	428
Mobile	2,055
Waste	69
Water	31
Total	**2,611**
Net Change from Existing	

Source: CAPCOA 2022. (Output data is provided in Attachment 1.)
Notes: MT CO_2e = metric tons of carbon dioxide equivalent

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. As described above, the City's CAP is the applicable plan adopted for the purposes of reducing GHG emissions. The Proposed Project would reduce GHG emissions compared to planned emissions under the 1990 Approved Project and, as a Project subject to an Addendum EIR, would have less than significant GHG emissions. This impact would be less than significant.

5.8.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

No mitigation measures were identified in the Certified EIR because GHG emissions were not evaluated.

5.9 Hazards and Hazardous Materials

5.9.1 Summary of Previous Environmental Analysis

The Certified EIR studied impacts with regard to hazards and hazardous materials resulting from implementation of the Eucalyptus Business Park Specific Plan. The Certified EIR concluded that the there was a potential that hazardous materials and substances, i.e., oil, pesticides, chemicals, etc. may be handled and released as a function of the permitted industrial and commercial uses. To eliminate adverse impacts associates with the handling of hazardous substances, the Certified EIR outlined several mitigation measures with the intent to review and regulate all uses to be developed onsite. Permitted uses would also be subject to regulatory review by the City and all other appropriate agencies. With implementation of the adopted mitigation measures, all safety impacts would be mitigated to a level of insignificance.

5.9.2 Impacts Associated with the Proposed Project

Would the project:

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒	☐

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒	☐
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒	☐

Comments

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Certified EIR prepared for the Eucalyptus Business Park Specific Plan concluded that due to the industrial nature of the uses approved under the Specific Plan, impacts with regard to hazards and hazardous materials would occur. Mitigation measures were adopted to reduce impacts to a less than significant level. It should be noted that the mitigation measures proposed in the Certified EIR are no longer applicable as they have been satisfied or superseded by standard procedures and regulations.

Adherence to existing hazardous materials regulations would ensure compliance with existing safety standards related to hazardous materials, and the safety procedures mandated by applicable federal, state, and local laws and regulations (RCRA, California Hazardous Waste Control Law, and principles prescribed by the California Department of Health Services, Centers for Disease Control and Prevention, and National Institutes of Health) would ensure that risks resulting from the routine use, storage, transport or disposal of hazardous materials, or hazardous wastes associated with construction and implementation of future development projects within in the Proposed Project, are less than significant.

Though the Proposed Project, like the Approved Project, would adhere to existing hazardous materials regulation, the Proposed Project Site has since been designated as a site to include in the City of Chino 2021-2029 Regional Housing Needs Allocation (RHNA) with an Affordable Husing Overlay. This allows for residential use in the area currently zoned as Office Commercial. Therefore, impacts would be less severe than what was identified in the Certified EIR. There are no substantial changes in the circumstances or new information that was not known and could not have been known at the time of the adoption of the Approved Project that would require the preparation of a subsequent EIR. No additional mitigation would be required, and no changes or new information would require preparation of a subsequent EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. As previously mentioned, the Certified EIR prepared for the Eucalyptus Business Park Specific Plan concluded that due to the industrial nature of the uses approved under the Specific Plan, impacts with regard to hazards and hazardous materials would occur. Mitigation measures were adopted to reduce impacts to a less than significant level. It should be noted that the mitigation measures proposed in the Certified EIR are no longer applicable as they have been satisfied or superseded by standard procedures and regulations.

Existing hazardous materials regulations would minimize the potential for exposure to adverse health or safety effects. The Proposed Project would not involve the use of materials in a manner that poses any substantial hazards to people, or to animal or plant populations. Additionally, the Proposed Project Site has since been designated as a site to include in the City of Chino 2021-2029 Regional Housing Needs Allocation (RHNA) with an Affordable Husing Overlay. This allows for residential use in the area currently zoned as Office Commercial Therefore, impacts would be less severe than what was identified in the Certified EIR. There are no substantial changes in the circumstances or new information that was not known and could not have been known at the time of the adoption of the Approved Project that would require the preparation of a subsequent EIR.

No additional mitigation would be required, and no changes or new information would require preparation of a subsequent EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. This topic area was not addressed in the Certified EIR for the Eucalyptus Business Park Specific Plan. However, there are no schools located within one-quarter mile of the Project Site. The closest school to the Project Site is Chaparral Elementary School, located at 4849 Bird Farm Road, approximately 0.6 miles south of the Project Site. Therefore, as significant impact would not occur. The Proposed Project would not create a new significant impact or a substantial increase in the severity of previously identified effect and would not require the preparation of a subsequent EIR.

d) Would the project 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, create a significant hazard to the public or the environment?

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Proposed Project does contain sites that have been identified on various regulatory databases pursuant to Government Code Section 65962.5, therefore, the Proposed Project would not create a significant hazard to the public or the environment. The Geotechnical Investigation prepared for the Proposed Project also concluded that based on a review of the California Geologic Energy Management Division (CalGEM) Well Finder website, the site is not located within the boundary of a known oil field and no oil wells are located in the immediate vicinity of the Project Site. A Phase I Environmental Site Assessment was prepared for the Proposed Project (see Appendix C) and determined that no evidence of recognized environmental conditions (RECs) or other notable findings in connection exist within the Project Site. The Proposed Project would not create a new significant impact or a substantial increase in the severity of previously identified effect and would not require the preparation of a subsequent EIR.

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?

No Impact. The Proposed Project does not reside within an airport land use plan or within two miles of a public airport or public use airport. The Chino Airport is approximately 3 miles from the Project Site. Therefore, no impact would occur, and the Proposed Project would not create a new significant impact or a substantial increase in the severity of previously identified effect and would not require the preparation of a subsequent EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Certified EIR determines that there would be no possible interference with an emergency response or evacuation plan. As the Proposed Project lies within the envelope of development previously analyzed under the Certified EIR, no new significant impact or a substantial increase in the severity of previously identified effect and would not require the preparation of a subsequent EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Proposed Project is not located within land designated as a Very High Fire Hazard Severity Zone (VHFHSZ). Additionally, the Project Site is located in an urbanized area of the City and would not expose people or structures to a significant risk of loss, injury or death involving wildland fires. No new significant impact or a substantial increase in the severity of previously identified effect and would not require the preparation of a subsequent EIR.

5.9.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

Mitigation measures identified in the Certified EIR have previously been satisfied or are no longer applicable.

5.10 Hydrology and Water Quality

5.10.1 Summary of Previous Environmental Analysis

The Certified EIR studied potential impacts to hydrology and water quality resulting from the implementation of the Eucalyptus Business Park Specific Plan. The Certified EIR determined that there would be no alteration to flood waters, no change in the quality of ground waters, and there would not be any exposure of people or property to flooding. The Plan Area is not located within an identified 100-year floodplain; nor is the Plan Area subject to inundation by seiche, tsunami, or mudflow. On this basis, the Approved Project was not found to have the potential to expose people or structures to a significant risk of loss, injury or death involving flooding.

5.10.2 Impacts Associated with the Proposed Project

Would the project:

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒	☐

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would: (i) Result in substantial erosion or siltation on- or off-site; (ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite; (iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or (iv) Impede or redirect flood flows?	☐	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒	☐
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒	☐

Comments

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. Construction of the Proposed Project would include earthwork activities that could potentially result in erosion and sedimentation, which could subsequently degrade downstream receiving waters and violate water quality standards. Stormwater runoff during the construction phase may contain silt and debris, resulting in a short-term increase in the sediment load of the municipal storm drain system. Substances such as oils, fuels, paints, and solvents may be inadvertently spilled on the Project Site and subsequently conveyed via stormwater to nearby drainages, watersheds, and groundwater. The California Green Building Code (CalGreen) requires the implementation of stormwater controls and development of a Stormwater Pollution Prevention Plan (SWPPP) for projects less than one acre to minimize the amount of sediment and other pollutants from being discharged in stormwater runoff during construction, as well as various temporary Best Management Practices (BMPs) designed to prevent erosion and siltation, as well as the off-site conveyance of various on-site constituents. Therefore, construction impacts associated with water quality standards would be less than significant.

Once operational, the Project Site would be developed with a 298-unit residential development, and associated parking. Collectively, these on-site areas would reduce the potential for soils erosion and topsoil loss that could affect surface water quality. The structural and paved improvements would cover impervious areas lacking any exposed soils. Therefore, operational impacts associated with water quality standards would be less than significant.

The required project-specific Water Quality Management Plan (WQMP) would ensure that hydrology and water quality impacts are less than significant. Moreover, as part of project design features, low impact development and water quality treatment solutions would be prescribed in the project specific WQMP to improve water quality. NPDES Municipal Stormwater Permits require new development and significant redevelopment projects to incorporate post-construction BMPs to comply with the local Standard Urban Stormwater Mitigation Plan (SUSMP) or Water Quality Management Plan (WQMP) to reduce the quantity of rainfall runoff and improve the quality of water that leaves a site. As required by the Regional Water Quality Control Board (RWQCB), the Proposed Project would be required to minimize the short and long-term impacts on receiving water quality from new developments and significant re-developments through submittal of a WQMP, emphasizing implementation of Low Impact Development (LID) principles and addressing hydrologic conditions of concern, prior to issuance of any grading or building permits. These requirements would ensure that adequate BMPs would be implemented to ensure that violation of any water quality standards or waste discharge requirements do not occur. Therefore, impacts with regard to water quality would be less than significant. No new significant impact or

a substantial increase in the severity of previously identified effect and would not require the preparation of a subsequent EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Proposed Project would require the use of water for dust suppression during project demolition, grading and construction. The amount of water that will be required to control dust during grading and construction will be minimal and not significantly impact existing groundwater supplies. Once completed, the Proposed Project would require potable water to serve the project residents, water the landscaping and provide required fire flow. The City of Chino's drinking water supply is a blend of surface water (rivers, lakes, streams) and groundwater (wells). Surface water is imported from Northern California by the Metropolitan Water District of Southern California via the State Water Project aqueduct and is treated at the Agua de Lejos Water Treatment Plant located in Upland. Groundwater supplies are extracted via local wells operated by the City of Chino or by the Chino Basin Desalter Authority (CBDA). To ensure that sufficient groundwater is available, the City would continue coordination with the Chino Basin Watermaster, inland Empire Utilities Authority (IEUA), and CBDA.

The Proposed Project involves the construction of a 298-unit residential development with associated parking. As such, the Proposed Project would introduce greater impervious area to the site. The zone change allowing for residential would not result in water usage that would substantially decrease water supplies, including groundwater supplies, or interfere substantially with groundwater management or recharge. The Proposed Project would not substantially impair groundwater recharge necessary to replenish the City's water supply; thus, impacts related to groundwater recharge would be less than significant.

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

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

(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

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

(iv) Impede or redirect flood flows?

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. There are no streams or rivers located on or near the Project Site. Project construction would involve some earth-disturbing activities, including grading, that could expose on-site soils to erosion and surface water runoff. However, the Project Site is located within a developed area, with industrial, auto mall, residential and commercial land uses surrounding the Project Site; as such, the development of the project would not cause a significant change to surface bodies of water in a manner that could cause siltation or erosion.

Construction activities would entail grading, excavation, and other ground-disturbing activities, which could temporarily alter surface drainage patterns and increase the potential for flooding, erosion, or siltation. However, the Proposed Project would comply with existing local, state, and federal regulations related to drainage and runoff. As such, the Proposed Project would not result in flooding on or off site. Additionally, the Proposed Project would be required to comply with the NPDES Construction General Permit, which would require implementation of BMPs and erosion control measures, thereby reducing the effects of construction activities on erosion and drainage patterns. The Proposed Project would comply with existing local, state, and federal regulations related to drainage and runoff.

The Proposed Project Site does not contain any streams or rivers having the potential to be altered by implementation of the Proposed Project. Additionally, the Project Site is not within an area of 100-year or 500-year flooding hazard.

No new significant impact or a substantial increase in the severity of previously identified effect and would not require the preparation of a subsequent EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. According to the Geotechnical Investigation prepared for the Proposed Project, the Project Site is not located in a coastal area. Therefore, tsunamis are not considered a significant hazard at the Project

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. Therefore, flooding resulting from a seismically induced seiche is considered unlikely. Lastly, the Geotechnical Investigation found that the Project Site is not within an area of 100-year or 500-year flooding hazard. No new significant impact or a substantial increase in the severity of previously identified effect and would not require the preparation of a subsequent EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Certified EIR prepared for the Eucalyptus Business Park Specific Plan did not address obstruction of implementation of a water quality control plan or sustainable groundwater management plan. The Proposed Project does not propose any uses that would result in degradation to water quality. The Proposed Project includes a zoning change for the Project Site from Office Commercial to Residential. As previously discussed, the Proposed Project would continue to comply with any water quality standards or waste discharge requirements and would not alter existing BMPs designed to manage storm water quality during operation. No new significant impact or a substantial increase in the severity of previously identified effect and would not require the preparation of a subsequent EIR.

5.10.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

Mitigation measures proposed in the Certified EIR have previously been superseded by regulatory compliance, are satisfied, or are no longer applicable.

5.11 Land Use and Planning

5.11.1 Summary of Previous Environmental Analysis

The Certified EIR studied impacts with regard to land use resulting from the implementation of the Eucalyptus Business Park Specific Plan. The Certified EIR determined that implementation of the Eucalyptus Business Park Specific Plan would result in the transition of land use from existing agricultural, light industrial, commercial, residential, and vacant uses to more urbanized commercial and industrial uses. It was determined that implementation of the Specific Plan would remove existing Class I and Class III soils from potential agricultural production, thus contributing to the decline of agricultural operations and soils in the City. It was also determined that development standards of the Specific Plan would ensure that onsite compatibility between future developments and compatibility with surrounding land uses would occur. The Specific Plan included mitigation measure to resolve existing inconsistencies found in and between the General Plan and Zoning Ordinance.

5.11.2 Impacts Associated with the Proposed Project

Would the project:

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
a) Physically divide an established community?	☐	☐	☐	☒	☐
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒	☐

Comments

a) Would the project physically divide an established community?

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Certified EIR prepared for the Eucalyptus Business Park Specific Plan determined that the Approved Project would not displace a community. As with the Approved Project, the Proposed Project does not include any features that would be considered divisive. The Proposed Project

occurs on vacant land. The Project Site is located in an urbanized area with commercial, industrial, and residential land uses. The Proposed Project would decrease the development footprint compared to what was studied in the Certified EIR and would therefore not result in more severe impacts. The Proposed Project would not create a new significant impact or a substantial increase in the severity of previously identified effects and impacts would remain less than significant.

b) Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Certified EIR prepared for the implementation of the Eucalyptus Business Park Specific Plan determined that a significant and unmitigated land use impact would occur with regard to the decline of agricultural soils in the City of Chino and the County of San Bernardino. The Project Site is currently vacant and surrounded by industrial, commercial, and residential uses. The Project Site is currently designated as Office Commercial. The Proposed Project Site is located in an adopted housing overlay zone (Affordable Housing Overlay) as designated by the City's 6th Cycle Housing Element Update. This allows for residential use in the area currently zoned as Office Commercial. . Additionally, the proposed residential uses would be consistent with goals and objectives outlined in the City's General Plan including:

Goal LU-1 Enhance the livability of Chino neighborhoods.

Objective LU-1.1 – Provide a variety of housing types that meet the housing needs of residents of all income levels in Chino.

Policies

- **P2.** Wherever feasible, affordable housing shall be integrated into both new and established neighborhoods.

Goal LU-7 Locate new development to create a consolidated pattern of urbanization, maximizing the use of existing services and facilities.

Objective LU-7.1 – Encourage new development at a rate that can be served by available and planned public infrastructure.

Policies

- **P2.** Residential, commercial, industrial, and office uses shall be developed simultaneously, to the greatest extent possible, to provide a balance of housing, jobs, and retail to provide a sufficient economic base for City operations.

The Proposed Project would not create a new significant impact or a substantial increase in the severity of previously identified effects. In addition, as described in this Addendum, no significant impacts are associated with the Proposed Project. Therefore, impacts related to land use would remain less than significant and no changes or new information would require preparation of a subsequent EIR.

5.11.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

No mitigation was proposed in the Certified EIR.

5.12 Mineral Resources

5.12.1 Summary of Previous Environmental Analysis

The Certified EIR studied impacts with regard to mineral resources resulting from the implementation of the Eucalyptus Business Park Specific Plan. It was determined that no impact would result from the Approved Project and that no rare or limited mineral resources exist in the Specific Plan Area.

5.12.2 Impacts Associated with the Proposed Project

Would the project:

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
a) Result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?	☐	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☐	☒

For the purpose of CEQA analysis, mineral resources refer to aggregate resources that consist of sand, gravel, and crushed rock. Aggregate resources provide bulk and strength in construction materials such as portland cement and asphaltic concrete. Other nonfuel mineral resources include metals such as gold, silver, iron, and copper and industrial metals such as boron compounds, rare-earth elements, clays, limestone, gypsum, salt, and dimension stone.

The California Geological Survey (CGS) classifies the regional significance of mineral resources in accordance with the California Surface Mining and Reclamation Act (SMARA) of 1975. The State Geologist is responsible for classifying areas within California that are subject to urban expansion or other irreversible land uses. SMARA also allowed the State Mining and Geology Board (SMGB), after receiving classification information from the State Geologist, to designate lands containing mineral deposits of regional or statewide significance. Classification into MRZ

is completed by the State Geologist in accordance with the SMGB's priority list and according to the presence or absence of significant mineral resources.

Of the four MRZ categories, lands classified as MRZ-2 are of the greatest importance. Such areas are underlain by demonstrated mineral resources or are located where geologic data indicate that significant measured or indicated resources are present. MRZ-2 areas are designated by SMGB as being "regionally significant." Such designations require that a lead agency's land use decisions involving designated areas be made in accordance with its mineral resource management policies (if any exist) and that it consider the importance of the mineral resource to the region or the state as a whole, not just to the lead agency's jurisdiction. The MRZ-1 zone depicts areas where adequate geologic information indicates that no significant mineral deposits are present, or where it is judged that little likelihood exists for their presence. MRZ-3 indicates areas of undetermined mineral resource significance. According to the City's General Plan, the Project Site resides in the MRZ-3 zone.

Comments

a) Would the project result in the loss of availability of a known mineral resource that would be a value to the region and the residents of the state?

No Impact. As the Project Site resides in MRZ-3, it does not contain known mineral resources of any value to the region or the residents of California. No impact would occur, and no changes or new information would require preparation of a subsequent EIR.

b) Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. The Project Site does not contain mineral resources of local importance as identified on a local general plan, specific plan, or other land use plan. No impact would occur, and no changes or new information would require preparation of a subsequent EIR.

5.12.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

No mitigation was proposed in the Certified EIR.

5.13 Noise

5.13.1 Summary of Previous Environmental Analysis

The Certified EIR studied impacts with regard to noise resulting from the implementation of the Eucalyptus Business Park Specific Plan. It was determined that there would not be a significant increase in ambient noise, nor would there be exposure of people to severe noise levels. The Certified EIR concluded that during construction onsite wildlife and surrounding land uses would be temporarily interested by noise created by construction equipment and activities. Temporary short-term noise impacts would result from construction activities. Due to the urbanized nature of the Specific Plan Area, all potential impacts with regard to noise were deemed less than significant under the Certified EIR.

5.13.2 Impacts Associated with the Proposed Project

Would the project result in:

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	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?	☐	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, exposure of people residing or working in the project area to excessive noise levels?	☐	☐	☐	☐	☒

Comments

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Certified EIR prepared for the Eucalyptus Business Park Specific Plan determined that implementation of the Specific Plan would not generate excessive noise.

The Proposed Project Site is located in an adopted housing overlay zone (Affordable Housing Overlay) as designated by the City's 6th Cycle Housing Element Update. This allows for residential use in the area currently zoned as Office Commercial . According to the Traffic Memo prepared for the Proposed Project by LSA, the change from Office Commercial to Residential would generate fewer daily and peak-hour trips (Appendix D). Therefore, associated vehicular noise associated with the Proposed Project would be less severe than what was identified under the Approved Project.

Like the Approved Project, the Proposed Project would result in temporary construction noise and operational noise as vehicular traffic would result from implementation development, however, as the amount of vehicular traffic is expected to decrease due to the change in use from Office Commercial to Residential, the Proposed Project would not create a new significant impact or a substantial increase in the severity of previously identified effects. No additional mitigation would be necessary, and no changes or new information would require preparation of a subsequent EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. As with the Approved Project, the Proposed Project would result in short-term construction impacts. Construction of the Proposed Project would employ similar equipment, operating under City Noise Ordinance constraints and limitations, also analyzed in the Certified EIR. As with the Certified EIR, the Proposed Project would be subject to Section 15.44.030 of the City of Chino Municipal Code, which states that construction shall only occur between the hours of 7:00 am and 8:00 pm, Monday through Saturday, with no construction allowed on Sundays or Federal Holidays, unless otherwise approved by the City of Chino. Additionally, as the development footprint of the Proposed Project is less than that which was evaluated for the Approved Project, construction impacts would be less severe for the Proposed Project. The Proposed Project would not create a new significant impact or a substantial increase in the severity of previously identified effects that would require the preparation of a subsequent EIR.

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 result in exposure of people residing or working in the project area to excessive noise levels?

No Impact. Similar to the conditions evaluated in the Certified EIR, there are no public airports, public use airports, heliports, or private airstrips in the Proposed Project Site vicinity. The Proposed Project would not expose people residing or working in the area to excessive levels of aircraft- or airport-related noise. The Proposed Project would not create a new significant impact or a substantial increase in the severity of previously identified effects.

Overall, the Proposed Project would be consistent with the Approved Project as analyzed in the Certified EIR. The Proposed Project would not create a new significant impact or a substantial increase in the severity of previously identified effects.

5.13.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

No mitigation was proposed in the Certified EIR.

5.14 Population and Housing

5.14.1 Summary of Previous Environmental Analysis

The Certified EIR studied impacts with regard to population and housing resulting from implementation of the Eucalyptus Business Park Specific Plan. It was determined that there would be no alteration in the location, distribution, density of growth rate of human population. The Certified EIR also determined that implementation of the Eucalyptus Business Park Specific Plan would be considered a growth inducer.

5.14.2 Impacts Associated with the Proposed Project

Would the project:

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	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 roads or other infrastructure)?	☐	☐	☐	☒	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☐	☒

Comments

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Proposed Project would result in a population increase of approximately 981 people in the area. This is based on census data for the City, which estimated 3.27 people per household multiplied by the number of units proposed (298 residential units). As of May 2022, the population of the City of Chino is 91,547 persons (California Department of Finance 2022). The increase of 981 people would result in a 1.07 percent population increase. This 1.07 percent increase in population

is not considered a substantial direct increase. In addition, indirect growth is related to the expansion of infrastructure, such as water, sewer or street systems that would serve areas beyond the proposed development. The Proposed Project would be served by existing infrastructure that the Project would connect to.

Each eight-year planning cycle, the City is allocated a specificities number of housing units called the Regional Housing Needs Allocation (RHNA). The RHNA quantifies current and future housing growth within a city. Through research and analysis, the Housing Element identifies available candidate housing sites and establishes the City's official housing policies and programs to accommodate the City of Chino's RHNA as determined by the Southern California Association of Governments (SCAG). The RHNA allocation given to each jurisdiction intends to accomplish the following:

- Increase the housing supply and the mix of housing types, tenure (rental or ownership), and affordability in all cities and counties within the region in an equitable manner.
- Promote infill development and socioeconomic equity, the protection of environmental and agricultural resources, and the encouragement of efficient development patterns.
- Promote an improved intraregional relationship between jobs and housing.

For the 2021–2029 planning period, the City of Chino is allocated a total of 6,978 units, including:

- 2,113 units affordable to very low-income households
- 1,284 units affordable to low-income
- 1,203 units affordable to moderate-income
- 2,378 units affordable to above-moderate income

The Certified EIR stated that as the business park became occupied, the need for housing within the area would increase accordingly. It also stated that there would be greater demand placed on employee housing. Implementation of the Proposed Project would not only satisfy the need for housing resulting from implementation of the business park, but it would also provide a means to fulfill the RHNA allocation designated for the City. Therefore, the Proposed Project would not result in inducement of substantial population growth, either directly or indirectly, and impacts would be less than significant. The Proposed Project would not displace any existing housing or necessitate the construction of housing elsewhere. A less than significant impact will occur.

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

No Impact. The Project Site is comprised of vacant land. The Proposed Project would, therefore, not displace any residents and would not necessitate construction of replacement housing. As a result, the Proposed Project would not create a new significant impact or a substantial increase in

the severity of previously identified effects. No changes or new information would require preparation of a subsequent EIR.

5.14.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

No mitigation was proposed in the Certified EIR.

5.15 Public Services

5.15.1 Summary of Previous Environmental Analysis

The Certified EIR studied impacts with regard to public services resulting from implementation of the Eucalyptus Business Park Specific Plan. It was determined that impacts with regard to schools, parks, or other public facilities would be less than significant. Police and fire protection services were found to be less than significant with implementation of mitigation that would require coordination with the City regarding hydrants, fire sprinklers, emergency access, security features, as well as the payment of fees.

5.15.2 Impacts Associated with the Proposed Project

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

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
a) Fire protection?	☐	☐	☐	☒	☐
b) Police protection?	☐	☐	☐	☒	☐
c) Schools?	☐	☐	☐	☒	☐
d) Parks?	☐	☐	☐	☒	☐
e) Libraries or local daycare facilities?	☐	☐	☐	☒	☐

Comments

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

a) Fire protection?

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Chino Valley Independent Fire District (CVIFD) provides fire services to the City of Chino, the City of Chino Hills, and the surrounding unincorporated areas, including Chino's Sphere of Influence (SOI). The CVIFD currently serves a population of 172,922 people, not including the prison population. The Project Site is already within the CVIFD service area, and once operational, the Proposed Project would continue to be served by the CVIFD. As previously mentioned, the Proposed Project would not induce substantial population growth in the City. Although the Proposed Project would potentially result in a slight increase in calls for service to the Project Site in comparison to the existing conditions, this increase is expected to be nominal and not to result in the need for new facilities. However, in accordance with the City's General Plan, Policy P5 under Objective PFS-1.1 calls for the City to charge a Fire Facility development impact fee would be implemented. As a result, the Proposed Project would not create a new significant impact or a substantial increase in the severity of previously identified effects. No changes or new information would require preparation of a subsequent EIR.

b) Police protection?

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Chino Police Department serves a community of 84,173 with 102 sworn officers, which translates to a ratio of 1.22 officers per 1,000 residents. The sworn officers include one Chief, two Captains, and six Lieutenants.

The Project Site is already within the Chino Police Department service area, and once operational, the Proposed Project would continue to be served by the Chino Police Department. As previously mentioned, the Proposed Project would not induce substantial population growth in the City. Although the Proposed Project would potentially result in a slight increase in calls for service to the Project Site in comparison to the existing conditions, this increase is expected to be nominal and not to result in the need for new facilities. However, in accordance with the City's General Plan, to help pay for police substations that would be required in conjunction with new development, Policy P3 of Objective PFS-2.2 calls for a Police Facility development impact fee to be charged would be implemented. As a result, the Proposed Project would not create a new significant impact or a substantial increase in the severity of previously identified effects. No changes or new information would require preparation of a subsequent EIR.

c) Schools?

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Chino Valley Unified School District (CVUSD), encompassing 88 square miles, serves the City of Chino and includes the Cities of Chino and Chino Hills, part of the City of Ontario, plus unincorporated areas of San Bernardino County. The CVUSD has a total of 34 public schools,

including 20 elementary schools, one K-8 school, five junior high schools, and five high schools. As discussed in Section 5.14(a), the Proposed Project would not induce substantial population growth in the City. However, pursuant to Government Code Section 65995 et seq. (which was passed as Senate Bill 50 in 1998), school districts may collect development fees. According to Government Code Section 65996, the development fees authorized by SB 50 are deemed to be "full and complete school facilities mitigation." Therefore, the Proposed Project would result in less-than-significant impacts associated with the construction or expansion of school facilities.

d) Parks?

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. As discussed in Section 5.14(a), the Proposed Project would not induce substantial population growth in the City. As such, the Proposed Project would not increase the use of existing parks. Additionally, due to the anticipated limited number of construction personnel, short-term impacts to local recreational facilities would not occur. The Proposed Project also includes development of 19,216 square feet of open space and 7,514square feet of amenity use that would accommodate the population that would result from implementation of the Proposed Project. As a result, the Proposed Project would not create a new significant impact or a substantial increase in the severity of previously identified effects. No changes or new information would require preparation of a subsequent EIR.

e) Library services or local daycare facilities?

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. As previously mentioned, the project would not induce substantial population growth in the City. As such, a substantial increase in patronage at libraries, community centers, and other public facilities is not expected. Nonetheless, availability and accessibility of electronic library services would reduce the need and demand for library facilities. Similarly, other municipal services are typically funded through user fees, property tax or sales tax revenues to which the future Project residents would contribute. Therefore, the project would result in less-than-significant impacts associated with the construction or expansion of public facilities.

5.15.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

Mitigation measures proposed in the Certified EIR have previously been superseded by regulatory compliance, are satisfied, or are no longer applicable.

5.16 Recreation

5.16.1 Summary of Previous Environmental Analysis

The Certified EIR studied impacts with regard to recreation resulting from implementation of the Eucalyptus Business Park Specific Plan. It was determined that there is no park site located within the Specific Plan Area. The closest park identified weas Ruben S. Ayala Community Park located northeast of the Plan Area at the corner of Edison and Central Avenues. This park is located 0.5 miles away from the Plan Area. No significant recreational impacts were identified as a result of the Approved Project.

5.16.2 Impacts Associated with the Proposed Project

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	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?	☐	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒	☐

Comments

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?

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. As discussed in Section 5.14(a), the Proposed Project would not induce substantial population growth in the City. As such, the Proposed Project would not increase the use of existing parks and recreational facilities such that substantial physical deterioration of recreational facilities would occur or be accelerated. Additionally, due to the anticipated limited number of construction personnel, short-term impacts to local recreational facilities would not occur. The Proposed Project

also includes development of 19,216 square feet of open space and 7,514square feet of amenity use that would accommodate the population that would result from implementation of the Proposed Project. Therefore, substantial physical deterioration of these facilities would not occur or be accelerated with implementation of the Proposed Project, and the Proposed Project would result in less-than-significant impacts. As a result, the Proposed Project would not create a new significant impact or a substantial increase in the severity of previously identified effects. No changes or new information would require preparation of a subsequent EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Proposed Project would not promote or indirectly induce new development that would require the construction or expansion of recreational facilities. As previously discussed, implementation of the Proposed Project would also contribute 19,216 square feet of open space and 7,514square feet of amenity use that would accommodate the population resulting from the Proposed Project. Further, as per Chapter 18.01 of the Chino Municipal Code, Park Land Dedication, In-lieu Fees and Park Development Fees, implements the provision of the Quimby Act. As a result, the Proposed Project would not create a new significant impact or a substantial increase in the severity of previously identified effects. No changes or new information would require preparation of a subsequent EIR.

5.16.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

No mitigation was proposed in the Certified EIR.

5.17 Transportation

5.17.1 Summary of Previous Environmental Analysis

The Certified EIR studied impacts with regard to transportation resulting from implementation of the Eucalyptus Business Park Specific Plan. It was determined that nine of the 25 links would exceed Level of Service (LOS) C by the Year 200 with the Approved Project. All roadway links would provide LOS C or better under cumulative except for Chino Hills Parkway, Central Avenue, and Ramona Avenue. the Proposed Project. It was also concluded that the Approved Project would contribute to poor levels of service at several intersections, but with implementation of mitigation, impact would be reduced to a less than significant impact.

5.17.2 Impacts Associated with the Proposed Project

Would the project:

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
a) Conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒	☐
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☒	☐
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒	☐
d) Result in inadequate emergency access?	☐	☐	☐	☒	☐

On December 28, 2018, the California Office of Administrative Law cleared the revised California Environmental Quality Act (CEQA) guidelines for use. Among the changes to the guidelines was removal of vehicle delay and level of service from consideration under CEQA. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on VMT. Lead agencies are allowed to opt in to the revised transportation guidelines, but the new guidelines must be used starting July 1, 2020.

A Trip Generation and Vehicle Miles Traveled Assessment was prepared in August of 2023 and a Traffic Study was prepared in October of 2023 for the Proposed Project (see Appendix D). The reports have been used to support the conclusions made for the Proposed Project.

Comments

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Certified EIR for the Specific Plan Area did not specifically analyze consistency or conflict with adopted policies, plans or programs supporting alternative transportation. This Addendum does not propose any changes to the requirements pertaining to public transportation, bicycle or pedestrian facilities within the Certified EIR prepared for the Specific Plan Area. The Proposed Project does not modify roadway cross-sections where possible future bicycle facilities are being considered. The Proposed Project would result in 56 bicycle parking spaces. Additionally, the Proposed Project would implement the following design feature:

- Intersection No. 7 – Commons Drive/Project Driveway A at Chino Hills Parkway: Construct the north leg of the intersection to include a single inbound and outbound lane. Widen and/or restripe the eastbound approach to include an exclusive left-turn lane with 100-feet of storage and a 90-foot transition. Restripe the northbound shared left/right-turn lane to a shared left/through/right lane. Maintain the existing pedestrian crosswalk on the east leg and evaluate the potential operational impacts with the installation of a pedestrian crosswalk on the west leg. Modify the existing traffic signal to include split phasing in the north-south directions and protected phasing for the eastbound left-turn movement. These improvements are subject to the approval of the City of Chino and the City of Chino Hills. In addition, as a part of the proposed frontage improvements along Chino Hills Parkway, the Project proposes to construct/install a Class II on-street bike lane.

The Proposed Project will construct sidewalks along the Project frontage and proposes to install, subject to the review and approval of the City, a pedestrian crosswalk on the west leg of the signalized study intersection of Commons Drive/Project Driveway A at Chino Hills Parkway while maintaining the pedestrian crosswalk on the east leg. These improvements will connect to the existing public sidewalk system within the Project vicinity. This provides direct connectivity to the major thoroughfares of Chino Hills Parkway and Ramona Avenue and pedestrian connectivity to the existing residential, recreational, institutional, and commercial development in the surrounding area, inclusive the Commons at Chino Hills shopping center, which is located directly south of the site. Internally, a pedestrian circulation access plan is proposed that will link the buildings as well as allow for a pedestrian trail that is provided along the Chino Creek Channel.

As a result, the Proposed Project would not create a new significant impact or a substantial increase in the severity of previously identified effects. No changes or new information would require preparation of a subsequent EIR.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The City of Chino Hills (City) has yet to adopt guidelines or establish thresholds related to VMT.

As such, guidance from the most recent Governor's Office of Planning and Research (OPR) Technical Advisory (TA) can be used to evaluate projects. However, the TA does not provide guidance for the evaluation of amendments to an approved Specific Plan. Also, the approved and proposed land use types are nonresidential and residential uses, respectively, and according to the TA, utilize different evaluation metrics (VMT per employee vs. VMT per capita). Given the lack of a common evaluation metric between the approved and proposed land uses, the total VMT generated by each land use was used to determine whether the Proposed Project would have a significant VMT impact. Applying total VMT as the comparison metric helps establish a common evaluation metric between approved and proposed land uses. Additionally, total VMT within the entire San Bernardino County has been identified as the study region for evaluation of the project. If the total VMT in San Bernardino County increases with the Proposed Project compared to the approved Specific Plan, the Proposed Project will constitute a significant impact. The OPR TA recommends using the regional travel demand model to estimate project-related VMT. Therefore, the San Bernardino County Transportation Analysis Model (SBTAM), the regional travel model, was used for the purpose of the analysis.

Given that the Proposed Project is part of an approved Specific Plan that is anticipated to be completed in phases over a longer time period, for the purposes of this analysis, the VMT impact was determined using the SBTAM future scenario (2040). The evaluation conducted using this future scenario would therefore include completion of the entire Specific Plan along with the Proposed Project. The following is a detailed description of the VMT analysis.

The trip generation potential of the Proposed Project was be estimated using trip rates contained in the 11th Edition of Trip Generation, published by the Institute of Transportation Engineers (ITE), [Washington, D.C., 2021].

Table 8 summarizes the trip generation rates used in forecasting the vehicular trips generated by the entitled land use and Proposed Project and presents the Project's forecast peak hour and daily traffic volumes. Given the description of the Entitled Land Uses and the Proposed Project, as shown in the upper portion of Table 8, the trip generation potential for these uses were estimated using ITE Land Use 221: Multifamily Housing Mid Rise Not Close to Rail Transit, ITE Land Use

821: Shopping Plaza (40K to 150K) with Supermarket, and ITE Land Use 710: General Office Building trip rates.

A review of the middle portion of Table 8 indicates that the Entitled Land Uses have a potential to generate approximately 10,894 daily trips, with 786 trips (621 inbound, 165 outbound) produced in the AM peak hour and 949 trips (304 inbound, 645 outbound) produced in the PM peak hour on a "typical" weekday.

A review of the lower portion of Table 8 indicates that the Proposed Project has a trip generation potential of 1,353 daily trips, with 110 trips (25 inbound, 85 outbound) produced in the AM peak hour and 116 trips (71 inbound, 45 outbound) produced in the PM peak hour on a "typical" weekday.

As shown at the bottom of Table 8, comparison of the trips generated by the Entitled Land Uses to the trips generated by the Proposed Project shows that the Proposed Project will generate 9,541 fewer daily trips, 676 fewer AM peak hour trips and 833 fewer PM peak hour trips.

Nevertheless, the potential traffic impact of the added Project weekday trips (1,353 daily, 110 AM peak hour and 116 PM peak hour) has been assessed in this traffic study

Table 8 shows the trip generation summary for the Approved Project and the Proposed Project.

Table 8. Trip Generation Summary

Trip Generation Rates									
				AM Peak Hour			PM Peak Hour		
Land Use	Size	Unit	ADT	In	Out	Total	In	Out	Total
Trip Rates[1]									
Shopping Center (retail) LU-821		TSF	94.49	2.19	1.34	3.53	4.33	4.70	9.03
Office (General) LU-710		TSF	10.74	1.34	0.18	1.52	0.24	1.20	1.44
Multi-Family (Mid-Rise) LU-221		DU	4.54	0.09	0.28	0.37	0.24	0.15	0.39
Approved Specific Plan (9.74 acres)									
Retail	84.847	TSF	8,017	186	114	300	368	398	766
Pass-by (Daily: 10% AM: 10% PM: 40%)[2]			-802	-19	-11	-30	-147	-159	-306
Subtotal			7,215	167	103	270	221	239	460
Office	339.407	TSF	3,679	454	62	516	83	406	489

Total			**10,894**	**621**	**165**	**786**	**304**	**645**	**949**
Proposed Amendment									
Multi-Family	298	DU	1,354	25	85	110	71	45	116
Difference (Proposed Project-Approved Specific Plan)			**(9,451)**	**(596)**	**(80)**	**(676)**	**(233)**	**(600)**	**(833)**

[1] **Sources:** ITE = Institute of Transportation Engineers Trip Generation Manual (11th Edition, 2021); ### = Land Use Code

[2] Pass-by trips are made as intermediate stop on the way from one origin to a primary trip destination. Pass-by trips are attracted from traffic passing the site on adjacent streets, which contain direct access to the generator. For this analysis, the following pass-by reduction factors were used *Trip Generation, 11th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2021):*

- ITE LU 821 Shopping Plaza (40K to 150K) with Supermarket: Daily – Estimated to be 10% / AM Peak Hour – Estimated to be 10% /PM Peak Hour – 40%

The Proposed Project compared to the Approved Project would generate fewer daily and peak hour trips as a result of the land use change.

Given that the project is a modification of an approved Specific Plan, model runs were conducted only for horizon-year scenarios. Two model runs were conducted as indicated above: "without project" (approved land use) and "with project" (proposed land use). No project-specific circulation/network modifications were included in the model network. The outputs from both model runs were compared to determine project VMT impacts.

Table 9. Horizon Year (2040) Roadway VMT—With Project and Without Project Scenarios (San Bernardino County)

2040 San Bernardino County	With Project	Without Project	Difference
Total Roadway VMT	88,522,893	88,847,154	(324,260)

Source: San Bernardino County Transportation Analysis Model (SBTAM) VMT = vehicle miles traveled

The total roadway VMT within San Bernardino County was used to evaluate the Proposed Project's VMT impact. The Proposed Project would have a significant impact if the total VMT for all the roadway links within San Bernardino County increases for the "with project" scenario compared to the "without project" scenario. As can be seen from Table 9, the total VMT for the "with project" scenario is lower than the "without project" scenario. Therefore, the Proposed Project does not have a significant VMT impact.

The Proposed Project would generate fewer daily and peak-hour trips than the approved land uses within the Specific Plan. In addition, the Proposed Project's potential VMT impact was evaluated based on total roadway VMT in San Bernardino County. A detailed VMT analysis was conducted for the project based on the SBTAM model and using San Bernardino County as the region. Total VMT for San Bernardino County would not increase with the Proposed Project as compared to the Approved Project; therefore, the Proposed Project will have a less than significant transportation impact.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Proposed Project consists of constructing two residential buildings on the project site. Vehicular access to Project will be provided via a "full access" driveway located opposite Commons Drive, at its signalized intersection with Chino Hills Parkway, and a gated "right-turn out only" driveway on Chino Hills Parkway. The Proposed Project would not include unusual or hazardous design features, nor would it generate incompatible uses with the surrounding area. The access point has been designed consistently with the City's circulation standards and does not create a hazard for vehicles, bicycles, or pedestrians entering or exiting the site. Improvements would be reviewed by a registered civil engineer to meet the City of Chino's development standards.

d) Would the project result in inadequate emergency access?

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. During construction, surrounding roadways would continue to provide emergency access through the Project Site and to surrounding properties. Further, the Proposed Project would provide emergency access in accordance with the requirements of the CVIFD. Therefore, the Proposed Project would not result in inadequate emergency access.

5.17.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

Mitigation measures proposed in the Certified EIR have previously been superseded by regulatory compliance, are satisfied, or are no longer applicable.

5.18 Tribal Cultural Resources

5.18.1 Summary of Previous Environmental Analysis

Tribal Cultural Resources was not analyzed as a topic in the prior Certified EIR.

5.18.2 Impacts Associated with the Proposed Project

Would the project:

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
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 (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?	☐	☐	☐	☒	☐

Comments

a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the

landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

(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

(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??

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. The Approved Project did not evaluate impacts to Tribal and Cultural Resources. Assembly Bill 52 added provisions to the California Public Resources Code (PRC) that concern tribal cultural resources, including Section 21080.3.1(d). Assembly Bill 52 stipulates that the provisions of the bill would only be applicable to projects that have a notice of preparation or a notice of negative declaration or mitigated negative declaration filed on or after July 1, 2015. As the EIR for the Approved Project was certified in 1990, the Notice of Preparation was circulated prior to July 1, 2015. Therefore, tribal notification by the City is not required for the Proposed Project.

The Certified EIR did determine that impacts to cultural, archaeological, paleontological resources, and human remains would be less than significant. As the Proposed Project is within the envelope of development previously analyzed under the Approved Project, no significant new impact or substantial increase in the severity of a previously described impact would occur. There are no substantial changes in the circumstances, or new information that was not known and could not have been known at the time of the adoption of the Certified EIR with respect to Tribal Cultural Resources and a subsequent EIR is not required.

5.18.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

No mitigation was proposed in the Certified EIR.

5.19 Utilities and Service Systems

5.19.1 Summary of Previous Environmental Analysis

The Certified EIR studied impacts with regard to utilities resulting from implementation of the Eucalyptus Business Park Specific Plan. The Certified EIR addressed potential impacts to water and sewer facilities, wastewater treatment facilities, other utilities systems, solid waste disposal services. The Certified EIR required mitigation for potential impacts to water, wastewater, and storm drainage facilities in order to lessen impacts to a less than significant level. With regard to water supply, the Certified EIR identified a significant increase in water consumption due to the implementation of the Specific Plan. Mitigation measures, including adherence to applicable Department of Water Resources water conservation guidelines, were identified to reduce the impact to a less than significant level. The Certified EIR ultimately concluded that implementation of the Specific Plan would not be accommodated adequately by existing sewer pipelines, however with implementation of mitigation a less than significant impact would occur. The Certified EIR concluded that development of the Plan would impact the Milliken Sanitary Landfill. Mitigation measures were provided to reduce the impact to below a level of significance.

5.19.2 Impacts Associated with the Proposed Project

Would the project:

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	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?	☐	☐	☐	☒	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☒	☐

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒	☐
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☒	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒	☐

Comments

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. Like the Approved Project, the Proposed Project would generate demand for water, sewer conveyance, wastewater treatment, solid waste disposal, and other services. The Proposed Project is in an urbanized area in which utilities and services are in place and where future demands for utilities and service systems have been anticipated in the General Plan goals, policies and programs for future growth.). The Proposed Project Site is located in an adopted housing overlay zone (Affordable Housing Overlay) as designated by the City's 6th Cycle Housing Element Update. This allows for residential use in the area currently zoned as Office Commercial . Residential and commercial wastewater rarely contains constituents that would cause a wastewater treatment plant to exceed RWQCB requirements as established in Waste Discharge Requirements (WDR). As the Approved Project already anticipated development in this area and the Project Site is within the development footprint of what was previously analyzed, impacts would not be more severe than

what was previously analyzed. No substantial changes in the circumstances, or new information that was not known and could not have been known at the time of the adoption of the Certified EIR and a subsequent EIR is not required.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. As with the Approved Project, an increase in water consumption would result from the Proposed Project. Ultimately the Approved Project did not identify a significant impact after implementation of mitigation. Additional water infrastructure has been constructed in the Specific Plan Area since the certification of the EIR. Additionally, the Proposed Project would provide necessary infrastructure on the Project Site to integrate into the existing water infrastructure in the Specific Plan Area. As with the Approved Project, the Proposed Project would continue to comply with all applicable regulations of the City, County, State and Regional Water Quality Control Boards. No substantial changes in the circumstances, or new information that was not known and could not have been known at the time of the adoption of the Certified EIR and a subsequent EIR is not required.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. As with the Approved Project, an increase in wastewater would result from the Proposed Project. Ultimately the Approved Project did not identify a significant impact with mitigation. With regard to wastewater, the change in zone associated with the Proposed Project would not result in an appreciable difference in wastewater generation for the entire Specific Plan Area. No substantial changes in the circumstances, or new information that was not known and could not have been known at the time of the adoption of the Certified EIR and a subsequent EIR is not required.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. As with the Approved Project, the Proposed Project would generate solid waste. All collection, transportation, and disposal of any solid waste generated by the Proposed Project is required to comply with all applicable federal, state, and local regulations. Solid waste produced in the project is collected and transported by Burrtec Waste Industries. The area is served by several nearby landfills, though the closest is the Mid Valley Landfill in Rialto and the El Sobrante Landfill in Corona, which have adequate capacity to serve the Proposed Project. The El Sobrante Landfill has 143,977,170 cubic yards of remaining capacity and a ceased operation date of January 1, 2051.

Mid-Valley Sanitary Landfill has 61,219,377 cubic yards of remaining capacity and a ceased operation date of April 1, 2045. No substantial changes in the circumstances, or new information that was not known and could not have been known at the time of the adoption of the Certified EIR and a subsequent EIR is not required.

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. Consistent with the Approved Project, the Proposed Project would be required to comply with all Federal, State and local management and reduction statutes and regulations related to solid waste as a matter of course. No substantial changes in the circumstances, or new information that was not known and could not have been known at the time of the adoption of the Certified EIR and a subsequent EIR is not required.

5.19.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

Mitigation measures proposed in the Certified EIR have previously been superseded by regulatory compliance, are satisfied, or are no longer applicable.

5.20 Wildfire

5.20.1 Summary of Previous Environmental Analysis

The Certified EIR did not fully analyze the topic of Wildfire. California adopted amendments to the CEQA Guidelines on December 28, 2018, formalizing the consideration of wildfires as a CEQA Guidelines topical issue.

5.20.2 Impacts Associated with the Proposed Project

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

Environmental Issues	Substantial Change in Project Requiring Major EIR Revisions	Substantial Change in Circumstances Requiring Major EIR Revisions	New Information Showing New or Increased Significant Effects	Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☐	☐	☒
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☐	☐	☒
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☐	☐	☒

The Project Site is not located in a Fire Hazard Severity Zone Local Responsibility Area (LRA). Review of the CAL FIRE Fire Resource and Assessment Program (FRAP) maps for state responsibility areas (SRAs) indicates that the Project Site is not located in an SRA (CAL FIRE,

2022). Moreover, the City does not contain any areas classified as very high fire hazard severity zones (VHFHSZs) in state responsibility areas.

Comments

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

Less Than Significant Impact/No Changes or New Information Requiring Preparation of an EIR. As required by State law, Chino has established emergency preparedness procedures to anticipate and respond to a variety of potential natural and manmade disasters in its Emergency Operations Plan adopted in September 2008. The Emergency Operations Plan addresses hazard preparedness, mitigation, response and recovery for earthquakes, hazardous material incidents, flooding, urban flooding, major air crashes, trucking incidents, civil unrest, national security emergency, and terrorism events. The Proposed Project would be required to comply with this plan. The Proposed Project would comply with applicable City regulations, such as the requirement to comply with the City's Uniform Fire Code requirements to provide adequate emergency access as required by CVIFD, as well as the California Building Standards Code. The Proposed Project would be required to submit for review by the Fire Department: Fire Master Plan, Water Improvement Plan/Underground Fire Main Plan, Architectural Plan, Fire Sprinkler Plan, Fire Alarm Plan. Prior to the issuance of building permits, the City of Chino would review site plans, including location of all buildings, fences, access driveways and other features that may affect emergency access. Additionally, the Project Applicant is required to pay Development Impact Fees to the City of Chino to offset any impacts the Project may have on fire protection services. There are no new impacts for this issue area and there are no changes in information that would require the preparation of an EIR.

b) Would the project, 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?

No Impact. The Project Site is not on a slope that would expose project occupants to pollutant concentrations from wildfire. Additionally, according to the California Department of Forestry and Fire Protection's (CAL FIRE's) Fire Hazard Severity Zone Map of the County (2020), the Proposed Project is not located in a VHFHSZ. Development of the Proposed Project would not expose people or structures to a significant risk from wildland fires. No impact will occur.

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

No Impact. Though the Project Site is vacant, the Proposed Project is located within an urbanized area and would not exacerbate fire risk or impacts to the environment. Furthermore, the site is not located in a VHFHSZ.

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

No Impact. The Project Site is relatively flat and is not likely to cause downstream flooding or landslides. The Proposed Project would not substantially alter the drainage patterns of the site, and thus would not expose people or structures to significant risks from runoff or post-fire instability. Furthermore, as previously mentioned, the Project Site is not located in a VHFHSZ. No impact would occur.

5.20.3 Mitigation Measures Identified in the 1990 EIR and Applicable to the Proposed Project

No mitigation was proposed in the Certified EIR.

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1990 Approved Custom Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	1990 Approved
Lead Agency	City of Chino
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.60
Precipitation (days)	9.20
Location	4700 Chino Hills Pkwy, Chino Hills, CA 91709, USA
County	San Bernardino-South Coast
City	Chino
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5205
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Office Building	339	1000sqft	4.87	339,406	0.00	—	—	—
Strip Mall	85.0	1000sqft	1.87	84,847	0.00	—	—	—
Parking Lot	3.00	Acre	3.00	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads

2. Emissions Summary

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	4.04	39.8	37.1	0.05	1.81	19.9	21.7	1.66	10.2	11.8	—	6,595	6,595	0.36	0.41	14.6	6,742
2024	199	7.89	11.3	0.01	0.39	0.35	0.59	0.36	0.08	0.40	—	1,728	1,728	0.07	0.02	1.56	1,736
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	4.04	39.9	36.7	0.05	1.81	19.9	21.7	1.66	10.2	11.8	—	6,429	6,429	0.37	0.41	0.38	6,562
2024	1.93	14.6	23.2	0.04	0.53	2.37	2.90	0.49	0.58	1.07	—	6,370	6,370	0.35	0.41	0.36	6,502
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	1.31	10.7	14.8	0.02	0.43	2.03	2.47	0.40	0.74	1.14	—	3,480	3,480	0.19	0.19	2.96	3,545
2024	11.3	3.04	4.88	0.01	0.12	0.44	0.56	0.11	0.11	0.21	—	1,235	1,235	0.07	0.07	1.10	1,260
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.24	1.96	2.69	< 0.005	0.08	0.37	0.45	0.07	0.13	0.21	—	576	576	0.03	0.03	0.49	587
2024	2.06	0.55	0.89	< 0.005	0.02	0.08	0.10	0.02	0.02	0.04	—	204	204	0.01	0.01	0.18	209

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	4.04	39.8	37.1	0.05	1.81	7.89	9.70	1.66	3.99	5.65	—	6,595	6,595	0.36	0.41	14.6	6,742
2024	199	7.89	11.3	0.01	0.39	0.35	0.59	0.36	0.08	0.40	—	1,728	1,728	0.07	0.02	1.56	1,736
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	4.04	39.9	36.7	0.05	1.81	7.89	9.70	1.66	3.99	5.65	—	6,429	6,429	0.37	0.41	0.38	6,562
2024	1.93	14.6	23.2	0.04	0.53	2.37	2.90	0.49	0.58	1.07	—	6,370	6,370	0.35	0.41	0.36	6,502
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	1.31	10.7	14.8	0.02	0.43	1.47	1.90	0.40	0.45	0.85	—	3,480	3,480	0.19	0.19	2.96	3,545
2024	11.3	3.04	4.88	0.01	0.12	0.44	0.56	0.11	0.11	0.21	—	1,235	1,235	0.07	0.07	1.10	1,260
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.24	1.96	2.69	< 0.005	0.08	0.27	0.35	0.07	0.08	0.16	—	576	576	0.03	0.03	0.49	587
2024	2.06	0.55	0.89	< 0.005	0.02	0.08	0.10	0.02	0.02	0.04	—	204	204	0.01	0.01	0.18	209

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	29.9	30.7	294	0.72	0.49	24.1	24.6	0.46	4.30	4.76	—	73,639	73,639	3.24	3.25	275	74,965
Area	13.2	0.16	18.4	< 0.005	0.02	—	0.02	0.03	—	0.03	—	75.9	75.9	< 0.005	< 0.005	—	76.1

Energy	0.14	2.64	2.21	0.02	0.20	—	0.20	0.20	—	0.20	—	9,701	9,701	0.90	0.08	—	9,747
Water	—	—	—	—	—	—	—	—	—	—	128	433	560	13.1	0.32	—	982
Waste	—	—	—	—	—	—	—	—	—	—	218	0.00	218	21.8	0.00	—	763
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.35	1.35
Total	43.2	33.5	315	0.73	0.72	24.1	24.8	0.69	4.30	4.99	346	83,849	84,194	39.0	3.65	276	86,534
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	27.7	33.1	243	0.67	0.49	24.1	24.6	0.46	4.30	4.76	—	68,997	68,997	3.34	3.36	7.13	70,090
Area	10.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.14	2.64	2.21	0.02	0.20	—	0.20	0.20	—	0.20	—	9,701	9,701	0.90	0.08	—	9,747
Water	—	—	—	—	—	—	—	—	—	—	128	433	560	13.1	0.32	—	982
Waste	—	—	—	—	—	—	—	—	—	—	218	0.00	218	21.8	0.00	—	763
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.35	1.35
Total	38.1	35.7	245	0.69	0.69	24.1	24.8	0.66	4.30	4.96	346	79,131	79,476	39.1	3.76	8.48	81,584
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	23.2	28.3	213	0.57	0.41	20.3	20.7	0.39	3.62	4.00	—	58,671	58,671	2.81	2.85	99.9	59,692
Area	12.3	0.11	12.6	< 0.005	0.02	—	0.02	0.02	—	0.02	—	52.0	52.0	< 0.005	< 0.005	—	52.2
Energy	0.14	2.64	2.21	0.02	0.20	—	0.20	0.20	—	0.20	—	9,701	9,701	0.90	0.08	—	9,747
Water	—	—	—	—	—	—	—	—	—	—	128	433	560	13.1	0.32	—	982
Waste	—	—	—	—	—	—	—	—	—	—	218	0.00	218	21.8	0.00	—	763
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.35	1.35
Total	35.6	31.1	227	0.59	0.63	20.3	20.9	0.61	3.62	4.23	346	68,856	69,202	38.6	3.25	101	71,237
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.23	5.17	38.8	0.10	0.08	3.71	3.78	0.07	0.66	0.73	—	9,714	9,714	0.47	0.47	16.5	9,883
Area	2.24	0.02	2.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.60	8.60	< 0.005	< 0.005	—	8.64
Energy	0.03	0.48	0.40	< 0.005	0.04	—	0.04	0.04	—	0.04	—	1,606	1,606	0.15	0.01	—	1,614
Water	—	—	—	—	—	—	—	—	—	—	21.1	71.6	92.8	2.17	0.05	—	163

Waste	—	—	—	—	—	—	—	—	—	—	36.1	0.00	36.1	3.61	0.00	—	126
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Total	6.49	5.67	41.5	0.11	0.11	3.71	3.82	0.11	0.66	0.77	57.2	11,400	11,457	6.39	0.54	16.8	11,794

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	29.9	30.7	294	0.72	0.49	24.1	24.6	0.46	4.30	4.76	—	73,639	73,639	3.24	3.25	275	74,965
Area	13.2	0.16	18.4	< 0.005	0.02	—	0.02	0.03	—	0.03	—	75.9	75.9	< 0.005	< 0.005	—	76.1
Energy	0.14	2.64	2.21	0.02	0.20	—	0.20	0.20	—	0.20	—	9,701	9,701	0.90	0.08	—	9,747
Water	—	—	—	—	—	—	—	—	—	—	128	433	560	13.1	0.32	—	982
Waste	—	—	—	—	—	—	—	—	—	—	218	0.00	218	21.8	0.00	—	763
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.35	1.35
Total	43.2	33.5	315	0.73	0.72	24.1	24.8	0.69	4.30	4.99	346	83,849	84,194	39.0	3.65	276	86,534
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	27.7	33.1	243	0.67	0.49	24.1	24.6	0.46	4.30	4.76	—	68,997	68,997	3.34	3.36	7.13	70,090
Area	10.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.14	2.64	2.21	0.02	0.20	—	0.20	0.20	—	0.20	—	9,701	9,701	0.90	0.08	—	9,747
Water	—	—	—	—	—	—	—	—	—	—	128	433	560	13.1	0.32	—	982
Waste	—	—	—	—	—	—	—	—	—	—	218	0.00	218	21.8	0.00	—	763
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.35	1.35
Total	38.1	35.7	245	0.69	0.69	24.1	24.8	0.66	4.30	4.96	346	79,131	79,476	39.1	3.76	8.48	81,584
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	23.2	28.3	213	0.57	0.41	20.3	20.7	0.39	3.62	4.00	—	58,671	58,671	2.81	2.85	99.9	59,692
Area	12.3	0.11	12.6	< 0.005	0.02	—	0.02	0.02	—	0.02	—	52.0	52.0	< 0.005	< 0.005	—	52.2
Energy	0.14	2.64	2.21	0.02	0.20	—	0.20	0.20	—	0.20	—	9,701	9,701	0.90	0.08	—	9,747
Water	—	—	—	—	—	—	—	—	—	—	128	433	560	13.1	0.32	—	982
Waste	—	—	—	—	—	—	—	—	—	—	218	0.00	218	21.8	0.00	—	763
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.35	1.35	
Total	35.6	31.1	227	0.59	0.63	20.3	20.9	0.61	3.62	4.23	346	68,856	69,202	38.6	3.25	101	71,237
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.23	5.17	38.8	0.10	0.08	3.71	3.78	0.07	0.66	0.73	—	9,714	9,714	0.47	0.47	16.5	9,883
Area	2.24	0.02	2.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.60	8.60	< 0.005	< 0.005	—	8.64
Energy	0.03	0.48	0.40	< 0.005	0.04	—	0.04	0.04	—	0.04	—	1,606	1,606	0.15	0.01	—	1,614
Water	—	—	—	—	—	—	—	—	—	—	21.1	71.6	92.8	2.17	0.05	—	163
Waste	—	—	—	—	—	—	—	—	—	—	36.1	0.00	36.1	3.61	0.00	—	126
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22
Total	6.49	5.67	41.5	0.11	0.11	3.71	3.82	0.11	0.66	0.77	57.2	11,400	11,457	6.39	0.54	16.8	11,794

3. Construction Emissions Details

3.1. Demolition (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	2.84	27.3	23.5	0.03	1.20	—	1.20	1.10	—	1.10	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	1.50	1.29	< 0.005	0.07	—	0.07	0.06	—	0.06	—	188	188	0.01	< 0.005	—	188
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.27	0.23	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.1	31.1	< 0.005	< 0.005	—	31.2
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.09	1.04	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	202	202	0.01	0.01	0.02	204
Vendor	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
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.2	11.2	< 0.005	< 0.005	0.02	11.4
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.86	1.86	< 0.005	< 0.005	< 0.005	1.88
Vendor	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
Hauling	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

3.2. Demolition (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.84	27.3	23.5	0.03	1.20	—	1.20	1.10	—	1.10	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	1.50	1.29	< 0.005	0.07	—	0.07	0.06	—	0.06	—	188	188	0.01	< 0.005	—	188
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.27	0.23	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.1	31.1	< 0.005	< 0.005	—	31.2
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.09	1.04	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	202	202	0.01	0.01	0.02	204
Vendor	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
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.2	11.2	< 0.005	< 0.005	0.02	11.4
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.86	1.86	< 0.005	< 0.005	< 0.005	1.88
Vendor	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
Hauling	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

3.3. Site Preparation (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.95	39.7	35.5	0.05	1.81	—	1.81	1.66	—	1.66	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.95	39.7	35.5	0.05	1.81	—	1.81	1.66	—	1.66	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	19.7	19.7	—	10.1	10.1	—	—	—	—	—	—	—
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	1.09	0.97	< 0.005	0.05	—	0.05	0.05	—	0.05	—	145	145	0.01	< 0.005	—	146
Dust From Material Movement	—	—	—	—	—	0.54	0.54	—	0.28	0.28	—	—	—	—	—	—	—
Onsite truck	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

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.20	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movement	—	—	—	—	—	0.10	0.10	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	1.62	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	257	257	0.01	0.01	1.10	261
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.22	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	236	236	0.01	0.01	0.03	238
Vendor	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
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.55	6.55	< 0.005	< 0.005	0.01	6.64
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.08	1.08	< 0.005	< 0.005	< 0.005	1.10
Vendor	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
Hauling	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

3.4. Site Preparation (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.95	39.7	35.5	0.05	1.81	—	1.81	1.66	—	1.66	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.95	39.7	35.5	0.05	1.81	—	1.81	1.66	—	1.66	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	1.09	0.97	< 0.005	0.05	—	0.05	0.05	—	0.05	—	145	145	0.01	< 0.005	—	146
Dust From Material Movement	—	—	—	—	—	0.21	0.21	—	0.11	0.11	—	—	—	—	—	—	—

Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.20	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movement	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	1.62	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	257	257	0.01	0.01	1.10	261
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.22	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	236	236	0.01	0.01	0.03	238
Vendor	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
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.55	6.55	< 0.005	< 0.005	0.01	6.64
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.08	1.08	< 0.005	< 0.005	< 0.005	1.10
Vendor	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

Hauling	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

3.5. Grading (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.04	20.0	19.7	0.03	0.94	—	0.94	0.87	—	0.87	—	2,958	2,958	0.12	0.02	—	2,968
Dust From Material Movement	—	—	—	—	—	7.08	7.08	—	3.42	3.42	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	1.09	1.08	< 0.005	0.05	—	0.05	0.05	—	0.05	—	162	162	0.01	< 0.005	—	163
Dust From Material Movement	—	—	—	—	—	0.39	0.39	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.20	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.8	26.8	< 0.005	< 0.005	—	26.9

Dust From Material Movement	—	—	—	—	—	0.07	0.07	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	1.39	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	220	220	0.01	0.01	0.94	224
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.2	11.2	< 0.005	< 0.005	0.02	11.4
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.86	1.86	< 0.005	< 0.005	< 0.005	1.88
Vendor	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
Hauling	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

3.6. Grading (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.04	20.0	19.7	0.03	0.94	—	0.94	0.87	—	0.87	—	2,958	2,958	0.12	0.02	—	2,968
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	1.09	1.08	< 0.005	0.05	—	0.05	0.05	—	0.05	—	162	162	0.01	< 0.005	—	163
Dust From Material Movement	—	—	—	—	—	0.15	0.15	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.20	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.8	26.8	< 0.005	< 0.005	—	26.9
Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	1.39	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	220	220	0.01	0.01	0.94	224
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.2	11.2	< 0.005	< 0.005	0.02	11.4
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.86	1.86	< 0.005	< 0.005	< 0.005	1.88
Vendor	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
Hauling	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

3.7. Building Construction (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.26	11.8	13.2	0.02	0.55	—	0.55	0.51	—	0.51	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.26	11.8	13.2	0.02	0.55	—	0.55	0.51	—	0.51	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	5.41	6.03	0.01	0.25	—	0.25	0.23	—	0.23	—	1,098	1,098	0.04	0.01	—	1,102
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.99	1.10	< 0.005	0.05	—	0.05	0.04	—	0.04	—	182	182	0.01	< 0.005	—	182
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.75	0.72	12.6	0.00	0.00	1.77	1.77	0.00	0.42	0.42	—	1,994	1,994	0.08	0.07	8.55	2,025
Vendor	0.06	2.61	1.41	0.02	0.03	0.59	0.63	0.03	0.16	0.20	—	2,204	2,204	0.19	0.32	6.08	2,311
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.70	0.84	9.45	0.00	0.00	1.77	1.77	0.00	0.42	0.42	—	1,827	1,827	0.09	0.07	0.22	1,850
Vendor	0.06	2.72	1.43	0.02	0.03	0.59	0.63	0.03	0.16	0.20	—	2,205	2,205	0.19	0.33	0.16	2,307
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.32	0.38	4.58	0.00	0.00	0.81	0.81	0.00	0.19	0.19	—	849	849	0.04	0.03	1.70	861
Vendor	0.03	1.25	0.65	0.01	0.01	0.27	0.29	0.01	0.07	0.09	—	1,009	1,009	0.08	0.15	1.21	1,057
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.07	0.84	0.00	0.00	0.15	0.15	0.00	0.03	0.03	—	141	141	0.01	0.01	0.28	142
Vendor	< 0.005	0.23	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	167	167	0.01	0.02	0.20	175
Hauling	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

3.8. Building Construction (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.26	11.8	13.2	0.02	0.55	—	0.55	0.51	—	0.51	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.26	11.8	13.2	0.02	0.55	—	0.55	0.51	—	0.51	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.58	5.41	6.03	0.01	0.25	—	0.25	0.23	—	0.23	—	1,098	1,098	0.04	0.01	—	1,102

Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	0.99	1.10	< 0.005	0.05	—	0.05	0.04	—	0.04	—	182	182	0.01	< 0.005	—	182
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.75	0.72	12.6	0.00	0.00	1.77	1.77	0.00	0.42	0.42	—	1,994	1,994	0.08	0.07	8.55	2,025
Vendor	0.06	2.61	1.41	0.02	0.03	0.59	0.63	0.03	0.16	0.20	—	2,204	2,204	0.19	0.32	6.08	2,311
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.70	0.84	9.45	0.00	0.00	1.77	1.77	0.00	0.42	0.42	—	1,827	1,827	0.09	0.07	0.22	1,850
Vendor	0.06	2.72	1.43	0.02	0.03	0.59	0.63	0.03	0.16	0.20	—	2,205	2,205	0.19	0.33	0.16	2,307
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.32	0.38	4.58	0.00	0.00	0.81	0.81	0.00	0.19	0.19	—	849	849	0.04	0.03	1.70	861
Vendor	0.03	1.25	0.65	0.01	0.01	0.27	0.29	0.01	0.07	0.09	—	1,009	1,009	0.08	0.15	1.21	1,057
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.07	0.84	0.00	0.00	0.15	0.15	0.00	0.03	0.03	—	141	141	0.01	0.01	0.28	142
Vendor	< 0.005	0.23	0.12	< 0.005	< 0.005	0.05	0.05	< 0.005	0.01	0.02	—	167	167	0.01	0.02	0.20	175
Hauling	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

3.9. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.21	1.95	2.28	< 0.005	0.09	—	0.09	0.08	—	0.08	—	418	418	0.02	< 0.005	—	419
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.36	0.42	< 0.005	0.02	—	0.02	0.01	—	0.01	—	69.1	69.1	< 0.005	< 0.005	—	69.4
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.67	0.78	8.68	0.00	0.00	1.77	1.77	0.00	0.42	0.42	—	1,791	1,791	0.09	0.07	0.20	1,814
Vendor	0.06	2.61	1.36	0.02	0.03	0.59	0.63	0.03	0.16	0.20	—	2,181	2,181	0.17	0.32	0.16	2,282
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.14	1.59	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	316	316	0.01	0.01	0.59	321
Vendor	0.01	0.46	0.24	< 0.005	0.01	0.10	0.11	0.01	0.03	0.03	—	380	380	0.03	0.06	0.46	398
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.29	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	52.4	52.4	< 0.005	< 0.005	0.10	53.1
Vendor	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	62.9	62.9	< 0.005	0.01	0.08	65.9
Hauling	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

3.10. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.21	1.95	2.28	< 0.005	0.09	—	0.09	0.08	—	0.08	—	418	418	0.02	< 0.005	—	419
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04	0.36	0.42	< 0.005	0.02	—	0.02	0.01	—	0.01	—	69.1	69.1	< 0.005	< 0.005	—	69.4
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.67	0.78	8.68	0.00	0.00	1.77	1.77	0.00	0.42	0.42	—	1,791	1,791	0.09	0.07	0.20	1,814
Vendor	0.06	2.61	1.36	0.02	0.03	0.59	0.63	0.03	0.16	0.20	—	2,181	2,181	0.17	0.32	0.16	2,282
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.12	0.14	1.59	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	316	316	0.01	0.01	0.59	321
Vendor	0.01	0.46	0.24	< 0.005	0.01	0.10	0.11	0.01	0.03	0.03	—	380	380	0.03	0.06	0.46	398
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.29	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	52.4	52.4	< 0.005	< 0.005	0.10	53.1
Vendor	< 0.005	0.08	0.04	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	62.9	62.9	< 0.005	0.01	0.08	65.9
Hauling	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

3.11. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.43	0.55	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.08	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	1.27	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	216	216	0.01	0.01	0.86	219
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.09	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	198	198	0.01	0.01	0.02	200
Vendor	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
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.0	11.0	< 0.005	< 0.005	0.02	11.2
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.82	1.82	< 0.005	< 0.005	< 0.005	1.85
Vendor	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
Hauling	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

3.12. Paving (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.39	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.43	0.55	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.08	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	1.27	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	216	216	0.01	0.01	0.86	219
Vendor	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

Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.09	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	198	198	0.01	0.01	0.02	200
Vendor	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
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.0	11.0	< 0.005	< 0.005	0.02	11.2
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.82	1.82	< 0.005	< 0.005	< 0.005	1.85
Vendor	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
Hauling	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

3.13. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	199	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	10.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	1.99	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	2.30	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	391	391	0.02	0.01	1.56	397
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	19.9	19.9	< 0.005	< 0.005	0.04	20.2
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.30	3.30	< 0.005	< 0.005	0.01	3.34
Vendor	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
Hauling	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

3.14. Architectural Coating (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	199	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	10.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	1.99	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14	0.13	2.30	0.00	0.00	0.35	0.35	0.00	0.08	0.08	—	391	391	0.02	0.01	1.56	397
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.10	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	19.9	19.9	< 0.005	< 0.005	0.04	20.2
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.02	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.30	3.30	< 0.005	< 0.005	0.01	3.34
Vendor	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
Hauling	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

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	13.9	14.4	137	0.34	0.23	11.3	11.5	0.21	2.01	2.22	—	34,396	34,396	1.51	1.52	128	35,015
Strip Mall	15.9	16.4	157	0.38	0.26	12.9	13.1	0.24	2.29	2.53	—	39,243	39,243	1.73	1.73	147	39,950
Parking Lot	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
Total	29.9	30.7	294	0.72	0.49	24.1	24.6	0.46	4.30	4.76	—	73,639	73,639	3.24	3.25	275	74,965
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	13.0	15.4	114	0.31	0.23	11.3	11.5	0.21	2.01	2.22	—	32,228	32,228	1.56	1.57	3.33	32,738
Strip Mall	14.8	17.6	130	0.36	0.26	12.9	13.1	0.25	2.29	2.53	—	36,770	36,770	1.78	1.79	3.80	37,352
Parking Lot	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
Total	27.7	33.1	243	0.67	0.49	24.1	24.6	0.46	4.30	4.76	—	68,997	68,997	3.34	3.36	7.13	70,090
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	1.78	2.17	16.3	0.04	0.03	1.56	1.59	0.03	0.28	0.31	—	4,081	4,081	0.20	0.20	6.95	4,152
Strip Mall	2.45	3.00	22.5	0.06	0.04	2.15	2.19	0.04	0.38	0.42	—	5,632	5,632	0.27	0.27	9.59	5,730

Parking Lot	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
Total	4.23	5.17	38.8	0.10	0.08	3.71	3.78	0.07	0.66	0.73	—	9,714	9,714	0.47	0.47	16.5	9,883

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	5,658	5,658	0.54	0.06	—	5,690
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	788	788	0.07	0.01	—	793
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	109	109	0.01	< 0.005	—	110
Total	—	—	—	—	—	—	—	—	—	—	—	6,556	6,556	0.62	0.08	—	6,593
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	5,658	5,658	0.54	0.06	—	5,690
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	788	788	0.07	0.01	—	793
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	109	109	0.01	< 0.005	—	110
Total	—	—	—	—	—	—	—	—	—	—	—	6,556	6,556	0.62	0.08	—	6,593
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Office Building	—	—	—	—	—	—	—	—	—	—	—	937	937	0.09	0.01	—	942
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	131	131	0.01	< 0.005	—	131
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	18.1	18.1	< 0.005	< 0.005	—	18.2
Total	—	—	—	—	—	—	—	—	—	—	—	1,085	1,085	0.10	0.01	—	1,092

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.14	2.50	2.10	0.02	0.19	—	0.19	0.19	—	0.19	—	2,985	2,985	0.26	0.01	—	2,993
Strip Mall	0.01	0.13	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	160	160	0.01	< 0.005	—	161
Parking Lot	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
Total	0.14	2.64	2.21	0.02	0.20	—	0.20	0.20	—	0.20	—	3,145	3,145	0.28	0.01	—	3,154
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	0.14	2.50	2.10	0.02	0.19	—	0.19	0.19	—	0.19	—	2,985	2,985	0.26	0.01	—	2,993
Strip Mall	0.01	0.13	0.11	< 0.005	0.01	—	0.01	0.01	—	0.01	—	160	160	0.01	< 0.005	—	161
Parking Lot	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
Total	0.14	2.64	2.21	0.02	0.20	—	0.20	0.20	—	0.20	—	3,145	3,145	0.28	0.01	—	3,154
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Office Building	0.03	0.46	0.38	< 0.005	0.03	—	0.03	0.03	—	0.03	—	494	494	0.04	< 0.005	—	496
Strip Mall	< 0.005	0.02	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	26.5	26.5	< 0.005	< 0.005	—	26.6
Parking Lot	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
Total	0.03	0.48	0.40	< 0.005	0.04	—	0.04	0.04	—	0.04	—	521	521	0.05	< 0.005	—	522

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	9.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	1.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	3.03	0.16	18.4	< 0.005	0.02	—	0.02	0.03	—	0.03	—	75.9	75.9	< 0.005	< 0.005	—	76.1
Total	13.2	0.16	18.4	< 0.005	0.02	—	0.02	0.03	—	0.03	—	75.9	75.9	< 0.005	< 0.005	—	76.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	9.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Architectu Coatings	1.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	10.2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consume r Products	1.66	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectu ral Coatings	0.20	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscap e Equipme nt	0.38	0.02	2.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.60	8.60	< 0.005	< 0.005	—	8.64
Total	2.24	0.02	2.31	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	8.60	8.60	< 0.005	< 0.005	—	8.64

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	115	392	507	11.9	0.29	—	889
Strip Mall	—	—	—	—	—	—	—	—	—	—	12.1	40.9	53.0	1.24	0.03	—	92.9
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	128	433	560	13.1	0.32	—	982

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	115	392	507	11.9	0.29	—	889
Strip Mall	—	—	—	—	—	—	—	—	—	—	12.1	40.9	53.0	1.24	0.03	—	92.9
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	128	433	560	13.1	0.32	—	982
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	19.1	64.9	84.0	1.97	0.05	—	147
Strip Mall	—	—	—	—	—	—	—	—	—	—	2.00	6.78	8.78	0.21	< 0.005	—	15.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	21.1	71.6	92.8	2.17	0.05	—	163

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	170	0.00	170	17.0	0.00	—	594
Strip Mall	—	—	—	—	—	—	—	—	—	—	48.1	0.00	48.1	4.81	0.00	—	168

Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	218	0.00	218	21.8	0.00	—	763
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	170	0.00	170	17.0	0.00	—	594
Strip Mall	—	—	—	—	—	—	—	—	—	—	48.1	0.00	48.1	4.81	0.00	—	168
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	218	0.00	218	21.8	0.00	—	763
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	28.1	0.00	28.1	2.81	0.00	—	98.4
Strip Mall	—	—	—	—	—	—	—	—	—	—	7.96	0.00	7.96	0.80	0.00	—	27.9
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	36.1	0.00	36.1	3.61	0.00	—	126

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.83	0.83
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53	0.53
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.35	1.35
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.83	0.83
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.53	0.53
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.35	1.35
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Office Building	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.14	0.14
Strip Mall	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.09	0.09
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.22	0.22

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	2/28/2023	3/28/2023	5.00	20.0	—
Site Preparation	Site Preparation	3/29/2023	4/12/2023	5.00	10.0	—
Grading	Grading	4/13/2023	5/11/2023	5.00	20.0	—
Building Construction	Building Construction	5/12/2023	3/29/2024	5.00	230	—
Paving	Paving	3/30/2024	4/27/2024	5.00	20.0	—
Architectural Coating	Architectural Coating	4/28/2024	5/26/2024	5.00	20.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—

Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	136	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	69.5	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	27.2	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT

Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	136	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	69.5	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2

Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	27.2	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00	0.00	636,380	212,127	7,841

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	—	—
Site Preparation	—	—	15.0	0.00	—
Grading	—	—	20.0	0.00	—
Paving	0.00	0.00	0.00	0.00	3.00

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
General Office Building	0.00	0%
Strip Mall	0.00	0%
Parking Lot	3.00	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	532	0.03	< 0.005
2024	0.00	532	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
General Office Building	3,302	749	237	912,280	40,444	9,177	2,907	11,174,384
Strip Mall	3,767	3,573	1,737	1,259,039	46,144	43,770	21,271	15,421,775
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
0	0.00	636,380	212,127	7,841

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Office Building	5,923,275	349	0.0330	0.0040	9,313,307
Strip Mall	825,420	349	0.0330	0.0040	500,215
Parking Lot	114,476	349	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Office Building	60,251,741	0.00
Strip Mall	6,296,164	0.00

Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Office Building	315	0.00
Strip Mall	89.3	0.00
Parking Lot	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Office Building	Household refrigerators and/or freezers	R-134a	1,430	0.02	0.60	0.00	1.00
General Office Building	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Other commercial A/C and heat pumps	R-410A	2,088	< 0.005	4.00	4.00	18.0
Strip Mall	Stand-alone retail refrigerators and freezers	R-134a	1,430	0.04	1.00	0.00	1.00
Strip Mall	Walk-in refrigerators and freezers	R-404A	3,922	< 0.005	7.50	7.50	20.0

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1.1. Basic Project Information

Data Field	Value
Project Name	4700 Chino Hills Pkwy
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.60
Precipitation (days)	9.20
Location	4700 Chino Hills Pkwy, Chino Hills, CA 91709, USA
County	San Bernardino-South Coast
City	Chino
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5205
EDFZ	10
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Mid Rise	300	Dwelling Unit	2.19	333,569	11,222	0.00	993	—
Parking Lot	560	Space	7.55	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Transportation	T-14*	Provide Electric Vehicle Charging Infrastructure

* Qualitative or supporting measure. Emission reductions not included in the mitigated emissions results.

2. Emissions Summary

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	4.04	39.8	37.1	0.05	1.81	7.89	9.70	1.66	3.99	5.65	—	6,587	6,587	0.31	0.28	16.4	6,693
2024	109	7.89	11.3	0.01	0.39	0.56	0.60	0.36	0.13	0.40	—	1,728	1,728	0.07	0.02	2.49	1,736
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	4.04	39.9	36.7	0.05	1.81	7.89	9.70	1.66	3.99	5.65	—	6,321	6,321	0.32	0.28	0.43	6,413
2024	2.29	13.7	27.6	0.03	0.51	3.10	3.61	0.47	0.74	1.21	—	6,254	6,254	0.31	0.28	0.40	6,344
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	1.53	10.6	17.8	0.02	0.44	1.87	2.30	0.40	0.54	0.94	—	3,574	3,574	0.18	0.14	3.47	3,623
2024	6.44	2.58	5.14	0.01	0.10	0.51	0.61	0.09	0.12	0.21	—	1,094	1,094	0.05	0.04	1.08	1,109
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.28	1.94	3.24	< 0.005	0.08	0.34	0.42	0.07	0.10	0.17	—	592	592	0.03	0.02	0.57	600
2024	1.18	0.47	0.94	< 0.005	0.02	0.09	0.11	0.02	0.02	0.04	—	181	181	0.01	0.01	0.18	184

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	4.04	39.8	37.1	0.05	1.81	7.89	9.70	1.66	3.99	5.65	—	6,587	6,587	0.31	0.28	16.4	6,693
2024	109	7.89	11.3	0.01	0.39	0.56	0.60	0.36	0.13	0.40	—	1,728	1,728	0.07	0.02	2.49	1,736
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	4.04	39.9	36.7	0.05	1.81	7.89	9.70	1.66	3.99	5.65	—	6,321	6,321	0.32	0.28	0.43	6,413
2024	2.29	13.7	27.6	0.03	0.51	3.10	3.61	0.47	0.74	1.21	—	6,254	6,254	0.31	0.28	0.40	6,344
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	1.53	10.6	17.8	0.02	0.44	1.87	2.30	0.40	0.54	0.94	—	3,574	3,574	0.18	0.14	3.47	3,623
2024	6.44	2.58	5.14	0.01	0.10	0.51	0.61	0.09	0.12	0.21	—	1,094	1,094	0.05	0.04	1.08	1,109
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2023	0.28	1.94	3.24	< 0.005	0.08	0.34	0.42	0.07	0.10	0.17	—	592	592	0.03	0.02	0.57	600
2024	1.18	0.47	0.94	< 0.005	0.02	0.09	0.11	0.02	0.02	0.04	—	181	181	0.01	0.01	0.18	184

2.5. Operations Emissions by Sector, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	5.63	5.48	52.1	0.13	0.09	4.21	4.30	0.08	0.75	0.83	—	12,879	12,879	0.59	0.58	48.0	13,113
Area	17.4	1.37	90.5	0.24	10.5	—	10.5	10.1	—	10.1	1,770	45.5	1,816	8.28	< 0.005	—	2,023

Energy	0.05	0.84	0.36	0.01	0.07	—	0.07	0.07	—	0.07	—	2,573	2,573	0.24	0.02	—	2,585
Water	—	—	—	—	—	—	—	—	—	—	24.0	82.4	106	2.46	0.06	—	186
Waste	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39
Total	23.1	7.68	143	0.37	10.7	4.21	14.9	10.3	0.75	11.0	1,914	15,580	17,494	23.5	0.66	50.4	18,328
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	5.22	5.89	43.3	0.12	0.09	4.21	4.30	0.08	0.75	0.83	—	12,069	12,069	0.61	0.60	1.24	12,263
Area	15.9	1.20	73.5	0.24	10.5	—	10.5	10.1	—	10.1	1,770	0.00	1,770	8.28	0.00	—	1,977
Energy	0.05	0.84	0.36	0.01	0.07	—	0.07	0.07	—	0.07	—	2,573	2,573	0.24	0.02	—	2,585
Water	—	—	—	—	—	—	—	—	—	—	24.0	82.4	106	2.46	0.06	—	186
Waste	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39
Total	21.1	7.93	117	0.36	10.6	4.21	14.9	10.3	0.75	11.0	1,914	14,724	16,638	23.5	0.68	3.63	17,432
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	5.18	6.00	45.0	0.12	0.09	4.21	4.30	0.08	0.75	0.83	—	12,195	12,195	0.61	0.60	20.7	12,410
Area	9.36	0.20	16.7	0.02	0.72	—	0.72	0.70	—	0.70	121	31.2	152	0.57	< 0.005	—	167
Energy	0.05	0.84	0.36	0.01	0.07	—	0.07	0.07	—	0.07	—	2,573	2,573	0.24	0.02	—	2,585
Water	—	—	—	—	—	—	—	—	—	—	24.0	82.4	106	2.46	0.06	—	186
Waste	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39
Total	14.6	7.03	62.0	0.14	0.88	4.21	5.09	0.85	0.75	1.60	265	14,882	15,146	15.8	0.68	23.1	15,768
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.95	1.09	8.21	0.02	0.02	0.77	0.78	0.01	0.14	0.15	—	2,019	2,019	0.10	0.10	3.43	2,055
Area	1.71	0.04	3.04	< 0.005	0.13	—	0.13	0.13	—	0.13	20.1	5.16	25.2	0.09	< 0.005	—	27.6
Energy	0.01	0.15	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	426	426	0.04	< 0.005	—	428
Water	—	—	—	—	—	—	—	—	—	—	3.97	13.6	17.6	0.41	0.01	—	30.7

Waste	—	—	—	—	—	—	—	—	—	—	19.8	0.00	19.8	1.98	0.00	—	69.3
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.40	0.40
Total	2.66	1.28	11.3	0.03	0.16	0.77	0.93	0.15	0.14	0.29	43.8	2,464	2,508	2.62	0.11	3.83	2,611

2.6. Operations Emissions by Sector, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	5.63	5.48	52.1	0.13	0.09	4.21	4.30	0.08	0.75	0.83	—	12,879	12,879	0.59	0.58	48.0	13,113
Area	17.4	1.37	90.5	0.24	10.5	—	10.5	10.1	—	10.1	1,770	45.5	1,816	8.28	< 0.005	—	2,023
Energy	0.05	0.84	0.36	0.01	0.07	—	0.07	0.07	—	0.07	—	2,573	2,573	0.24	0.02	—	2,585
Water	—	—	—	—	—	—	—	—	—	—	24.0	82.4	106	2.46	0.06	—	186
Waste	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39
Total	23.1	7.68	143	0.37	10.7	4.21	14.9	10.3	0.75	11.0	1,914	15,580	17,494	23.5	0.66	50.4	18,328
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	5.22	5.89	43.3	0.12	0.09	4.21	4.30	0.08	0.75	0.83	—	12,069	12,069	0.61	0.60	1.24	12,263
Area	15.9	1.20	73.5	0.24	10.5	—	10.5	10.1	—	10.1	1,770	0.00	1,770	8.28	0.00	—	1,977
Energy	0.05	0.84	0.36	0.01	0.07	—	0.07	0.07	—	0.07	—	2,573	2,573	0.24	0.02	—	2,585
Water	—	—	—	—	—	—	—	—	—	—	24.0	82.4	106	2.46	0.06	—	186
Waste	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39
Total	21.1	7.93	117	0.36	10.6	4.21	14.9	10.3	0.75	11.0	1,914	14,724	16,638	23.5	0.68	3.63	17,432
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Mobile	5.18	6.00	45.0	0.12	0.09	4.21	4.30	0.08	0.75	0.83	—	12,195	12,195	0.61	0.60	20.7	12,410
Area	9.36	0.20	16.7	0.02	0.72	—	0.72	0.70	—	0.70	121	31.2	152	0.57	< 0.005	—	167
Energy	0.05	0.84	0.36	0.01	0.07	—	0.07	0.07	—	0.07	—	2,573	2,573	0.24	0.02	—	2,585
Water	—	—	—	—	—	—	—	—	—	—	24.0	82.4	106	2.46	0.06	—	186
Waste	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39	
Total	14.6	7.03	62.0	0.14	0.88	4.21	5.09	0.85	0.75	1.60	265	14,882	15,146	15.8	0.68	23.1	15,768
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.95	1.09	8.21	0.02	0.02	0.77	0.78	0.01	0.14	0.15	—	2,019	2,019	0.10	0.10	3.43	2,055
Area	1.71	0.04	3.04	< 0.005	0.13	—	0.13	0.13	—	0.13	20.1	5.16	25.2	0.09	< 0.005	—	27.6
Energy	0.01	0.15	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	426	426	0.04	< 0.005	—	428
Water	—	—	—	—	—	—	—	—	—	—	3.97	13.6	17.6	0.41	0.01	—	30.7
Waste	—	—	—	—	—	—	—	—	—	—	19.8	0.00	19.8	1.98	0.00	—	69.3
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.40	0.40	
Total	2.66	1.28	11.3	0.03	0.16	0.77	0.93	0.15	0.14	0.29	43.8	2,464	2,508	2.62	0.11	3.83	2,611

3. Construction Emissions Details

3.1. Demolition (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	2.84	27.3	23.5	0.03	1.20	—	1.20	1.10	—	1.10	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	1.50	1.29	< 0.005	0.07	—	0.07	0.06	—	0.06	—	188	188	0.01	< 0.005	—	188
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.27	0.23	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.1	31.1	< 0.005	< 0.005	—	31.2
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.09	1.04	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	202	202	0.01	0.01	0.02	204
Vendor	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
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.2	11.2	< 0.005	< 0.005	0.02	11.4
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.86	1.86	< 0.005	< 0.005	< 0.005	1.88
Vendor	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
Hauling	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

3.2. Demolition (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.84	27.3	23.5	0.03	1.20	—	1.20	1.10	—	1.10	—	3,425	3,425	0.14	0.03	—	3,437
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.16	1.50	1.29	< 0.005	0.07	—	0.07	0.06	—	0.06	—	188	188	0.01	< 0.005	—	188
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—

Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.27	0.23	< 0.005	0.01	—	0.01	0.01	—	0.01	—	31.1	31.1	< 0.005	< 0.005	—	31.2
Demolition	—	—	—	—	—	0.00	0.00	—	0.00	0.00	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.09	1.04	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	202	202	0.01	0.01	0.02	204
Vendor	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
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.2	11.2	< 0.005	< 0.005	0.02	11.4
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.86	1.86	< 0.005	< 0.005	< 0.005	1.88
Vendor	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
Hauling	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

3.3. Site Preparation (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.95	39.7	35.5	0.05	1.81	—	1.81	1.66	—	1.66	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.95	39.7	35.5	0.05	1.81	—	1.81	1.66	—	1.66	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	1.09	0.97	< 0.005	0.05	—	0.05	0.05	—	0.05	—	145	145	0.01	< 0.005	—	146
Dust From Material Movement	—	—	—	—	—	0.21	0.21	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	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

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.20	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movement	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	1.62	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	257	257	0.01	0.01	1.10	261
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.22	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	236	236	0.01	0.01	0.03	238
Vendor	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
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.55	6.55	< 0.005	< 0.005	0.01	6.64
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.08	1.08	< 0.005	< 0.005	< 0.005	1.10
Vendor	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
Hauling	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

3.4. Site Preparation (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.95	39.7	35.5	0.05	1.81	—	1.81	1.66	—	1.66	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.95	39.7	35.5	0.05	1.81	—	1.81	1.66	—	1.66	—	5,295	5,295	0.21	0.04	—	5,314
Dust From Material Movement	—	—	—	—	—	7.67	7.67	—	3.94	3.94	—	—	—	—	—	—	—
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	1.09	0.97	< 0.005	0.05	—	0.05	0.05	—	0.05	—	145	145	0.01	< 0.005	—	146
Dust From Material Movement	—	—	—	—	—	0.21	0.21	—	0.11	0.11	—	—	—	—	—	—	—

Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.20	0.18	< 0.005	0.01	—	0.01	0.01	—	0.01	—	24.0	24.0	< 0.005	< 0.005	—	24.1
Dust From Material Movement	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	1.62	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	257	257	0.01	0.01	1.10	261
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.11	1.22	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	236	236	0.01	0.01	0.03	238
Vendor	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
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.04	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	6.55	6.55	< 0.005	< 0.005	0.01	6.64
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.08	1.08	< 0.005	< 0.005	< 0.005	1.10
Vendor	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

Hauling	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

3.5. Grading (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.04	20.0	19.7	0.03	0.94	—	0.94	0.87	—	0.87	—	2,958	2,958	0.12	0.02	—	2,968
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	1.09	1.08	< 0.005	0.05	—	0.05	0.05	—	0.05	—	162	162	0.01	< 0.005	—	163
Dust From Material Movement	—	—	—	—	—	0.15	0.15	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.20	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.8	26.8	< 0.005	< 0.005	—	26.9

Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	1.39	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	220	220	0.01	0.01	0.94	224
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.2	11.2	< 0.005	< 0.005	0.02	11.4
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.86	1.86	< 0.005	< 0.005	< 0.005	1.88
Vendor	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
Hauling	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

3.6. Grading (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.04	20.0	19.7	0.03	0.94	—	0.94	0.87	—	0.87	—	2,958	2,958	0.12	0.02	—	2,968
Dust From Material Movement	—	—	—	—	—	2.76	2.76	—	1.34	1.34	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	1.09	1.08	< 0.005	0.05	—	0.05	0.05	—	0.05	—	162	162	0.01	< 0.005	—	163
Dust From Material Movement	—	—	—	—	—	0.15	0.15	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02	0.20	0.20	< 0.005	0.01	—	0.01	0.01	—	0.01	—	26.8	26.8	< 0.005	< 0.005	—	26.9
Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.08	1.39	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	220	220	0.01	0.01	0.94	224
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.2	11.2	< 0.005	< 0.005	0.02	11.4
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.86	1.86	< 0.005	< 0.005	< 0.005	1.88
Vendor	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
Hauling	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

3.7. Building Construction (2023) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.26	11.8	13.2	0.02	0.55	—	0.55	0.51	—	0.51	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.26	11.8	13.2	0.02	0.55	—	0.55	0.51	—	0.51	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	5.66	6.31	0.01	0.27	—	0.27	0.24	—	0.24	—	1,149	1,149	0.05	0.01	—	1,153
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	1.03	1.15	< 0.005	0.05	—	0.05	0.04	—	0.04	—	190	190	0.01	< 0.005	—	191
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.19	1.15	20.0	0.00	0.00	2.82	2.82	0.00	0.66	0.66	—	3,173	3,173	0.13	0.11	13.6	3,222
Vendor	0.03	1.21	0.65	0.01	0.01	0.27	0.29	0.01	0.08	0.09	—	1,016	1,016	0.09	0.15	2.81	1,066
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.11	1.33	15.0	0.00	0.00	2.82	2.82	0.00	0.66	0.66	—	2,907	2,907	0.14	0.11	0.35	2,943
Vendor	0.03	1.25	0.66	0.01	0.01	0.27	0.29	0.01	0.08	0.09	—	1,017	1,017	0.09	0.15	0.07	1,064
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.53	0.64	7.63	0.00	0.00	1.35	1.35	0.00	0.32	0.32	—	1,414	1,414	0.07	0.05	2.83	1,434
Vendor	0.01	0.60	0.31	< 0.005	0.01	0.13	0.14	0.01	0.04	0.04	—	487	487	0.04	0.07	0.58	510
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.12	1.39	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	234	234	0.01	0.01	0.47	237
Vendor	< 0.005	0.11	0.06	< 0.005	< 0.005	0.02	0.03	< 0.005	0.01	0.01	—	80.7	80.7	0.01	0.01	0.10	84.5
Hauling	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

3.8. Building Construction (2023) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.26	11.8	13.2	0.02	0.55	—	0.55	0.51	—	0.51	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.26	11.8	13.2	0.02	0.55	—	0.55	0.51	—	0.51	—	2,397	2,397	0.10	0.02	—	2,406
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.60	5.66	6.31	0.01	0.27	—	0.27	0.24	—	0.24	—	1,149	1,149	0.05	0.01	—	1,153

Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.11	1.03	1.15	< 0.005	0.05	—	0.05	0.04	—	0.04	—	190	190	0.01	< 0.005	—	191
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.19	1.15	20.0	0.00	0.00	2.82	2.82	0.00	0.66	0.66	—	3,173	3,173	0.13	0.11	13.6	3,222
Vendor	0.03	1.21	0.65	0.01	0.01	0.27	0.29	0.01	0.08	0.09	—	1,016	1,016	0.09	0.15	2.81	1,066
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.11	1.33	15.0	0.00	0.00	2.82	2.82	0.00	0.66	0.66	—	2,907	2,907	0.14	0.11	0.35	2,943
Vendor	0.03	1.25	0.66	0.01	0.01	0.27	0.29	0.01	0.08	0.09	—	1,017	1,017	0.09	0.15	0.07	1,064
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.53	0.64	7.63	0.00	0.00	1.35	1.35	0.00	0.32	0.32	—	1,414	1,414	0.07	0.05	2.83	1,434
Vendor	0.01	0.60	0.31	< 0.005	0.01	0.13	0.14	0.01	0.04	0.04	—	487	487	0.04	0.07	0.58	510
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.12	1.39	0.00	0.00	0.25	0.25	0.00	0.06	0.06	—	234	234	0.01	0.01	0.47	237
Vendor	< 0.005	0.11	0.06	< 0.005	< 0.005	0.02	0.03	< 0.005	0.01	0.01	—	80.7	80.7	0.01	0.01	0.10	84.5
Hauling	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

3.9. Building Construction (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.18	1.71	2.00	< 0.005	0.08	—	0.08	0.07	—	0.07	—	366	366	0.01	< 0.005	—	367
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.31	0.37	< 0.005	0.01	—	0.01	0.01	—	0.01	—	60.6	60.6	< 0.005	< 0.005	—	60.8
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	1.06	1.23	13.8	0.00	0.00	2.82	2.82	0.00	0.66	0.66	—	2,850	2,850	0.14	0.11	0.32	2,886
Vendor	0.03	1.20	0.63	0.01	0.01	0.27	0.29	0.01	0.08	0.09	—	1,006	1,006	0.08	0.15	0.07	1,053
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.19	2.21	0.00	0.00	0.43	0.43	0.00	0.10	0.10	—	441	441	0.02	0.02	0.82	447
Vendor	< 0.005	0.18	0.10	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	154	154	0.01	0.02	0.18	161
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.40	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	73.0	73.0	< 0.005	< 0.005	0.14	74.1
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.4	25.4	< 0.005	< 0.005	0.03	26.6
Hauling	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

3.10. Building Construction (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.20	11.2	13.1	0.02	0.50	—	0.50	0.46	—	0.46	—	2,398	2,398	0.10	0.02	—	2,406
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.18	1.71	2.00	< 0.005	0.08	—	0.08	0.07	—	0.07	—	366	366	0.01	< 0.005	—	367
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.31	0.37	< 0.005	0.01	—	0.01	0.01	—	0.01	—	60.6	60.6	< 0.005	< 0.005	—	60.8
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.06	1.23	13.8	0.00	0.00	2.82	2.82	0.00	0.66	0.66	—	2,850	2,850	0.14	0.11	0.32	2,886
Vendor	0.03	1.20	0.63	0.01	0.01	0.27	0.29	0.01	0.08	0.09	—	1,006	1,006	0.08	0.15	0.07	1,053
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.16	0.19	2.21	0.00	0.00	0.43	0.43	0.00	0.10	0.10	—	441	441	0.02	0.02	0.82	447
Vendor	< 0.005	0.18	0.10	< 0.005	< 0.005	0.04	0.04	< 0.005	0.01	0.01	—	154	154	0.01	0.02	0.18	161
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.40	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	73.0	73.0	< 0.005	< 0.005	0.14	74.1
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	25.4	25.4	< 0.005	< 0.005	0.03	26.6
Hauling	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

3.11. Paving (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.99	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.99	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.43	0.55	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.08	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	1.27	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	216	216	0.01	0.01	0.86	219
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.09	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	198	198	0.01	0.01	0.02	200
Vendor	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
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.0	11.0	< 0.005	< 0.005	0.02	11.2
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.82	1.82	< 0.005	< 0.005	< 0.005	1.85
Vendor	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
Hauling	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

3.12. Paving (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.99	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.85	7.81	10.0	0.01	0.39	—	0.39	0.36	—	0.36	—	1,512	1,512	0.06	0.01	—	1,517
Paving	0.99	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05	0.43	0.55	< 0.005	0.02	—	0.02	0.02	—	0.02	—	82.8	82.8	< 0.005	< 0.005	—	83.1
Paving	0.05	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.08	0.10	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	13.7	13.7	< 0.005	< 0.005	—	13.8
Paving	0.01	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.07	1.27	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	216	216	0.01	0.01	0.86	219
Vendor	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

Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07	0.09	0.96	0.00	0.00	0.20	0.20	0.00	0.05	0.05	—	198	198	0.01	0.01	0.02	200
Vendor	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
Hauling	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
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	11.0	11.0	< 0.005	< 0.005	0.02	11.2
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.82	1.82	< 0.005	< 0.005	< 0.005	1.85
Vendor	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
Hauling	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

3.13. Architectural Coating (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	109	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	5.97	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	1.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.21	3.65	0.00	0.00	0.56	0.56	0.00	0.13	0.13	—	622	622	0.03	0.02	2.49	631
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.01	0.01	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	31.7	31.7	< 0.005	< 0.005	0.06	32.1
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.24	5.24	< 0.005	< 0.005	0.01	5.32
Vendor	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
Hauling	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

3.14. Architectural Coating (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	109	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.05	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	7.32	7.32	< 0.005	< 0.005	—	7.34
Architectural Coatings	5.97	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Onsite truck	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.21	1.21	< 0.005	< 0.005	—	1.22
Architectural Coatings	1.09	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	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
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.23	0.21	3.65	0.00	0.00	0.56	0.56	0.00	0.13	0.13	—	622	622	0.03	0.02	2.49	631
Vendor	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
Hauling	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
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.16	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	31.7	31.7	< 0.005	< 0.005	0.06	32.1
Vendor	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
Hauling	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
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.24	5.24	< 0.005	< 0.005	0.01	5.32
Vendor	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
Hauling	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

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	5.63	5.48	52.1	0.13	0.09	4.21	4.30	0.08	0.75	0.83	—	12,879	12,879	0.59	0.58	48.0	13,113
Parking Lot	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
Total	5.63	5.48	52.1	0.13	0.09	4.21	4.30	0.08	0.75	0.83	—	12,879	12,879	0.59	0.58	48.0	13,113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	5.22	5.89	43.3	0.12	0.09	4.21	4.30	0.08	0.75	0.83	—	12,069	12,069	0.61	0.60	1.24	12,263
Parking Lot	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
Total	5.22	5.89	43.3	0.12	0.09	4.21	4.30	0.08	0.75	0.83	—	12,069	12,069	0.61	0.60	1.24	12,263
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.95	1.09	8.21	0.02	0.02	0.77	0.78	0.01	0.14	0.15	—	2,019	2,019	0.10	0.10	3.43	2,055
Parking Lot	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
Total	0.95	1.09	8.21	0.02	0.02	0.77	0.78	0.01	0.14	0.15	—	2,019	2,019	0.10	0.10	3.43	2,055

4.1.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	5.63	5.48	52.1	0.13	0.09	4.21	4.30	0.08	0.75	0.83	—	12,879	12,879	0.59	0.58	48.0	13,113
Parking Lot	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
Total	5.63	5.48	52.1	0.13	0.09	4.21	4.30	0.08	0.75	0.83	—	12,879	12,879	0.59	0.58	48.0	13,113
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	5.22	5.89	43.3	0.12	0.09	4.21	4.30	0.08	0.75	0.83	—	12,069	12,069	0.61	0.60	1.24	12,263
Parking Lot	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
Total	5.22	5.89	43.3	0.12	0.09	4.21	4.30	0.08	0.75	0.83	—	12,069	12,069	0.61	0.60	1.24	12,263
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.95	1.09	8.21	0.02	0.02	0.77	0.78	0.01	0.14	0.15	—	2,019	2,019	0.10	0.10	3.43	2,055
Parking Lot	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
Total	0.95	1.09	8.21	0.02	0.02	0.77	0.78	0.01	0.14	0.15	—	2,019	2,019	0.10	0.10	3.43	2,055

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	1,237	1,237	0.12	0.01	—	1,244
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	275	275	0.03	< 0.005	—	277
Total	—	—	—	—	—	—	—	—	—	—	—	1,512	1,512	0.14	0.02	—	1,521
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	1,237	1,237	0.12	0.01	—	1,244
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	275	275	0.03	< 0.005	—	277
Total	—	—	—	—	—	—	—	—	—	—	—	1,512	1,512	0.14	0.02	—	1,521
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	205	205	0.02	< 0.005	—	206
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	45.6	45.6	< 0.005	< 0.005	—	45.8
Total	—	—	—	—	—	—	—	—	—	—	—	250	250	0.02	< 0.005	—	252

4.2.2. Electricity Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	1,237	1,237	0.12	0.01	—	1,244
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	275	275	0.03	< 0.005	—	277
Total	—	—	—	—	—	—	—	—	—	—	—	1,512	1,512	0.14	0.02	—	1,521
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	1,237	1,237	0.12	0.01	—	1,244
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	275	275	0.03	< 0.005	—	277
Total	—	—	—	—	—	—	—	—	—	—	—	1,512	1,512	0.14	0.02	—	1,521
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	205	205	0.02	< 0.005	—	206
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	45.6	45.6	< 0.005	< 0.005	—	45.8
Total	—	—	—	—	—	—	—	—	—	—	—	250	250	0.02	< 0.005	—	252

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments	0.05	0.84	0.36	0.01	0.07	—	0.07	0.07	—	0.07	—	1,061	1,061	0.09	< 0.005	—	1,064
Parking Lot	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
Total	0.05	0.84	0.36	0.01	0.07	—	0.07	0.07	—	0.07	—	1,061	1,061	0.09	< 0.005	—	1,064
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.05	0.84	0.36	0.01	0.07	—	0.07	0.07	—	0.07	—	1,061	1,061	0.09	< 0.005	—	1,064
Parking Lot	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
Total	0.05	0.84	0.36	0.01	0.07	—	0.07	0.07	—	0.07	—	1,061	1,061	0.09	< 0.005	—	1,064
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.01	0.15	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	176	176	0.02	< 0.005	—	176
Parking Lot	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
Total	0.01	0.15	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	176	176	0.02	< 0.005	—	176

4.2.4. Natural Gas Emissions By Land Use - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.05	0.84	0.36	0.01	0.07	—	0.07	0.07	—	0.07	—	1,061	1,061	0.09	< 0.005	—	1,064
Parking Lot	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

Total	0.05	0.84	0.36	0.01	0.07	—	0.07	0.07	—	0.07	—	1,061	1,061	0.09	< 0.005	—	1,064
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.05	0.84	0.36	0.01	0.07	—	0.07	0.07	—	0.07	—	1,061	1,061	0.09	< 0.005	—	1,064
Parking Lot	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
Total	0.05	0.84	0.36	0.01	0.07	—	0.07	0.07	—	0.07	—	1,061	1,061	0.09	< 0.005	—	1,064
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.01	0.15	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	176	176	0.02	< 0.005	—	176
Parking Lot	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
Total	0.01	0.15	0.06	< 0.005	0.01	—	0.01	0.01	—	0.01	—	176	176	0.02	< 0.005	—	176

4.3. Area Emissions by Source

4.3.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	8.10	1.20	73.5	0.24	10.5	—	10.5	10.1	—	10.1	1,770	0.00	1,770	8.28	0.00	—	1,977
Consumer Products	7.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscap Equipment	1.53	0.17	17.0	< 0.005	0.01	—	0.01	0.01	—	0.01	—	45.5	45.5	< 0.005	< 0.005	—	45.7
Total	17.4	1.37	90.5	0.24	10.5	—	10.5	10.1	—	10.1	1,770	45.5	1,816	8.28	< 0.005	—	2,023
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	8.10	1.20	73.5	0.24	10.5	—	10.5	10.1	—	10.1	1,770	0.00	1,770	8.28	0.00	—	1,977
Consumer Products	7.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	15.9	1.20	73.5	0.24	10.5	—	10.5	10.1	—	10.1	1,770	0.00	1,770	8.28	0.00	—	1,977
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.10	0.01	0.92	< 0.005	0.13	—	0.13	0.13	—	0.13	20.1	0.00	20.1	0.09	0.00	—	22.4
Consumer Products	1.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.19	0.02	2.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.16	5.16	< 0.005	< 0.005	—	5.18
Total	1.71	0.04	3.04	< 0.005	0.13	—	0.13	0.13	—	0.13	20.1	5.16	25.2	0.09	< 0.005	—	27.6

4.3.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	8.10	1.20	73.5	0.24	10.5	—	10.5	10.1	—	10.1	1,770	0.00	1,770	8.28	0.00	—	1,977
Consumer Products	7.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	1.53	0.17	17.0	< 0.005	0.01	—	0.01	0.01	—	0.01	—	45.5	45.5	< 0.005	< 0.005	—	45.7
Total	17.4	1.37	90.5	0.24	10.5	—	10.5	10.1	—	10.1	1,770	45.5	1,816	8.28	< 0.005	—	2,023
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	8.10	1.20	73.5	0.24	10.5	—	10.5	10.1	—	10.1	1,770	0.00	1,770	8.28	0.00	—	1,977
Consumer Products	7.16	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.60	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	15.9	1.20	73.5	0.24	10.5	—	10.5	10.1	—	10.1	1,770	0.00	1,770	8.28	0.00	—	1,977
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.10	0.01	0.92	< 0.005	0.13	—	0.13	0.13	—	0.13	20.1	0.00	20.1	0.09	0.00	—	22.4
Consumer Products	1.31	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.11	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Landscape	0.19	0.02	2.12	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	5.16	5.16	< 0.005	< 0.005	—	5.18
Total	1.71	0.04	3.04	< 0.005	0.13	—	0.13	0.13	—	0.13	20.1	5.16	25.2	0.09	< 0.005	—	27.6

4.4. Water Emissions by Land Use

4.4.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	24.0	82.4	106	2.46	0.06	—	186
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	24.0	82.4	106	2.46	0.06	—	186
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	24.0	82.4	106	2.46	0.06	—	186
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	24.0	82.4	106	2.46	0.06	—	186
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	3.97	13.6	17.6	0.41	0.01	—	30.7
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00

Total	—	—	—	—	—	—	—	—	—	—	3.97	13.6	17.6	0.41	0.01	—	30.7

4.4.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	24.0	82.4	106	2.46	0.06	—	186
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	24.0	82.4	106	2.46	0.06	—	186
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	24.0	82.4	106	2.46	0.06	—	186
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	24.0	82.4	106	2.46	0.06	—	186
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	3.97	13.6	17.6	0.41	0.01	—	30.7
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	3.97	13.6	17.6	0.41	0.01	—	30.7

4.5. Waste Emissions by Land Use

4.5.2. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	19.8	0.00	19.8	1.98	0.00	—	69.3
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	19.8	0.00	19.8	1.98	0.00	—	69.3

4.5.1. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	120	0.00	120	11.9	0.00	—	418
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	19.8	0.00	19.8	1.98	0.00	—	69.3
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	19.8	0.00	19.8	1.98	0.00	—	69.3

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.40	0.40
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.40	0.40

4.6.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartment Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.39	2.39
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.40	0.40
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.40	0.40

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Equipment Type	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	2/17/2023	3/17/2023	5.00	20.0	—
Site Preparation	Site Preparation	3/18/2023	4/1/2023	5.00	10.0	—
Grading	Grading	4/2/2023	4/30/2023	5.00	20.0	—
Building Construction	Building Construction	5/1/2023	3/18/2024	5.00	230	—
Paving	Paving	3/19/2024	4/16/2024	5.00	20.0	—
Architectural Coating	Architectural Coating	4/17/2024	5/15/2024	5.00	20.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Excavators	Diesel	Average	3.00	8.00	36.0	0.38
Demolition	Rubber Tired Dozers	Diesel	Average	2.00	8.00	367	0.40

Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00	8.00	367	0.40
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00	8.00	84.0	0.37
Grading	Excavators	Diesel	Average	1.00	8.00	36.0	0.38
Grading	Graders	Diesel	Average	1.00	8.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	8.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	3.00	8.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	7.00	367	0.29
Building Construction	Forklifts	Diesel	Average	3.00	8.00	82.0	0.20
Building Construction	Generator Sets	Diesel	Average	1.00	8.00	14.0	0.74
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00	7.00	84.0	0.37
Building Construction	Welders	Diesel	Average	1.00	8.00	46.0	0.45
Paving	Pavers	Diesel	Average	2.00	8.00	81.0	0.42
Paving	Paving Equipment	Diesel	Average	2.00	8.00	89.0	0.36
Paving	Rollers	Diesel	Average	2.00	8.00	36.0	0.38
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT

Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	216	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	32.1	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	43.2	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	15.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	0.00	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	17.5	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	15.0	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	0.00	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	216	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	32.1	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	15.0	18.5	LDA,LDT1,LDT2
Paving	Vendor	—	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—

Architectural Coating	Worker	43.2	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Water unpaved roads twice daily	55%	55%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	675,477	225,159	0.00	0.00	19,733

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	—	—
Site Preparation	—	—	15.0	0.00	—
Grading	—	—	20.0	0.00	—
Paving	0.00	0.00	0.00	0.00	7.55

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments Mid Rise	—	0%
Parking Lot	7.55	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2023	0.00	349	0.03	< 0.005
2024	0.00	349	0.03	< 0.005

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	1,362	1,362	1,362	497,130	15,114	15,114	15,114	5,516,572
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments Mid Rise	1,362	1,362	1,362	497,130	15,114	15,114	15,114	5,516,572
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

Hearth Type	Unmitigated (number)
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	300
Conventional Wood Stoves	0
Catalytic Wood Stoves	15
Non-Catalytic Wood Stoves	15
Pellet Wood Stoves	0

5.10.1.2. Mitigated

Hearth Type	Unmitigated (number)
Apartments Mid Rise	—
Wood Fireplaces	0
Gas Fireplaces	0
Propane Fireplaces	0
Electric Fireplaces	0
No Fireplaces	300
Conventional Wood Stoves	0
Catalytic Wood Stoves	15

Non-Catalytic Wood Stoves	15
Pellet Wood Stoves	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
675477.225	225,159	0.00	0.00	19,733

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00
Summer Days	day/yr	250

5.11. Operational Energy Consumption

5.11.1. Unmitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	1,294,849	349	0.0330	0.0040	3,311,154
Parking Lot	288,097	349	0.0330	0.0040	0.00

5.11.2. Mitigated

Electricity (kWh/yr) and CO2 and CH4 and N2O and Natural Gas (kBTU/yr)

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	1,294,849	349	0.0330	0.0040	3,311,154
Parking Lot	288,097	349	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	12,504,353	220,263
Parking Lot	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	12,504,353	220,263
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	67.0	0.00
Parking Lot	0.00	0.00

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	67.0	0.00
Parking Lot	0.00	0.00

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.14.2. Mitigated

Land Use Type	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088	< 0.005	2.50	2.50	10.0
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430	0.12	0.60	0.00	1.00

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

5.15.2. Mitigated

Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor

8. User Changes to Default Data

Screen	Justification
Land Use	Adjusted to August 2022 Site Plan
Operations: Vehicle Data	Revised to December 2022 TIA ADT
Operations: Hearths	Assume no hearths

Date: September 28, 2023

To: City of Chino
Development Services Department – Planning Division
13220 Central Avenue
Chino, CA 91710

From: Moe Fakih | Principal
VCA-Green
1845 W. Orangewood Ave., Suite 310
Orange, CA 92868

RE: Chino Creek Apartments by Chino Valley Investments LP

To whom it may concern,

This letter is to inform you that the project referenced is meeting the intent of the City of Chino California's Code of Ordinances. As per CA Code of Ordinances section 15.45.070 – GHG Performance Standard for New Development, this project is pursuing Option 3 utilizing the GHG Performance Standard Checklist developed by the City of Chino requiring the project to meet or exceed 100 points.

The Chino Creek Apartments project's designed intent is set to achieve a minimum of 106 points, with a potential of 132 points, based on the provided Greenhouse Gas Emissions Screening Table 1: Screening Table for Implementing GHG Performance Standards for Residential Development.

Please note that the required further documentation and testing is currently in the works, and that points may fluctuate as we finalize our submittal packages for official review by the agencies having jurisdiction.

If you have any questions or would like to discuss this further, please feel free to contact me directly at 714-363-4700 x 1601.

Sincerely,



Moe Fakih
Principal, VCA Green

CC:
Dustin Smith
Owner Representative, Chino Valley Investments LP

15.45.070 - GHG Performance Standard for New Development.

All new development in the city shall contribute to the reduction of greenhouse gas emissions by demonstrating consistency with the climate action plan by implementing one or a combination of the following three options:

1. Exceed by three percent the mandatory California Energy Code Title 24, Part 6 standards, in effect at the time of development application submittal for discretionary review; or
2. Achieve an equivalent reduction through voluntary measures in the California Green Building Standards Code, Title 24, Part 11 (CALGreen) in effect at the time of development application submittal for discretionary review; or
3. Provide other equivalent GHG reductions through measures including, but not limited to, non-vehicle transportation infrastructure, transit, ZEV (zero emission vehicle) infrastructure or other incentives, waste diversion, water conservation, tree planting, renewable energy option packages, or any combination of these or other measures such that GHG emissions are reduced by 0.04 MT CO2e per residential dwelling unit per year and/or 0.11 MT CO2e per thousand square feet of commercial/industrial development per year.

Applicants that choose Option 1 described above will be required to verify that their project meets the three percent improvement above the mandatory standards through the appropriate certificate of compliance form for residential construction (CF-1R) or for commercial/industrial construction (PERF-1C). Applicants that choose Options 2 or 3 described above will be required to utilize the GHG Performance Standard Checklist developed by the city, or provide other valid documentation, such as CalEEMod or other methodologies, as verified by the director of community development to demonstrate the required GHG reductions consistent with the city's CAP.

(Ord. 2022-015 , § 1, 7-19-2022.)

Development Services Department
Planning Division
13220 Central Avenue
Chino, CA 91710
(909) 334-3253

www.cityofchino.org

CITY *of* CHINO

Greenhouse Gas Emissions Screening Tables

Screening Tables Implementing Performance Standards

The purpose of the Screening Tables is to provide guidance in measuring the reduction of GHG emissions attributable to certain design and construction measures incorporated into development projects. The analysis, methodology, and significance determination (thresholds) are based upon the CAP and CAP Update, which include GHG emission inventories (2008 and 2016); forecasts for years 2020, 2030, and 2045; 2020 and 2030 emission reduction targets; and the goals and policies to reach the targets. Appendix C of this document sets forth the methodology for the development and application of the Screening Tables and uses the California Air Pollution Control Officers Association (CAPCOA) guidance on quantifying project-level GHG reductions (CAPCOA 2010).

INSTRUCTIONS FOR RESIDENTIAL, COMMERCIAL, OR INDUSTRIAL PROJECTS

The Screening Tables assign points for each option incorporated into a project as mitigation or a project design feature (collectively referred to as "feature"). The point values correspond to the minimum emissions reduction expected from each feature. The menu of features allows maximum flexibility and options for how development projects can implement the GHG reduction measures. The point levels are based upon improvements compared to 2017 emission levels of efficiency. Projects that obtain at least 100 points will be consistent with the reduction quantities anticipated in the CAP Update. Consistent with *CEQA Guidelines*, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions.

Note that the Screening Tables use a base level of efficiency that corresponds to the California Building Energy Efficiency Standards for Residential and Non-residential Buildings (Title 24, Part 6) that became effective January 1, 2020. These are the statewide minimum requirements of efficiency that are currently in effect.

INSTRUCTIONS FOR MIXED-USE PROJECTS

Mixed-use projects provide additional opportunities to reduce emissions by combining complementary land uses in a manner that can reduce vehicle trips. Mixed-use projects also have the potential to complement energy-efficient infrastructure in a way that reduces emissions. For mixed-use projects, both Table 1 and Table 2 should be filled out, but the points should be proportioned identical to the proportioning of the mix of uses. For example, a mixed-use project that is 50 percent commercial uses and 50 percent residential uses will show ½ point for each assigned point value in Table 1 and Table 2, and the points will be added from both tables. Mixed-use projects that obtain at least 100 points will be

consistent with the reduction quantities in the City's forthcoming CAP Update and would be considered less than significant for GHG emissions.

Those projects that do not obtain 100 points using the Screening Tables will need to provide additional analysis to determine the significance of GHG emissions. Nothing in this guidance shall be construed as limiting the City's authority to adopt a statement of overriding consideration for projects that require the preparation of an EIR due to significant GHG impacts. The following tables provide a menu of performance standards/options related to GHG mitigation measures and design features that can be used to demonstrate consistency with the reduction measures and GHG reduction quantities in the forthcoming CAP Update.

Table 1: Screening Table for Implementing GHG Performance Standards for Residential Development

Feature	Description	Assigned Point Values	Project Points
Reduction Measure Energy 1-2: Exceed Energy Efficiency Standards in New Residential Units			
Building Envelope			
Insulation	• 2019 Title 24 Requirements (walls R-8, roof/attic R-30) • Enhanced Insulation (rigid wall insulation R-13, roof/attic R-38) • Greatly Enhanced Insulation (spray foam wall insulated walls R-18 or higher, roof/attic R-38 or higher)	0 points 9 points 11 points	0
Windows	• 2019 Title 24 Windows (0.3 U-factor, 0.23 solar heat gain coefficient [SHGC]) • Enhanced Window (0.28 U-Factor, 0.22 SHGC) • Greatly Enhanced Window (less than 0.28 U-Factor, less than 0.22 SHGC)	0 points 4 points 5 points	4
Cool Roofs	• Enhanced Cool Roof (CRRC Rated 0.2 aged solar reflectance, 0.75 thermal emittance) • Greatly Enhanced Cool Roof (CRRC Rated 0.35 aged solar reflectance, 0.75 thermal emittance)	6 points 7 points	0
Air Infiltration	Minimizing leaks in the building envelope is as important as the insulation properties of the building. Insulation does not work effectively if there is excess air leakage. • Air barrier applied to exterior walls, calking, and visual inspection such as the HERS Verified Quality Insulation Installation (QII or equivalent) • Blower Door HERS Verified Envelope Leakage or equivalent	 6 points 5 points	
Thermal Storage of Building	Thermal storage is a design characteristic that helps keep a constant temperature in the building. Common thermal storage devices include strategically placed water filled columns, water storage tanks, and thick masonry walls. • Modest Thermal Mass (10% of floor or 10% of walls 12" or more thick exposed concrete or masonry with no permanently installed floor covering such as carpet, linoleum, wood, or other insulating materials) • Enhanced Thermal Mass (20% of floor or 20% of walls 12" or more thick exposed concrete or masonry with no permanently installed floor covering such as carpet, linoleum, wood, or other insulating materials)	 1 point 2 points	
Indoor Space Efficiencies			
Heating/ Cooling Distribution System	• Minimum Duct Insulation (R-6 required) • Enhanced Duct Insulation (R-8) • Distribution loss reduction with inspection (HERS Verified Duct Leakage or equivalent)	0 points 5 points 7 points	7

Table 1: Screening Table for Implementing GHG Performance Standards for Residential Development

Feature	Description	Assigned Point Values	Project Points
Space Heating/ Cooling Equipment	• 2019 Title 24 Minimum HVAC Efficiency (SEER 13/75% AFUE or 7.7 HSPF) • Improved Efficiency HVAC (SEER 14/78% AFUE or 8 HSPF) • High Efficiency HVAC (SEER 15/80% AFUE or 8.5 HSPF) • Very High Efficiency HVAC (SEER 16/82% AFUE or 9 HSPF)	0 points 2 points 4 points 5 points	
Water Heaters	• 2019 Title 24 Minimum Efficiency (0.57 Energy Factor) • Improved Efficiency Water Heater (0.675 Energy Factor) • High Efficiency Water Heater (0.72 Energy Factor) • Very High Efficiency Water Heater (0.92 Energy Factor) • Solar Pre-heat System (0.2 Net Solar Fraction) • Enhanced Solar Pre-heat System (0.35 Net Solar Fraction)	0 points 7 points 9 points 11 points 2 points 5 points	7
Daylighting	Daylighting is the ability of each room within the building to provide outside light during the day reducing the need for artificial lighting during daylight hours. • All peripheral rooms within the living space have at least one window (required) • All rooms within the living space have daylight (through use of windows, solar tubes, skylights, etc.) • All rooms daylighted	 0 points 1 point 1 point	1
Artificial Lighting	• Efficient Lights (25% of in-unit fixtures considered high efficacy. High efficiency is defined as 40 lumens/watt for 15 watt or less fixtures; 50 lumens/watt for 15-40 watt fixtures, 60 lumens/watt for fixtures >40watt) • High Efficiency Lights (50% of in-unit fixtures are high efficiency) • Very High Efficiency Lights (100% of in-unit fixtures are high efficiency)	5 points 6 points 7 points	6
Appliances	• Energy Star Refrigerator (new) • Energy Star Dishwasher (new) • Energy Star Washing Machine (new)	1 point 1 point 1 point	2
Miscellaneous Residential Building Efficiencies			
Building Placement	North/south alignment of building or other building placement such that the orientation of the buildings optimizes natural heating, cooling, and lighting.	3 points	0
Shading	At least 90% of south-facing glazing will be shaded by vegetation or overhangs at noon on June 21st.	2 points	0
Energy Star Homes	EPA Energy Star for Homes (version 3 or above)	15 points	0
Independent Energy Efficiency Calculations	Provide point values based upon energy efficiency modeling of the project. Note that engineering data will be required documenting the energy efficiency and point values based upon the proven efficiency beyond Title 24 Energy Efficiency Standards.	TBD	
Other	This allows innovation by the applicant to provide design features that increase the energy efficiency of the project not provided in the table. Note that engineering data will be required documenting the energy efficiency of innovative designs and point values given based upon the proven efficiency beyond Title 24 Energy Efficiency Standards.	TBD	

Table 1: Screening Table for Implementing GHG Performance Standards for Residential Development

Feature	Description	Assigned Point Values	Project Points
Existing Residential Retrofits	Having residential developments within walking and biking distances of local retail helps to reduce vehicle trips and/or vehicle miles traveled. The point value of residential projects in close proximity to local retail will be determined based upon traffic studies that demonstrate trip reductions and/or reductions in vehicle miles traveled (VMT). The suburban project will have at least three of the following on site and/or off site within ¼-mile: Residential Development, Retail Development, Park, Open Space, or Office. The mixed-use development should encourage walking and other non-auto modes of transport from residential to office/commercial locations (and vice versa). The project should minimize the need for external trips by including services/facilities for daycare, banking/ATM, restaurants, vehicle refueling, and shopping.	TBD	
Reduction Measure Energy 3: All Electric Homes			
All-Electric Homes	All electric homes reduce GHG emissions, as the grid electricity they use is generated using less carbon over time. Grid electricity in California will be 60 percent renewable energy by 2030 and 100 percent renewable energy by 2040.	12 points	0
Reduction Measure Energy-7: Clean Energy			
Residential Renewable Energy Generation			
Photovoltaic	Solar Photovoltaic panels installed on individual homes or in collective neighborhood arrangements such that the total power provided augments: • 30 percent of the power needs of the project • 40 percent of the power needs of the project • 50 percent of the power needs of the project • 60 percent of the power needs of the project • 70 percent of the power needs of the project • 80 percent of the power needs of the project • 90 percent of the power needs of the project • 100 percent of the power needs of the project	 9 points 12 points 17 points 20 points 23 points 25 points 28 points 31 points	9
Wind Turbines	Some areas of the City lend themselves to wind turbine applications. Analysis of the areas' capability to support wind turbines should be evaluated prior to choosing this feature. Individual wind turbines at homes or collective neighborhood arrangements of wind turbines such that the total power provided augments: • 30 percent of the power needs of the project • 40 percent of the power needs of the project • 50 percent of the power needs of the project • 60 percent of the power needs of the project • 70 percent of the power needs of the project • 80 percent of the power needs of the project • 90 percent of the power needs of the project • 100 percent of the power needs of the project	 9 points 12 points 17 points 21 points 23 points 25 points 28 points 31 points	0
Off-site Renewable Energy Project	The applicant may submit a proposal to supply an off-site renewable energy project such as renewable energy retrofits of existing homes. These off-site renewable energy retrofit project proposals will be determined on a case-by-case basis and shall be accompanied by a detailed plan that documents the quantity of renewable energy the proposal would generate. Point values will be determined based upon the energy generated by the proposal.	TBD	

Table 1: Screening Table for Implementing GHG Performance Standards for Residential Development

Feature	Description	Assigned Point Values	Project Points
Other Renewable Energy Generation	The applicant may have innovative designs or unique site circumstances (such as geothermal) that allow the project to generate electricity from renewable energy not provided in the table. The ability to supply other renewable energy and the point values allowed will be decided based upon engineering data documenting the ability to generate electricity.	TBD	
Reduction Measure Water 1-3: Exceed Water Efficiency Standards			
Residential Irrigation and Landscaping			
Water Efficient Landscaping	• Limit conventional turf to < 25% of required landscape area • Limit conventional turf to < 50% of required landscape area • No conventional turf (warm season turf to < 50% of required landscape area and/or low water using plants are allowed) • Only California Native Plants that requires no irrigation or some supplemental irrigation	0 points 2 points 4 points 5 points	4
Water Efficient Irrigation Systems	• Low precipitation spray heads < .75”/hr or drip irrigation • Weather based irrigation control systems or moisture sensors (demonstrate 20% reduced water use)	1 point 2 points	2
Storm Water Reuse Systems	Innovative on-site storm water collection, filtration, and reuse systems are being developed that provide supplemental irrigation water and provide vector control. These systems can greatly reduce the irrigation needs of a project. Point values for these types of systems will be determined based upon design and engineering data documenting the water savings.	TBD	
Residential Potable Water			
Showers	Water Efficient Showerheads (2.0 gpm)	2 points	2
Toilets	Water Efficient Toilets (1.5 gpm)	2 points	2
Faucets	Water Efficient faucets (1.28 gpm)	2 points	2
Dishwasher	Water Efficient Dishwasher (6 gallons per cycle or less)	1 point	
Washing Machine	Water Efficient Washing Machine (Water factor <5.5)	1 point	
WaterSense	EPA WaterSense Certification	7 points	
Increase Residential Reclaimed Water Use			
Recycled Water	5% of the total project’s water use comes from recycled/reclaimed water	5 points	5
Reduction Measure OnRoad: Alternative Transportation Options			
Increase Residential Density			
Residential Density	Designing the project with increased densities, where allowed by the General Plan and/or Zoning Ordinance, reduces GHG emissions associated with traffic in several ways. Increased densities affect the distance people travel and provide greater options for the modes of travel they choose. This strategy also provides a foundation for implementation of many other strategies, which would benefit from increased densities. 1 point is allowed for each 10% increase in density beyond 7 units/acre, up to 500% (50 points)	1–50 points	41

Table 1: Screening Table for Implementing GHG Performance Standards for Residential Development

Feature	Description	Assigned Point Values	Project Points
Mixed-Use Development			
Mixed-Use	Mixes of land uses that complement one another in a way that reduces the need for vehicle trips can greatly reduce GHG emissions. The point value of mixed-use projects will be determined based upon a Transportation Impact Analysis (TIA) demonstrating trip reductions and/or reductions in vehicle miles traveled. Suggested ranges: • Diversity of land uses complementing each other (2–28 points) • Increased destination accessibility other than transit (1–18 points) • Increased Transit Accessibility (1–25 points) • Infill location that reduces vehicle trips or VMT beyond the measures described above (points TBD based on traffic data).	TBD	
Residential Near Local Retail (Residential-only Projects)	Having residential developments within walking and biking distance of local retail helps to reduce vehicle trips and/or vehicle miles traveled. The point value of residential projects in close proximity to local retail will be determined based upon traffic studies that demonstrate trip reductions and/or reductions in vehicle miles traveled (VMT). The suburban project will have at least three of the following on site and/or off site within ¼-mile: Residential Development, Retail Development, Park, Open Space, or Office. The mixed-use development should encourage walking and other non-auto modes of transport from residential to office/commercial locations (and vice versa). The project should minimize the need for external trips by including services/facilities for day care, banking/ATM, restaurants, vehicle refueling, and shopping.	1–16 points	8
Traffic Flow Management Improvements			
Signal Synchroni-zation	Techniques for improving traffic flow include: traffic signal coordination to reduce delay, incident management to increase response time to breakdowns and collisions, Intelligent Transportation Systems (ITS) to provide real-time information regarding road conditions and directions, and speed management to reduce high free-flow speeds. • Signal synchronization • Traffic signals connected to existing ITS	 1 point/signal 3 points/signal	1
Increase Public Transit			
Public Transit Access	The point value of a project's ability to increase public transit use will be determined based upon a Transportation Impact Analysis (TIA) demonstrating decreased use of private vehicles and increased use of public transportation. Increased transit accessibility (1–15 points)	TBD	
Reduction Measure: Adopt and Implement a Bicycle Master Plan to Expand Bike Routes around the City			
Sidewalks	• Provide sidewalks on both sides of the street (required) • Provide pedestrian linkage between residential and commercial uses within 1 mile	1 point 3 points	1
Bicycle Paths	• Provide bicycle paths within project boundaries • Provide bicycle path linkages between residential and other land uses • Provide bicycle path linkages between residential and transit	TBD 2 points 5 points	2

Table 1: Screening Table for Implementing GHG Performance Standards for Residential Development

Feature	Description	Assigned Point Values	Project Points
Reduction Measure Waste-2 : Reduce Waste to Landfills			
Recycling	City-initiated recycling program diverting 100% of waste requires coordination in neighborhoods to realize this goal. The following recycling features will help the City fulfill this goal: • Provide green waste composting bins at each residential unit • Multifamily residential projects that provide dedicated recycling bins separated by types of recyclables combined with instructions/education program explaining how to use the bins and the importance or recycling • Construction waste recycling	 4 points 3 points 4 points	
Other GHG Reduction Feature Implementation			
Other GHG Emissions Reduction Features	This allows innovation by the applicant to provide residential design features for the GHG emissions from construction and/or operation of the project not provided in the table. Note that engineering data will be required documenting the GHG reduction amount and point values given based upon emission reductions calculations using approved models, methods, and protocols.	TBD	
Total Points Earned by Residential Project:			106

Appendix B. Geotechnical Investigation

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GEOTECHNICAL INVESTIGATION

PROPOSED MULTI-FAMILY RESIDENTIAL DEVELOPMENT NORTH OF CHINO HILLS PARKWAY & EAST OF RAMONA AVENUE CHINO, CALIFORNIA

PREPARED FOR

ALLIANCE RESIDENTIAL PARTNERS, LLC
IRVINE, CALIFORNIA

PROJECT NO. W1520-88-01

APRIL 6, 2022

GEOCON
WEST, INC.

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

GEOCON
WEST, INC.
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS

Project No. W1520-88-01
April 6, 2022

Mr. Ron Schulman
Alliance Residential Partners, LLC
2462 DuPont Drive
Irvine, California 92612

Subject: GEOTECHNICAL INVESTIGATION
PROPOSED MULTI-FAMILY RESIDENTIAL DEVELOPMENT
NORTH OF CHINO HILLS PARKWAY & EAST OF RAMONA AVENUE
CHINO, CALIFORNIA

Dear Mr. Schulman:

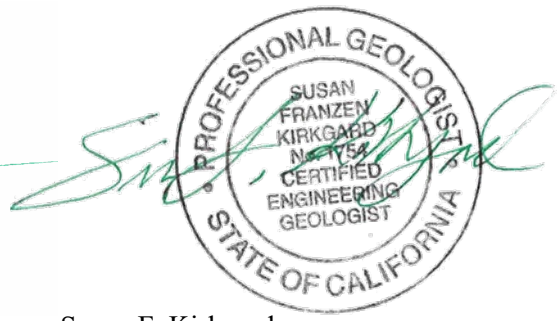
In accordance with our proposal dated December 16, 2021, we have prepared this geotechnical investigation report for the proposed multi-family residential development located north of Chino Parkway and east of Ramona Avenue in the City of Chino, California. The accompanying report presents the findings of our study, and our conclusions and recommendations pertaining to the geotechnical aspects of proposed design and construction. Based on the results of our investigation, it is our opinion that the site can be developed as proposed, provided the recommendations of this report are followed and implemented during design and construction.

If you have any questions regarding this report, or if we may be of further service, please contact the undersigned.

Very truly yours,

GEOCON WEST, INC.





Jose Cejudo	Jelisa Thomas Adams	Susan F. Kirkgard
Staff Engineer	GE 3092	CEG 1754

(EMAIL) Addressee

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GEOTECHNICAL INVESTIGATION

1. PURPOSE AND SCOPE

This report presents the results of a geotechnical investigation for the proposed multi-family residential development located north of Chino Parkway and east of Ramona Avenue in the City of Chino, California (see Vicinity Map, Figure 1). The purpose of the investigation was to evaluate subsurface soil and geologic conditions underlying the site and, based on conditions encountered, to provide conclusions and recommendations pertaining to the geotechnical aspects of design and construction.

The scope of this investigation included a site reconnaissance, field exploration, laboratory testing, engineering analysis, and the preparation of this report. The site was explored February 22 and February 24, 2022, by excavating six 8-inch diameter borings to depths of approximately 20½ and 48 feet below the existing ground surface utilizing a truck-mounted hollow-stem auger drilling machine. The approximate locations of the exploratory borings are depicted on the Site Plan (see Figure 2). A detailed discussion of the field investigation, including the boring logs, is presented in Appendix A.

Laboratory tests were performed on selected soil samples obtained during the investigation to determine pertinent physical and chemical soil properties. Appendix B presents a summary of the laboratory test results.

The recommendations presented herein are based on analysis of the data obtained during the investigation and our experience with similar soil and geologic conditions. References reviewed to prepare this report are provided in the *List of References* section.

If project details vary significantly from those described herein, Geocon should be contacted to determine the necessity for review and possible revision of this report.

2. SITE AND PROJECT DESCRIPTION

The subject site is located north of Chino Parkway and east of Ramona Avenue in the City of Chino, California. The site consists of multiple parcels and is currently a vacant, unpaved lot. The site is bounded by Chino Creek to the north and east, by Chino Hills Parkway to the south, and by a vacant lot to the west. The site is relatively level with no pronounced highs or lows. Surface water drainage at the site appears to be by sheet flow along the existing ground contours to the city streets. Vegetation consists of grass and trees.

Based on the information provided by the Client, it is our understanding that the proposed project is preliminary in nature and the final site layout is subject to change. Generally, it is anticipated that the development will consist of several multi-family residential structures ranging from three- to four-stories in height and constructed at or near present grade. Community spaces such as a leasing / club building, a fitness center, and a pool as well as surface parking is anticipated. Plans illustrating the development concept are shown on the Site Plan (see Figure 2).

Based on the preliminary nature of the design at this time, wall and column loads were not available. It is anticipated that column loads for the proposed structure will be up to 300 kips, and wall loads will be up to 5 kips per linear foot.

Once the design phase and foundation loading configuration proceeds to a more finalized plan, the recommendations within this report should be reviewed and revised, if necessary. Any changes in the design, location or elevation of any structure, as outlined in this report, should be reviewed by this office. Geocon should be contacted to determine the necessity for review and possible revision of this report.

3. GEOLOGIC SETTING

The subject site is located within the Chino Basin within the Upper Santa Ana River Watershed. The Chino Basin is located within the southwestern portion of the San Bernardino Valley that is bounded by the Puente Hills on the west and southwest, by the San Gabriel and San Bernardino Mountains on the north, by the San Jacinto Mountains on the east, and the Temescal Mountains and Santa Ana Mountains on the south. The valley is an alluvial-filled basin and the thickness of the alluvial sediments in the central portion of the valley is on the order of several hundred feet. Elevations on the valley floor range from approximately 500 feet near Chino to approximately 1,400 feet near San Bernardino and Redlands. The thickness of the alluvium in the vicinity of the site is estimated to be on the order of 500 feet (Chino Basin Watermaster, 2017). Regionally, the site is located within the northern portion of the Peninsular Ranges geomorphic province characterized by northwest-trending physiographic and geologic features such as the nearby Chino Fault, located approximately 0.6 mile to the southwest (CGS, 2003).

4. SOIL AND GEOLOGIC CONDITIONS

Based on our field investigation and published geologic maps of the area, the site is underlain by Holocene age alluvial deposits consisting interbedded sand, silt, and clay (CGS, 2010; 2012). Detailed stratigraphic profiles of the materials encountered at the site are provided on the boring logs in Appendix A.

4.1 Alluvium

The site is underlain by Holocene age alluvium consisting of brown to dark brown, olive brown or dark yellowish brown interbedded silty and sandy clay, silty and clayey silt, clayey sand and well-graded sand with varying amounts of gravel. The soils are characterized as slightly moist to moist and soft to hard or very loose to very dense.

5. GROUNDWATER

The site is located in the southwestern Chino Basin (Chino Hydrologic Subarea of the Santa Ana River Hydrologic Unit). Historic groundwater water level information for the site and site vicinity was obtained from Mendenhall (1904), the California Geological Survey (CGS, formerly the California Division of Mines and Geology [CDMG], 1976), and the Chino Basin Watermaster (2017).

Mendenhall indicates the site was located within an area of artesian groundwater in the early 1900's (Mendenhall, 1904). CDMG (1974) also indicate the site was historically in an area of artesian groundwater. However, the depth to groundwater in 1960 was reported to be at a depth of approximately 50 feet beneath the ground surface in the immediate site vicinity (CDMG, 1974).

Review of groundwater monitoring well data provided by the California Department of Water Resources (CDWR, 2022) indicates closest monitoring well to the site is the CHINO-1203215 well (State Well No. 02S08W23C006S), located approximately 0.7 mile to the northeast. Monitoring data from this well is available for the period from August 2011 through September 2021. The most recent groundwater level measurement was recorded on September 15, 2021, and the depth to groundwater was approximately 47.51 feet below the ground surface.

Geocon performed a Geotechnical Investigation for the commercial center directly south of Chino Hills Parkway. During that investigation, performed in November 2005, groundwater was encountered at depths of 25 and 37 feet below the ground surface. Based on this local knowledge of the groundwater conditions, we recommend assuming a seasonal high groundwater level of 25 for design purposes.

Groundwater was not encountered in our field explorations, drilled to a maximum depth of 48 feet below the ground surface. Based on the reported groundwater levels recorded in nearby wells (USGS, 2021), the historic groundwater levels in 1960 (CDMG (1974), the lack of groundwater encountered in our borings, and the depth of proposed construction, static groundwater is neither expected to be encountered during construction, nor have a detrimental effect on the project. However, groundwater seepage may be encountered during construction. It is not uncommon for groundwater levels to vary seasonally or for groundwater seepage conditions to develop where none previously existed, especially in impermeable fine-grained soils which are heavily irrigated or after seasonal rainfall. In addition, recent requirements for stormwater infiltration could result in shallower seepage conditions in the immediate site vicinity. Proper surface drainage of irrigation and precipitation will be critical for future performance of the project. Recommendations for drainage are provided in the S*urface Drainage* section of this report (see Section 7.20).

6. GEOLOGIC HAZARDS

6.1 Surface Fault Rupture

The numerous faults in Southern California include Holocene-active, pre-Holocene, and inactive faults. The criteria for these major groups are based on criteria developed by the California Geological Survey (CGS, formerly known as CDMG) for the Alquist-Priolo Earthquake Fault Zone Program (CGS, 2018). By definition, a Holocene-active fault is one that has had surface displacement within Holocene time (about the last 11,700 years). A pre-Holocene fault has demonstrated surface displacement during Quaternary time (approximately the last 1.6 million years) but has had no known Holocene movement. Faults that have not moved in the last 1.6 million years are considered inactive.

The site is not within a state-designated Alquist-Priolo Earthquake Fault Zone (CDMG, 2003) for surface fault rupture hazards. No Holocene-active or pre-Holocene 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. However, the site is located in the seismically active Southern California region and could be subjected to moderate to strong ground shaking in the event of an earthquake on one of the many Holocene-active Southern California faults. The faults in the vicinity of the site are shown in Figure 3, Regional Fault Map.

The closest surface trace of an active fault to the site is the Chino Fault located approximately 0.6 mile to the southwest (USGS, 2006; CDMG, 2003). Other nearby active faults include the Whittier Fault, the Elsinore Fault Zone, and the Cucamonga section of the Sierra Madre Fault Zone located approximately 6.7 miles southwest, 8.2 miles south-southeast, and 11.2 miles north-northeast of the site, respectively (USGS, 2006; Ziony and Jones, 1989). The active San Andreas Fault Zone is located approximately 24 miles northeast of the site (USGS, 2006).

Several buried thrust faults, commonly referred to as blind thrusts, underlie the Southern California area at depth. These faults are not exposed at the ground surface and are typically identified at depths greater than 3.0 kilometers. The October 1, 1987 M_w 5.9 Whittier Narrows earthquake and the January 17, 1994 M_w 6.7 Northridge earthquake were a result of movement on the Puente Hills Blind Thrust and the Northridge Thrust, respectively. These thrust faults and others in the greater Los Angeles area are not exposed at the surface and do not present a potential surface fault rupture hazard at the site; however, these deep thrust faults are considered active features capable of generating future earthquakes that could result in moderate to significant ground shaking at the site.

6.2 Seismicity

As with all of Southern California, the site has experienced historic earthquakes from various regional faults. The seismicity of the region surrounding the site was formulated based on research of an electronic database of earthquake data. The epicenters of recorded earthquakes with magnitudes equal to or greater than 5.0 in the site vicinity are depicted on Figure 4, Regional Seismicity Map. A partial list of moderate to major magnitude earthquakes that have occurred in the Southern California area within the last 100 years is included in the following table.

LIST OF HISTORIC EARTHQUAKES

Earthquake (Oldest to Youngest)	Date of Earthquake	Magnitude	Distance to Epicenter (Miles)	Direction to Epicenter
Near Redlands	July 23, 1923	6.3	26	E
Long Beach	March 10, 1933	6.4	29	SW
Tehachapi	July 21, 1952	7.5	103	NW
San Fernando	February 9, 1971	6.6	50	NW
Whittier Narrows	October 1, 1987	5.9	22	WNW
Sierra Madre	June 28, 1991	5.8	26	NW
Landers	June 28, 1992	7.3	74	E
Big Bear	June 28, 1992	6.4	52	ENE
Northridge	January 17, 1994	6.7	50	WNW
Hector Mine	October 16, 1999	7.1	92	ENE
Ridgecrest	July 5, 2019	7.1	123	N

The site could be subjected to strong ground shaking in the event of an earthquake. However, this hazard is common in Southern California and the effects of ground shaking can be mitigated if the proposed structures are designed and constructed in conformance with current building codes and engineering practices.

6.3 Seismic Design Criteria

The following table summarizes the site-specific design criteria obtained from the 2019 California Building Code (CBC; Based on the 2018 International Building Code [IBC] and ASCE 7-16), Chapter 16 Structural Design, Section 1613 Earthquake Loads. The data was calculated using the online application *Seismic Design Maps*, provided by OSHPD. The short spectral response uses a period of 0.2 second. We evaluated the Site Class based on the discussion in Section 1613.2.2 of the 2019 CBC and Table 20.3-1 of ASCE 7-16. The values presented on the following page are for the risk-targeted maximum considered earthquake (MCE_R).

2019 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	2019 CBC Reference
Site Class	D	Section 1613.2.2
MCE_R Ground Motion Spectral Response Acceleration – Class B (short), S_S	1.815g	Figure 1613.2.1(1)
MCE_R Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.645g	Figure 1613.2.1(2)
Site Coefficient, F_A	1.0	Table 1613.2.3(1)
Site Coefficient, F_V	1.7*	Table 1613.2.3(2)
Site Class Modified MCE_R Spectral Response Acceleration (short), S_{MS}	1.815g	Section 1613.2.3 (Eqn 16-36)
Site Class Modified MCE_R Spectral Response Acceleration – (1 sec), S_{M1}	1.096g*	Section 1613.2.3 (Eqn 16-37)
5% Damped Design Spectral Response Acceleration (short), S_{DS}	1.21g	Section 1613.2.4 (Eqn 16-38)
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.731g*	Section 1613.2.4 (Eqn 16-39)
Note: *Per Section 11.4.8 of ASCE/SEI 7-16, a ground motion hazard analysis shall be performed for projects for Site Class "E" sites with Ss greater than or equal to 1.0g and for Site Class "D" and "E" sites with S1 greater than 0.2g. Section 11.4.8 also provides exceptions which indicates that the ground motion hazard analysis may be waived provided the exceptions are followed. Using the code based values presented in the table above, in lieu of a performing a ground motion hazard analysis, requires the exceptions outlined in ASCE 7-16 Section 11.4.8 be followed.		

The table below presents the mapped maximum considered geometric mean (MCE_G) seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-16. 12

ASCE 7-16 PEAK GROUND ACCELERATION

Parameter	Value	ASCE 7-16 Reference
Mapped MCE_G Peak Ground Acceleration, PGA	0.772g	Figure 22-9
Site Coefficient, F_{PGA}	1.1	Table 11.8-1
Site Class Modified MCE_G Peak Ground Acceleration, PGA_M	0.85g	Section 11.8.3 (Eqn 11.8-1)

The Maximum Considered Earthquake Ground Motion (MCE) is the level of ground motion that has a 2 percent chance of exceedance in 50 years, with a statistical return period of 2,475 years. According to the 2019 California Building Code and ASCE 7-16, the MCE is to be utilized for the evaluation of liquefaction, lateral spreading, seismic settlements, and it is our understanding that the intent of the Building code is to maintain "Life Safety" during a MCE event. The Design Earthquake Ground Motion (DE) is the level of ground motion that has a 10 percent chance of exceedance in 50 years, with a statistical return period of 475 years.

Deaggregation of the MCE peak ground acceleration was performed using the USGS online Unified Hazard Tool, 2014 Conterminous U.S. Dynamic edition (v4.2.0). The result of the deaggregation analysis indicates that the predominant earthquake contributing to the MCE peak ground acceleration is characterized as a 6.62 magnitude event occurring at a hypocentral distance of 9.09 kilometers from the site.

Deaggregation was also performed for the Design Earthquake (DE) peak ground acceleration, and the result of the analysis indicates that the predominant earthquake contributing to the DE peak ground acceleration is characterized as a 6.65 magnitude occurring at a hypocentral distance of 13.98 kilometers from the site.

Conformance to the criteria in the above tables 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.

6.4 Liquefaction Potential

Liquefaction is a phenomenon in which loose, saturated, relatively cohesionless soil deposits lose shear strength during strong ground motions. Primary factors controlling liquefaction include intensity and duration of ground motion, gradation characteristics of the subsurface soils, in-situ stress conditions, and the depth to groundwater. Liquefaction is typified by a loss of shear strength in the liquefied layers due to rapid increases in pore water pressure generated by earthquake accelerations.

The current standard of practice, as outlined in the "Recommended Procedures for Implementation of DMG Special Publication 117, Guidelines for Analyzing and Mitigating Liquefaction in California" and "Special Publication 117A, Guidelines for Evaluating and Mitigating Seismic Hazards in California" requires liquefaction analysis to a depth of 50 feet below the lowest portion of the proposed structure. Liquefaction typically occurs in areas where the soils below the water table are composed of poorly consolidated, fine- to medium-grained, primarily sandy soil. In addition to the requisite soil conditions, the ground acceleration and duration of the earthquake must also be of a sufficient level to induce liquefaction.

A review of the San Bernardino County Countywide Plan, Hazards Element (2022) indicates that the site is not located within an area identified as having a potential for liquefaction. Also, the groundwater level in the immediate area has been at a depth of approximately 50 feet since the 1960's (CDMG, 1974; Chino Basin Watermaster, 2017). However, as discussed in the Groundwater section of this report (Section 5), groundwater has been countered as shallow as 25 feet below the ground surface. We recommend assuming a seasonal high it is recommended that we use a historic high groundwater level of 25 for design purposes.

Liquefaction analysis of the soils underlying the site was performed using an updated version of the spreadsheet template LIQ2_30.WQ1 developed by Thomas F. Blake (1996). This program utilizes the 1996 NCEER method of analysis. This semi-empirical method is based on a correlation between values of Standard Penetration Test (SPT) resistance and field performance data.

The liquefaction analysis was performed for a Design Earthquake level by using a historic high groundwater table of 25 feet below the ground surface, a magnitude 6.65 earthquake, and a peak horizontal acceleration of 0.567g ($⅔PGA_M$). The enclosed liquefaction analysis, included herein for boring B3, indicates that the alluvial soils below the historic high groundwater level would not be prone to liquefaction induced settlements during Design Earthquake ground motion (see enclosed calculation sheets, Figures 5 and 6).

It is our understanding that the intent of the Building Code is to maintain "Life Safety" during Maximum Considered Earthquake level events. Therefore, additional analysis was performed to evaluate the potential for liquefaction during an MCE event. The structural engineer should evaluate the proposed structure for the anticipated MCE liquefaction induced settlements and verify that anticipated deformations would not cause the foundation system to lose the ability to support the gravity loads and/or cause collapse of the structure.

The liquefaction analysis was also performed for the Maximum Considered Earthquake level by using a historic high groundwater table of 25 feet below the ground surface, a magnitude 6.62 earthquake, and a peak horizontal acceleration of 0.85g (PGA_M). The enclosed liquefaction analysis, included herein for borings B3 indicates that the alluvial soils below the historic high groundwater level could be susceptible to 0.4 inches of liquefaction settlement during Maximum Considered Earthquake ground motion (see enclosed calculation sheets, Figures 7 and 8).

6.5 Seismically-Induced Settlement

Dynamic compaction of dry and loose sands may occur during a major earthquake. Typically, settlements occur in thick beds of such soils. The seismically-induced settlement calculations were performed in accordance with the American Society of Civil Engineers, Technical Engineering and Design Guides as adapted from the US Army Corps of Engineers, No. 9.

The calculations provided herein indicate that the upper 50 feet of site soils could be prone to less than 0.1 inches of seismically-induced settlement as a result of the Design Earthquake and Maximum Considered Earthquake peak ground accelerations. Settlements of this magnitude are anticipated to be negligible. Calculation of the anticipated seismically induced settlements is provided as Figures 9 and 12.

6.6 Slope Stability

The site is located on the valley floor and topography at the site is relatively level to gently sloping to the south. The San Bernardino County Countywide Plan, Hazards Element (2010a, 2010b, 2010c) indicates the site is not within an area identified as having a potential for slope instability. There are no known landslides near the site, nor is the site in the path of any known or potential landslides. Therefore, the potential for slope stability hazards to adversely affect the proposed development is considered low.

6.7 Earthquake-Induced Flooding

Earthquake-induced flooding is inundation caused by failure of dams or other water-retaining structures due to earthquakes. Based on a review of the San Bernardino County Countywide Plan, Hazards Element (20210a, b, c) and the City of Chino Safety Element (2010) the site is not located within a potential inundation area for an earthquake-induced dam failure. Therefore, the probability of earthquake-induced flooding is considered very low.

6.8 Tsunamis, Seiches and Flooding

The project property is not located in a coastal area. Therefore, tsunamis are not considered a significant hazard at the property.

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. Therefore, flooding resulting from a seismically induced seiche is considered unlikely.

The site is not within an area of 100-year or 500-year flooding hazard (San Bernardino County, 2010a, 2010b, and 2010c; City of Chino, 2010).

6.9 Oil Fields and Methane

Based on a review of the California Geologic Energy Management Division (CalGEM) Well Finder website, the site is not located within the boundary of a known oil field and no oil wells are located in the immediate site vicinity. However, due to the voluntary nature of record reporting by the oil well drilling companies, wells may be improperly located or not shown on the location map and undocumented wells could be encountered during construction. Any wells encountered during construction will need to be properly abandoned in accordance with the current requirements of the CalGEM.

Since the site is not located within the boundaries of a known oil field, the potential for the presence of methane or other volatile gases is considered low. However, should it be determined that a methane study is required for the proposed development it is recommended that a qualified methane consultant be retained to perform the study and provide mitigation measures as necessary.

6.10 Subsidence

Subsidence occurs when a large portion of land is displaced vertically, usually due to the withdrawal of groundwater, oil, or natural gas. Soils that are particularly subject to subsidence include those with high silt or clay content. The site is located within an area of known ground subsidence. Up to approximately 20 centimeters of subsidence has been documented in the Chino Basin and approximately 0.6 to 1.2 centimeters of subsidence has been documented in the immediate area (Chino Basin Watermaster, 2017). Associated ground fissures have been documented approximately 1.3 miles northeast of the site (Wildermuth Environmental, Inc. 2013). The fissures were first documented in the early 1970s. In 2007, the MZ1 groundwater management plan was initiated to mitigate long-term subsidence. The MZ1 plan includes monitoring of piezometric levels, aquifer-system deformation, vertical ground level monitoring, and horizontal ground-surface deformation monitoring and has reduced the subsidence to a manageable level (Chino Basin Watermaster, 2017). Therefore, the potential for regional subsidence to adversely impact the proposed structure is considered low.

7. CONCLUSIONS AND RECOMMENDATIONS

7.1 General

7.1.1 It is our opinion that neither soil nor geologic conditions were encountered during the investigation that would preclude construction of the proposed development provided the recommendations presented herein are followed and implemented during design and construction.

7.1.2 Artificial fill was not encountered during site exploration. Artificial fill may exist onsite and in other areas of the site that were not directly explored. The site soils are considered suitable for re-use as engineered fill provided the recommendations in the *Grading* section of this report are followed (see Section 7.4).

7.1.3 The enclosed liquefaction analysis indicates that the alluvial soils underlying the site could be prone to up to 0.4 inches of total settlement as a result of the Maximum Considered Earthquake peak ground acceleration ($\frac{2}{3}PGA_M$). The resulting differential settlement at the ground surface is anticipated to be less than ¼ inch over a distance of 30 feet. The grading and foundation design recommendations presented herein are intended to reduce the effects of seismically-induced settlement on proposed improvements.

7.1.4 Based on these considerations, it is recommended that the proposed structures be supported on either conventional foundation systems or a post-tensioned foundation system. Recommendations for conventional foundation and post-tensioned foundation systems are provided in Sections 7.6 and 7.8, respectively.

7.1.5 Based on these considerations, it is recommended that the upper 5 feet of existing earth materials within the proposed building footprint areas be excavated and properly compacted for foundation and slab support. Deeper excavations should be conducted as necessary to remove any encountered soft alluvial soils as necessary at the direction of the Geotechnical Engineer (a representative of Geocon). Proposed building foundations should be underlain by a minimum of 3 feet of newly placed engineered fill. The excavation should extend laterally a minimum distance of 3 feet beyond the building footprint area, including building appurtenances, or a distance equal to the depth of fill below the foundation, whichever is greater. The limits of existing fill and/or soft alluvial soils removal will be verified by the Geocon representative during site grading activities.

7.1.6 Additional grading should be conducted as necessary to maintain the required 3 feet of newly placed engineered fill below foundations. The grading contractor should verify all bottom of footing elevations prior to commencement of grading activities to ensure that grading is conducted deep enough to provide the required three foot of engineering fill below foundations.

7.1.7 All excavations must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon). There is a potential for localized areas of soft soils to be exposed at the excavation bottom. It is recommended that the entire excavation bottom be proof-rolled and stabilized as necessary prior to placement of engineered fill. Prior to placing any fill, the excavation must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon). If determined to be excessively soft, stabilization of the bottom of the excavation may be required in order to provide a firm working surface upon which engineered fill can be placed and heavy equipment can operate. Recommendations for earthwork and soil stabilization are provided in the *Grading* section of this report (see Section 7.4).

7.1.8 The grading contractor should be aware that some of the existing soils are currently at or above optimum moisture content. If the site soils are oversaturated at the time of grading, they will likely require some spreading and drying activities in order to achieve proper compaction; however, this could change seasonally.

7.1.9 It is anticipated that stable excavations for the recommended grading associated with the proposed development can be achieved with sloping measures. However, if excavations in close proximity to an adjacent property line and/or structure are required, special excavation measures may be necessary in order to maintain lateral support of offsite improvements. Excavation recommendations are provided in the *Temporary Excavations* section of this report (Section 7.18).

7.1.10 Foundations for small outlying structures, such as block walls up to 6 feet in height, planter walls or trash enclosures, which will not be tied to the proposed structure, may be supported on conventional foundations deriving support on a minimum of 12 inches of newly placed engineered fill which extends laterally at least 12 inches beyond the foundation area. Where excavation and compaction cannot be performed, such as adjacent to property lines, foundations may derive support directly in the undisturbed alluvial soils at and below a depth of 24 inches below the ground surface, and should be deepened as necessary to maintain a minimum 12-inch embedment into the recommended bearing materials. It is essential that proper drainage be maintained in order to minimize settlements in the soils and any foundations supported therein. If the soils exposed in the excavation bottom are soft or loose, compaction of the soils will be required prior to placing steel or concrete. Compaction of the foundation excavation bottom is typically accomplished with a compaction wheel or mechanical whacker and must be observed and approved by a Geocon representative.

7.1.11 Where new paving is to be placed, it is recommended that all existing fill and soft alluvial soils be excavated and properly compacted for paving support. The client should be aware that excavation and compaction of all existing fill and soft alluvial soils in the area of new paving is not required; however, paving constructed over existing uncertified fill or unsuitable alluvial soil may experience increased settlement and/or cracking, and may therefore have a shorter design life and increased maintenance costs. As a minimum, the upper 12 inches of subgrade soil should be scarified and properly compacted for paving support. Paving recommendations are provided in *Preliminary Pavement* Recommendations section of this report (see Section 7.12).

7.1.12 Based on the results of the percolation testing performed at the site, a stormwater infiltration system is considered feasible for this project. Recommendations for infiltration are provided in *Stormwater Infiltration* section of this report (see Section 7.19).

7.1.13 Once the design and foundation loading configuration for the proposed structure proceeds to a more finalized plan, the recommendations within this report should be reviewed and revised, if necessary. Based on the final foundation loading configurations, the potential for settlement should be reevaluated by this office.

7.1.14 Any changes in the design, location or elevation, as outlined in this report, should be reviewed by this office. Geocon should be contacted to determine the necessity for review and possible revision of this report.

7.2 Soil and Excavation Characteristics

7.2.1 The in-situ soils can be excavated with moderate effort using conventional excavation equipment. Caving should be anticipated in unshored excavations, especially where granular soils are present.

7.2.2 It is the responsibility of the contractor to ensure that all excavations and trenches are properly shored and maintained in accordance with applicable OSHA rules and regulations to maintain safety and maintain the stability of existing adjacent improvements.

7.2.3 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. Penetrations below this 1:1 projection will require special excavation measures such as sloping or shoring. Excavation recommendations are provided in the *Temporary Excavations* section of this report (see Section 7.18).

7.2.4 The upper 5 feet of existing site soils encountered during the investigation are considered to have a "medium" expansive potential (EI = 57 and 73) and are classified as "expansive" in accordance with the 2019 California Building Code (CBC) Section 1803.5.3. The recommendations presented herein assume that the building foundations and slabs will derive support in these materials.

7.3 Minimum Resistivity, pH, and Water-Soluble Sulfate

7.3.1 Potential of Hydrogen (pH) and resistivity testing as well as chloride content testing were performed on representative samples of soil to generally evaluate the corrosion potential to surface utilities. The tests were performed in accordance with California Test Method Nos. 1600 and 4800 and indicate that the soils are considered "moderately corrosive" to "corrosive" with respect to corrosion of buried ferrous metals on site. The results are presented in Appendix B (Figure B31) and should be considered for design of underground structures. Due to the corrosive potential of the soils, it is recommended that PVC, ABS or other approved plastic piping be utilized in lieu of cast-iron when in direct contact with the site soils.

7.3.2 Laboratory tests were performed on representative samples of the site materials to measure the percentage of water-soluble sulfate content. Results from the laboratory water-soluble sulfate tests are presented in Appendix B (Figure B14) and indicate that the on-site materials possess a sulfate exposure class of "S0" to concrete structures as defined by 2019 CBC Section 1904 and ACI 318-19 Table 19.3.1.1.

7.3.3 Geocon West, Inc. does not practice in the field of corrosion engineering and mitigation. If corrosion sensitive improvements are planned, it is recommended that a corrosion engineer be retained to evaluate corrosion test results and incorporate the necessary precautions to avoid premature corrosion of buried metal pipes and concrete structures in direct contact with the soils.

7.4 Grading

7.4.1 A preconstruction conference should be held at the site prior to the beginning of grading operations with the owner, contractor, civil engineer, geotechnical engineer, and, if applicable, building official in attendance. Special soil handling requirements can be discussed at that time.

7.4.2 Earthwork should be observed, and compacted fill tested by representatives of Geocon West, Inc. The existing fill encountered during exploration is suitable for re-use as an engineered fill, provided any encountered oversize material (greater than 6 inches) and any encountered deleterious debris is removed.

7.4.3 Grading should commence with the removal of all existing vegetation and existing improvements from the area to be graded. Deleterious debris such as wood and root structures should be exported from the site and should not be mixed with the fill soils. Asphalt and concrete should not be mixed with the fill soils unless approved by the Geotechnical Engineer. All existing underground improvements planned for removal should be completely excavated and the resulting depressions properly backfilled in accordance with the procedures described herein. Once a clean excavation bottom has been established it must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.).

7.4.4 As a minimum, it is recommended that the upper 5 feet of existing earth materials within the proposed building footprint areas be excavated and properly compacted for foundation and slab support. Deeper excavations should be conducted as necessary to remove all artificial fill or soft alluvial soil at the direction of the Geotechnical Engineer (a representative of Geocon). Proposed building foundations should be underlain by a minimum of three feet of newly placed engineered fill. The excavation should extend laterally a minimum distance of 3 feet beyond the building footprint area, including building appurtenances, or a distance equal to the depth of fill below the foundation, whichever is greater. The limits of existing fill and/or soft alluvial soils removal will be verified by the Geocon representative during site grading activities.

7.4.5 Additional grading should be conducted as necessary to maintain the required 3 feet of newly placed engineered fill below foundations. The grading contractor should verify all bottom of footing elevations prior to commencement of grading activities to ensure that grading is conducted deep enough to provide the required three foot of engineering fill below foundations.

7.4.6 All fill and backfill soils should be placed in horizontal loose layers approximately 6 to 8 inches thick, moisture conditioned to at least 2 percent above optimum moisture content, and properly compacted to at least 90 percent relative compaction, as determined by ASTM Test Method D 1557 (latest edition).

7.4.7 Prior to placing any fill, the entire excavation bottom must be proof-rolled in the presence of the Geotechnical Engineer (a representative of Geocon) and approved in writing.

7.4.8 Some of the alluvial soils expected to be exposed during proposed excavations at the site are currently above optimum moisture content. Conditions could change seasonally. If the soils are in excess of 3 percent above optimum moisture content at the time of construction, the soils will likely require some spreading and drying activities in order to achieve proper compaction.

7.4.9 Due to the potential for high-moisture content soils at the excavation bottom, or if construction is performed during the rainy season and the excavation bottom becomes saturated, stabilization measures may have to be implemented to prevent excessive disturbance the excavation bottom. Should this condition exist, rubber tire equipment should not be allowed in the excavation bottom until it is stabilized or extensive soil disturbance could result.

7.4.10 Bottom stabilization, if necessary, may be achieved placing a thin lift of 3- to 6-inch-diameter crushed angular rock into the soft excavation bottom. The use of crushed concrete will also be acceptable. The crushed rock should be spread thinly across the excavation bottom and pressed into the soils by track rolling or wheel rolling with heavy equipment. It is very important that voids between the rock fragments are not created so the rock must be thoroughly pressed or blended into the soils. All subgrade soils must be properly compacted and proof-rolled in the presence of the Geotechnical Engineer (a representative of Geocon West, Inc.).

7.4.11 An additional method of subgrade stabilization would be to place a minimum 12-inch thick layer of aggregate base over Tensar InterAx NX850 geogrid or equivalent extruded (nonwoven) geotextile. The Tensar geogrids should be installed taught and should overlap in accordance with the manufacturer's recommendations. Prior to placing the geogrid, excessively soft or wet materials should be removed and the resulting excavation bottom should be free of loose material. Non-vibratory compaction methods should be used for compaction of the base material. The aggregate base should be compacted to a dry density of at least 90 percent of the laboratory maximum density near the optimum moisture. If pumping of the subgrade continues, a thicker layer of aggregate base may be placed. It is very important that subgrade stabilization be performed uniformly across the entire excavation bottom.

7.4.12 Foundations for small outlying structures, such as block walls up to 6 feet in height, planter walls or trash enclosures, which will not be tied to the proposed structures, may be supported on conventional foundations deriving support on a minimum of 12 inches of newly placed engineered fill which extends laterally at least 12 inches beyond the foundation area. Where excavation and compaction cannot be performed, such as adjacent to property lines, foundations derive support directly in the competent undisturbed alluvial soils found at or below a depth of 24 inches below the existing ground surface, and should be deepened as necessary to maintain a minimum 12-inch embedment into the undisturbed alluvial soils. If the soils exposed in the excavation bottom are soft or loose, compaction of the soils will be required prior to placing steel or concrete. Compaction of the foundation excavation bottom is typically accomplished with a compaction wheel or mechanical whacker and must be observed and approved by a Geocon representative.

7.4.13 Where new paving is to be placed, it is recommended that all existing fill and soft alluvial soils be excavated and properly compacted for paving support. As a minimum, the upper 12 inches of subgrade soil should be scarified, moisture conditioned to at least 2 percent above optimum moisture content, and properly compacted to a minimum of 92 percent of the laboratory maximum dry density in accordance with ASTM D 1557 (latest edition). *Preliminary Pavement Recommendations* section of this report (see Section 7.12).

7.4.14 All imported fill shall be observed, tested, and approved by Geocon West, Inc. prior to bringing soil to the site. Rocks larger than 6 inches in diameter shall not be used in the fill. If necessary, import soils used as structural fill should have an expansion index less than or equal to 50 and soil corrosivity properties that are equally or less detrimental to that of the existing onsite soils (see Figure B31). Imported soil placed in building pad areas must be placed uniformly across the pad at the direction of the Geotechnical Engineer (a representative of Geocon).

7.4.15 Utility trenches should be properly backfilled in accordance with the following requirements. The pipe should be bedded with clean sands (Sand Equivalent greater than 30) to a depth of at least 1 foot over the pipe, and the bedding material must be inspected and approved in writing by the Geotechnical Engineer (a representative of Geocon). The use of gravel is not acceptable unless used in conjunction with filter fabric to prevent the gravel from having direct contact with soil. The remainder of the trench backfill may be derived from onsite soil or approved import soil, compacted as necessary, until the required compaction is obtained. The use of minimum 2-sack slurry is also acceptable as backfill. Prior to placing any bedding materials or pipes, the excavation bottom must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon).

7.4.16 All trench and foundation excavation bottoms must be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon), prior to placing bedding materials, fill, steel, gravel, or concrete.

7.5 Shrinkage

7.5.1 Shrinkage results when a volume of material removed at one density is compacted to a higher density. A shrinkage factor of approximately 15 percent should be anticipated when excavating and compacting the upper 5 feet of existing earth materials on the site to an average relative compaction of 92 percent. The grading contractor should verify shrinkage and earthwork yardage estimates.

7.5.2 If import soils will be utilized in the building pad, the soils must be placed uniformly and at equal thickness at the direction of the Geotechnical Engineer (a representative of Geocon West, Inc.). Soils can be borrowed from non-building pad areas and later replaced with imported soils.

7.6 Conventional Foundation Design

7.6.1 Subsequent to the recommended grading, a conventional shallow spread foundation system may be utilized for support of the proposed structures provided foundations derive support in newly placed engineered fill. Foundations should be underlain by a minimum of 3 feet of newly placed engineered fill. All foundation excavations must be observed and approved by the Geotechnical Engineer (a representative of Geocon), prior to placing steel or concrete.

7.6.2 Continuous footings may be designed for an allowable bearing capacity of 1,800 pounds per square foot (psf), and should be a minimum of 12 inches in width, 18 inches in depth below the lowest adjacent grade, and 12 inches into the recommended bearing material.

7.6.3 Isolated spread foundations may be designed for an allowable bearing capacity of 1,800 psf, and should be a minimum of 24 inches in width, 18 inches in depth below the lowest adjacent grade, and 12 inches into the recommended bearing material.

7.6.4 The allowable soil bearing pressure may be increased by 140 psf and 440 psf for each additional foot of foundation width and depth, respectively, up to a maximum allowable soil bearing pressure of 2,200 psf.

7.6.5 The allowable bearing pressures may be increased by one-third for transient loads due to wind or seismic forces.

7.6.6 If depth increases are utilized for the exterior wall footings, this office should be provided a copy of the final construction plans so that the excavation recommendations presented herein could be properly reviewed and revised if necessary. Additional grading should be conducted as necessary in order to maintain the required 3-foot-thick blanket of engineered fill below foundations.

7.6.7 Continuous footings should be reinforced with four No. 4 steel reinforcing bars, two placed near the top of the footing and two near the bottom. Reinforcement for spread footings should be designed by the project structural engineer.

7.6.8 The above foundation dimensions and minimum reinforcement recommendations are based on soil conditions and building code requirements only, and are not intended to be used in lieu of those required for structural purposes.

7.6.9 Due to the expansive potential of the subgrade soils, the moisture content in the slab and foundation subgrade should be maintained at 2 percent above optimum moisture content prior to and at the time of concrete placement.

7.6.10 Foundation excavations should be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to the placement of reinforcing steel and concrete to verify that the excavations and exposed soil conditions are consistent with those anticipated. If unanticipated soil conditions are encountered, foundation modifications may be required.

7.6.11 This office should be provided a copy of the final construction plans so that the excavation recommendations presented herein could be properly reviewed and revised if necessary.

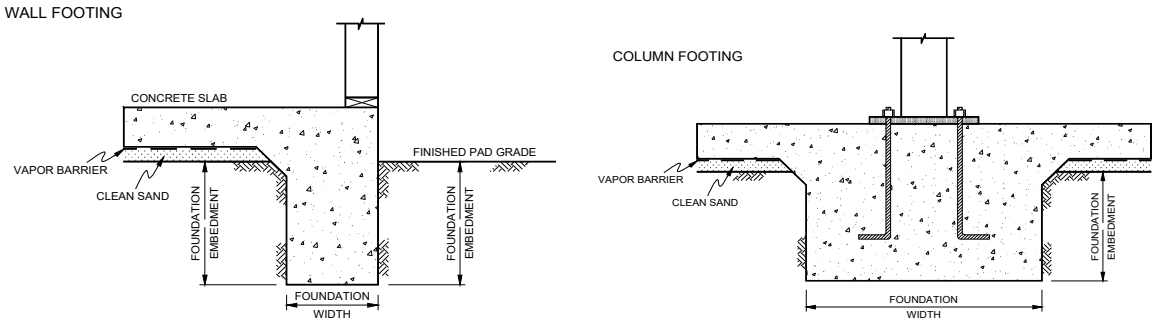
7.7 Post-Tensioned Foundation Recommendations

7.7.1 If utilized, post-tensioned concrete slab and foundation systems should be designed by a structural engineer experienced in post-tensioned slab design and design criteria of the Post-Tensioning Institute (PTI) DC 10.5-12 *Standard Requirements for Design and Analysis of Shallow Post-Tensioned Concrete Foundations on Expansive Soils* or *WRI/CRSI Design of Slab-on-Ground Foundations*, as required by the 2019 California Building Code (CBC Section 1808.6.2). Although this procedure was developed for expansive soil conditions, we understand it can also be used to reduce the potential for foundation distress due to differential fill settlement. The post-tensioned design should incorporate the geotechnical parameters presented in the following table, which are based on the guidelines presented in the PTI, Third Edition design manual.

POST-TENSIONED FOUNDATION SYSTEM DESIGN PARAMETERS

Post-Tensioning Institute (PTI) DC 10.5-12 Design Parameters	Value
Thornthwaite Index	-20
Equilibrium Suction	3.9
Edge Lift Moisture Variation Distance, e_M (Feet)	5.1
Edge Lift, y_M (Inches)	1.1
Center Lift Moisture Variation Distance, e_M (Feet)	9.0
Center Lift, y_M (Inches)	0.47

7.7.2 The foundations for the post-tensioned slabs should be embedded in accordance with the recommendations of the structural engineer. If a post-tensioned conventional foundation system is proposed, the foundation should possess a thickened edge with a minimum width of 12 inches and extend below the clean sand or crushed rock layer. A graphic depicting the foundation embedment is provided below.



7.7.3 If the structural engineer proposes a post-tensioned foundation design method other than PTI DC 10.5:

- The criteria presented in the above table are still applicable.
- Interior stiffener beams should be used.
- The width of the perimeter foundations should be at least 12 inches.
- The perimeter footing embedment depths should be at least 24 inches. The embedment depths should be measured from the lowest adjacent pad grade.

7.7.4 During the construction of the post-tension foundation system, the concrete should be placed monolithically. Under no circumstances should cold joints form between the footings/grade beams and the slab during the construction of the post-tension foundation system unless specifically designed by the structural engineer. Our experience indicates post-tensioned slabs may be susceptible to excessive edge lift, regardless of the underlying soil conditions. Placing reinforcing steel at the bottom of the perimeter footings and the interior stiffener beams may mitigate this potential. The structural engineer should design the foundation system to reduce the potential of edge lift occurring for the proposed structures. Interior stiffening beams should be incorporated into the design of the foundation system in accordance with the PTI design procedures.

7.7.5 The post-tensioned foundations may be designed for an allowable soil bearing pressure of 1,800 psf (dead plus live load). This bearing pressure may be increased by one-third for transient loads due to wind or seismic forces.

7.7.6 Isolated footings, if present, should have a minimum embedment depth and width of 24 inches. The use of isolated footings, which are located beyond the perimeter of the building and support structural elements connected to the building, are not recommended. If this condition cannot be avoided, the isolated footings should be connected to the building foundation system with grade beams. In addition, consideration should be given to connecting patio slabs, which exceed 5 feet in width, to the building foundation to reduce the potential for future separation to occur.

7.7.7 Due to the expansive potential of the subgrade soils, the moisture content in the slab and foundation subgrade should be maintained at 2 percent above optimum moisture content prior to and at the time of concrete placement.

7.7.8 The recommendations of this report are intended to reduce the potential for cracking of slabs and foundations due to expansive soil (if present), differential settlement of fill soil with varying thicknesses. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade placed on such conditions may still exhibit some cracking due to soil movement and/or shrinkage. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced 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.

7.7.9 Interior stiffening beams should be incorporated into the design of the foundation system in accordance with the PTI design procedures, at the discretion of the structure engineer.

7.7.10 Foundation excavations should be observed by the Geotechnical Engineer (a representative of Geocon West, Inc.) prior to the placement of reinforcing steel and concrete to check that the exposed soil conditions are consistent with those expected and have been extended to appropriate bearing strata. If unexpected soil conditions are encountered, foundation modifications may be required.

7.7.11 Geocon should observe the foundation excavations prior to the placement of reinforcing steel to check that the exposed soil conditions are similar to those expected and that they have been extended to the appropriate bearing strata. If unexpected soil conditions are encountered, foundation modifications may be required.

7.8 Foundation Settlement

7.8.1 The enclosed seismically-induced settlement analysis indicates that the site soils could be prone to up to 0.4 inches of total settlement as a result of the Maximum Considered Earthquake peak ground acceleration (⅔PGA_M). The differential settlement at the foundation level is anticipated to be less than ¼ inch over a distance of 30 feet. These settlements are in addition to the static settlements indicated below and must be considered in the structural design.

7.8.2 The maximum expected total settlement for a structure support on a conventional foundation system or post-tensioned foundation system deriving support in the recommended bearing materials is estimated to be less than 1 inch and occur below the heaviest loaded structural element. Settlement of the foundation system is expected to occur on initial application of loading. Differential settlement is expected to be less than ½ inch over a distance of 30 feet .

7.8.3 Based on seismic considerations, the proposed structure should be designed for a combined static and seismically-induced differential settlement of ¾ inches over a distance of 30 feet.

7.8.4 Once the design and foundation loading configurations for the proposed structure proceeds to a more finalized plan, the estimated settlements presented in this report should be reviewed and revised, if necessary. If the final foundation loading configurations are greater than the assumed loading conditions, the potential for settlement should be reevaluated by this office.

7.9 Miscellaneous Foundations

7.9.1 Foundations for small outlying structures, such as block walls up to 6 feet in height, planter walls or trash enclosures which will not be tied to the proposed structure may be supported on conventional foundations bearing on a minimum of 12 inches of newly placed engineered fill which extends laterally at least 12 inches beyond the foundation area. Where excavation and compaction cannot be performed, such as adjacent to property lines, foundations may derive support in the undisturbed alluvial soils at and below a depth of 24 inches below the existing ground surface and should be deepened as necessary to maintain a minimum 12-inch embedment into undisturbed alluvial soils and must be observed and approved by a Geocon representative. It is essential that proper drainage be maintained in order to minimize settlements in the soils and any foundations supported therein.

7.9.2 If the soils exposed in the excavation bottom are soft, compaction of the soft soils will be required prior to placing steel or concrete. Compaction of the foundation excavation bottom is typically accomplished with a compaction wheel or mechanical whacker and must be observed and approved by a Geocon representative. Miscellaneous foundations may be designed for a bearing value of 1,500 psf, and should be a minimum of 12 inches in width, 24 inches in depth below the lowest adjacent grade and 12 inches into the recommended bearing material. The allowable bearing pressure may be increased by up to one-third for transient loads due to wind or seismic forces.

7.9.3 Foundation excavations should be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to the placement of reinforcing steel and concrete to verify that the excavations and exposed soil conditions are consistent with those anticipated.

7.10 Lateral Design

7.10.1 Resistance to lateral loading may be provided by friction acting at the base of foundations, slabs and by passive earth pressure. An allowable coefficient of friction of 0.3 may be used with the dead load forces in the undisturbed alluvial soils or newly placed engineered fill.

7.10.2 Passive earth pressure for the sides of foundations and slabs poured against undisturbed alluvial soils or engineered fill soils may be computed as an equivalent fluid having a density of 200 pounds per cubic foot with a maximum earth pressure of 2,000 psf. When combining passive and friction for lateral resistance, the passive component should be reduced by one-third.

7.11 Concrete Slabs-on-Grade

7.11.1 Exterior concrete slabs-on-grade subject to vehicle loading should be designed in accordance with the recommendations in the *Pavement Recommendations* section of this report (Section 7.12).

7.11.2 Slabs-on-grade at the ground surface that may receive moisture-sensitive floor coverings or may be used to store moisture-sensitive materials should be underlain by a vapor retarder placed directly beneath the slab. The vapor retarder and acceptable permeance should be specified by the project architect or developer based on the type of floor covering that will be installed. The vapor retarder design should be consistent with the guidelines presented in Section 9.3 of the American Concrete Institute's (ACI) Guide for Concrete Slabs that Receive Moisture-Sensitive Flooring Materials (ACI 302.2R-06) as well as ASTM E1745 and should be installed in general conformance with ASTM E 1643 (latest edition) and the manufacturer's recommendations. A minimum thickness of 15 mils extruded polyolefin plastic is recommended; vapor retarders which contain recycled content or woven materials are not recommended. The vapor retarder should have a permeance of less than 0.01 perms demonstrated by testing before and after mandatory conditioning. The vapor retarder should be installed in direct contact with the concrete slab with proper perimeter seal. If the California Green Building Code requirements apply to this project, the vapor retarder should be underlain by 4 inches of clean aggregate. It is important that the vapor retarder be puncture resistant since it will be in direct contact with angular gravel. As an alternative to the clean aggregate suggested in the Green Building Code, it is our opinion that the concrete slab-on-grade may be underlain by a vapor retarder over 4 inches of clean sand (sand equivalent greater than 30), since the sand will serve a capillary break and will minimize the potential for punctures and damage to the vapor barrier.

7.11.3 For seismic design purposes, a coefficient of friction of 0.3 may be utilized between concrete slabs and alluvium without a moisture barrier, and 0.15 for slabs underlain by a moisture barrier.

7.11.4 Exterior slabs, not subject to traffic loads, should be at least 4 inches thick and reinforced with No. 3 steel reinforcing bars placed 18 inches on center in both horizontal directions, positioned near the slab midpoint. Prior to construction of slabs, the upper 12 inches of subgrade should be moisture conditioned to at least 2 percent above optimum moisture content and properly compacted to at least 92 percent relative compaction, as determined by ASTM Test Method D 1557 (latest edition). Crack control joints should be spaced at intervals not greater than 10 feet and should be constructed using saw-cuts or other methods as soon as practical following concrete placement. Crack control joints should extend a minimum depth of one-fourth the slab thickness. The project structural engineer should design construction joints as necessary.

7.11.5 The recommendations of this report are intended to reduce the potential for cracking of slabs due to settlement. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade may exhibit some cracking due to minor soil movement or concrete shrinkage. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced 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.

7.12 Preliminary Pavement Recommendations

7.12.1 Where new paving is to be placed, it is recommended that all existing fill and soft materials be excavated and properly compacted for paving support. The client should be aware that excavation and compaction of all existing artificial fill and soft soils in the area of new paving is not required; however, paving constructed over existing uncertified fill or unsuitable colluvium, material may experience increased settlement and/or cracking, and may therefore have a shorter design life and increased maintenance costs. As a minimum, the upper 12 inches of paving subgrade should be scarified, moisture conditioned to at least 2 percent above optimum moisture content, and properly compacted to at least 92 percent relative compaction, as determined by ASTM Test Method D 1557 (latest edition).

7.12.2 The following pavement sections are based on an assumed R-Value of 20. Once site grading activities are complete an R-Value should be obtained by laboratory testing to confirm the properties of the soils serving as paving subgrade, prior to placing pavement.

7.12.3 The Traffic Indices listed below are estimates. Geocon does not practice in the field of traffic engineering. The actual Traffic Index for each area should be determined by the project civil engineer. If pavement sections for Traffic Indices other than those listed below are required, Geocon should be contacted to provide additional recommendations. Pavement thicknesses were determined following procedures outlined in the *California Highway Design Manual* (Caltrans). It is anticipated that the majority of traffic will consist of automobile and large truck traffic.

PRELIMINARY PAVEMENT DESIGN SECTIONS

Location	Estimated Traffic Index (TI)	Asphalt Concrete (inches)	Class 2 Aggregate Base (inches)
Automobile Parking and Driveways	4.0	3.0	4.0
Trash Truck & Fire Lanes	7.0	4.0	12.0

7.12.4 Asphalt concrete should conform to Section 203-6 of the "*Standard Specifications for Public Works Construction"* (Green Book). Class 2 aggregate base materials should conform to Section 26-1.02A of the "*Standard Specifications of the State of California, Department of Transportation"* (Caltrans). The use of Crushed Miscellaneous Base (CMB) in lieu of Class 2 aggregate base is acceptable. Crushed Miscellaneous Base should conform to Section 200-2.4 of the "*Standard Specifications for Public Works Construction"* (Green Book).

7.12.5 Unless specifically designed and evaluated by the project structural engineer, where exterior concrete paving will be utilized for support of vehicles, it is recommended that the concrete be a minimum of 5 inches of concrete reinforced with No. 3 steel reinforcing bars placed 18 inches on center in both horizontal directions. Concrete paving supporting vehicular traffic should be underlain by a minimum of 4 inches of aggregate base and a properly compacted subgrade. The subgrade and base material should be compacted to 92 and 95 percent relative compaction, respectively, as determined by ASTM Test Method D 1557 (latest edition).

7.12.6 The performance of pavements is highly dependent upon providing positive surface drainage away from the edge of pavements. Ponding of water on or adjacent to the pavement will likely result in saturation of the subgrade materials and subsequent cracking, subsidence and pavement distress. If planters are planned adjacent to paving, it is recommended that the perimeter curb be extended at least 12 inches below the bottom of the aggregate base to minimize the introduction of water beneath the paving.

7.13 Retaining Wall Design

7.13.1 The recommendations presented below are generally applicable to the design of rigid concrete or masonry retaining walls having a maximum height of 5 feet. In the event that walls significantly higher than 5 feet are planned, Geocon should be contacted for additional recommendations.

7.13.2 Retaining wall foundations may be designed in accordance with the recommendations provided in the *Conventional Foundation Design* sections of this report (see Section 7.6).

7.13.3 Retaining walls with a level backfill surface that are not restrained at the top should be designed utilizing a triangular distribution of pressure (active pressure). Restrained walls are those that are not allowed to rotate more than 0.001H (where H equals the height of the retaining portion of the wall in feet) at the top of the wall. Where walls are restrained from movement at the top, walls may be designed utilizing a triangular distribution of pressure (at-rest pressure). The table below presents recommended pressures to be used in retaining wall design, assuming that proper drainage will be maintained.

RETAINING WALL WITH LEVEL BACKFILL SURFACE

HEIGHT OF RETAINING WALL (Feet)	ACTIVE PRESSURE EQUIVALENT FLUID PRESSURE (Pounds Per Cubic Foot)	AT-REST PRESSURE EQUIVALENT FLUID PRESSURE (Pounds Per Cubic Foot)
Up to 5	30	65

7.13.4 The wall pressures provided above assume that the proposed retaining walls will support relatively undisturbed alluvial soils or engineered fill derived from onsite soils. If import soil will be used to backfill proposed retaining walls, revised earth pressures may be required to account for the geotechnical properties of the import soil used as engineered fill. This should be evaluated once the use of import soil is established. All imported fill shall be observed, tested, and approved by Geocon West, Inc. prior to bringing soil to the site.

7.13.5 The wall pressures provided above assume that the retaining wall will be properly drained preventing the buildup of hydrostatic pressure. If retaining wall drainage is not implemented, the equivalent fluid pressure to be used in design of undrained walls is 95 pcf. The value includes hydrostatic pressures plus buoyant lateral earth pressures.

7.13.6 Additional active pressure should be added for a surcharge condition due to sloping ground, vehicular traffic or adjacent structures and should be designed for each condition as the project progresses.

7.13.7 It is recommended that line-load surcharges from adjacent wall footings, use horizontal pressures generated from NAV-FAC DM 7.2. The governing equations are:

$$For\ {}^{x}/_{H} \leq 0.4$$

$$\sigma_H(z) = \frac{0.20 \times \left(\frac{z}{H}\right)}{\left[0.16 + \left(\frac{z}{H}\right)^2\right]^2} \times \frac{Q_L}{H}$$

and

$$For\ {}^{x}/_{H} > 0.4$$

$$\sigma_H(z) = \frac{1.28 \times \left(\frac{x}{H}\right)^2 \times \left(\frac{z}{H}\right)}{\left[\left(\frac{x}{H}\right)^2 + \left(\frac{z}{H}\right)^2\right]^2} \times \frac{Q_L}{H}$$

where x is the distance from the face of the excavation or wall to the vertical line-load, H is the distance from the bottom of the footing to the bottom of excavation or wall, z is the depth at which the horizontal pressure is desired, Q_L is the vertical line-load and $\sigma_{H(z)}$ is the horizontal pressure at depth z.

7.13.8 It is recommended that vertical point-loads, from construction equipment outriggers or adjacent building columns use horizontal pressures generated from NAV-FAC DM 7.2. The governing equations are:

$$For\ {}^{x}/_{H} \leq 0.4$$

$$\sigma_H(z) = \frac{0.28 \times \left(\frac{z}{H}\right)^2}{\left[0.16 + \left(\frac{z}{H}\right)^2\right]^3} \times \frac{Q_P}{H^2}$$

and

$$For\ {}^{x}/_{H} > 0.4$$

$$\sigma_H(z) = \frac{1.77 \times \left(\frac{x}{H}\right)^2 \times \left(\frac{z}{H}\right)^2}{\left[\left(\frac{x}{H}\right)^2 + \left(\frac{z}{H}\right)^2\right]^3} \times \frac{Q_P}{H^2}$$

then

$$\sigma'_H(z) = \sigma_H(z) cos^2(1.1\theta)$$

where x is the distance from the face of the excavation/wall to the vertical point-load, H is distance from the outrigger/bottom of column footing to the bottom of excavation, z is the depth at which the horizontal pressure is desired, Q_p is the vertical point-load, $\sigma_{H(z)}$ is the horizontal pressure at depth z, θ is the angle between a line perpendicular to the excavation/wall and a line from the point-load to location on the excavation/wall where the surcharge is being evaluated, and $\sigma_{H(z)}$ is the horizontal pressure at depth z.

7.13.9 In addition to the recommended earth pressure, the upper 10 feet of the retaining wall adjacent to the street or driveway areas should be designed to resist a uniform lateral pressure of 100 psf, acting as a result of an assumed 300 psf surcharge behind the wall due to normal street traffic. If the traffic is kept back at least 10 feet from the wall, the traffic surcharge may be neglected.

7.13.10 Seismic lateral forces will be required for any retaining walls in excess of 6 feet. Recommendations for seismic lateral forces will be provided under separate cover should they become necessary.

7.14 Retaining Wall Drainage

7.14.1 Unless designed for hydrostatic pressure, retaining walls should be provided with a drainage system extended at least two-thirds the height of the wall. At the base of the drain system, a subdrain covered with a minimum of 12 inches of gravel should be installed, and a compacted fill blanket or other seal placed at the surface (see Figure 11). The clean bottom and subdrain pipe, behind a retaining wall, should be observed by the Geotechnical Engineer (a representative of Geocon), prior to placement of gravel or compacting backfill.

7.14.2 As an alternative, a plastic drainage composite such as Miradrain or equivalent may be installed in continuous, 4-foot-wide columns along the entire back face of the wall, at 8 feet on center. The top of these drainage composite columns should terminate approximately 18 inches below the ground surface, where either hardscape or a minimum of 18 inches of relatively cohesive material should be placed as a cap (see Figure 13). These vertical columns of drainage material would then be connected at the bottom of the wall to a collection panel or a 1-cubic-foot rock pocket drained by a 4-inch subdrain pipe.

7.14.3 Subdrainage pipes at the base of the retaining wall drainage system should outlet to an acceptable location via controlled drainage structures. Drainage should not be allowed to flow uncontrolled over descending slopes.

7.14.4 Moisture affecting below grade walls is one of the most common post-construction complaints. Poorly applied or omitted waterproofing can lead to efflorescence or standing water. Particular care should be taken in the design and installation of waterproofing to avoid moisture problems, or actual water seepage into the structure through any normal shrinkage cracks which may develop in the concrete walls, floor slab, foundations and/or construction joints. The design and inspection of the waterproofing is not the responsibility of the geotechnical engineer. A waterproofing consultant should be retained in order to recommend a product or method, which would provide protection to subterranean walls, floor slabs and foundations.

7.15 Swimming Pool

7.15.1 Proposed swimming pools should be designed as free-standing structures, deriving support in the competent alluvial soils generally found at or below a depth of 6 feet below the ground surface and/or newly placed engineered fill.

7.15.2 Swimming pool foundations and walls may be designed in accordance with the foundation design recommendations below and *Retaining Wall Design* section of this report (see Section 7.13). The proposed pools should be constructed utilizing an expansive soils design, and a hydrostatic relief valve should be considered as part of the swimming pool design unless a gravity drain system can be placed beneath the pool shell.

7.15.3 A reinforced concrete mat foundation may be utilized for support of the proposed swimming pool. Any soils unintentionally disturbed should be properly compacted for foundation support.

7.15.4 It is anticipated that the proposed foundation will impart an average pressure of less than 1,500 psf. The recommended maximum allowable bearing value is 1,500 psf. The allowable bearing pressure may be increased by up to one-third for transient loads due to wind or seismic forces.

7.15.5 It is recommended that a modulus of subgrade reaction of 100 pci be utilized for the design of the mat foundation deriving support in newly placed engineered fill and/or competent alluvium found at or below a depth of 6 feet below the ground surface. This value is a unit value for use with a 1-foot square footing. The modulus should be reduced in accordance with the following equation when used with larger foundations:

$$K_R = K\left[\frac{B+1}{2B}\right]^2$$

where: K_R = reduced subgrade modulus
K = unit subgrade modulus
B = foundation width (in feet)

7.15.6 The thickness of and reinforcement for the mat foundation should be designed by the project structural engineer.

7.15.7 Based on the soil overburden load that will be removed during excavation of the swimming pool, anticipated settlements are expected to be very small. We estimate the total settlements for a mat foundation to be less than ½ inch, with differential settlements on the order of ¼ inch over a horizontal distance of 40 feet.

7.15.8 Foundation excavations should be observed by Geocon, prior to the placement of reinforcing steel and concrete to verify that the exposed soil conditions are consistent with those anticipated. If unanticipated soil conditions are encountered, foundation modifications may be required.

7.16 Elevator Pit Design

7.16.1 The elevator pit slab and retaining wall should be designed by the project structural engineer. Elevator pit walls may be designed in accordance with the recommendations in the *Conventional Foundation Design* and *Retaining Wall Design* sections of this report (see Sections 7.5 and 7.11).

7.16.2 Additional active pressure should be added for a surcharge condition due to sloping ground, vehicular traffic or adjacent foundations and should be designed for each condition as the project progresses.

7.16.3 If retaining wall drainage is to be provided, the drainage system should be designed in accordance with the *Retaining Wall Drainage* section of this report (see Section 7.12).

7.16.4 Subdrainage pipes at the base of the retaining wall drainage system should outlet to a location acceptable to the building official.

7.16.5 It is suggested that the exterior walls and slab be waterproofed to prevent excessive moisture inside of the elevator pit. Waterproofing design and installation is not the responsibility of the geotechnical engineer.

7.17 Elevator Piston

7.17.1 If a plunger-type elevator piston is installed for this project, a deep drilled excavation will be required. It is important to verify that the drilled excavation is not situated immediately adjacent to a foundation or shoring pile, or the drilled excavation could compromise the existing foundation or pile support, especially if the drilling is performed subsequent to the foundation or pile construction.

7.17.2 Casing will be required since groundwater and caving is expected in the drilled excavation, and the contractor should be prepared to use casing and should have it readily available at the commencement of drilling activities. The contractor should also be prepared to mitigate buoyant forces during installation of the piston casing. Continuous observation of the drilling and installation of the elevator piston by the Geotechnical Engineer (a representative of Geocon West, Inc.) is required.

7.17.3 The annular space between the piston casing and drilled excavation wall should be filled with a minimum of 1½-sack slurry pumped from the bottom up. As an alternative, pea gravel may be utilized. The use of soil to backfill the annular space is not acceptable.

7.18 Temporary Excavations

7.18.1 Excavations on the order of 5 feet in height will be required for the proposed grading activities. The excavations are expected to expose alluvial soils, which could be subject to caving where granular soils are encountered. Vertical excavations up to 5 feet in height may be attempted where not situated along property lines and where not surcharged by adjacent traffic or structures.

7.18.2 Vertical excavations greater than 5 feet will require sloping and/or shoring in order to provide a stable excavation. Where sufficient space is available, temporary unsurcharged embankments could be sloped back at a uniform 1:1 slope gradient or flatter up to a maximum height of 9 feet. A uniform slope does not have a vertical portion.

7.18.3 If excavations in close proximity to an adjacent property line and/or structure are required, special excavation measures may be necessary in order to maintain lateral support of offsite improvements. If special excavation measures are required, the recommendations will be provided under separate cover.

7.18.4 Where temporary construction slopes are utilized, the top of the slope should be barricaded to prevent vehicles and storage loads at the top of the slope within a horizontal distance equal to the height of the slope. If the temporary construction slopes are to be maintained during the rainy season, berms are suggested along the tops of the slopes where necessary to prevent runoff water from entering the excavation and eroding the slope faces. Geocon personnel should inspect the soils exposed in the cut slopes during excavation so that modifications of the slopes can be made if variations in the soil conditions occur. All excavations should be stabilized within 30 days of initial excavation.

7.19 Stormwater Infiltration

7.19.1 During the February 2, 2022, site exploration, borings B1 and B5 were utilized to perform percolation testing. Slotted casing was placed in each boring, and the annular space between the casing and excavation was filled with gravel. The borings were then filled with water to pre-saturate the soils. The casing was refilled with water and percolation test readings were performed after repeated flooding of the cased excavation. Based on the test results, the measured percolation rate and design infiltration rate, for the earth materials encountered, are provided in the following table. These values have been calculated in general accordance with the Boring Percolation Test Procedure in the *San Bernardino County Technical Guidance Document for Water Quality Management Plans (September 2013)*. Additional correction factors may be required and should be applied by the engineer in responsible charge of the design of the stormwater infiltration system and based on applicable guidelines. Percolation test results are provided on Figures 13 and 14.

Boring	Soil Type	Infiltration Depth (ft)	Average Infiltration Rate (in / hour)
B1	SM / CL /ML	10-15	0.04
B5	SM / CL	10-15	3.21

7.19.2 The results of the percolation testing indicate that soils at the location and depths of boring B5 are conducive to infiltration. The results of the percolation testing indicate that soils at the location and depths of boring B1 are minimally conducive to infiltration.

7.19.3 It is our further opinion that the introduction of stormwater will not induce excessive hydro-consolidation (see Figures B10 through B24), will not create a perched groundwater condition, will not affect soil structure interaction of existing or proposed foundations due to expansive soils, will not saturate soils supported by existing or proposed retaining walls, and will not increase the global potential for liquefaction. Resulting settlements are anticipated to be less than ¼ inch, if any.

7.19.4 If infiltration is planned for any locations other than where the above testing was performed, additional testing may be required.

7.19.5 The infiltration system must be located such that the closest distance between an adjacent foundation is at least 15 feet in all directions from the zone of saturation. The zone of saturation may be assumed to project downward from the discharge of the infiltration facility at a gradient of 1:1. Additional property line or foundation setbacks may be required by the governing jurisdiction and should be incorporated into the stormwater infiltration system design as necessary.

7.19.6 Where a 15-foot horizontal setback cannot be maintained between the infiltration system and an adjacent footing, and the infiltration system penetrates below the foundation influence line, the proposed stormwater infiltration system must be designed to resist the surcharge from the adjacent foundation. The foundation surcharge line may be assumed to project down away from the bottom of the foundation at a 1:1 gradient

7.19.7 Subsequent to the placement of the infiltration system, it is acceptable to backfill the resulting void space between the excavation sidewalls and the infiltration system with minimum 2-sack slurry provided the slurry is not placed in the infiltration zone. It is recommended that pea gravel be utilized adjacent to the infiltration zone so communication of water to the soil is not hindered.

7.19.8 The design drawings should be reviewed and approved by the Geotechnical Engineer. The installation of the stormwater infiltration system should be observed and approved in writing by the Geotechnical Engineer (a representative of Geocon).

7.20 Surface Drainage

7.20.1 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 in the original designed engineering properties. Proper drainage should be maintained at all times.

7.20.2 All site drainage should be collected and controlled in non-erosive drainage devices. Drainage should not be allowed to pond anywhere on the site, and especially not against any foundation or retaining wall. The site should be graded and maintained such that surface drainage is directed away from structures in accordance with 2019 CBC 1804.4 or other applicable standards. In addition, drainage should not be allowed to flow uncontrolled over any descending slope. Discharge from downspouts, roof drains and scuppers are not recommended onto unprotected soils within five feet of the building perimeter. Planters which are located adjacent to foundations should be sealed to prevent moisture intrusion into the soils providing foundation support. Landscape irrigation is not recommended within 5 feet of the building perimeter footings except when enclosed in protected planters.

7.20.3 Positive site drainage should be provided away from structures, pavement, and the tops of slopes to swales or other controlled drainage structures. The building pad and pavement areas should be fine graded such that water is not allowed to pond.

7.20.4 Landscaping planters immediately adjacent to paved areas are not recommended due to the potential for surface or irrigation water to infiltrate the pavement's subgrade and base course. Either a subdrain, which collects excess irrigation water and transmits it to drainage structures, or an impervious above-grade planter boxes should be used. In addition, where landscaping is planned adjacent to the pavement, it is recommended that consideration be given to providing a cutoff wall along the edge of the pavement that extends at least 12 inches below the base material.

7.21 Plan Review

7.21.1 Grading, shoring, and foundation plans should be reviewed by the Geotechnical Engineer (a representative of Geocon West, Inc.), prior to finalization to verify that the plans have been prepared in substantial conformance with the recommendations of this report and to provide additional analyses or recommendations.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon West, Inc. should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by Geocon West, Inc.

2. This report is issued with the understanding that it is the responsibility of the owner, or of his representative, to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

3. The findings of this report are valid as of the date of this report. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

4. The firm that performed the geotechnical investigation for the project should be retained to provide testing and observation services during construction to provide continuity of geotechnical interpretation and to check that the recommendations presented for geotechnical aspects of site development are incorporated during site grading, construction of improvements, and excavation of foundations. If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating their intent to assume the responsibilities of project geotechnical engineer of record. A copy of the letter should be provided to the regulatory agency for their records. In addition, that firm should provide revised recommendations concerning the geotechnical aspects of the proposed development, or a written acknowledgement of their concurrence with the recommendations presented in our report. They should also perform additional analyses deemed necessary to assume the role of Geotechnical Engineer of Record.

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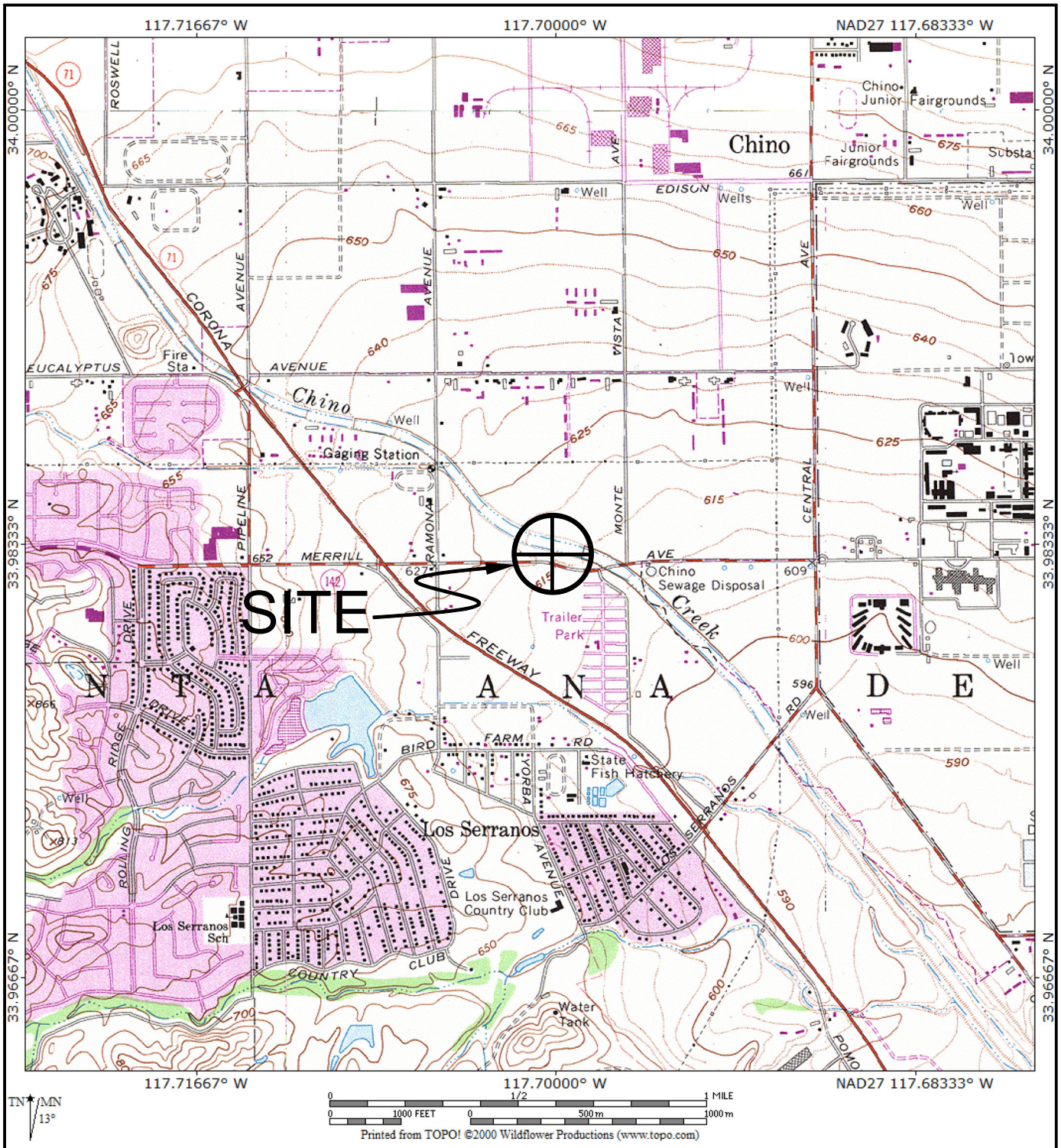
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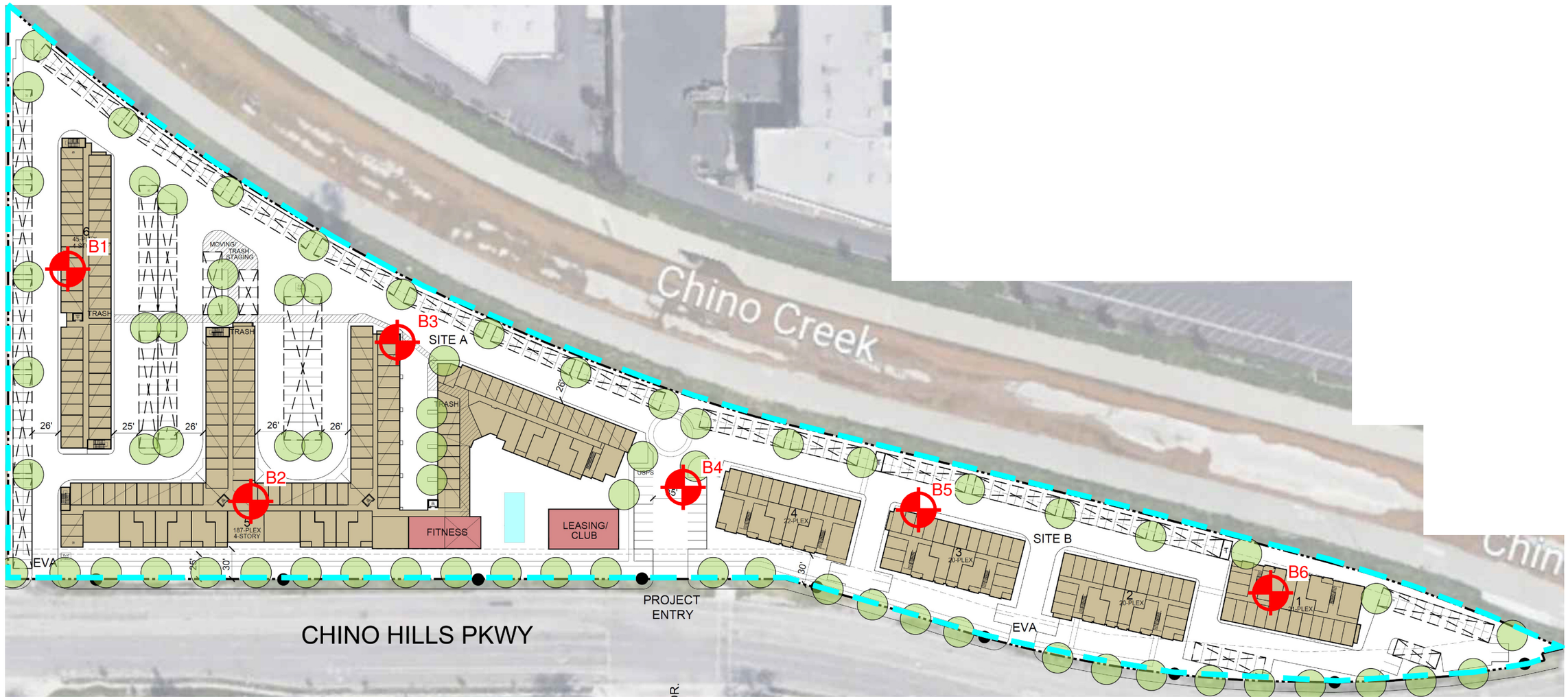
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VICINITY MAP

NORTH OF CHINO HILLS PARKWAY
& WEST OF RAMONA AVENUE
CHINO, CALIFORNIA

MARCH 2022 | PROJECT NO. W1520-88-01 | FIG. 1



LEGEND

B6 — Approximate Location of Boring

Approximate Limits of Subject Site

0 100' 200'

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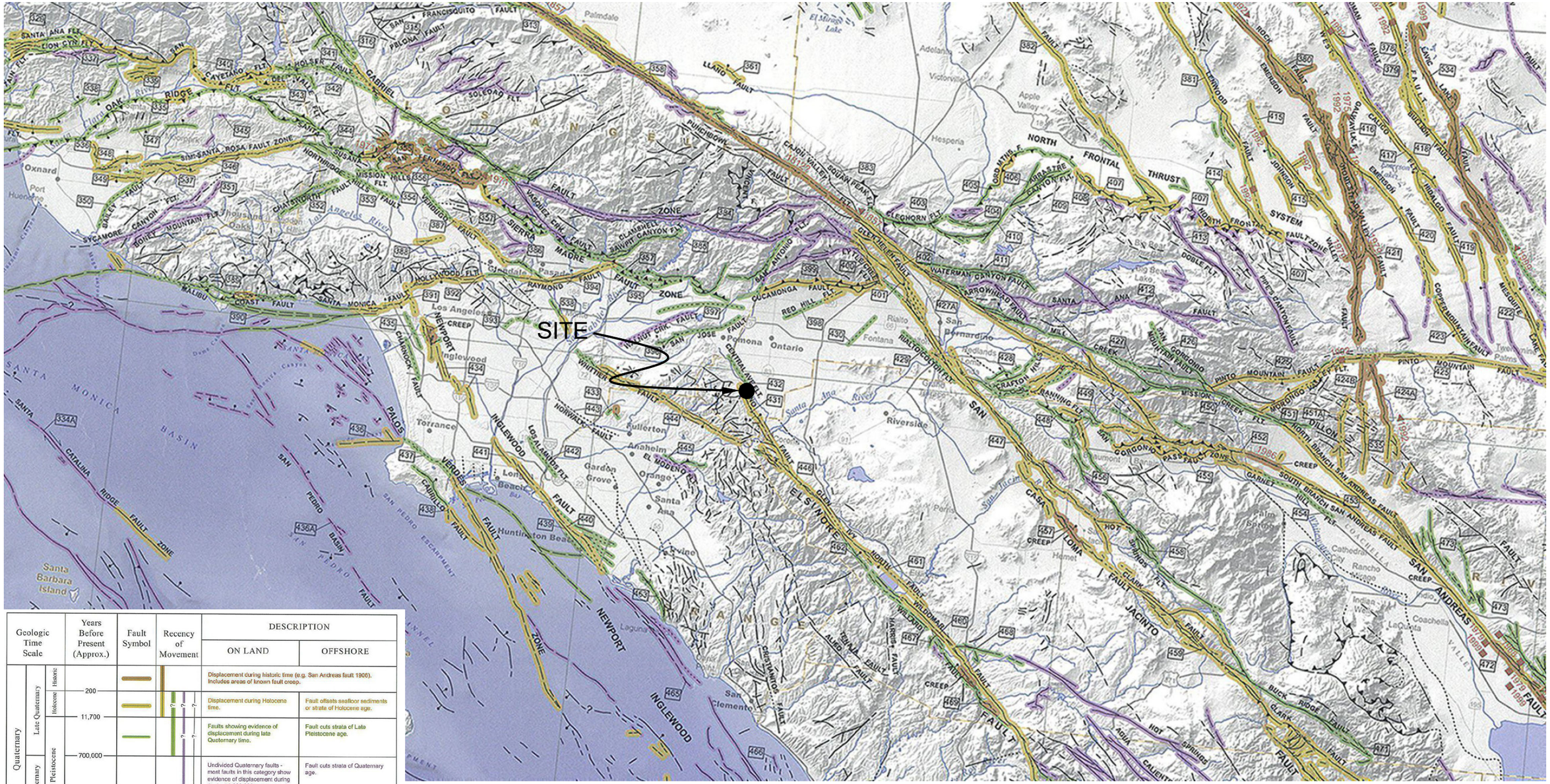
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SITE PLAN

CHINO HILLS PARKWAY & RAMONA AVE
CHINO, CALIFORNIA

APRIL 2022 | PROJECT NO. W1520-88-01 | FIG. 2

Reference: Jennings, C.W. and Bryant, W. A., 2010, Fault Activity Map of California, California Geological Survey Geologic Data Map No. 6.



Geologic Time Scale			Years Before Present (Approx.)	Fault Symbol	Recency of Movement	DESCRIPTION: ON LAND	DESCRIPTION: OFFSHORE
Quaternary	Late Quaternary	Historic				Displacement during historic time (e.g. San Andreas fault 1906). Includes areas of known fault creep.	
		Holocene	200			Displacement during Holocene time.	Fault offsets seafloor sediments or strata of Holocene age.
			11,700			Faults showing evidence of displacement during late Quaternary time.	Fault cuts strata of Late Pleistocene age.
	Early Quaternary	Pleistocene	700,000			Undivided Quaternary faults - most faults in this category show evidence of displacement during the last 1,600,000 years; possible exceptions are faults which displace rocks of undifferentiated Plio-Pleistocene age.	Fault cuts strata of Quaternary age.
Pre-Quaternary			1,600,000*			Faults without recognized Quaternary displacement or showing evidence of no displacement during Quaternary time. Not necessarily inactive.	Fault cuts strata of Pliocene or older age.
			4.5 billion (Age of Earth)				

* Quaternary now recognized as extending to 2.6 Ma (Walker and Geissman, 2009). Quaternary faults in this map were established using the previous 1.6 Ma criterion.

N

0 12 24 Miles

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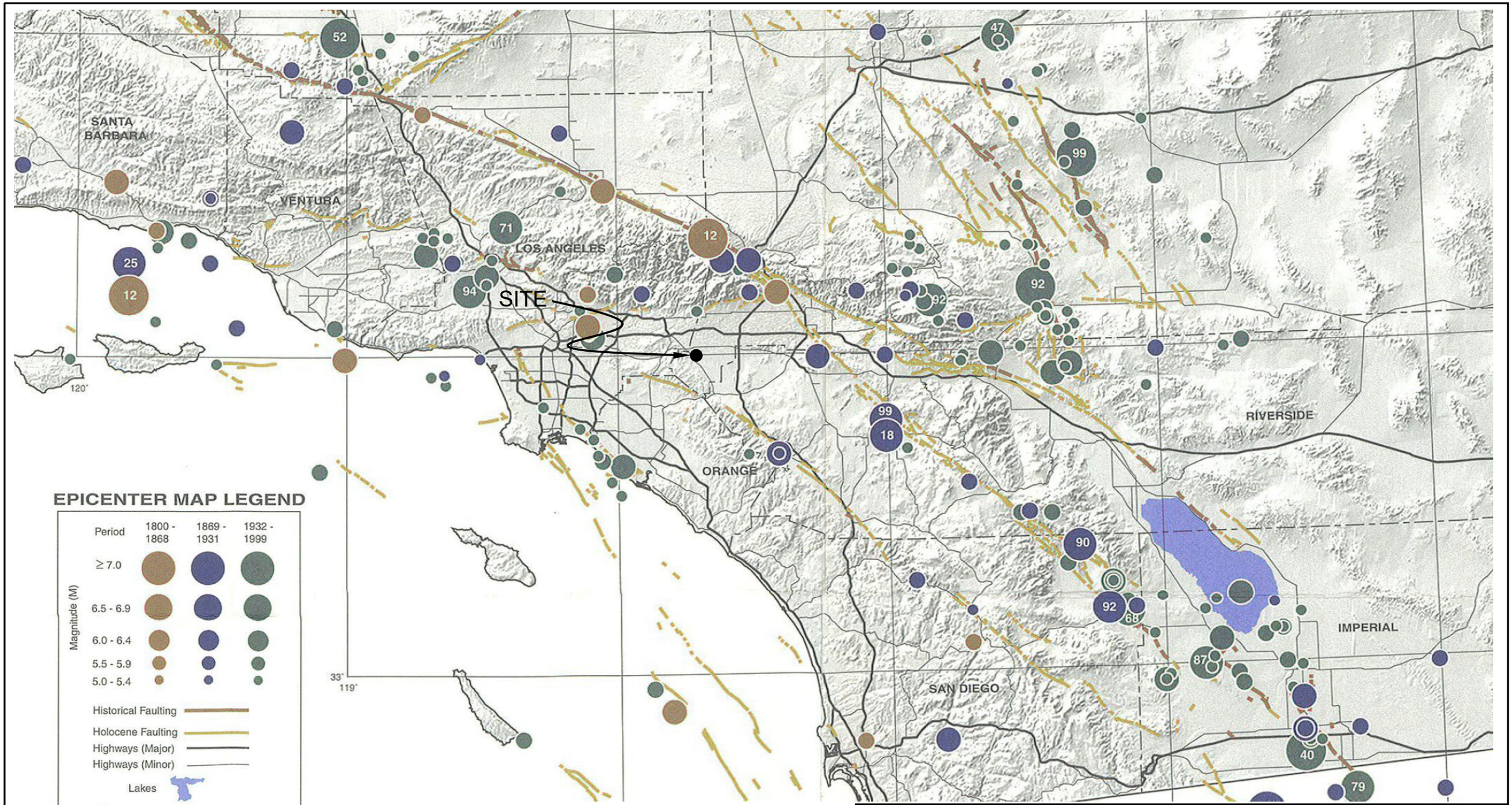
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REGIONAL FAULT MAP

NORTH OF CHINO HILLS PARKWAY
& WEST OF RAMONA AVENUE
CHINO, CALIFORNIA

MARCH 2022 | PROJECT NO. W1520-88-01 | FIG. 3



EPICENTER MAP LEGEND

Period	1800 - 1868	1869 - 1931	1932 - 1999
≥ 7.0			
6.5 - 6.9			
6.0 - 6.4			
5.5 - 5.9			
5.0 - 5.4			

Magnitude (M)

- Historical Faulting
- Holocene Faulting
- Highways (Major)
- Highways (Minor)
- Lakes
- 65 — Last two digits of M ≥ 6.5 earthquake year

Reference: Toppozada, T., Branum, D., Petersen, M., Hallstrom, C., Cramer, C., and Reichle, M., 2000, Epicenters and Areas Damaged by M≥5 California Earthquakes, 1800 - 1999, California Geological Survey, Map Sheet 49.

0 20 40 Miles

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REGIONAL SEISMICITY MAP

NORTH OF CHINO HILLS PARKWAY
& WEST OF RAMONA AVENUE
CHINO, CALIFORNIA

MARCH 2022 | PROJECT NO. W1520-88-01 | FIG.4

GEOCON

Project: Chino Hills Parkway
File No. : W1520-88-01
Boring : B3

EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL
DESIGN EARTHQUAKE

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.65
Peak Horiz. Acceleration PGA_M (g):	0.850
2/3 PGA_M (g):	0.567
Calculated Mag.Wtg.Factor:	0.739
Historic High Groundwater:	25.0
Groundwater Depth During Exploration:	46.0

By Thomas F. Blake (1994-1996)
ENERGY & ROD CORRECTIONS:

Energy Correction (CE) for N60:	1.25
Rod Len.Corr.(CR)(0-no or 1-yes):	1.0
Bore Dia. Corr. (CB):	1.00
Sampler Corr. (CS):	1.20
Use Ksigma (0 or 1):	1.0

LIQUEFACTION CALCULATIONS:

Unit Wt. Water (pcf): 62.4

Depth to Base (ft)	Total Unit Wt. (pcf)	Water (0 or 1)	FIELD SPT (N)	Depth of SPT (ft)	Liq.Sus. (0 or 1)	-200 (%)	Est. Dr (%)	CN Factor	Corrected (N1)60	Eff. Unit Wt. (psf)	Resist. CRR	rd Factor	Induced CSR	Liquefac. Safe.Fact.
1.0	112.7	0	3.0	2.5	1	80	40	1.700	12.7	112.7	0.139	0.998	0.272	--
2.0	112.7	0	3.0	2.5	1	80	40	1.700	12.7	112.7	0.139	0.993	0.270	--
3.0	112.7	0	3.0	2.5	1	80	40	1.700	12.7	112.7	0.139	0.989	0.269	--
4.0	112.7	0	3.0	2.5	1	80	40	1.700	12.7	112.7	0.139	0.984	0.268	--
5.0	112.7	0	3.0	2.5	1	80	40	1.700	12.7	112.7	0.139	0.979	0.267	--
6.0	112.7	0	3.0	2.5	1	80	40	1.700	12.7	112.7	0.139	0.975	0.265	--
7.0	112.7	0	5.0	7.5	1	92	47	1.688	16.5	112.7	0.179	0.970	0.264	--
8.5	112.7	0	5.0	7.5	1	92	47	1.546	15.7	112.7	0.171	0.965	0.263	--
9.0	121.9	0	4.0	10.0	1	92	40	1.497	13.7	121.9	0.150	0.960	0.261	--
10.0	121.9	0	4.0	10.0	1	93	40	1.388	13.2	121.9	0.145	0.957	0.260	--
11.0	121.9	0	4.0	10.0	1	93	40	1.316	12.9	121.9	0.141	0.952	0.259	--
12.0	121.9	0	7.0	12.5	1	74	50	1.254	16.9	121.9	0.184	0.947	0.258	--
13.5	121.9	0	7.0	12.5	1	74	50	1.188	16.4	121.9	0.178	0.942	0.256	--
14.0	122.6	0	9.0	17.5	1	74	52	1.164	20.4	122.6	0.223	0.937	0.255	--
15.0	122.6	0	9.0	17.5	1	84	52	1.110	19.8	122.6	0.216	0.934	0.254	--
16.0	122.6	0	9.0	17.5	1	84	52	1.072	19.4	122.6	0.211	0.929	0.253	--
17.0	122.6	0	9.0	17.5	1	87	52	1.037	19.0	122.6	0.206	0.925	0.252	--
18.0	122.6	0	9.0	17.5	1	87	52	1.006	18.6	122.6	0.202	0.920	0.250	--
19.0	122.6	0	9.0	17.5	1	87	52	0.977	18.3	122.6	0.199	0.915	0.249	--
20.5	122.6	0	9.0	17.5	1	87	52	0.945	17.9	122.6	0.195	0.910	0.248	--
21.0	113.9	0	25.0	22.5	1	8	81	0.933	33.2	113.9	Infin.	0.905	0.246	--
22.0	113.9	0	25.0	22.5	1	8	81	0.907	32.2	113.9	Infin.	0.902	0.245	--
23.0	113.9	0	25.0	22.5	1	8	81	0.887	31.6	113.9	Infin.	0.897	0.244	--
24.0	113.9	0	25.0	22.5	1	8	81	0.869	31.0	113.9	Infin.	0.893	0.243	--
25.0	113.9	0	25.0	22.5	1	0	81	0.851	29.6	113.9	0.415	0.888	0.242	--
26.0	113.9	1	25.0	22.5	1		81	0.835	29.0	51.5	0.376	0.883	0.243	1.55
27.0	113.9	1	53.0	27.5	1		112	0.819	63.8	51.5	Infin.	0.879	0.247	Non-Liq.
28.0	113.9	1	53.0	27.5	1		112	0.805	62.6	51.5	Infin.	0.874	0.250	Non-Liq.
29.0	113.9	1	53.0	27.5	1		112	0.791	61.6	51.5	Infin.	0.870	0.253	Non-Liq.
30.0	113.9	1	53.0	27.5	1		112	0.778	60.5	51.5	Infin.	0.865	0.256	Non-Liq.
31.0	113.9	1	53.0	27.5	1		112	0.765	59.6	51.5	Infin.	0.861	0.259	Non-Liq.
32.0	113.9	1	64.0	32.5	1		121	0.753	72.3	51.5	Infin.	0.856	0.262	Non-Liq.
33.0	113.9	1	64.0	32.5	1		121	0.742	71.2	51.5	Infin.	0.851	0.264	Non-Liq.
34.0	113.9	1	64.0	32.5	1		121	0.731	70.2	51.5	Infin.	0.847	0.267	Non-Liq.
35.0	113.9	1	64.0	32.5	1		121	0.721	69.2	51.5	Infin.	0.842	0.269	Non-Liq.
36.5	113.9	1	64.0	32.5	1		121	0.708	68.0	51.5	Infin.	0.837	0.271	Non-Liq.
37.0	114.1	1	21.0	37.5	1	50	67	0.703	29.2	51.7	0.363	0.832	0.272	1.34
38.0	114.1	1	21.0	37.5	1	50	67	0.692	28.8	51.7	0.347	0.829	0.275	1.26
39.0	114.1	1	21.0	37.5	1	50	67	0.683	28.5	51.7	0.337	0.824	0.276	1.22
40.0	114.1	1	21.0	37.5	1	50	67	0.674	28.2	51.7	0.329	0.819	0.278	1.18
41.0	114.1	1	21.0	37.5	1	50	67	0.666	28.0	51.7	0.321	0.815	0.279	1.15
42.0	114.1	1	55.0	42.5	1		107	0.658	54.3	51.7	Infin.	0.810	0.280	Non-Liq.
43.0	114.1	1	55.0	42.5	1		107	0.651	53.7	51.7	Infin.	0.806	0.282	Non-Liq.
44.0	114.1	1	55.0	42.5	1		107	0.643	53.1	51.7	Infin.	0.801	0.283	Non-Liq.
45.0	114.1	1	55.0	42.5	1		107	0.636	52.5	51.7	Infin.	0.797	0.284	Non-Liq.
46.0	114.1	1	55.0	42.5	1		107	0.631	52.1	51.7	Infin.	0.792	0.285	Non-Liq.
47.0	114.1	1	50.0	47.5	1		100	0.628	47.1	51.7	Infin.	0.787	0.285	Non-Liq.
48.0	114.1	1	50.0	47.5	1		100	0.625	46.9	51.7	Infin.	0.783	0.286	Non-Liq.
49.0	114.1	1	50.0	47.5	1		100	0.622	46.6	51.7	Infin.	0.778	0.287	Non-Liq.
50.0	114.1	1	50.0	47.5	1		100	0.619	46.4	51.7	Infin.	0.774	0.287	Non-Liq.

GEOCON

Project: Chino Hills Parkway
File No. : W1520-88-01
Boring : B3

LIQUEFACTION SETTLEMENT ANALYSIS
DESIGN EARTHQUAKE

(SATURATED SAND AT INITIAL LIQUEFACTION CONDITION)

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.65
PGAM (g):	0.850
2/3 PGAM (g):	0.57
Calculated Mag.Wtg.Factor:	0.739
Historic High Groundwater:	25.0
Groundwater @ Exploration:	46.0

DEPTH TO BASE	BLOW COUNT N	WET DENSITY (PCF)	TOTAL STRESS O (TSF)	EFFECT STRESS O' (TSF)	REL. DEN. Dr (%)	ADJUST BLOWS (N1)60	Tav/σ'o	LIQUEFACTION SAFETY FACTOR	Volumetric Strain [e15] (%)	EQ. SETTLE. Pe (in.)
1.0	3	112.7	0.028	0.028	40	13	0.369	--	0.00	0.00
2.0	3	112.7	0.085	0.085	40	13	0.369	--	0.00	0.00
3.0	3	112.7	0.141	0.141	40	13	0.369	--	0.00	0.00
4.0	3	112.7	0.197	0.197	40	13	0.369	--	0.00	0.00
5.0	3	112.7	0.254	0.254	40	13	0.369	--	0.00	0.00
6.0	3	112.7	0.310	0.310	40	13	0.369	--	0.00	0.00
7.0	5	112.7	0.366	0.366	47	16	0.369	--	0.00	0.00
8.5	5	112.7	0.437	0.437	47	16	0.369	--	0.00	0.00
9.0	4	121.9	0.466	0.466	40	14	0.369	--	0.00	0.00
10.0	4	121.9	0.542	0.542	40	13	0.369	--	0.00	0.00
11.0	4	121.9	0.603	0.603	40	13	0.369	--	0.00	0.00
12.0	7	121.9	0.664	0.664	50	17	0.369	--	0.00	0.00
13.5	7	121.9	0.740	0.740	50	16	0.369	--	0.00	0.00
14.0	9	122.6	0.771	0.771	52	20	0.369	--	0.00	0.00
15.0	9	122.6	0.848	0.848	52	20	0.369	--	0.00	0.00
16.0	9	122.6	0.909	0.909	52	19	0.369	--	0.00	0.00
17.0	9	122.6	0.970	0.970	52	19	0.369	--	0.00	0.00
18.0	9	122.6	1.031	1.031	52	19	0.369	--	0.00	0.00
19.0	9	122.6	1.093	1.093	52	18	0.369	--	0.00	0.00
20.5	9	122.6	1.169	1.169	52	18	0.369	--	0.00	0.00
21.0	25	113.9	1.199	1.199	81	33	0.369	--	0.00	0.00
22.0	25	113.9	1.270	1.270	81	32	0.369	--	0.00	0.00
23.0	25	113.9	1.327	1.327	81	32	0.369	--	0.00	0.00
24.0	25	113.9	1.384	1.384	81	31	0.369	--	0.00	0.00
25.0	25	113.9	1.441	1.441	81	30	0.369	--	0.00	0.00
26.0	25	113.9	1.498	1.482	81	29	0.372	1.55	0.00	0.00
27.0	53	113.9	1.555	1.508	112	64	0.380	Non-Liq.	0.00	0.00
28.0	53	113.9	1.612	1.534	112	63	0.387	Non-Liq.	0.00	0.00
29.0	53	113.9	1.669	1.560	112	62	0.394	Non-Liq.	0.00	0.00
30.0	53	113.9	1.726	1.585	112	61	0.401	Non-Liq.	0.00	0.00
31.0	53	113.9	1.783	1.611	112	60	0.408	Non-Liq.	0.00	0.00
32.0	64	113.9	1.840	1.637	121	72	0.414	Non-Liq.	0.00	0.00
33.0	64	113.9	1.897	1.663	121	71	0.420	Non-Liq.	0.00	0.00
34.0	64	113.9	1.953	1.688	121	70	0.426	Non-Liq.	0.00	0.00
35.0	64	113.9	2.010	1.714	121	69	0.432	Non-Liq.	0.00	0.00
36.5	64	113.9	2.082	1.746	121	68	0.439	Non-Liq.	0.00	0.00
37.0	21	114.1	2.110	1.759	67	29	0.442	1.34	0.00	0.00
38.0	21	114.1	2.181	1.791	67	29	0.449	1.26	0.00	0.00
39.0	21	114.1	2.238	1.817	67	29	0.454	1.22	0.00	0.00
40.0	21	114.1	2.296	1.843	67	28	0.459	1.18	0.00	0.00
41.0	21	114.1	2.353	1.869	67	28	0.464	1.15	0.00	0.00
42.0	55	114.1	2.410	1.895	107	54	0.469	Non-Liq.	0.00	0.00
43.0	55	114.1	2.467	1.921	107	54	0.473	Non-Liq.	0.00	0.00
44.0	55	114.1	2.524	1.947	107	53	0.478	Non-Liq.	0.00	0.00
45.0	55	114.1	2.581	1.972	107	52	0.482	Non-Liq.	0.00	0.00
46.0	55	114.1	2.638	1.998	107	52	0.486	Non-Liq.	0.00	0.00
47.0	50	114.1	2.695	2.024	100	47	0.491	Non-Liq.	0.00	0.00
48.0	50	114.1	2.752	2.050	100	47	0.495	Non-Liq.	0.00	0.00
49.0	50	114.1	2.809	2.076	100	47	0.499	Non-Liq.	0.00	0.00
50.0	50	114.1	2.866	2.102	100	46	0.503	Non-Liq.	0.00	0.00

TOTAL SETTLEMENT = 0.0 INCHES

Figure 6

GEOCON

Project: Chino Hills Parkway
File No. : W1520-88-01
Boring : B3

EMPIRICAL ESTIMATION OF LIQUEFACTION POTENTIAL
MAXIMUM CONSIDERED EARTHQUAKE

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.62
Peak Horiz. Acceleration PGA_M (g):	0.850
Calculated Mag.Wtg.Factor:	0.730
Historic High Groundwater:	25.0
Groundwater Depth During Exploration:	46.0

By Thomas F. Blake (1994-1996)
ENERGY & ROD CORRECTIONS:

Energy Correction (CE) for N60:	1.25
Rod Len.Corr.(CR)(0-no or 1-yes):	1.0
Bore Dia. Corr. (CB):	1.00
Sampler Corr. (CS):	1.20
Use Ksigma (0 or 1):	1.0

LIQUEFACTION CALCULATIONS:

Unit Wt. Water (pcf): 62.4

Depth to Base (ft)	Total Unit Wt. (pcf)	Water (0 or 1)	FIELD SPT (N)	Depth of SPT (ft)	Liq.Sus. (0 or 1)	-200 (%)	Est. Dr (%)	CN Factor	Corrected (N1)60	Eff. Unit Wt. (psf)	Resist. CRR	rd Factor	Induced CSR	Liquefac. Safe.Fact.
1.0	112.7	0	3.0	2.5	1	80	40	1.700	12.7	112.7	0.139	0.998	0.402	--
2.0	112.7	0	3.0	2.5	1	80	40	1.700	12.7	112.7	0.139	0.993	0.401	--
3.0	112.7	0	3.0	2.5	1	80	40	1.700	12.7	112.7	0.139	0.989	0.399	--
4.0	112.7	0	3.0	2.5	1	80	40	1.700	12.7	112.7	0.139	0.984	0.397	--
5.0	112.7	0	3.0	2.5	1	80	40	1.700	12.7	112.7	0.139	0.979	0.395	--
6.0	112.7	0	3.0	2.5	1	80	40	1.700	12.7	112.7	0.139	0.975	0.393	--
7.0	112.7	0	5.0	7.5	1	92	47	1.688	16.5	112.7	0.179	0.970	0.391	--
8.5	112.7	0	5.0	7.5	1	92	47	1.546	15.7	112.7	0.171	0.965	0.389	--
9.0	121.9	0	4.0	10.0	1	92	40	1.497	13.7	121.9	0.150	0.960	0.387	--
10.0	121.9	0	4.0	10.0	1	93	40	1.388	13.2	121.9	0.145	0.957	0.386	--
11.0	121.9	0	4.0	10.0	1	93	40	1.316	12.9	121.9	0.141	0.952	0.384	--
12.0	121.9	0	7.0	12.5	1	74	50	1.254	16.9	121.9	0.184	0.947	0.382	--
13.5	121.9	0	7.0	12.5	1	74	50	1.188	16.4	121.9	0.178	0.942	0.380	--
14.0	122.6	0	9.0	17.5	1	74	52	1.164	20.4	122.6	0.223	0.937	0.378	--
15.0	122.6	0	9.0	17.5	1	84	52	1.110	19.8	122.6	0.216	0.934	0.377	--
16.0	122.6	0	9.0	17.5	1	84	52	1.072	19.4	122.6	0.211	0.929	0.375	--
17.0	122.6	0	9.0	17.5	1	87	52	1.037	19.0	122.6	0.206	0.925	0.373	--
18.0	122.6	0	9.0	17.5	1	87	52	1.006	18.6	122.6	0.202	0.920	0.371	--
19.0	122.6	0	9.0	17.5	1	87	52	0.977	18.3	122.6	0.199	0.915	0.369	--
20.5	122.6	0	9.0	17.5	1	87	52	0.945	17.9	122.6	0.195	0.910	0.367	--
21.0	113.9	0	25.0	22.5	1	8	81	0.933	33.2	113.9	Infin.	0.905	0.365	--
22.0	113.9	0	25.0	22.5	1	8	81	0.907	32.2	113.9	Infin.	0.902	0.364	--
23.0	113.9	0	25.0	22.5	1	8	81	0.887	31.6	113.9	Infin.	0.897	0.362	--
24.0	113.9	0	25.0	22.5	1	8	81	0.869	31.0	113.9	Infin.	0.893	0.360	--
25.0	113.9	0	25.0	22.5	1		81	0.851	29.6	113.9	0.415	0.888	0.358	--
26.0	113.9	1	25.0	22.5	1		81	0.835	29.0	51.5	0.376	0.883	0.360	1.04
27.0	113.9	1	53.0	27.5	1		112	0.819	63.8	51.5	Infin.	0.879	0.365	Non-Liq.
28.0	113.9	1	53.0	27.5	1		112	0.805	62.6	51.5	Infin.	0.874	0.371	Non-Liq.
29.0	113.9	1	53.0	27.5	1		112	0.791	61.6	51.5	Infin.	0.870	0.375	Non-Liq.
30.0	113.9	1	53.0	27.5	1		112	0.778	60.5	51.5	Infin.	0.865	0.380	Non-Liq.
31.0	113.9	1	53.0	27.5	1		112	0.765	59.6	51.5	Infin.	0.861	0.384	Non-Liq.
32.0	113.9	1	64.0	32.5	1		121	0.753	72.3	51.5	Infin.	0.856	0.388	Non-Liq.
33.0	113.9	1	64.0	32.5	1		121	0.742	71.2	51.5	Infin.	0.851	0.392	Non-Liq.
34.0	113.9	1	64.0	32.5	1		121	0.731	70.2	51.5	Infin.	0.847	0.395	Non-Liq.
35.0	113.9	1	64.0	32.5	1		121	0.721	69.2	51.5	Infin.	0.842	0.398	Non-Liq.
36.5	113.9	1	64.0	32.5	1		121	0.708	68.0	51.5	Infin.	0.837	0.402	Non-Liq.
37.0	114.1	1	21.0	37.5	1	50	67	0.703	29.2	51.7	0.363	0.832	0.403	0.90
38.0	114.1	1	21.0	37.5	1	50	67	0.692	28.8	51.7	0.347	0.829	0.407	0.85
39.0	114.1	1	21.0	37.5	1	50	67	0.683	28.5	51.7	0.337	0.824	0.409	0.82
40.0	114.1	1	21.0	37.5	1	50	67	0.674	28.2	51.7	0.329	0.819	0.412	0.80
41.0	114.1	1	21.0	37.5	1	50	67	0.666	28.0	51.7	0.321	0.815	0.414	0.78
42.0	114.1	1	55.0	42.5	1		107	0.658	54.3	51.7	Infin.	0.810	0.416	Non-Liq.
43.0	114.1	1	55.0	42.5	1		107	0.651	53.7	51.7	Infin.	0.806	0.417	Non-Liq.
44.0	114.1	1	55.0	42.5	1		107	0.643	53.1	51.7	Infin.	0.801	0.419	Non-Liq.
45.0	114.1	1	55.0	42.5	1		107	0.636	52.5	51.7	Infin.	0.797	0.420	Non-Liq.
46.0	114.1	1	55.0	42.5	1		107	0.631	52.1	51.7	Infin.	0.792	0.422	Non-Liq.
47.0	114.1	1	50.0	47.5	1		100	0.628	47.1	51.7	Infin.	0.787	0.423	Non-Liq.
48.0	114.1	1	50.0	47.5	1		100	0.625	46.9	51.7	Infin.	0.783	0.424	Non-Liq.
49.0	114.1	1	50.0	47.5	1		100	0.622	46.6	51.7	Infin.	0.778	0.425	Non-Liq.
50.0	114.1	1	50.0	47.5	1		100	0.619	46.4	51.7	Infin.	0.774	0.426	Non-Liq.

GEOCON

Project: Chino Hills Parkway
File No. : W1520-88-01
Boring : B3

LIQUEFACTION SETTLEMENT ANALYSIS
MAXIMUM CONSIDERED EARTHQUAKE

(SATURATED SAND AT INITIAL LIQUEFACTION CONDITION)

NCEER (1996) METHOD
EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.62
PGA_M (g):	0.850
Calculated Mag.Wtg.Factor:	0.730
Historic High Groundwater:	25.0
Groundwater @ Exploration:	100.0

DEPTH TO BASE	BLOW COUNT N	WET DENSITY (PCF)	TOTAL STRESS O (TSF)	EFFECT STRESS O' (TSF)	REL. DEN. Dr (%)	ADJUST BLOWS (N1)60	Tav/σ'o	LIQUEFACTION SAFETY FACTOR	Volumetric Strain [e15] (%)	EQ. SETTLE. Pe (in.)
1.0	3	112.7	0.028	0.028	40	13	0.553	--	0.00	0.00
2.0	3	112.7	0.085	0.085	40	13	0.553	--	0.00	0.00
3.0	3	112.7	0.141	0.141	40	13	0.553	--	0.00	0.00
4.0	3	112.7	0.197	0.197	40	13	0.553	--	0.00	0.00
5.0	3	112.7	0.254	0.254	40	13	0.553	--	0.00	0.00
6.0	3	112.7	0.310	0.310	40	13	0.553	--	0.00	0.00
7.0	5	112.7	0.366	0.366	47	16	0.553	--	0.00	0.00
8.5	5	112.7	0.437	0.437	47	16	0.553	--	0.00	0.00
9.0	4	121.9	0.466	0.466	40	14	0.553	--	0.00	0.00
10.0	4	121.9	0.542	0.542	40	13	0.553	--	0.00	0.00
11.0	4	121.9	0.603	0.603	40	13	0.553	--	0.00	0.00
12.0	7	121.9	0.664	0.664	50	17	0.553	--	0.00	0.00
13.5	7	121.9	0.740	0.740	50	16	0.553	--	0.00	0.00
14.0	9	122.6	0.771	0.771	52	20	0.553	--	0.00	0.00
15.0	9	122.6	0.848	0.848	52	20	0.553	--	0.00	0.00
16.0	9	122.6	0.909	0.909	52	19	0.553	--	0.00	0.00
17.0	9	122.6	0.970	0.970	52	19	0.553	--	0.00	0.00
18.0	9	122.6	1.031	1.031	52	19	0.553	--	0.00	0.00
19.0	9	122.6	1.093	1.093	52	18	0.553	--	0.00	0.00
20.5	9	122.6	1.169	1.169	52	18	0.553	--	0.00	0.00
21.0	25	113.9	1.199	1.199	81	33	0.553	--	0.00	0.00
22.0	25	113.9	1.270	1.270	81	32	0.553	--	0.00	0.00
23.0	25	113.9	1.327	1.327	81	32	0.553	--	0.00	0.00
24.0	25	113.9	1.384	1.384	81	31	0.553	--	0.00	0.00
25.0	25	113.9	1.441	1.441	81	30	0.553	--	0.00	0.00
26.0	25	113.9	1.498	1.482	81	29	0.558	1.04	0.00	0.00
27.0	53	113.9	1.555	1.508	112	64	0.570	Non-Liq.	0.00	0.00
28.0	53	113.9	1.612	1.534	112	63	0.581	Non-Liq.	0.00	0.00
29.0	53	113.9	1.669	1.560	112	62	0.591	Non-Liq.	0.00	0.00
30.0	53	113.9	1.726	1.585	112	61	0.601	Non-Liq.	0.00	0.00
31.0	53	113.9	1.783	1.611	112	60	0.611	Non-Liq.	0.00	0.00
32.0	64	113.9	1.840	1.637	121	72	0.621	Non-Liq.	0.00	0.00
33.0	64	113.9	1.897	1.663	121	71	0.630	Non-Liq.	0.00	0.00
34.0	64	113.9	1.953	1.688	121	70	0.639	Non-Liq.	0.00	0.00
35.0	64	113.9	2.010	1.714	121	69	0.648	Non-Liq.	0.00	0.00
36.5	64	113.9	2.082	1.746	121	68	0.659	Non-Liq.	0.00	0.00
37.0	21	114.1	2.110	1.759	67	29	0.663	0.90	0.75	0.05
38.0	21	114.1	2.181	1.791	67	29	0.673	0.85	0.75	0.09
39.0	21	114.1	2.238	1.817	67	29	0.681	0.82	0.75	0.09
40.0	21	114.1	2.296	1.843	67	28	0.688	0.80	0.75	0.09
41.0	21	114.1	2.353	1.869	67	28	0.695	0.78	0.75	0.09
42.0	55	114.1	2.410	1.895	107	54	0.703	Non-Liq.	0.00	0.00
43.0	55	114.1	2.467	1.921	107	54	0.710	Non-Liq.	0.00	0.00
44.0	55	114.1	2.524	1.947	107	53	0.716	Non-Liq.	0.00	0.00
45.0	55	114.1	2.581	1.972	107	52	0.723	Non-Liq.	0.00	0.00
46.0	55	114.1	2.638	1.998	107	52	0.729	Non-Liq.	0.00	0.00
47.0	50	114.1	2.695	2.024	100	47	0.736	Non-Liq.	0.00	0.00
48.0	50	114.1	2.752	2.050	100	47	0.742	Non-Liq.	0.00	0.00
49.0	50	114.1	2.809	2.076	100	47	0.748	Non-Liq.	0.00	0.00
50.0	50	114.1	2.866	2.102	100	46	0.753	Non-Liq.	0.00	0.00

TOTAL SETTLEMENT = 0.4 INCHES

Figure 8

GEOCON

Project: Chino Hills Parkway
File No. : W1520-88-01
Boring : B3

TECHNICAL ENGINEERING AND DESIGN GUIDES AS ADAPTED FROM THE US ARMY CORPS OF ENGINEERS, NO. 9
EVALUATION OF EARTHQUAKE-INDUCED SETTLEMENTS IN DRY SANDY SOILS
DESIGN EARTHQUAKE

DE EARTHQUAKE INFORMATION:

Earthquake Magnitude:	6.65
Peak Horiz. Acceleration (g):	0.567

Fig 4.1 Fig 4.2 Fig 4.4

Depth of Base of Strata (ft)	Thickness of Layer (ft)	Depth of Mid-point of Layer (ft)	Soil Unit Weight (pcf)	Overburden Pressure at Mid-point (tsf)	Mean Effective Pressure at Mid-point (tsf)	Average Cyclic Shear Stress [Tav]	Field SPT [N]	Correction Factor [Cer]	Relative Density [Dr] (%)	Correction Factor [Cn]	Corrected [N1]60	rd Factor	Maximum Shear Mod. [Gmax] (tsf)	[yeff]*[Geff] [Gmax]	yeff Shear Strain	[yeff]*100%	Volumetric Strain M7.5 [E15] (%)	Number of Strain Cycles [Nc]	Corrected Vol. Strains [Ec]	Estimated Settlement [S] (inches)
1.0	1.0	0.5	112.7	0.03	0.02	0.010	3	1.25	39.9	1.7	12.7	1.0	143.429	7.17E-05	1.40E-04	0.014	2.41E-02	8.2879	1.84E-02	Grading
2.0	1.0	1.5	112.7	0.08	0.06	0.031	3	1.25	39.9	1.7	12.7	1.0	248.427	1.22E-04	2.30E-04	0.023	3.95E-02	8.2879	3.03E-02	Grading
3.0	1.0	2.5	112.7	0.14	0.09	0.052	3	1.25	39.9	1.7	12.7	1.0	320.718	1.54E-04	2.30E-04	0.023	3.95E-02	8.2879	3.03E-02	Grading
4.0	1.0	3.5	112.7	0.20	0.13	0.073	3	1.25	39.9	1.7	12.7	1.0	379.479	1.79E-04	1.70E-04	0.017	2.92E-02	8.2879	2.24E-02	Grading
5.0	1.0	4.5	112.7	0.25	0.17	0.093	3	1.25	39.9	1.7	12.7	1.0	430.288	1.99E-04	1.70E-04	0.017	2.92E-02	8.2879	2.24E-02	Grading
6.0	1.0	5.5	112.7	0.31	0.21	0.114	3	1.25	39.9	1.7	12.7	1.0	475.702	2.16E-04	4.50E-04	0.045	7.73E-02	8.2879	5.92E-02	0.00
7.0	1.0	6.5	112.7	0.37	0.25	0.134	5	1.25	47.0	1.7	16.5	1.0	563.699	2.11E-04	4.50E-04	0.045	5.67E-02	8.2879	4.34E-02	0.00
8.5	1.5	7.8	112.7	0.44	0.29	0.160	5	1.25	47.0	1.5	15.7	1.0	605.410	2.29E-04	4.50E-04	0.045	6.02E-02	8.2879	4.61E-02	0.00
9.0	0.5	8.8	121.9	0.49	0.33	0.181	4	1.25	39.6	1.5	13.7	1.0	616.000	2.50E-04	4.50E-04	0.045	7.06E-02	8.2879	5.41E-02	0.00
10.0	1.0	9.5	121.9	0.54	0.36	0.197	4	1.25	39.6	1.4	13.2	1.0	636.092	2.61E-04	4.50E-04	0.045	7.38E-02	8.2879	5.65E-02	0.00
11.0	1.0	10.5	121.9	0.60	0.40	0.219	4	1.25	39.6	1.3	12.9	1.0	665.520	2.72E-04	4.50E-04	0.045	7.60E-02	8.2879	5.82E-02	0.00
12.0	1.0	11.5	121.9	0.66	0.44	0.241	7	1.25	50.4	1.3	16.9	0.9	763.459	2.57E-04	4.50E-04	0.045	5.52E-02	8.2879	4.23E-02	0.00
13.5	1.5	12.8	121.9	0.74	0.49	0.268	7	1.25	50.4	1.2	16.4	0.9	797.808	2.68E-04	4.50E-04	0.045	5.73E-02	8.2879	4.39E-02	0.00
14.0	0.5	13.8	122.6	0.80	0.54	0.289	9	1.25	51.7	1.2	20.4	0.9	894.255	2.54E-04	3.70E-04	0.037	3.60E-02	8.2879	2.76E-02	0.00
15.0	1.0	14.5	122.6	0.85	0.57	0.305	9	1.25	51.7	1.1	19.8	0.9	910.198	2.61E-04	3.70E-04	0.037	3.74E-02	8.2879	2.86E-02	0.00
16.0	1.0	15.5	122.6	0.91	0.61	0.326	9	1.25	51.7	1.1	19.4	0.9	935.608	2.68E-04	3.70E-04	0.037	3.84E-02	8.2879	2.94E-02	0.00
17.0	1.0	16.5	122.6	0.97	0.65	0.347	9	1.25	51.7	1.0	19.0	0.9	960.075	2.74E-04	3.70E-04	0.037	3.94E-02	8.2879	3.02E-02	0.00
18.0	1.0	17.5	122.6	1.03	0.69	0.368	9	1.25	51.7	1.0	18.6	0.9	983.694	2.79E-04	3.70E-04	0.037	4.03E-02	8.2879	3.09E-02	0.00
19.0	1.0	18.5	122.6	1.09	0.73	0.388	9	1.25	51.7	1.0	18.3	0.9	1006.543	2.84E-04	3.70E-04	0.037	4.12E-02	8.2879	3.15E-02	0.00
20.5	1.5	19.8	122.6	1.17	0.78	0.414	9	1.25	51.7	0.9	17.9	0.9	1034.126	2.90E-04	3.70E-04	0.037	4.22E-02	8.2879	3.23E-02	0.00
21.0	0.5	20.8	113.9	1.23	0.82	0.434	25	1.25	80.6	0.9	33.2	0.9	1302.146	2.38E-04	3.70E-04	0.037	2.02E-02	8.2879	1.54E-02	0.00
22.0	1.0	21.5	113.9	1.27	0.85	0.447	25	1.25	80.6	0.9	32.2	0.9	1312.212	2.42E-04	3.70E-04	0.037	2.09E-02	8.2879	1.60E-02	0.00
23.0	1.0	22.5	113.9	1.33	0.89	0.465	25	1.25	80.6	0.9	31.6	0.9	1333.071	2.44E-04	3.70E-04	0.037	2.13E-02	8.2879	1.63E-02	0.00
24.0	1.0	23.5	113.9	1.38	0.93	0.483	25	1.25	80.6	0.9	31.0	0.9	1352.121	2.47E-04	3.70E-04	0.037	2.19E-02	8.2879	1.67E-02	0.00
25.0	1.0	24.5	113.9	1.44	0.97	0.501	25	1.25	80.6	0.9	29.6	0.9	1358.635	2.52E-04	3.70E-04	0.037	2.31E-02	8.2879	1.77E-02	0.00
26.0	1.0	25.5	113.9	1.50	1.00	0.518	25	1.25	80.6	0.8	29.0	0.9	1376.309	2.55E-04	3.00E-04	0.030	1.92E-02	8.2879	1.47E-02	0.00
27.0	1.0	26.5	113.9	1.55	1.04	0.535	53	1.25	112.4	0.8	63.8	0.9	1822.688	1.96E-04	1.30E-04	0.013	3.23E-03	8.2879	2.48E-03	0.00
28.0	1.0	27.5	113.9	1.61	1.08	0.552	53	1.25	112.4	0.8	62.6	0.9	1844.682	1.98E-04	1.30E-04	0.013	3.30E-03	8.2879	2.53E-03	0.00
29.0	1.0	28.5	113.9	1.67	1.12	0.569	53	1.25	112.4	0.8	61.6	0.9	1866.163	2.00E-04	1.30E-04	0.013	3.37E-03	8.2879	2.58E-03	0.00
30.0	1.0	29.5	113.9	1.73	1.16	0.585	53	1.25	112.4	0.8	60.5	0.9	1887.161	2.01E-04	3.00E-04	0.030	7.94E-03	8.2879	6.08E-03	0.00
31.0	1.0	30.5	113.9	1.78	1.19	0.601	53	1.25	112.4	0.8	59.6	0.9	1907.702	2.02E-04	3.00E-04	0.030	8.10E-03	8.2879	6.20E-03	0.00
32.0	1.0	31.5	113.9	1.84	1.23	0.617	64	1.25	120.5	0.8	72.3	0.9	2067.390	1.90E-04	1.30E-04	0.013	2.78E-03	8.2879	2.13E-03	0.00
33.0	1.0	32.5	113.9	1.90	1.27	0.632	64	1.25	120.5	0.7	71.2	0.9	2088.513	1.91E-04	1.30E-04	0.013	2.83E-03	8.2879	2.17E-03	0.00
34.0	1.0	33.5	113.9	1.95	1.31	0.647	64	1.25	120.5	0.7	70.2	0.8	2109.217	1.91E-04	1.30E-04	0.013	2.88E-03	8.2879	2.21E-03	0.00
35.0	1.0	34.5	113.9	2.01	1.35	0.662	64	1.25	120.5	0.7	69.2	0.8	2129.523	1.92E-04	1.30E-04	0.013	2.93E-03	8.2879	2.25E-03	0.00
36.5	1.5	35.8	113.9	2.08	1.39	0.680	64	1.25	120.5	0.7	68.0	0.8	2154.372	1.93E-04	1.30E-04	0.013	2.99E-03	8.2879	2.29E-03	0.00
37.0	0.5	36.8	114.1	2.14	1.43	0.694	21	1.25	67.4	0.7	29.2	0.8	1646.739	2.56E-04	3.00E-04	0.030	1.91E-02	8.2879	1.46E-02	0.00
38.0	1.0	37.5	114.1	2.18	1.46	0.705	21	1.25	67.4	0.7	28.8	0.8	1656.161	2.57E-04	3.00E-04	0.030	1.94E-02	8.2879	1.48E-02	0.00
39.0	1.0	38.5	114.1	2.24	1.50	0.718	21	1.25	67.4	0.7	28.5	0.8	1672.235	2.57E-04	3.00E-04	0.030	1.96E-02	8.2879	1.50E-02	0.00
40.0	1.0	39.5	114.1	2.30	1.54	0.732	21	1.25	67.4	0.7	28.2	0.8	1688.071	2.57E-04	3.00E-04	0.030	1.98E-02	8.2879	1.52E-02	0.00
41.0	1.0	40.5	114.1	2.35	1.58	0.745	21	1.25	67.4	0.7	28.0	0.8	1703.679	2.58E-04	3.00E-04	0.030	2.00E-02	8.2879	1.54E-02	0.00
42.0	1.0	41.5	114.1	2.41	1.61	0.757	55	1.25	106.7	0.7	54.3	0.8	2150.625	2.06E-04	3.00E-04	0.030	9.05E-03	8.2879	6.93E-03	0.00
43.0	1.0	42.5	114.1	2.47	1.65	0.770	55	1.25	106.7	0.7	53.7	0.8	2167.469	2.07E-04	3.00E-04	0.030	9.18E-03	8.2879	7.03E-03	0.00
44.0	1.0	43.5	114.1	2.52	1.69	0.782	55	1.25	106.7	0.6	53.1	0.8	2184.055	2.07E-04	3.00E-04	0.030	9.30E-03	8.2879	7.12E-03	0.00
45.0	1.0	44.5	114.1	2.58	1.73	0.794	55	1.25	106.7	0.6	52.5	0.8	2200.393	2.07E-04	3.00E-04	0.030	9.43E-03	8.2879	7.22E-03	0.00
46.0	1.0	45.5	114.1	2.64	1.77	0.805	55	1.25	106.7	0.6	52.1	0.8	2218.684	2.07E-04	3.00E-04	0.030	9.52E-03	8.2879	7.29E-03	0.00
47.0	1.0	46.5	114.1	2.69	1.81	0.816	50	1.25	99.5	0.6	47.1	0.8	2168.877	2.13E-04	3.00E-04	0.030	1.07E-02	8.2879	8.22E-03	0.00
48.0	1.0	47.5	114.1	2.75	1.84	0.827	50	1.25	99.5	0.6	46.9	0.8	2188.171	2.13E-04	3.00E-04	0.030	1.08E-02	8.2879	8.27E-03	0.00
49.0	1.0	48.5	114.1	2.81	1.88	0.838	50	1.25	99.5	0.6	46.6	0.8	2207.197	2.13E-04	3.00E-04	0.030	1.09E-02	8.2879	8.32E-03	0.00
50.0	1.0	49.5	114.1	2.87	1.92	0.848	50	1.25	99.5	0.6	46.4	0.8	2225.963	2.12E-04	3.00E-04	0.030	1.09E-02	8.2879	8.36E-03	0.00

TOTAL SETTLEMENT = **0.02**

Figure 9

GEOCON

Project: Chino Hills Parkway
File No. : W1520-88-01
Boring : B3

TECHNICAL ENGINEERING AND DESIGN GUIDES AS ADAPTED FROM THE US ARMY CORPS OF ENGINEERS, NO. 9
EVALUATION OF EARTHQUAKE-INDUCED SETTLEMENTS IN DRY SANDY SOILS
MAXIMUM CONSIDERED EARTHQUAKE

MCE EARTHQUAKE INFORMATION:

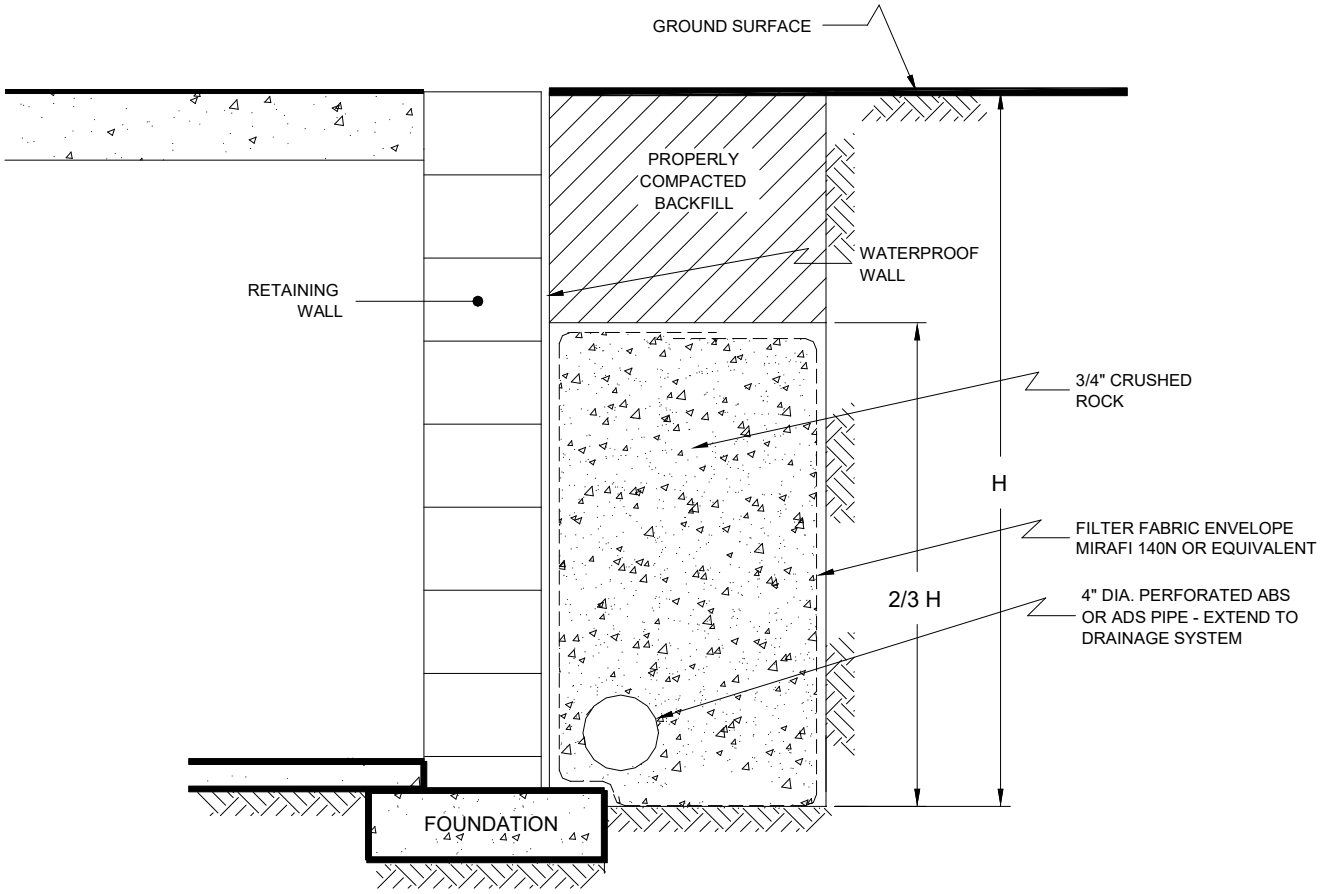
Earthquake Magnitude:	6.62
Peak Horiz. Acceleration (g):	0.850

Fig 4.1 Fig 4.2 Fig 4.4

Depth of Base of Strata (ft)	Thickness of Layer (ft)	Depth of Mid-point of Layer (ft)	Soil Unit Weight (pcf)	Overburden Pressure at Mid-point (tsf)	Mean Effective Pressure at Mid-point (tsf)	Average Cyclic Shear Stress [Tav]	Field SPT [N]	Correction Factor [Cer]	Relative Density [Dr] (%)	Correction Factor [Cn]	Corrected [N1]60	rd Factor	Maximum Shear Mod. [Gmax] (tsf)	[yeff]*[Geff] [Gmax]	yeff Shear Strain	[yeff]*100%	Volumetric Strain M7.5 [E15] (%)	Number of Strain Cycles [Nc]	Corrected Vol. Strains [Ec]	Estimated Settlement [S] (inches)
1.0	1.0	0.5	112.7	0.03	0.02	0.016	3	1.25	39.9	1.7	12.7	1.0	143.429	1.07E-04	2.30E-04	0.023	3.95E-02	8.0856	2.99E-02	Grading
2.0	1.0	1.5	112.7	0.08	0.06	0.047	3	1.25	39.9	1.7	12.7	1.0	248.427	1.82E-04	2.30E-04	0.023	3.95E-02	8.0856	2.99E-02	Grading
3.0	1.0	2.5	112.7	0.14	0.09	0.078	3	1.25	39.9	1.7	12.7	1.0	320.718	2.31E-04	3.00E-03	0.300	5.16E-01	8.0856	3.90E-01	Grading
4.0	1.0	3.5	112.7	0.20	0.13	0.109	3	1.25	39.9	1.7	12.7	1.0	379.479	2.68E-04	8.10E-04	0.081	1.39E-01	8.0856	1.05E-01	Grading
5.0	1.0	4.5	112.7	0.25	0.17	0.140	3	1.25	39.9	1.7	12.7	1.0	430.288	2.98E-04	8.10E-04	0.081	1.39E-01	8.0856	1.05E-01	Grading
6.0	1.0	5.5	112.7	0.31	0.21	0.171	3	1.25	39.9	1.7	12.7	1.0	475.702	3.23E-04	1.00E-03	0.100	1.72E-01	8.0856	1.30E-01	0.00
7.0	1.0	6.5	112.7	0.37	0.25	0.202	5	1.25	47.0	1.7	16.5	1.0	563.699	3.17E-04	1.00E-03	0.100	1.26E-01	8.0856	9.54E-02	0.00
8.5	1.5	7.8	112.7	0.44	0.29	0.240	5	1.25	47.0	1.5	15.7	1.0	605.410	3.43E-04	1.00E-03	0.100	1.34E-01	8.0856	1.01E-01	0.00
9.0	0.5	8.8	121.9	0.49	0.33	0.271	4	1.25	39.6	1.5	13.7	1.0	616.000	3.75E-04	1.00E-03	0.100	1.57E-01	8.0856	1.19E-01	0.00
10.0	1.0	9.5	121.9	0.54	0.36	0.296	4	1.25	39.6	1.4	13.2	1.0	636.092	3.91E-04	1.00E-03	0.100	1.64E-01	8.0856	1.24E-01	0.00
11.0	1.0	10.5	121.9	0.60	0.40	0.328	4	1.25	39.6	1.3	12.9	1.0	665.520	4.09E-04	2.70E-03	0.270	4.56E-01	8.0856	3.45E-01	0.00
12.0	1.0	11.5	121.9	0.66	0.44	0.361	7	1.25	50.4	1.3	16.9	0.9	763.459	3.85E-04	1.00E-03	0.100	1.23E-01	8.0856	9.29E-02	0.00
13.5	1.5	12.8	121.9	0.74	0.49	0.401	7	1.25	50.4	1.2	16.4	0.9	797.808	4.02E-04	2.70E-03	0.270	3.44E-01	8.0856	2.60E-01	0.00
14.0	0.5	13.8	122.6	0.80	0.54	0.433	9	1.25	51.7	1.2	20.4	0.9	894.255	3.82E-04	7.10E-04	0.071	6.92E-02	8.0856	5.24E-02	0.00
15.0	1.0	14.5	122.6	0.85	0.57	0.457	9	1.25	51.7	1.1	19.8	0.9	910.198	3.91E-04	7.10E-04	0.071	7.18E-02	8.0856	5.44E-02	0.00
16.0	1.0	15.5	122.6	0.91	0.61	0.489	9	1.25	51.7	1.1	19.4	0.9	935.608	4.01E-04	1.20E-03	0.120	1.25E-01	8.0856	9.44E-02	0.00
17.0	1.0	16.5	122.6	0.97	0.65	0.520	9	1.25	51.7	1.0	19.0	0.9	960.075	4.10E-04	1.20E-03	0.120	1.28E-01	8.0856	9.68E-02	0.00
18.0	1.0	17.5	122.6	1.03	0.69	0.552	9	1.25	51.7	1.0	18.6	0.9	983.694	4.19E-04	1.20E-03	0.120	1.31E-01	8.0856	9.90E-02	0.00
19.0	1.0	18.5	122.6	1.09	0.73	0.582	9	1.25	51.7	1.0	18.3	0.9	1006.543	4.26E-04	1.20E-03	0.120	1.34E-01	8.0856	1.01E-01	0.00
20.5	1.5	19.8	122.6	1.17	0.78	0.620	9	1.25	51.7	0.9	17.9	0.9	1034.126	4.35E-04	1.20E-03	0.120	1.37E-01	8.0856	1.04E-01	0.04
21.0	0.5	20.8	113.9	1.23	0.82	0.650	25	1.25	80.6	0.9	33.2	0.9	1302.146	3.57E-04	7.10E-04	0.071	3.87E-02	8.0856	2.93E-02	0.00
22.0	1.0	21.5	113.9	1.27	0.85	0.671	25	1.25	80.6	0.9	32.2	0.9	1312.212	3.62E-04	7.10E-04	0.071	4.00E-02	8.0856	3.03E-02	0.01
23.0	1.0	22.5	113.9	1.33	0.89	0.698	25	1.25	80.6	0.9	31.6	0.9	1333.071	3.66E-04	7.10E-04	0.071	4.09E-02	8.0856	3.10E-02	0.01
24.0	1.0	23.5	113.9	1.38	0.93	0.724	25	1.25	80.6	0.9	31.0	0.9	1352.121	3.71E-04	7.10E-04	0.071	4.20E-02	8.0856	3.18E-02	0.01
25.0	1.0	24.5	113.9	1.44	0.97	0.751	25	1.25	80.6	0.9	29.6	0.9	1358.635	3.78E-04	7.10E-04	0.071	4.43E-02	8.0856	3.36E-02	0.01
26.0	1.0	25.5	113.9	1.50	1.00	0.777	25	1.25	80.6	0.8	29.0	0.9	1376.309	3.82E-04	5.20E-04	0.052	3.32E-02	8.0856	2.52E-02	0.00
27.0	1.0	26.5	113.9	1.55	1.04	0.803	53	1.25	112.4	0.8	63.8	0.9	1822.688	2.94E-04	3.00E-04	0.030	7.46E-03	8.0856	5.65E-03	0.00
28.0	1.0	27.5	113.9	1.61	1.08	0.828	53	1.25	112.4	0.8	62.6	0.9	1844.682	2.97E-04	3.00E-04	0.030	7.62E-03	8.0856	5.77E-03	0.00
29.0	1.0	28.5	113.9	1.67	1.12	0.853	53	1.25	112.4	0.8	61.6	0.9	1866.163	2.99E-04	3.00E-04	0.030	7.78E-03	8.0856	5.89E-03	0.00
30.0	1.0	29.5	113.9	1.73	1.16	0.877	53	1.25	112.4	0.8	60.5	0.9	1887.161	3.01E-04	5.20E-04	0.052	1.38E-02	8.0856	1.04E-02	0.00
31.0	1.0	30.5	113.9	1.78	1.19	0.901	53	1.25	112.4	0.8	59.6	0.9	1907.702	3.03E-04	5.20E-04	0.052	1.40E-02	8.0856	1.06E-02	0.00
32.0	1.0	31.5	113.9	1.84	1.23	0.924	64	1.25	120.5	0.8	72.3	0.9	2067.390	2.84E-04	3.00E-04	0.030	6.42E-03	8.0856	4.86E-03	0.00
33.0	1.0	32.5	113.9	1.90	1.27	0.948	64	1.25	120.5	0.7	71.2	0.9	2088.513	2.86E-04	3.00E-04	0.030	6.53E-03	8.0856	4.95E-03	0.00
34.0	1.0	33.5	113.9	1.95	1.31	0.970	64	1.25	120.5	0.7	70.2	0.8	2109.217	2.87E-04	3.00E-04	0.030	6.65E-03	8.0856	5.04E-03	0.00
35.0	1.0	34.5	113.9	2.01	1.35	0.992	64	1.25	120.5	0.7	69.2	0.8	2129.523	2.88E-04	3.00E-04	0.030	6.77E-03	8.0856	5.12E-03	0.00
36.5	1.5	35.8	113.9	2.08	1.39	1.020	64	1.25	120.5	0.7	68.0	0.8	2154.372	2.90E-04	3.00E-04	0.030	6.91E-03	8.0856	5.23E-03	0.00
37.0	0.5	36.8	114.1	2.14	1.43	1.041	21	1.25	67.4	0.7	29.2	0.8	1646.739	3.84E-04	5.20E-04	0.052	3.31E-02	8.0856	2.50E-02	0.00
38.0	1.0	37.5	114.1	2.18	1.46	1.056	21	1.25	67.4	0.7	28.8	0.8	1656.161	3.85E-04	5.20E-04	0.052	3.36E-02	8.0856	2.54E-02	0.00
39.0	1.0	38.5	114.1	2.24	1.50	1.077	21	1.25	67.4	0.7	28.5	0.8	1672.235	3.85E-04	5.20E-04	0.052	3.40E-02	8.0856	2.57E-02	0.00
40.0	1.0	39.5	114.1	2.30	1.54	1.097	21	1.25	67.4	0.7	28.2	0.8	1688.071	3.86E-04	5.20E-04	0.052	3.44E-02	8.0856	2.60E-02	0.00
41.0	1.0	40.5	114.1	2.35	1.58	1.116	21	1.25	67.4	0.7	28.0	0.8	1703.679	3.86E-04	5.20E-04	0.052	3.47E-02	8.0856	2.63E-02	0.00
42.0	1.0	41.5	114.1	2.41	1.61	1.136	55	1.25	106.7	0.7	54.3	0.8	2150.625	3.09E-04	5.20E-04	0.052	1.57E-02	8.0856	1.19E-02	0.00
43.0	1.0	42.5	114.1	2.47	1.65	1.154	55	1.25	106.7	0.7	53.7	0.8	2167.469	3.10E-04	5.20E-04	0.052	1.59E-02	8.0856	1.20E-02	0.00
44.0	1.0	43.5	114.1	2.52	1.69	1.172	55	1.25	106.7	0.6	53.1	0.8	2184.055	3.10E-04	5.20E-04	0.052	1.61E-02	8.0856	1.22E-02	0.00
45.0	1.0	44.5	114.1	2.58	1.73	1.190	55	1.25	106.7	0.6	52.5	0.8	2200.393	3.10E-04	5.20E-04	0.052	1.63E-02	8.0856	1.24E-02	0.00
46.0	1.0	45.5	114.1	2.64	1.77	1.207	55	1.25	106.7	0.6	52.1	0.8	2218.684	3.10E-04	5.20E-04	0.052	1.65E-02	8.0856	1.25E-02	0.00
47.0	1.0	46.5	114.1	2.69	1.81	1.224	50	1.25	99.5	0.6	47.1	0.8	2168.877	3.20E-04	5.20E-04	0.052	1.86E-02	8.0856	1.41E-02	0.00
48.0	1.0	47.5	114.1	2.75	1.84	1.240	50	1.25	99.5	0.6	46.9	0.8	2188.171	3.19E-04	5.20E-04	0.052	1.87E-02	8.0856	1.42E-02	0.00
49.0	1.0	48.5	114.1	2.81	1.88	1.256	50	1.25	99.5	0.6	46.6	0.8	2207.197	3.19E-04	5.20E-04	0.052	1.88E-02	8.0856	1.43E-02	0.00
50.0	1.0	49.5	114.1	2.87	1.92	1.272	50	1.25	99.5	0.6	46.4	0.8	2225.963	3.18E-04	5.20E-04	0.052	1.89E-02	8.0856	1.43E-02	0.00

TOTAL SETTLEMENT = **0.07**

Figure 10



NO SCALE

GEOCON WEST, INC.

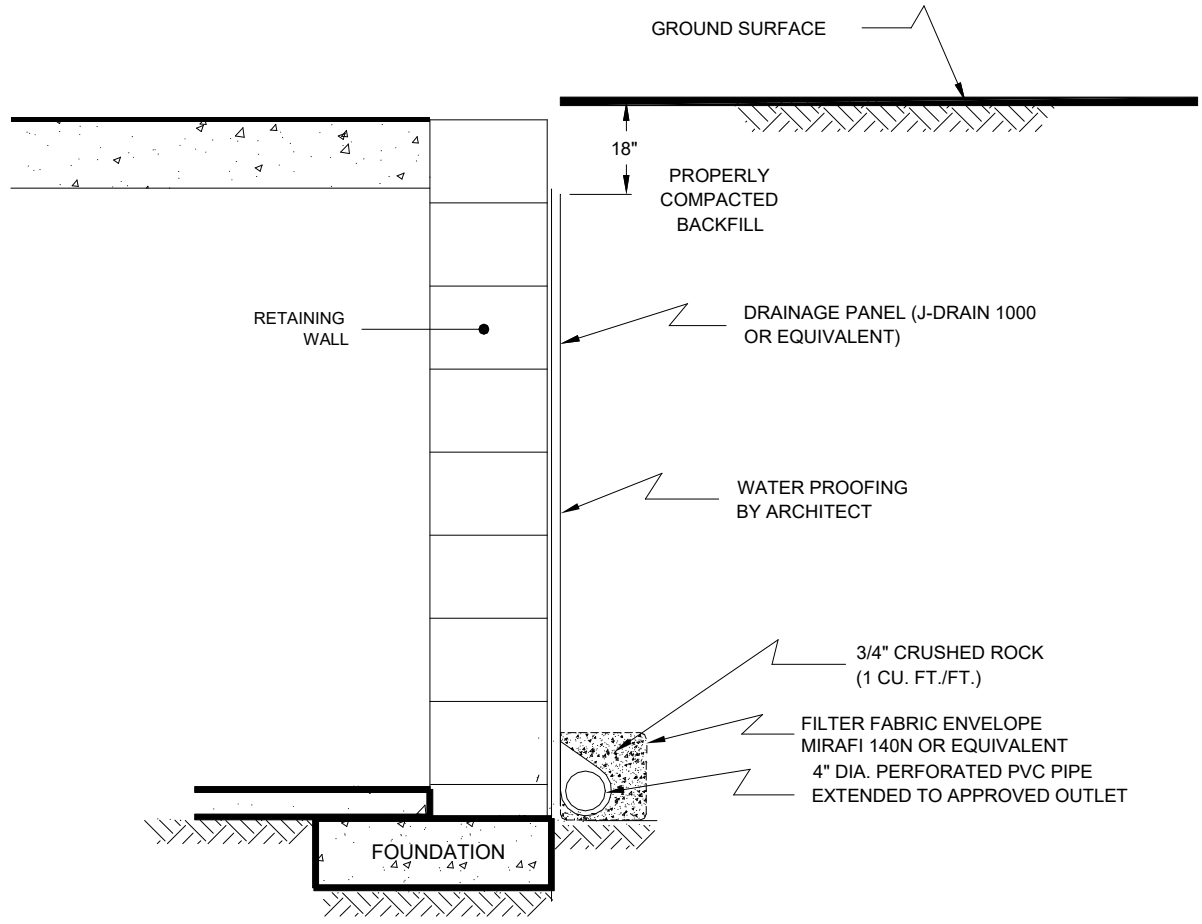
ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 841-1704

DRAFTED BY: JC	CHECKED BY: JTA

RETAINING WALL DRAIN DETAIL

CHINO HILLS PARKWAY & RAMONA AVE
CHINO, CALIFORNIA

APRIL 2022	PROJECT NO. W1520-88-01	FIG. 11



NO SCALE

GEOCON WEST, INC.

ENVIRONMENTAL GEOTECHNICAL MATERIALS
3303 N. SAN FERNANDO BLVD. - SUITE 100 - BURBANK, CA 91504
PHONE (818) 841-8388 - FAX (818) 841-1704

DRAFTED BY: JC	CHECKED BY: JTA

RETAINING WALL DRAIN DETAIL

CHINO HILLS PARKWAY & RAMONA AVE
CHINO, CALIFORNIA

APRIL 2021	PROJECT NO. W1520-88-01	FIG. 12

PERCOLATION TEST DATA SHEET

Project:	Chino Hills Parkway	Project No:	W1520-88-01	Date:	2/22/2022
Test Hole No:	B1	Tested By:	JS		
Depth of Test Hole, D_T:	15	USCS Soil Classification:	CL/ML		
Test Hole Dimensions (inches)			Length	Width	
Diameter (if round) =	8	Sides (if rectangular) =	---	---	

Sandy Soil Criteria Test*

Trial No.	Start Time	Stop Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Greater than or Equal to 6"? (y/n)
1	9:41	10:06	25	115.0	116.4	1.4	n
2							

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements, taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	Stop Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Percolation Rate (min/in)
1	10:06	10:36	30	116.4	117.0	0.6	50.00
2	10:36	11:06	30	117.0	117.6	0.6	50.00
3	11:06	11:36	30	117.6	118.3	0.7	41.67
4	11:36	12:06	30	118.3	118.9	0.6	50.00
5	12:06	12:36	30	118.9	119.5	0.6	50.00
6	12:36	13:06	30	119.5	120.1	0.6	50.00
7	13:06	13:36	30	120.1	120.8	0.7	41.67
8	13:36	14:06	30	120.8	121.4	0.6	50.00

Infiltration Rate Calculation:

Time Interval, Δt =	30	minutes	Ho =	60.5	inches
Final Depth to Water, Df =	120.1	inches	Hf =	59.9	inches
Test Hole Radius, r =	4	inches	ΔH =	0.6	inches
Initial Depth to Water, Do =	119.5	inches	Havg =	60.2	inches
Total Depth of Test Hole, DT =	180.0	inches			

$$I_t = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

Infiltration Rate, It = **0.04** inches/hour

Figure 13

PERCOLATION TEST DATA SHEET

Project:	Chino Hills Parkway	Project No:	W1520-88-01	Date:	2/22/2022
Test Hole No:	B5	Tested By:	JS		
Depth of Test Hole, D_T:	15	USCS Soil Classification:	SM/CL		
Test Hole Dimensions (inches)			Length	Width	
Diameter (if round) =	8	Sides (if rectangular) =	---	---	

Sandy Soil Criteria Test*

Trial No.	Start Time	Stop Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Greater than or Equal to 6"? (y/n)
1	11:27	11:52	25	122.2	150.4	28.2	y
2	11:54	12:19	25	122.2	149.8	27.6	y

*If two consecutive measurements show that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements, taken every 10 minutes. Otherwise, pre-soak (fill) overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".

Trial No.	Start Time	Stop Time	Δt Time Interval (min)	D_0 Initial Depth to Water (in)	D_f Final Depth to Water (in)	ΔD Change in Water Level (in)	Percolation Rate (min/in)
1	12:21	12:31	10	121.0	135.5	14.5	0.69
2	12:33	12:43	10	121.0	136.8	15.8	0.63
3	12:46	12:56	10	121.0	135.1	14.2	0.71
4	12:59	13:09	10	121.0	135.4	14.4	0.69
5	13:10	13:20	10	121.0	135.6	14.6	0.68
6	13:21	13:31	10	121.0	135.4	14.4	0.69
7							
8							

Infiltration Rate Calculation:

Time Interval, Δt =	10	minutes	Ho =	59.0	inches
Final Depth to Water, Df =	135.4	inches	Hf =	44.6	inches
Test Hole Radius, r =	4	inches	ΔH =	14.4	inches
Initial Depth to Water, Do =	121.0	inches	Havg =	51.8	inches
Total Depth of Test Hole, DT =	180.0	inches			

$$I_t = \frac{\Delta H(60r)}{\Delta t(r + 2H_{avg})}$$

Infiltration Rate, It = **3.21** inches/hour

Figure 14

APPENDIX A

APPENDIX A

FIELD INVESTIGATION

The site was explored February 22 and February 24, 2022, by excavating six 8-inch diameter borings to depths of approximately 20½ and 48 feet below the existing ground surface utilizing a truck-mounted hollow-stem auger drilling machine. Representative and relatively undisturbed samples were obtained by driving a 3-inch O. D., California Modified Sampler into the "undisturbed" soil mass with blows from a 140-pound auto-hammer falling 30 inches. The California Modified Sampler was equipped with 1-inch high by 2$^{3}/_{8}$-inch diameter brass rings to facilitate soil removal and testing. Bulk samples were collected and Standard Penetration Tests were performed in boring B3.

The soil conditions encountered in the borings were visually examined, classified and logged in general accordance with the Unified Soil Classification System (USCS). The boring logs are presented on Figures A1 through A6. The logs depict the soil and geologic conditions encountered and the depth 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 log using visual observations, penetration rates, excavation characteristics and other factors. The transition between materials may be abrupt or gradual. Where applicable, the logs were revised based on subsequent laboratory testing. The location of the borings are shown on Figure 2.

PROJECT NO. W1520-88-01

BORING 1

ELEV. (MSL.) - - DATE COMPLETED **02/22/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JC**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT)*	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'			SM	**ALLUVIUM** Silty Sand with Clay, loose, slightly moist, brown, fine- to medium-grained.			
2	B1@2.5'					8	97.2	15.0
4								
6	B1@5'			CL	Sandy Clay, soft, slightly moist, very dark gray, white deposits, fine- to medium-grained.	11	91.1	20.7
8	B1@7.5'			CL	Clay, soft, slightly moist to moist, very dark gray, white deposits.	9	83.4	32.5
10	B1@10'			ML	Clayey Silt, soft, moist, dark olive brown.	11	89.5	33.5
12	B1@12.5'			CL	Clay, firm, slightly moist to moist, very dark gray, white deposits.	13	105.4	20.0
14								
16	B1@15'				- soft, moist	7	91.4	23.7
18	B1@17.5'					8	87.7	33.4
20	B1@20'			CL	Clay with Sand, soft, moist, dark olive brown.	8	93.7	30.1

Total depth of boring: 20.5 feet
No fill.
No groundwater encountered.
Backfilled with soil cuttings and tamped.

*Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.
NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.

W1520-88-01 BORING LOGS.GPJ

Figure A1,
Log of Boring 1, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◥ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1520-88-01

BORING 2

ELEV. (MSL.) -- DATE COMPLETED **02/29/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JC**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT)*	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**ALLUVIUM**			
					Silty Sand, loose, slightly moist, dark brown, white deposits, trace clay.			
2				SM				
	B2@2.5'					8	92.1	30.1
4					Clay, firm, slightly moist to moist, very dark gray, white deposits.			
				CL				
6	B2@5'					13	92.2	10.2
					Silty Sand, loose, slightly moist to moist, dark brown, some clay.			
8	B2@7.5'			SM		11	84.5	27.7
					Clayey Silt, firm, slightly moist to moist, dark olive brown.			
10	B2@10'					12	88.8	24.3
				ML				
12	B2@12.5'				- increase in clay, white deposits, oxidation stains	11	97.3	21.8
14					Clay, firm, moist, very dark gray, white deposits, oxidation stains.			
	B2@15'					15	92.7	29.8
16				CL				
18	B2@17.5'				- no white deposits, trace silt	12	88.9	33.2
20	B2@20'					15	96.1	29.0
					Total depth of boring: 20.5 feet No fill. No groundwater encountered. Backfilled with soil cuttings and tamped. *Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer. NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.			

W1520-88-01 BORING LOGS.GPJ

Figure A2,
Log of Boring 2, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1520-88-01

BORING 3

ELEV. (MSL.) - - DATE COMPLETED **02/22/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JC**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT)*	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'				**ALLUVIUM** Clay, soft, slightly moist to moist, very dark brown, white deposits, roots.			
2	B3@1.5'					3		
4				CL				
6	B3@5'				- no roots	11	88.1	27.9
8	B3@7'				- no white deposits	5		
10	B3@10'			ML	Silt with Clay, soft, slightly moist to moist, dark olive brown.	8	94.1	29.5
12	B3@12'			CL	Clay, soft, slightly moist to moist, dark grayish brown. Clay with Silt, soft, slightly moist to moist, dark grayish brown.	7		
14				CL	Clay, soft, slightly moist to moist, dark grayish brown, trace silt.			
16	B3@15'			CL		10	99.2	23.6
18	B3@17'			CL	Silty Clay, soft, slightly moist to moist, dark grayish brown. Clay, firm, slightly moist to moist, dark grayish brown, trace silt.	9		
20	B3@20'			ML	Clayey Silt, firm, slightly moist to moist, dark olive brown, gravel.	18	113.9	18.9
22	B3@22'				Sand, well-graded, medium dense, slightly moist, olive brown, oxidation stains.	25		
24				SW				
26	B3@25'				- dense, trace clay	50 (5")	104.1	6.5
28	B3@27'				- no clay	50		

W1520-88-01 BORING LOGS.GPJ

Figure A3,
Log of Boring 3, Page 1 of 2

SAMPLE SYMBOLS

- ... SAMPLING UNSUCCESSFUL
- ... STANDARD PENETRATION TEST
- ... DRIVE SAMPLE (UNDISTURBED)
- ... DISTURBED OR BAG SAMPLE
- ... CHUNK SAMPLE
- ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1520-88-01

BORING 3

ELEV. (MSL.) - - DATE COMPLETED **02/22/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JC**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT)*	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
30	B3@30'			SW	- very dense	67	123.3	3.6
32	B3@32'					64		
34								
36	B3@35'				- gravel	56	114.1	3.3
38	B3@37'			ML	Sandy Silt, stiff, slightly moist to moist, olive brown, oxidation stains.	21		
40	B3@40'				- hard, dark yellowish brown	50 (6")	94.5	19.5
42	B3@42'			SW	Sand, well-graded, dense, slightly moist, dark yellowish brown, gravel.	55		
44								
46	B3@45'					51	126.4	3.1
48	B3@47'				- very dense	50 (4")		

Total depth of boring: 48 feet
No fill.
No groundwater encountered.
Backfilled with cement bentonite grout.

*Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.
NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.

W1520-88-01 BORING LOGS.GPJ

Figure A3,
Log of Boring 3, Page 2 of 2

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1520-88-01

BORING 4

ELEV. (MSL.) - - DATE COMPLETED **02/24/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JC**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT)*	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**ALLUVIUM**			
				SM	Silty Sand, very loose, slightly moist, brown, trace clay.			
2	B4@2.5'					6	88.0	20.1
4					Silty Clay, soft, slightly moist to moist, dark gray, white deposits, oxidation stains.			
	B4@5'			CL		9	84.3	33.2
6								
8	B4@7.5'				- decrease in silt and red stains	11	91.2	31.5
					Clayey Silt, firm, slightly moist to moist, olive brown.			
10	B4@10'			ML		18		
12	B4@12.5'				- moist, decrease in clay	12	103.9	22.0
14					Clay, firm, moist, very dark gray, oxidation stains.			
	B4@15'					13	93.2	28.6
16				CL				
18	B4@17.5'				- gravel	20		
					Clayey Sand, medium dense, moist, dark olive brown, oxidation stains, gravel.			
20	B4@20'			SC		33	107.6	23.7

Total depth of boring: 20.5 feet
No fill.
No groundwater encountered.
Backfilled with soil cuttings and tamped.

*Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.
NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.

W1520-88-01 BORING LOGS.GPJ

Figure A4,
Log of Boring 4, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1520-88-01

BORING 5

ELEV. (MSL.) -- DATE COMPLETED **02/22/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JC**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT)*	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0					**ALLUVIUM**			
2	B5@2.5'			SM	Silty Sand with Clay, very loose, slightly moist, brown, fine- to medium-grained.	6	88.1	20.7
4					Clay, soft, slightly moist to moist, very dark gray.			
6	B5@5'			CL	- stiff	23	91.3	28.2
8	B5@7.5'				- firm, dark olive brown	16	94.3	26.7
10	B5@10'			ML	Sandy Silt, firm, slightly moist to moist, olive brown, fine-grained.	14	106.2	22.3
12	B5@12.5'					18	99.8	25.0
14					Clay, soft, moist, very dark gray.			
16	B5@15'			CL		11	87.1	37.3
18								
20	B5@20'			SW	Sand, well-graded, medium dense, slightly moist, dark yellowish brown.	47	118.2	4.5

Total depth of boring: 20.5 feet
No fill.
No groundwater encountered.
Backfilled with soil cuttings and tamped.

*Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.
NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.

W1520-88-01 BORING LOGS.GPJ

Figure A5,
Log of Boring 5, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. W1520-88-01

BORING 6

ELEV. (MSL.) - - DATE COMPLETED **02/24/2022**

EQUIPMENT **HOLLOW STEM AUGER** BY: **JC**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT)*	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	BULK 0-5'			SM	**ALLUVIUM** Silty Sand, loose, slightly moist to moist, brown.			
2	B6@2.5'					8	82.4	30.5
4	B6@5'				- grass, trace clay	8	94.7	21.5
6				CL	Silty Clay, soft, slightly moist to moist, olive brown, oxidation stains.			
8	B6@7.5'					10	91.8	28.3
10	B6@10'			CL	Clay, firm, moist, very dark gray.	13	89.6	33.4
12	B6@12.5'			CL	Silty Clay, soft, slightly moist to moist, very dark gray, oxidation stains.	11	103.4	21.0
14	B6@15'			SC	Clayey Sand, medium dense, slightly moist to moist, dark gray, oxidation stains, gravel.	49	124.7	12.0
16								
18	B6@17.5'			SW	Sand, well-graded, dense, slightly moist to moist, light olive brown, oxidation stains, gravel.	75	122.9	2.9
20	B6@20'					65	111.9	2.2

Total depth of boring: 20.5 feet
No fill.
No groundwater encountered.
Backfilled with soil cuttings and tamped.

*Penetration resistance for 140-pound hammer falling 30 inches by auto-hammer.
NOTE: The stratification lines presented herein represent the approximate boundary between earth types; the transitions may be gradual.

W1520-88-01 BORING LOGS.GPJ

Figure A6,
Log of Boring 6, Page 1 of 1

SAMPLE SYMBOLS

- ☐ ... SAMPLING UNSUCCESSFUL
- ◧ ... STANDARD PENETRATION TEST
- ■ ... DRIVE SAMPLE (UNDISTURBED)
- ⊠ ... DISTURBED OR BAG SAMPLE
- ◪ ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

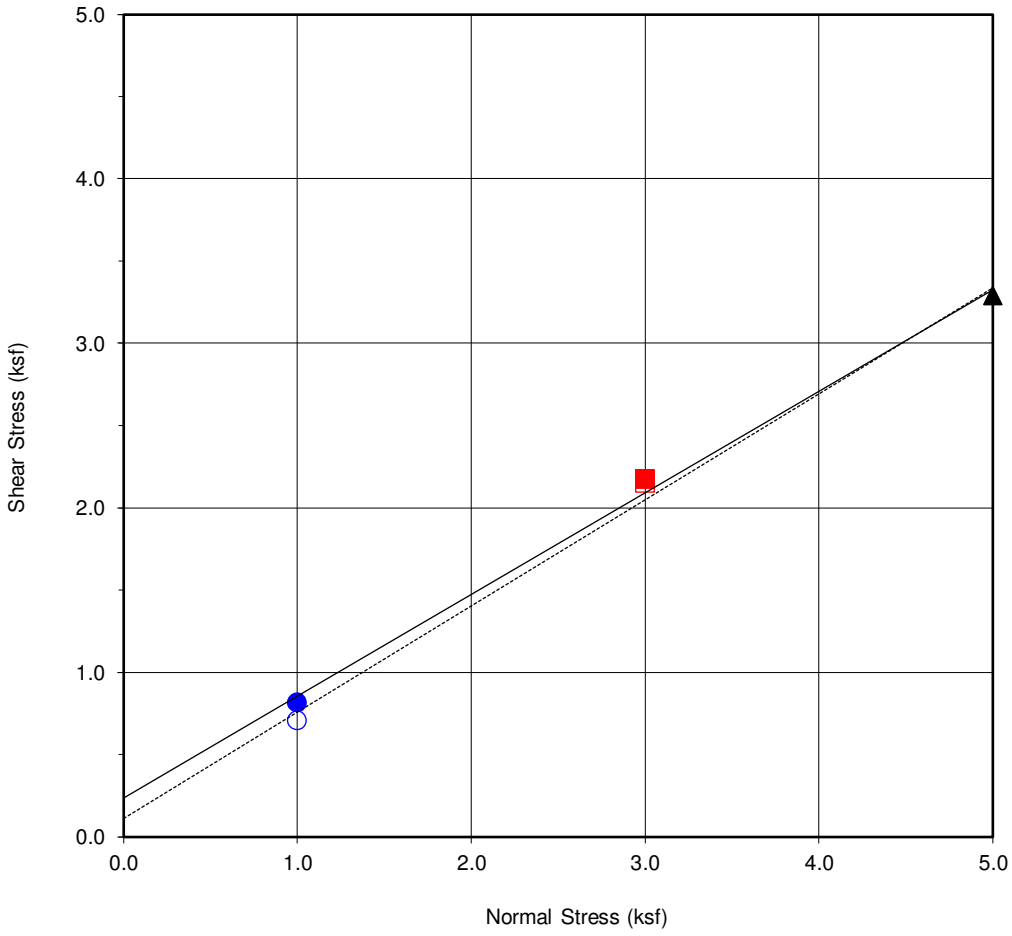
GEOCON

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)", or other suggested procedures. Selected samples were tested for direct shear strength, Atterberg Limits, grain size analysis, moisture density relationship, expansion and consolidation characteristics, corrosivity and in-place dry density and moisture content. The results of the laboratory tests are summarized in Figures B1 through B14. The in-place dry density and moisture content of the samples tested are presented on the boring logs, Appendix A.



Boring No.	**B1 + B6**
Sample No.	**B1B6@0-5'**
Depth (ft)	**0-5'**
Sample Type:	Ring

Soil Identification:		
Silty Sand (SM)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	238	31.7
Ultimate	113	32.8

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.82	■ 2.17	▲ 3.29
Shear Stress @ End of Test (ksf)	○ 0.71	□ 2.15	△ 3.29
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	30.9	30.4	34.7
Initial Dry Density (pcf)	93.6	94.2	88.7
Initial Degree of Saturation (%)	104.0	104.0	104.0
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	37.8	35.0	42.5

GEOCON

DIRECT SHEAR TEST RESULTS

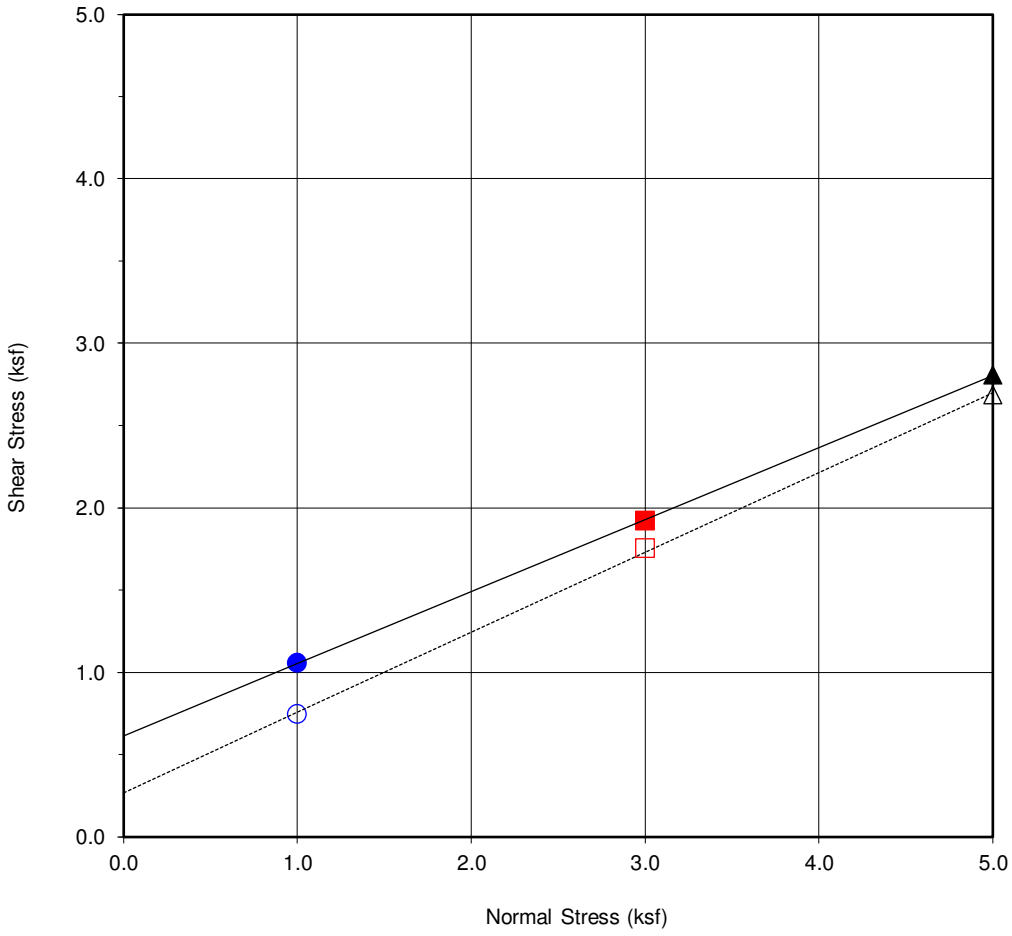
Consolidated Drained ASTM D-3080

Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B1



Boring No.	**B1**
Sample No.	**B1@7.5'**
Depth (ft)	**7.5'**
Sample Type:	Ring

Soil Identification:		
Clay (CL)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	614	23.7
Ultimate	270	25.9

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 1.06	■ 1.92	▲ 2.81
Shear Stress @ End of Test (ksf)	○ 0.74	□ 1.75	△ 2.69
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	31.6	30.1	28.8
Initial Dry Density (pcf)	87.8	90.9	93.7
Initial Degree of Saturation (%)	92.7	95.1	97.3
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	34.1	30.6	28.4

GEOCON

DIRECT SHEAR TEST RESULTS

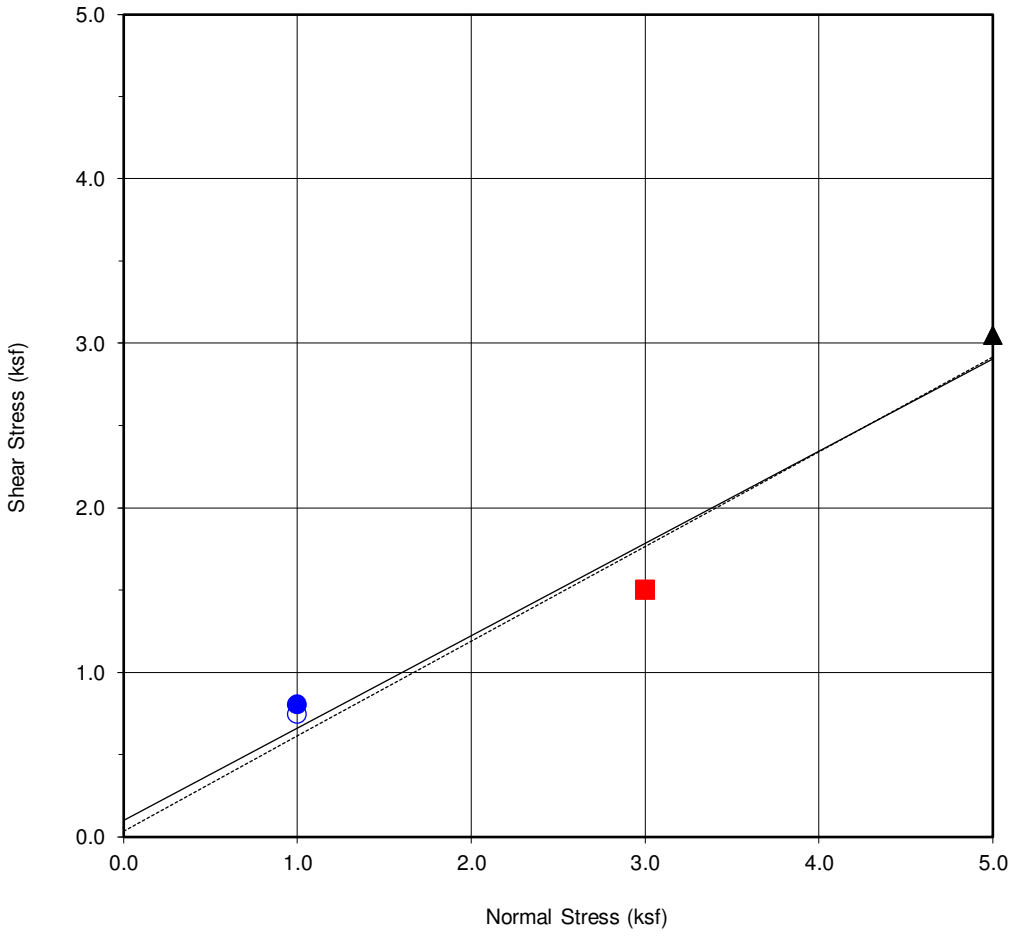
Consolidated Drained ASTM D-3080

Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B2



Boring No.	**B-2**
Sample No.	**B2@2.5'**
Depth (ft)	**2.5'**
Sample Type:	Ring

Soil Identification:		
Silty Sand (SM)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	101	29.3
Ultimate	36	29.9

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.80	■ 1.50	▲ 3.05
Shear Stress @ End of Test (ksf)	○ 0.74	□ 1.50	△ 3.05
Deformation Rate (in./min.)	0.01	0.01	0.01
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	23.8	20.9	22.2
Initial Dry Density (pcf)	93.1	90.9	93.0
Initial Degree of Saturation (%)	79.1	66.2	73.9
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	27.5	26.5	25.5

GEOCON

DIRECT SHEAR TEST RESULTS

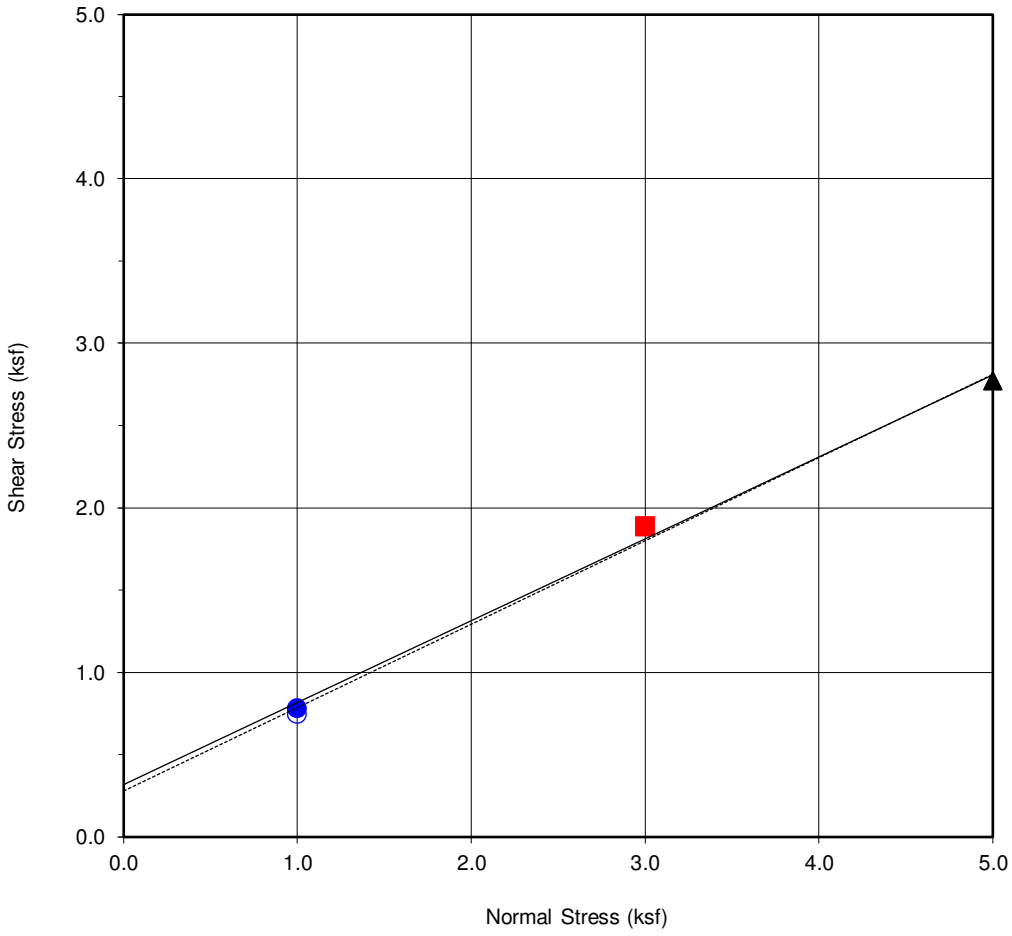
Consolidated Drained ASTM D-3080

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Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B3



Boring No.	**B-3**
Sample No.	**B3@0-5'**
Depth (ft)	**0-5'**
Sample Type:	Ring

Soil Identification:		
Clay (CL)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	318	26.5
Ultimate	279	26.9

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.78	■ 1.88	▲ 2.77
Shear Stress @ End of Test (ksf)	○ 0.74	□ 1.88	△ 2.77
Deformation Rate (in./min.)	0.01	0.01	0.01
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	15.5	16.1	16.5
Initial Dry Density (pcf)	105.3	104.6	104.2
Initial Degree of Saturation (%)	69.8	71.1	72.0
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	23.7	23.8	23.3

GEOCON

DIRECT SHEAR TEST RESULTS

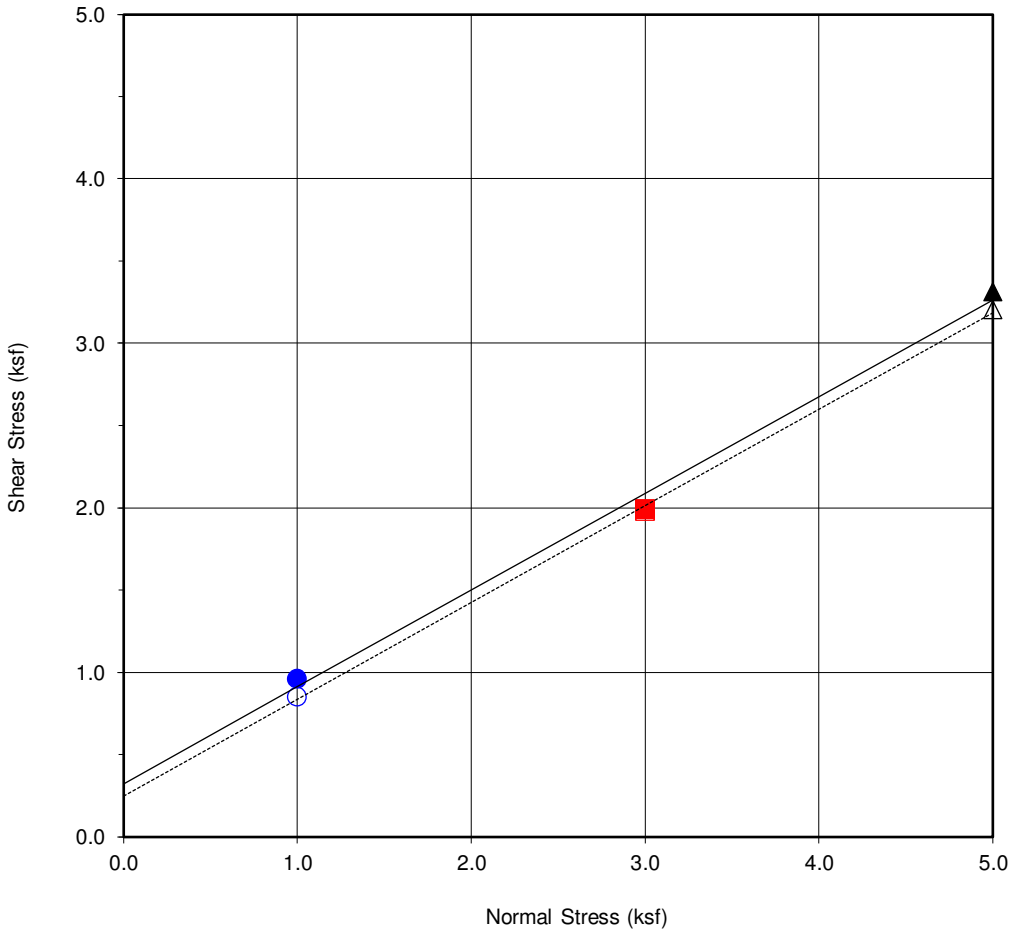
Consolidated Drained ASTM D-3080

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Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B4



Boring No.	**B-4**
Sample No.	**B4@2.5'**
Depth (ft)	**2.5'**
Sample Type:	Ring

Soil Identification:		
Silty Sand (SM)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	324	30.5
Ultimate	248	30.5

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.96	■ 1.99	▲ 3.31
Shear Stress @ End of Test (ksf)	○ 0.85	□ 1.98	△ 3.20
Deformation Rate (in./min.)	0.01	0.01	0.01
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	21.9	18.0	22.2
Initial Dry Density (pcf)	99.7	99.7	98.9
Initial Degree of Saturation (%)	85.9	70.4	85.2
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	24.3	22.3	21.6

GEOCON

DIRECT SHEAR TEST RESULTS

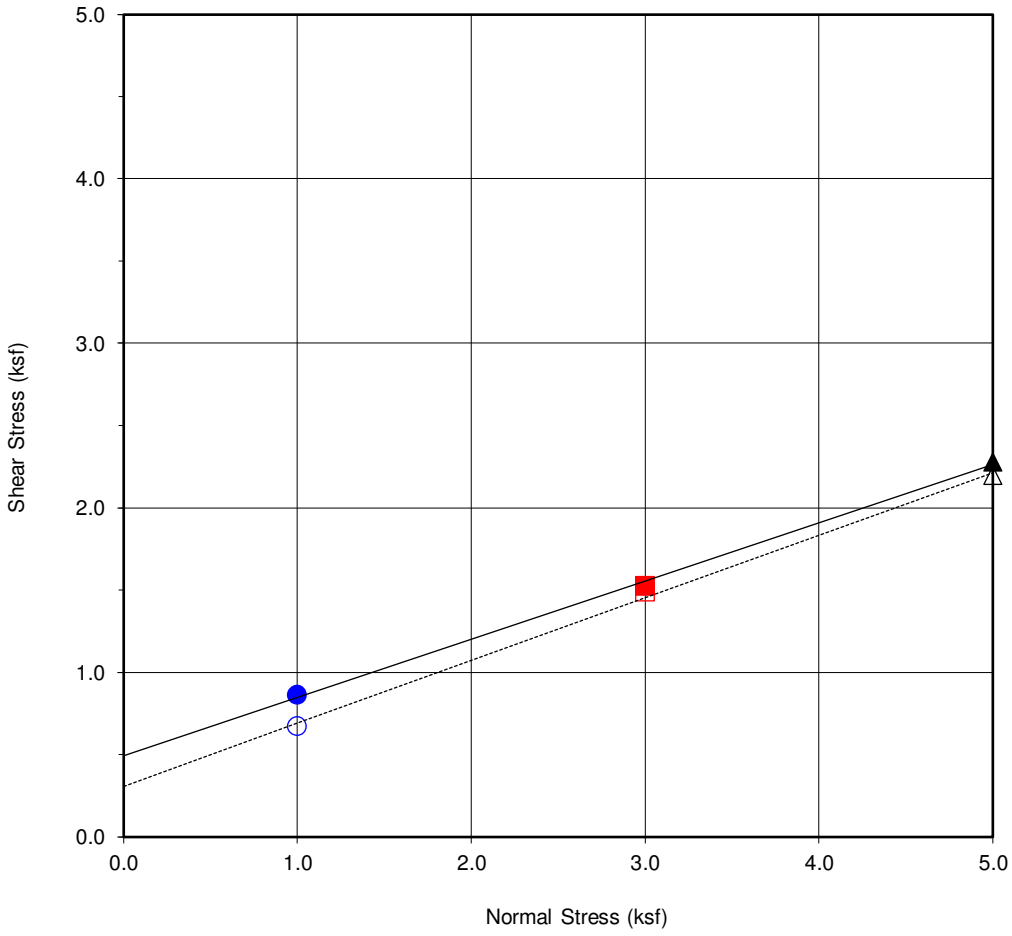
Consolidated Drained ASTM D-3080

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Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B5



Boring No.	**B-4**
Sample No.	**B4@5'**
Depth (ft)	**5'**
Sample Type:	Ring

Soil Identification:		
Clay (CL)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	494	19.5
Ultimate	309	20.9

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.86	■ 1.52	▲ 2.28
Shear Stress @ End of Test (ksf)	○ 0.67	□ 1.49	△ 2.20
Deformation Rate (in./min.)	0.01	0.01	0.01
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	35.5	36.0	35.0
Initial Dry Density (pcf)	83.5	83.5	82.1
Initial Degree of Saturation (%)	94.2	95.4	89.9
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	37.5	36.8	33.9

GEOCON

DIRECT SHEAR TEST RESULTS

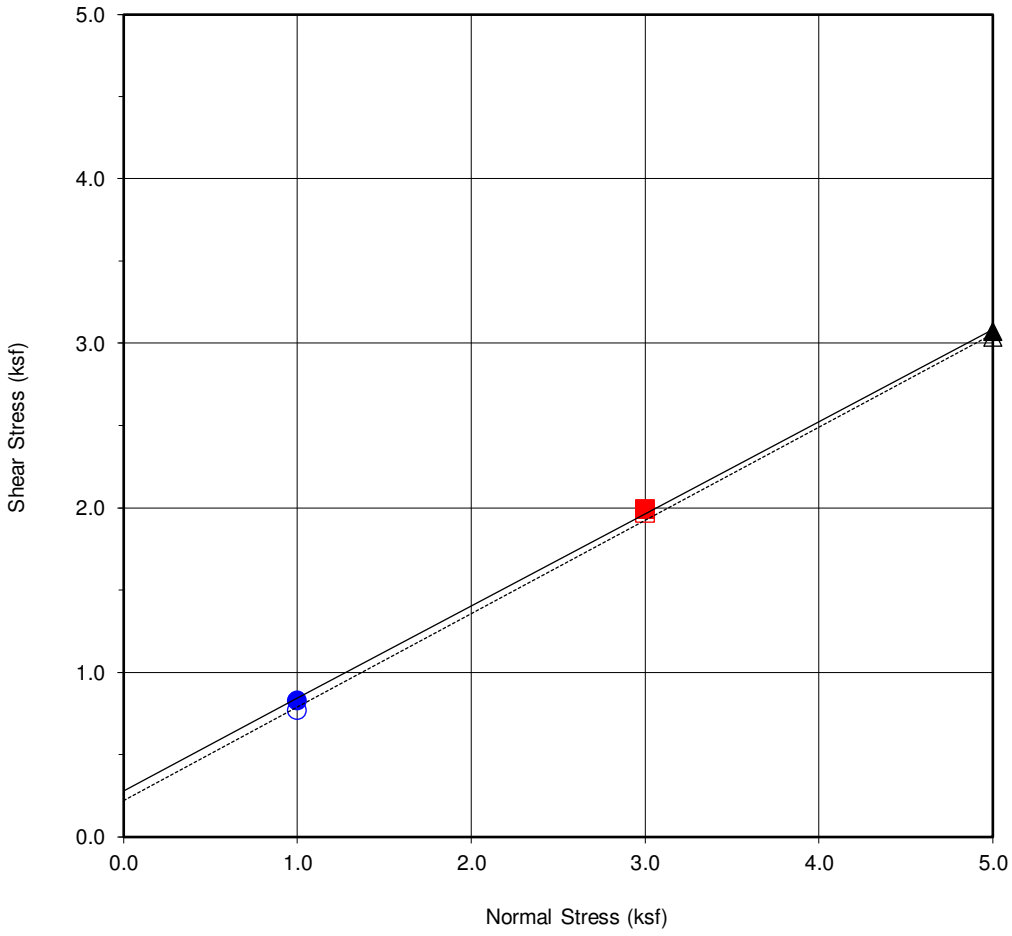
Consolidated Drained ASTM D-3080

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Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B6



Boring No.	**B-5**
Sample No.	**B5@2.5'**
Depth (ft)	**2.5'**
Sample Type:	Ring

Soil Identification:		
Silty Sand (SM)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	281	29.3
Ultimate	223	29.6

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.83	■ 1.99	▲ 3.07
Shear Stress @ End of Test (ksf)	○ 0.77	□ 1.97	△ 3.04
Deformation Rate (in./min.)	0.01	0.01	0.01
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	27.7	32.9	30.1
Initial Dry Density (pcf)	93.9	86.2	87.1
Initial Degree of Saturation (%)	93.9	92.9	86.7
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	29.5	32.9	30.0

GEOCON

DIRECT SHEAR TEST RESULTS

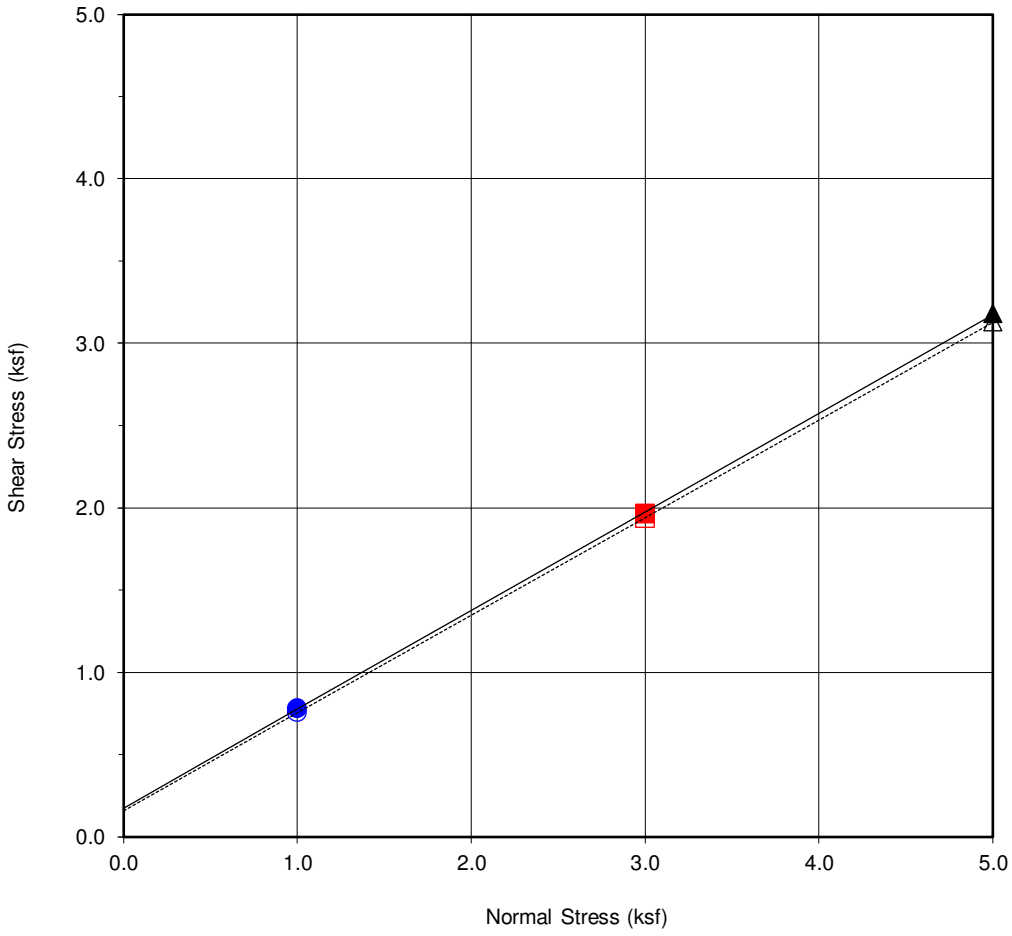
Consolidated Drained ASTM D-3080

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Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B7



Boring No.	**B6**
Sample No.	**B6@7.5'**
Depth (ft)	**7.5**
Sample Type:	Ring

Soil Identification:		
Clay (CL)		
Strength Parameters		
	C (psf)	ϕ (^{o})
Peak	177	30.9
Ultimate	162	30.7

Normal Strest (kip/ft2)	1	3	5
Peak Shear Stress (kip/ft²)	● 0.78	■ 1.96	▲ 3.18
Shear Stress @ End of Test (ksf)	○ 0.76	□ 1.94	△ 3.13
Deformation Rate (in./min.)	0.05	0.05	0.05
Initial Sample Height (in.)	1.0	1.0	1.0
Ring Inside Diameter (in.)	2.375	2.375	2.375
Initial Moisture Content (%)	27.3	28.2	32.5
Initial Dry Density (pcf)	93.6	92.5	89.0
Initial Degree of Saturation (%)	92.1	92.7	98.2
Soil Height Before Shearing (in.)	1.2	1.2	1.2
Final Moisture Content (%)	29.3	29.2	30.6

GEOCON

DIRECT SHEAR TEST RESULTS

Consolidated Drained ASTM D-3080

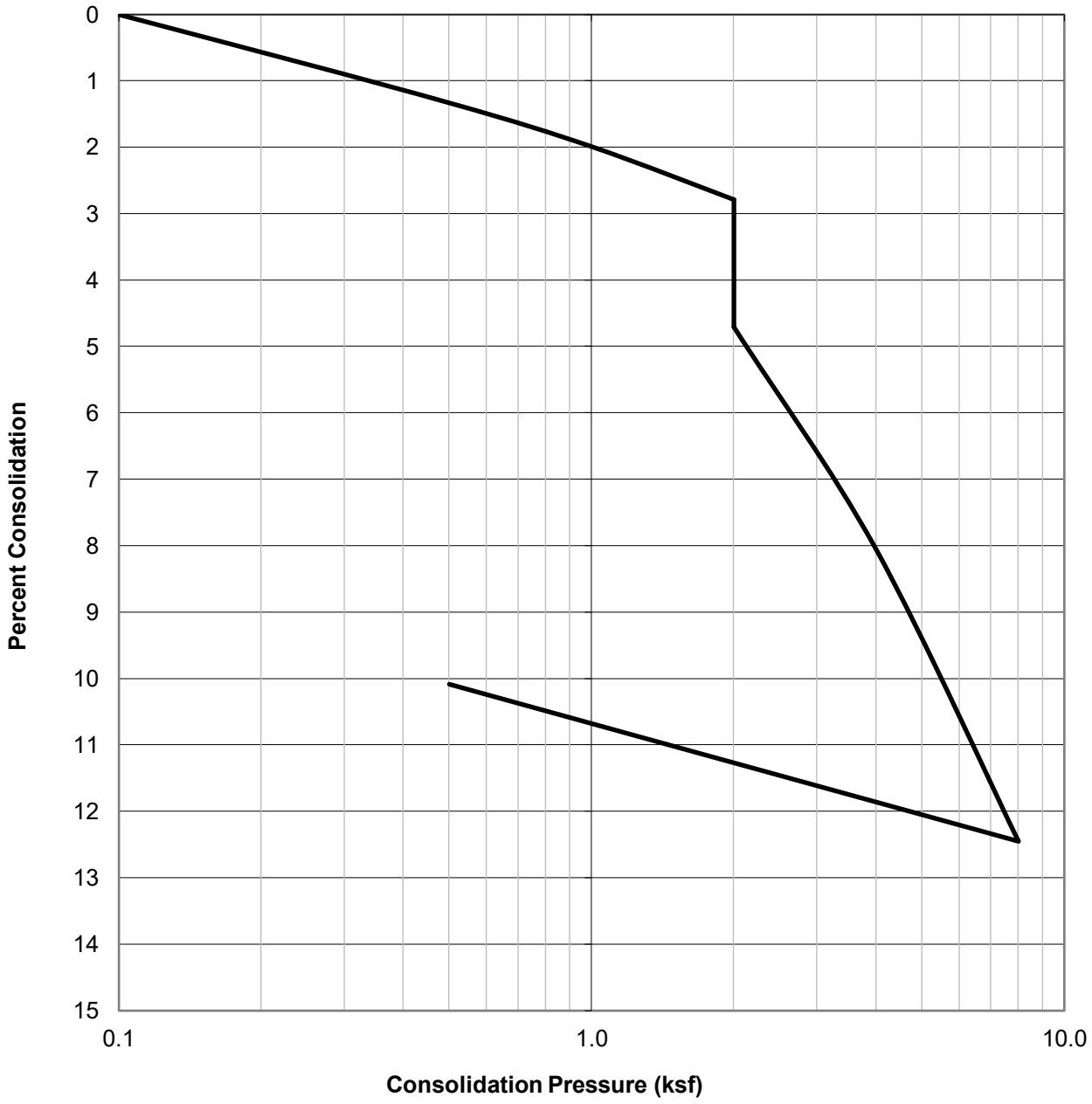
Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B8

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@5	Sandy Clay (CL)	87.7	20.6	26.4

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

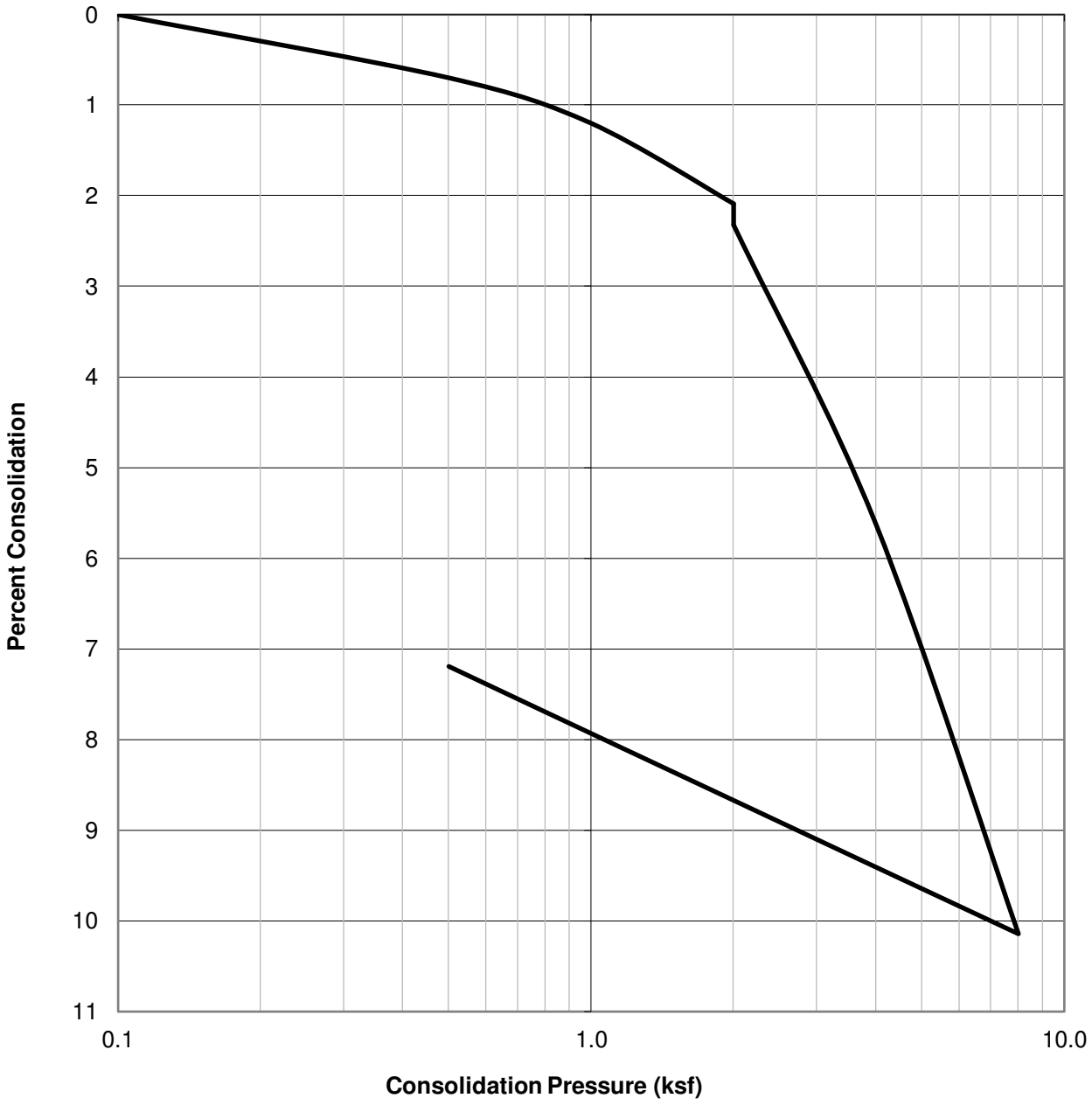
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Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B9

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@7.5	Clay (CL)	81.3	32.5	33.2

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

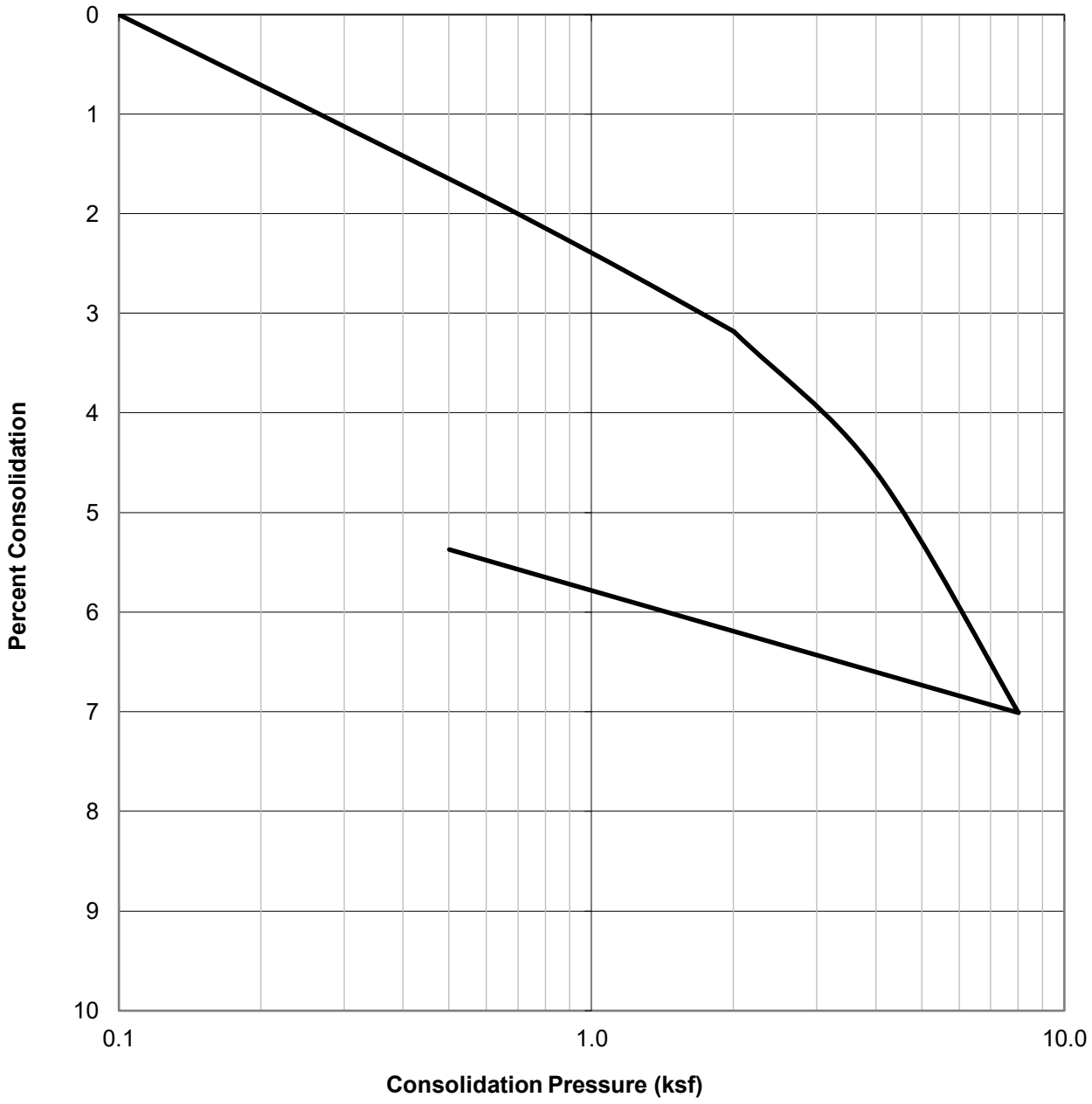
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Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B10

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@10	Clayey Silt (ML)	87.9	33.5	31.2

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

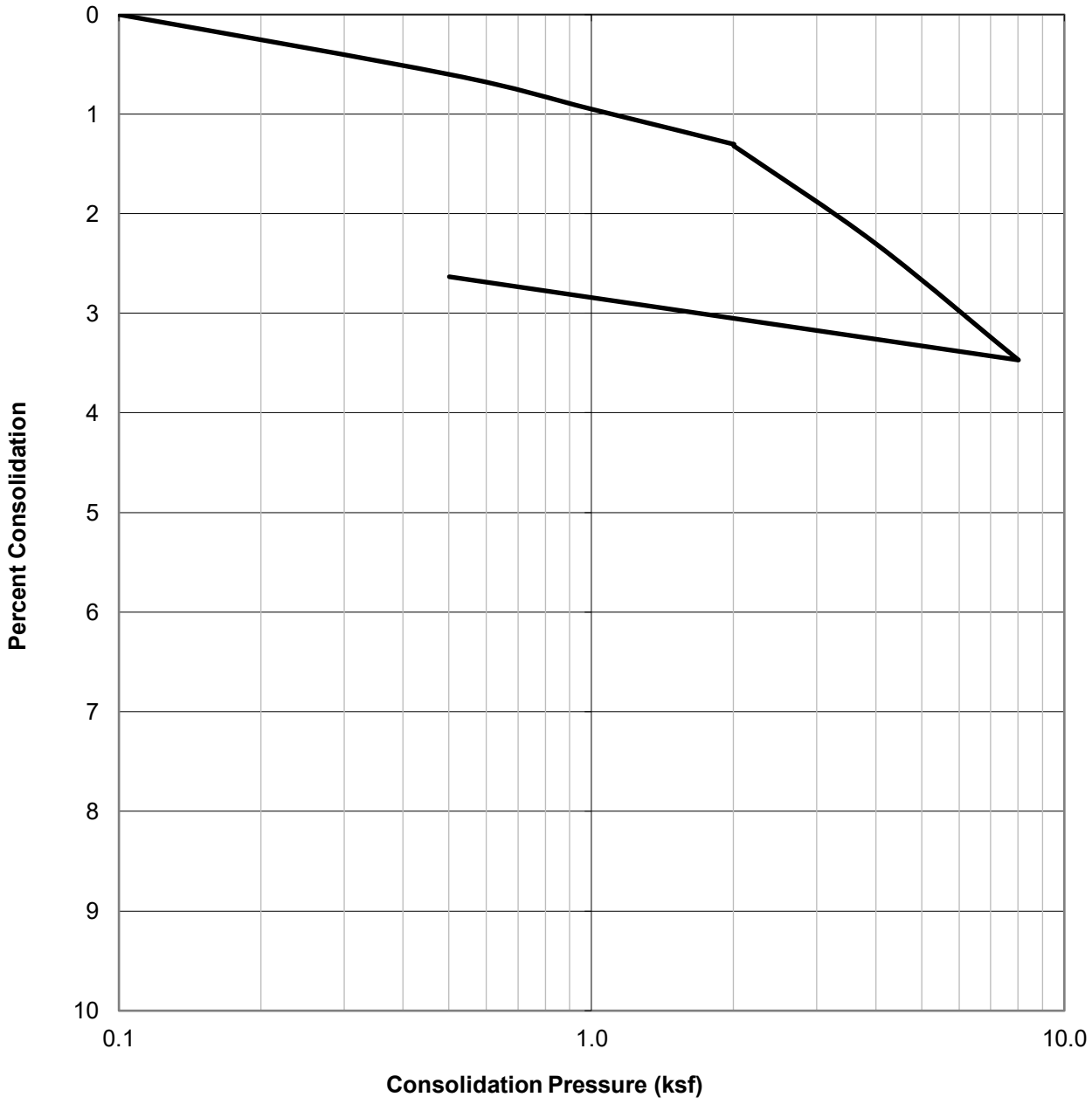
Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B11

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@12.5	Clay (CL)	103.3	20.0	20.0

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

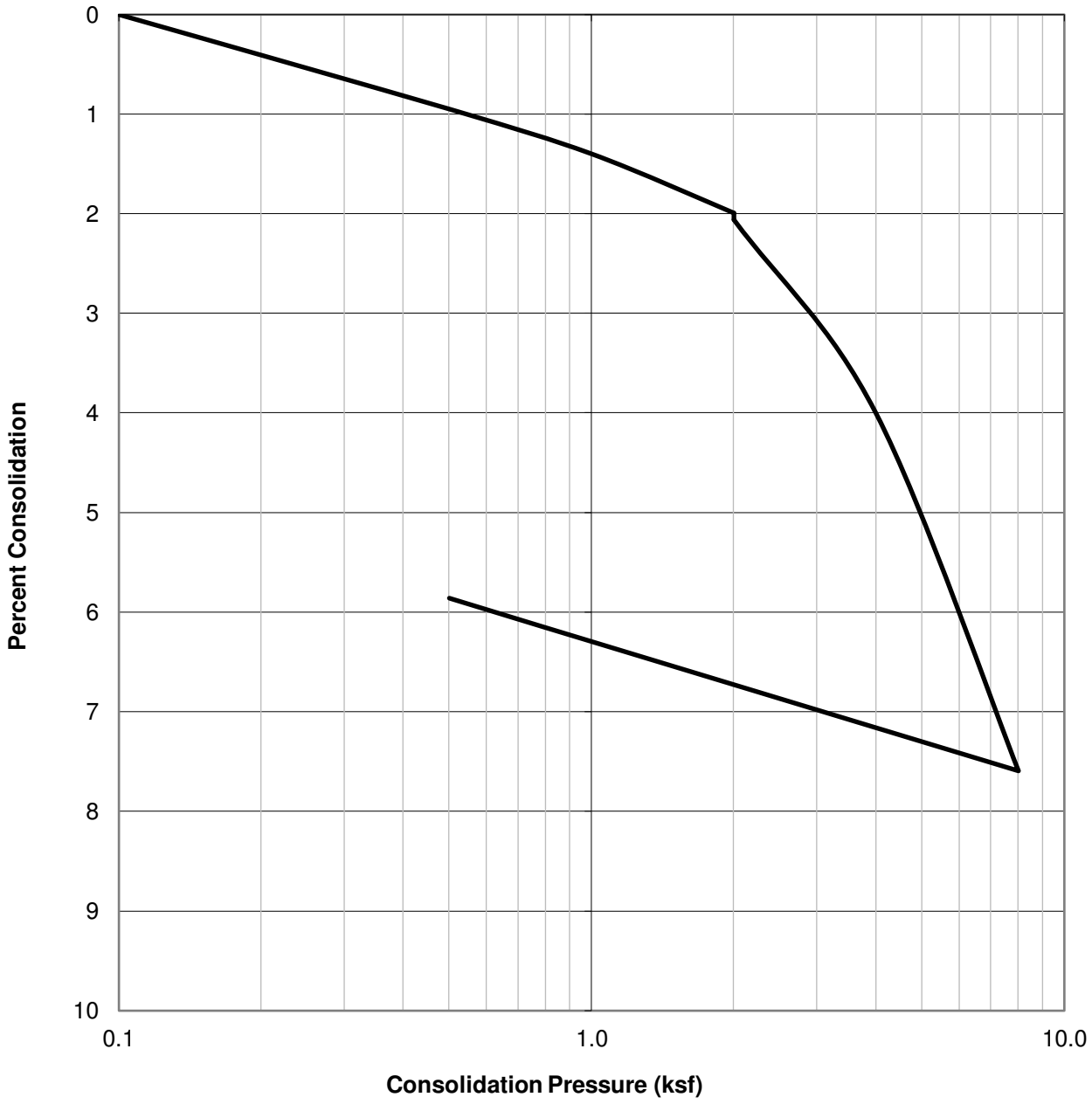
Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B12

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B1@15	Clay (CL)	94.6	23.7	25.5

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

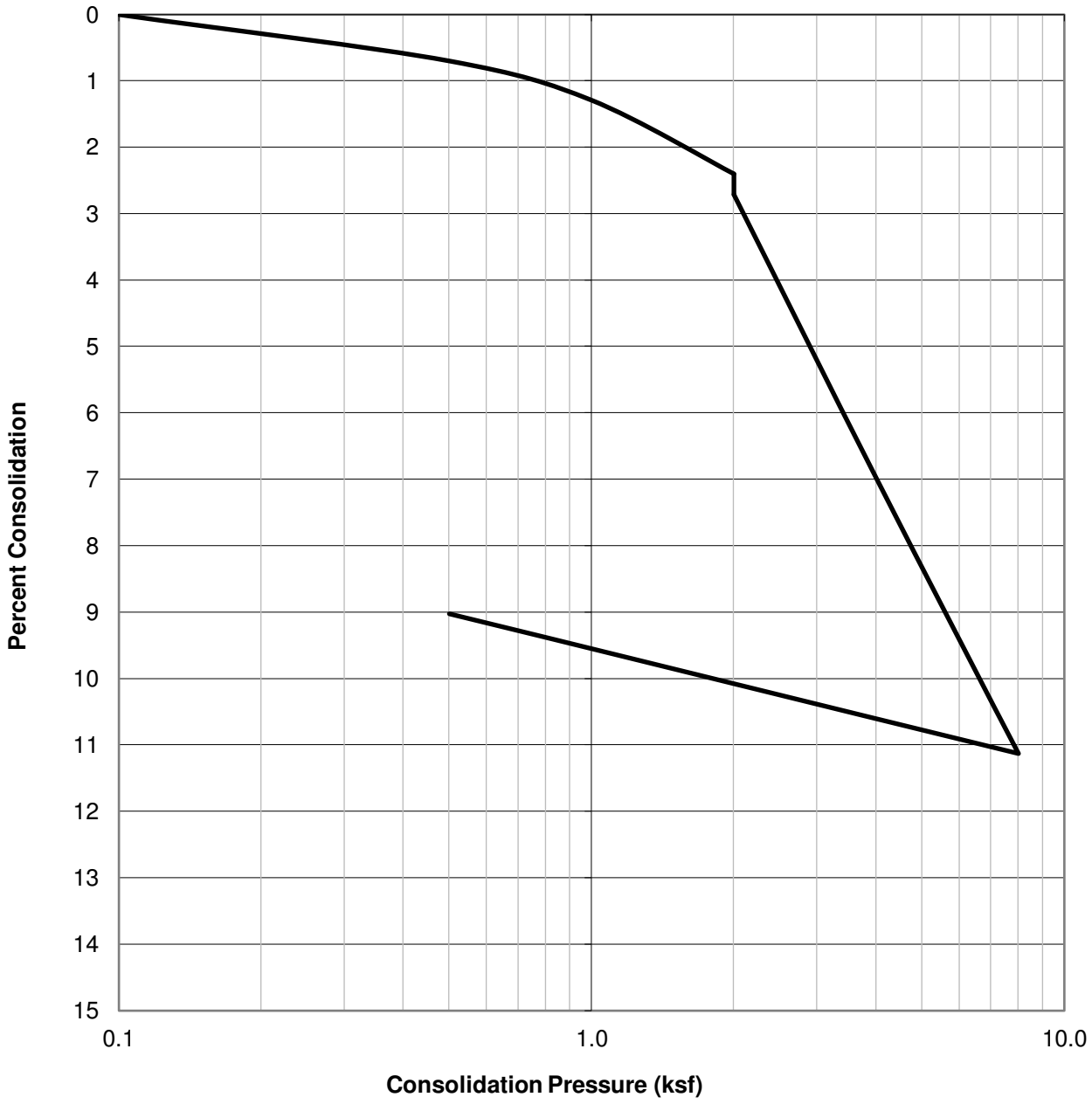
Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B13

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B3@5	Clay (CL)	86.6	27.9	29.3

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

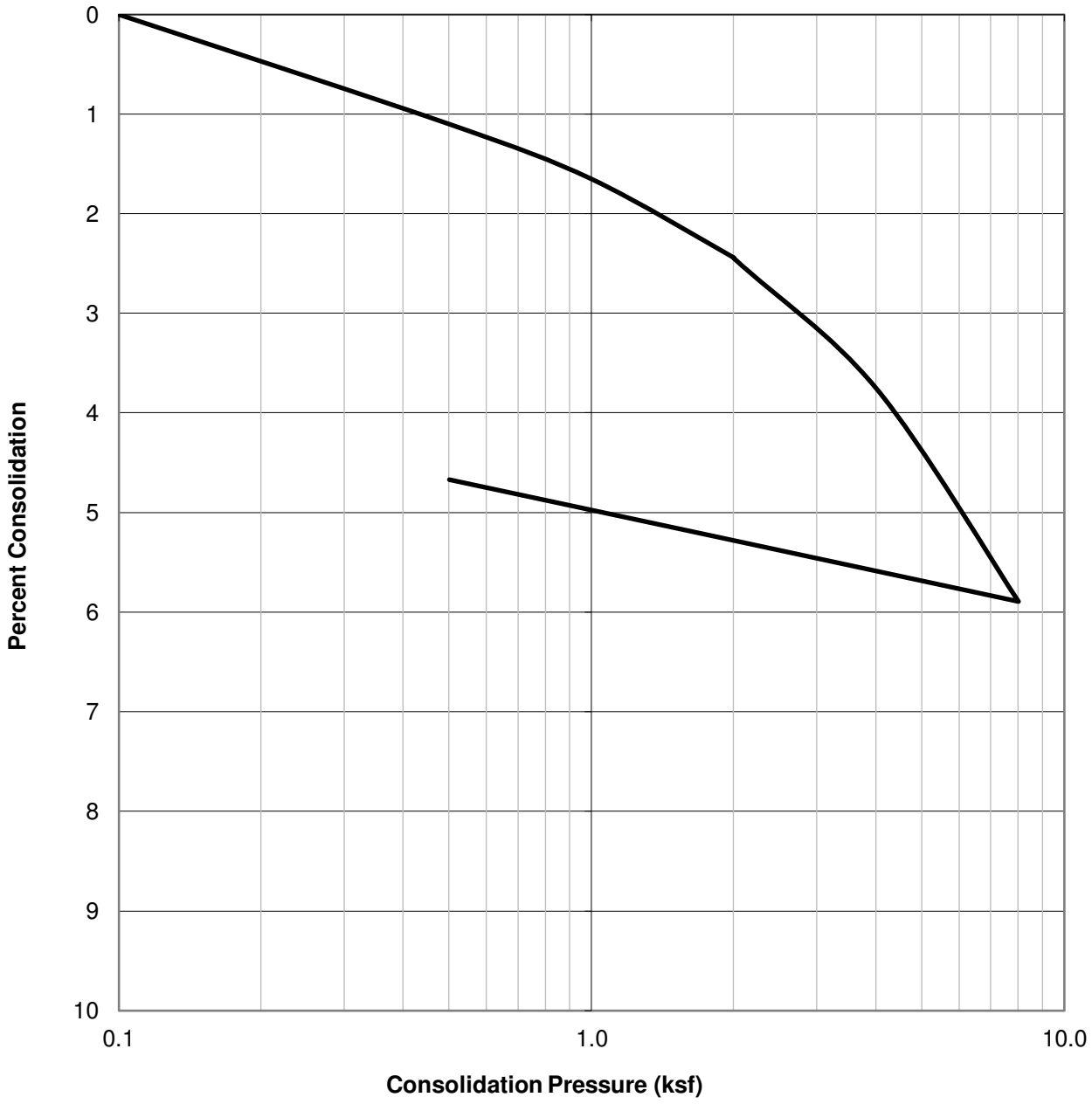
Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B14

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B3@10	Silt with Clay (ML)	92.7	29.5	28.4

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

Checked by: JC

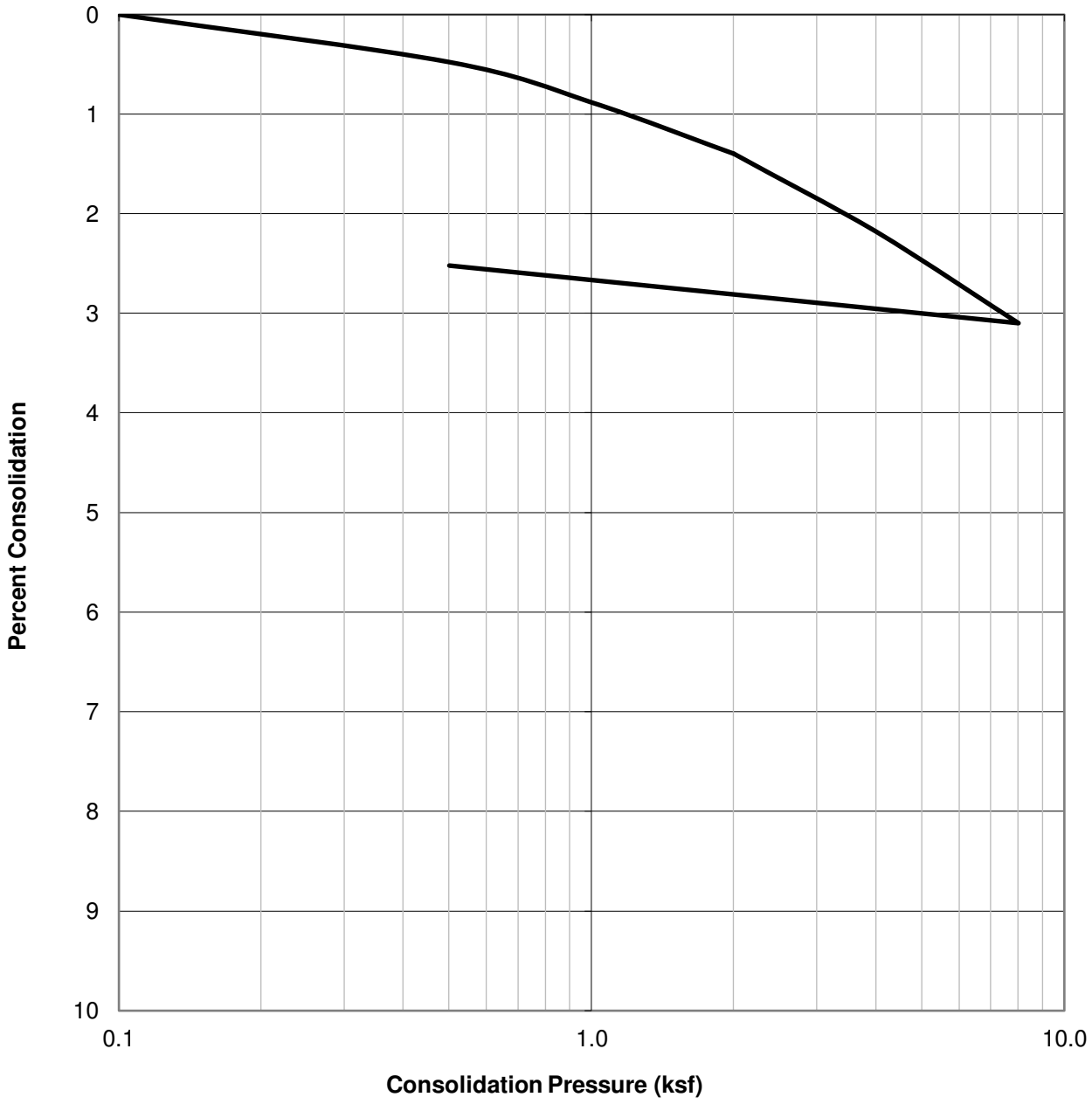
Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022

Figure B15

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B4@12.5'	Clayey Silt (ML)	105.5	22.0	20.7

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

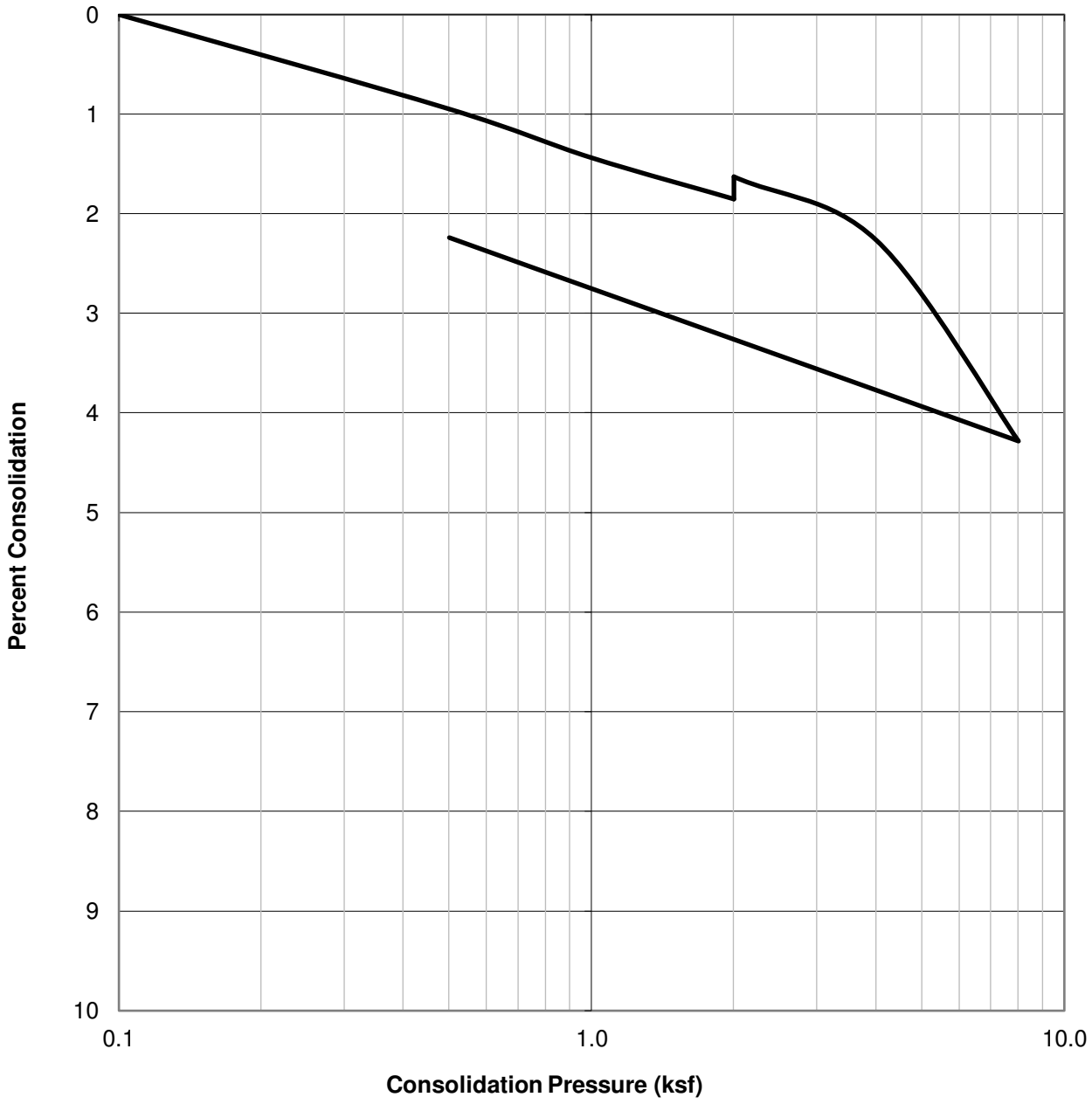
Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B16

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B4@15	Clay (CL)	93.9	28.6	28.3

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

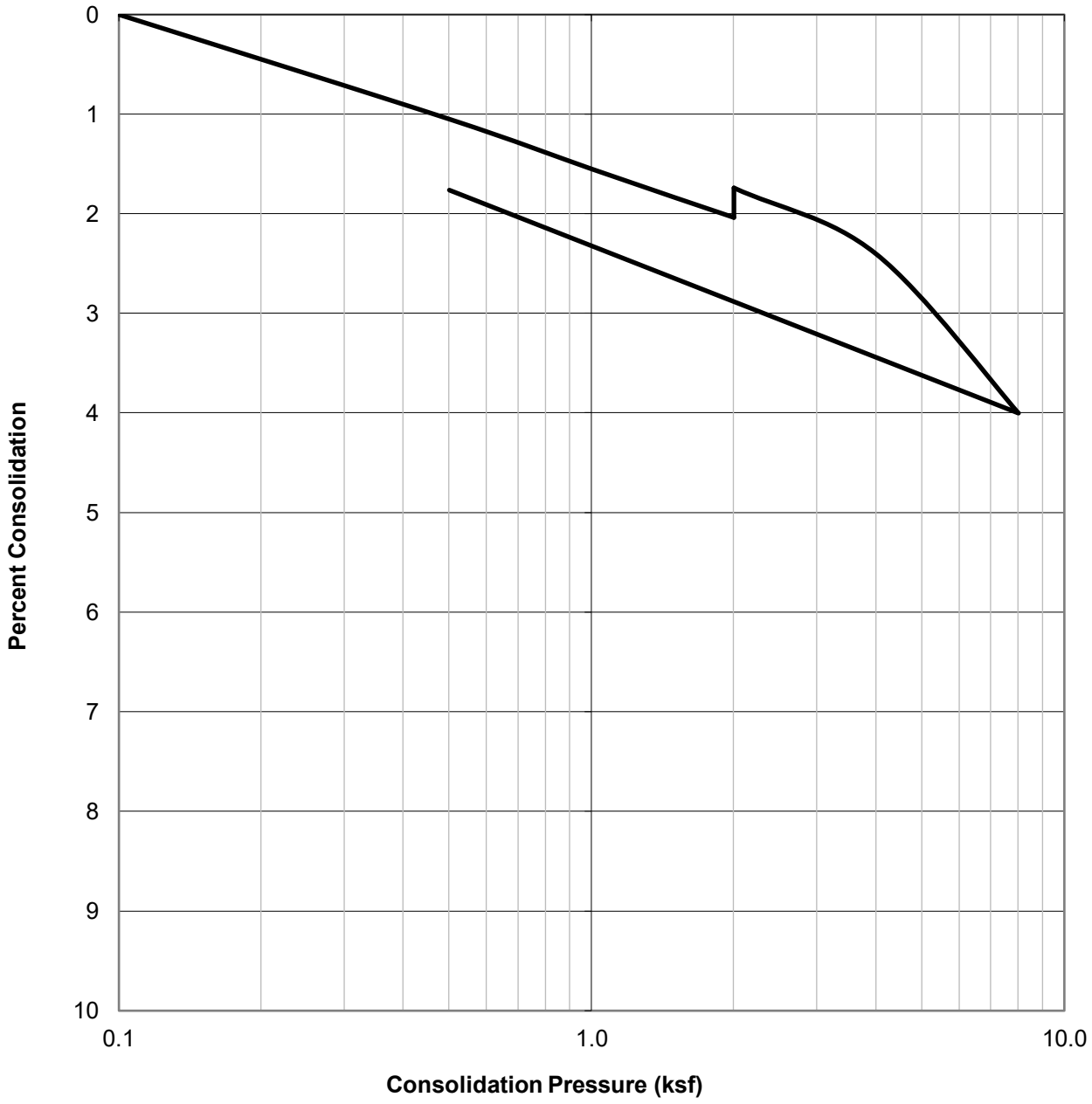
Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B17

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B4@20	Clayey Sand (SC)	100.8	23.7	24.1

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

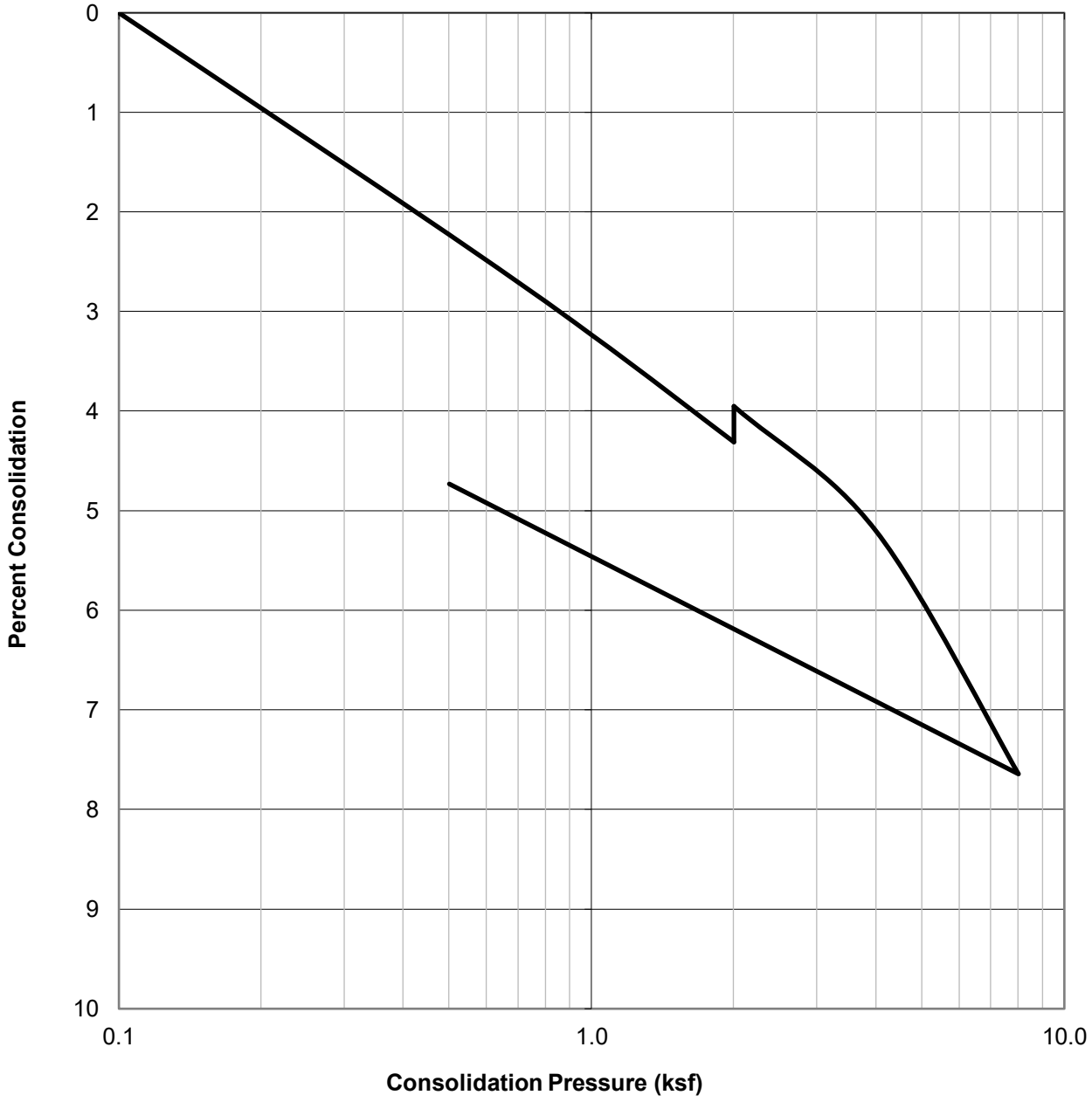
Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B18

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B5@15	Very Dark Gray Clay (CL)	84.1	37.4	35.7

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

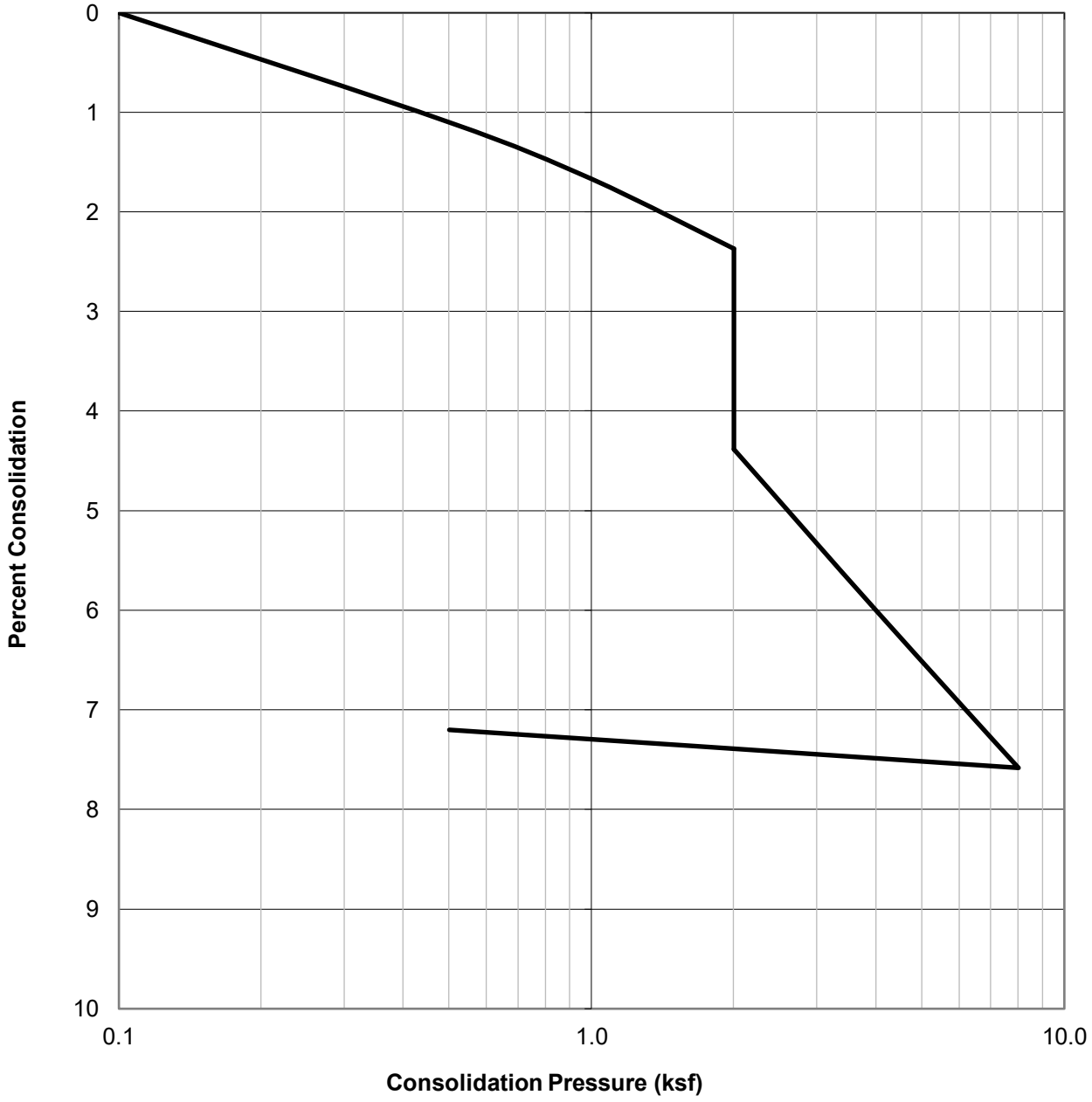
Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B19

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B5@20'	Well Graded Sand (SW)	115.4	4.5	13.2

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

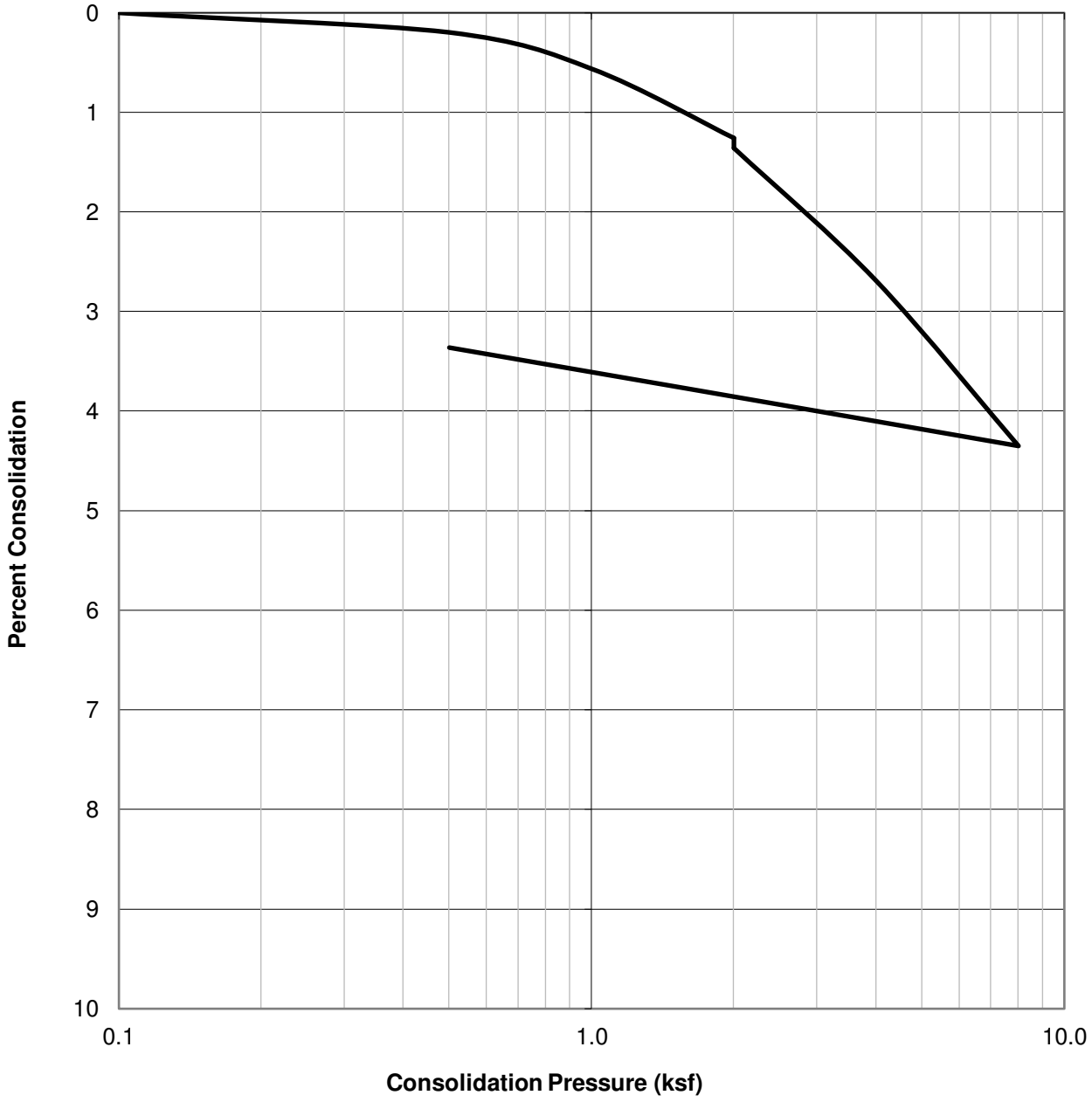
Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B20

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B6@5'	Silty Sand (SM)	93.0	21.5	26.6

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

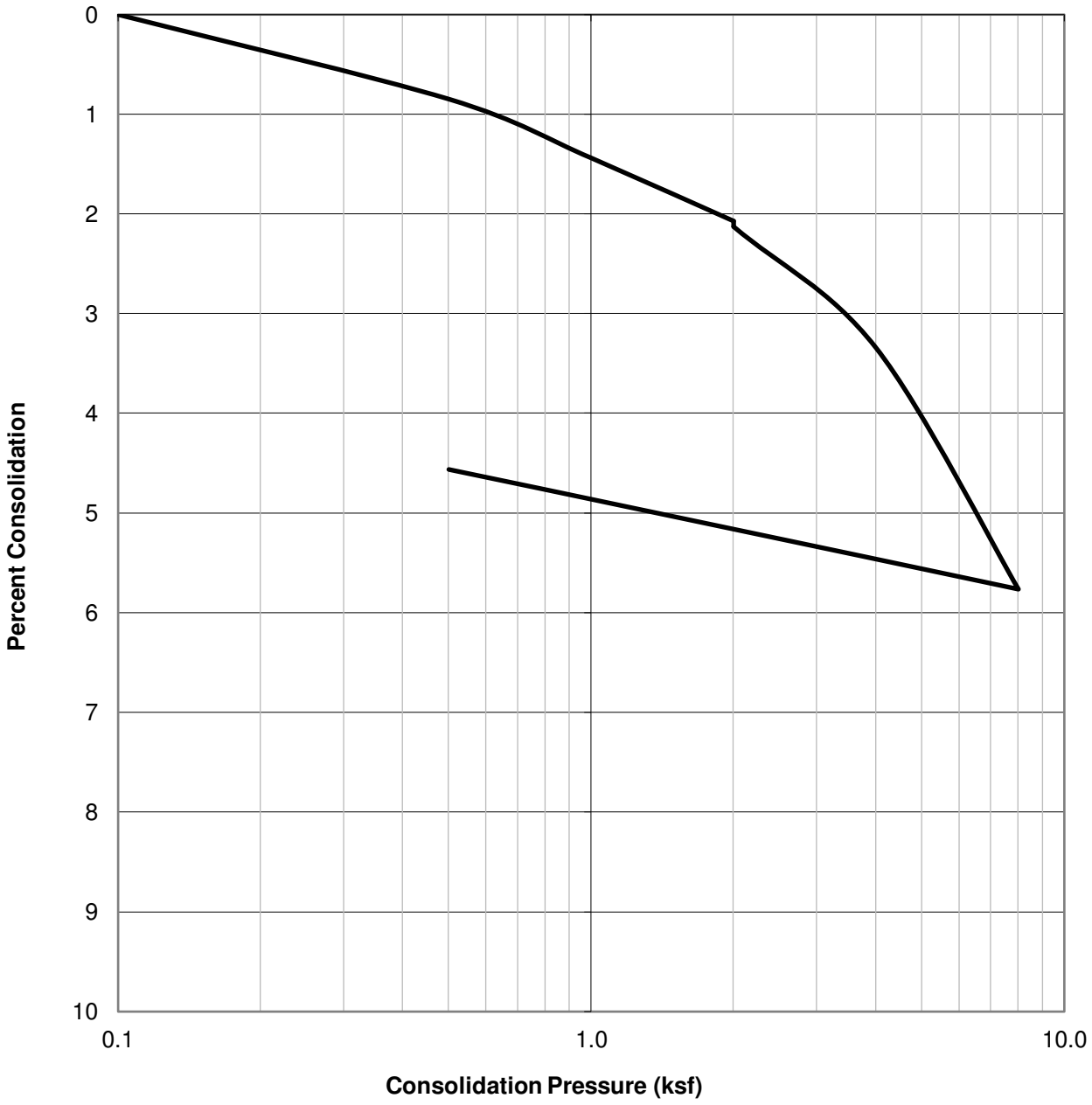
Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B21

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B6@7.5	Silty Clay (CL)	90.8	28.3	27.5

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CONSOLIDATION TEST RESULTS

ASTM D-2435

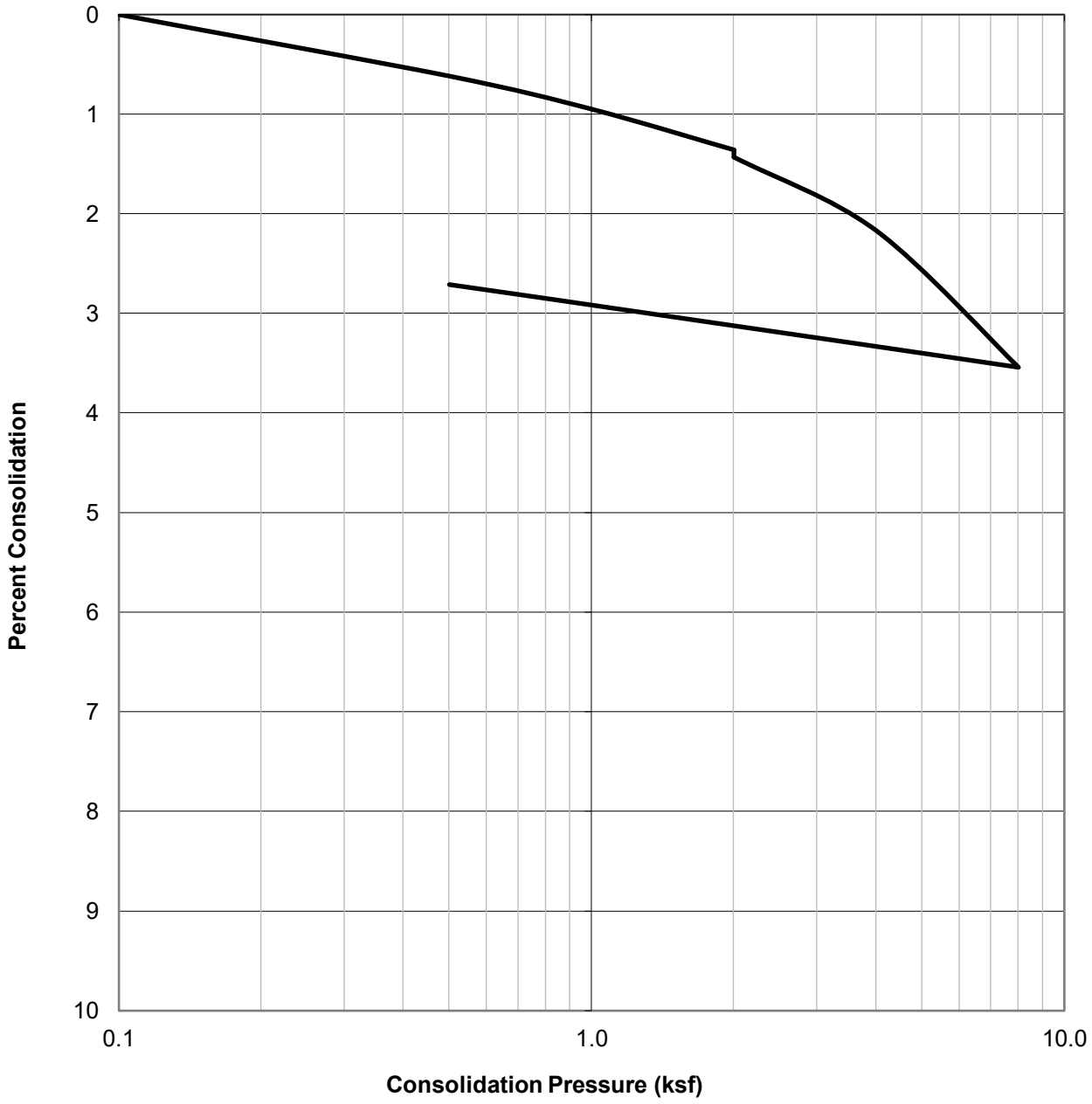
Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B22

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B6@12.5'	Silty Clay (CL)	101.4	21.0	21.7

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

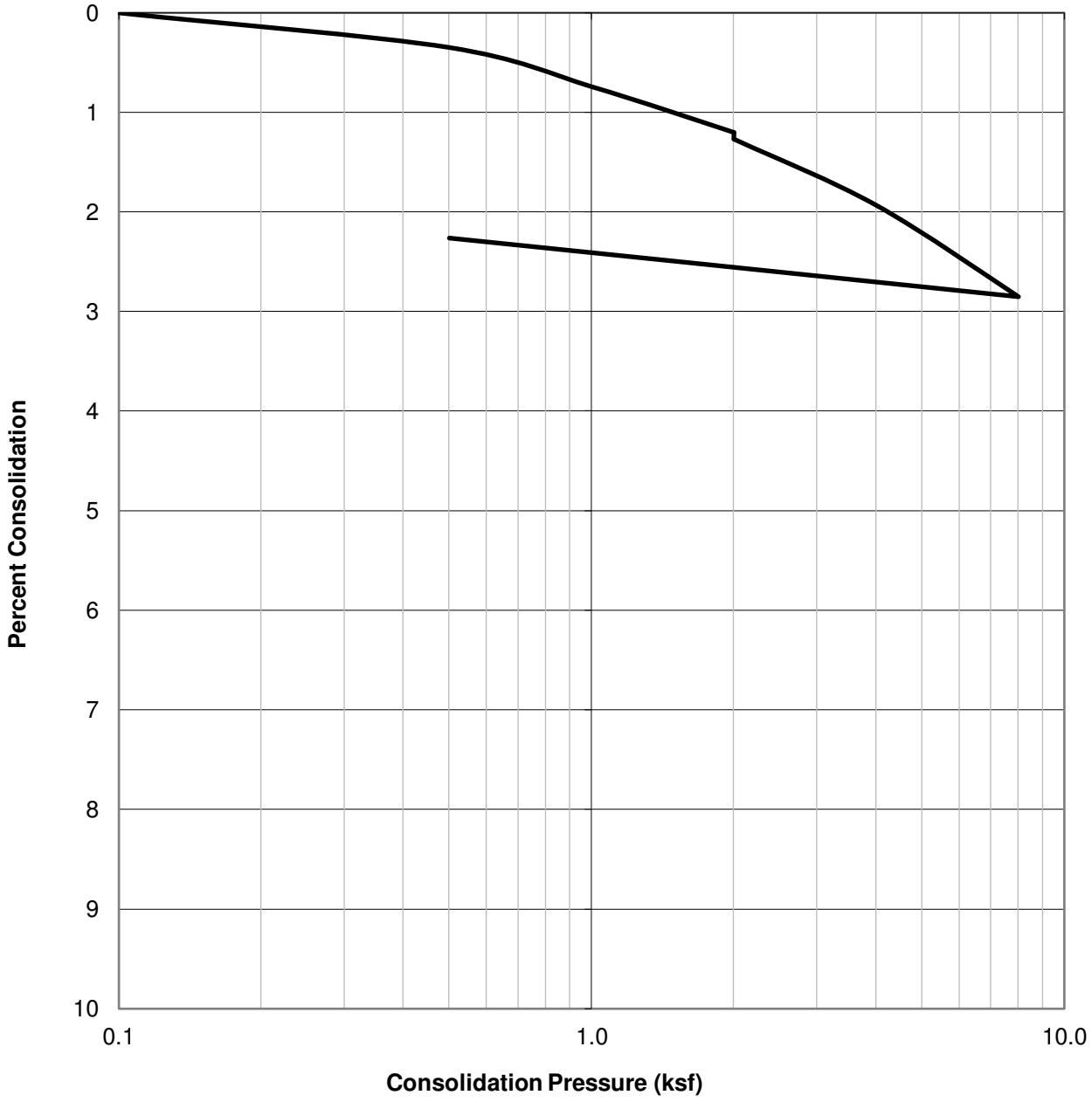
Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B23

WATER ADDED AT 2.0 KSF



SAMPLE ID.	SOIL TYPE	DRY DENSITY (PCF)	INITIAL MOISTURE (%)	FINAL MOISTURE (%)
B6@15'	Clayey Sand (SC)	121.5	12.0	13.1

GEOCON

CONSOLIDATION TEST RESULTS

ASTM D-2435

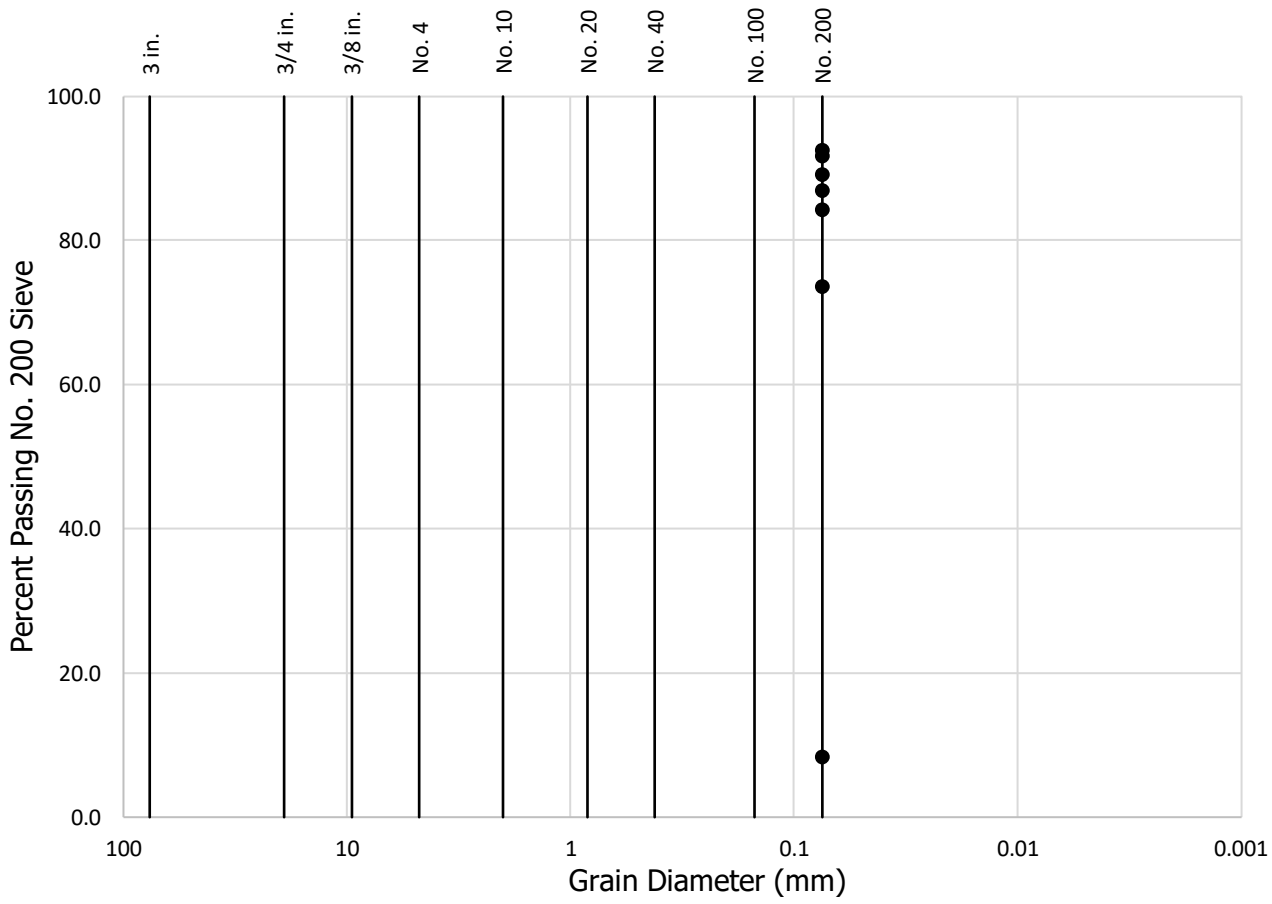
Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B24

GRAVEL		SAND			SILT AND CLAY
COARSE	FINE	COARSE	MEDIUM	FINE	



Sample No.	Percent Passing No. 200 Sieve
B3 @ 7'	91.7
B3 @ 10'	92.5
B3 @ 12'	73.6
B3 @ 15'	84.2
B3 @ 17'	86.9
B3 @ 17'	89.1
B3 @ 22'	8.4

GEOCON

GRAIN SIZE ANALYSIS

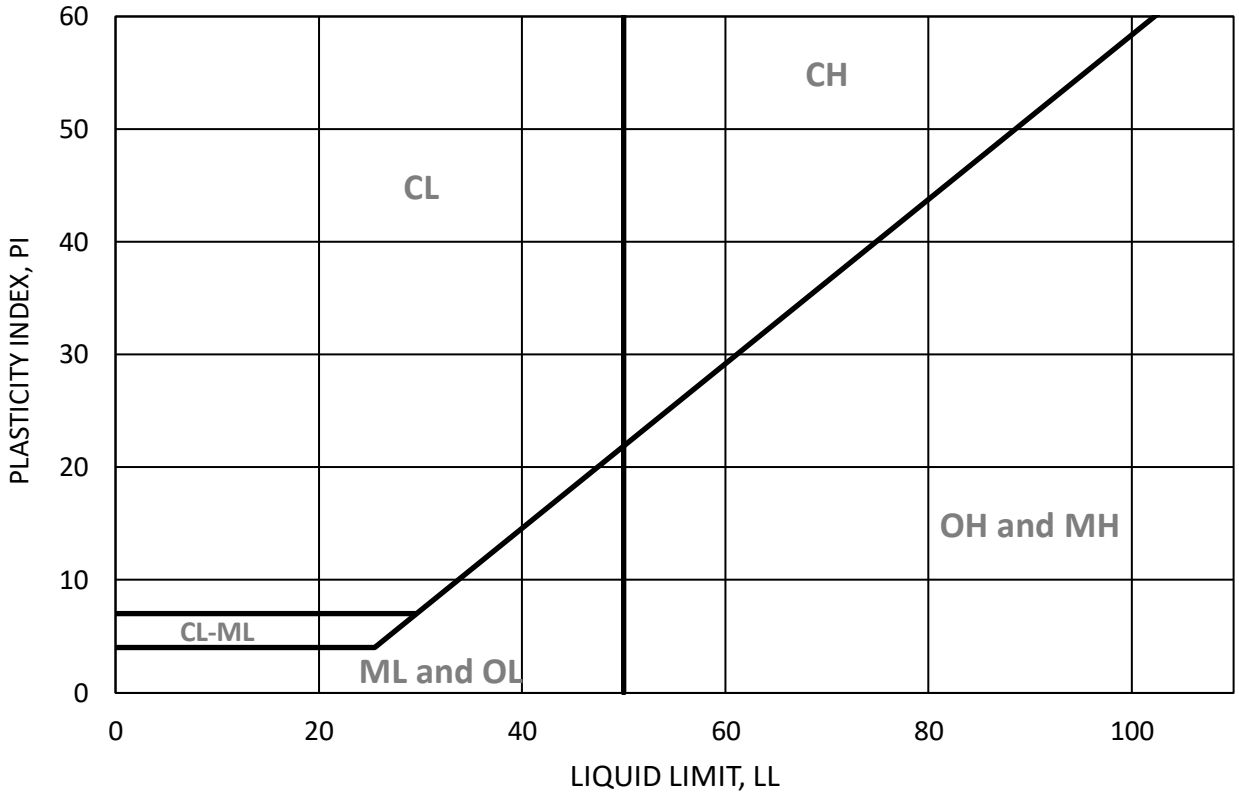
ASTM D-1140

Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B25



SYMBOL	BORING	DEPTH (ft)	LL	PL	PI	MOISTURE CONTENT AT SATURATION	SOIL BEHAVIOR
■	B3	37'	N/P	N/P	N/P	--	SP
◆							
▲							
●							
□							
◇							
△							
○							

N/P = Non-Plastic

GEOCON

ATTERBERG LIMITS

ASTM D-4318

Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B26

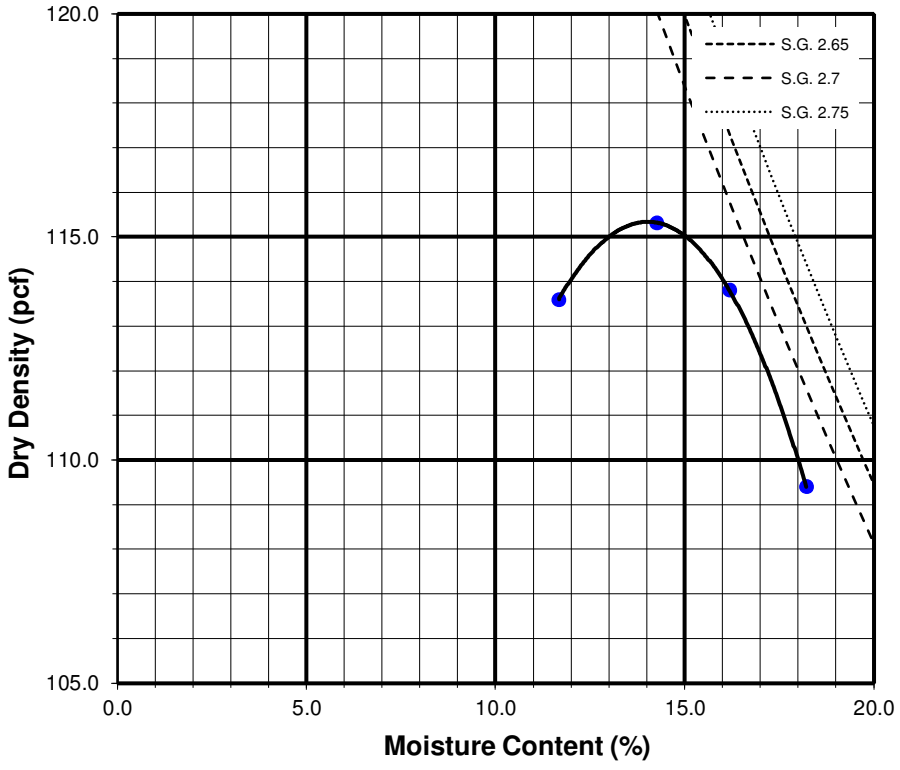
Sample No:

B1+B6@0-5'	Dark Brown Silty Sand (SM)

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6023	6097	6104	6060		
Weight of Mold	(g)	4107	4107	4107	4107		
Net Weight of Soil	(g)	1916	1990	1997	1954		
Wet Weight of Soil + Cont.	(g)	611.8	651.8	711.3	655.2		
Dry Weight of Soil + Cont.	(g)	562.1	586.1	632.9	575.3		
Weight of Container	(g)	136.2	125.3	148.3	136.6		
Moisture Content	(%)	11.7	14.3	16.2	18.2		
Wet Density	(pcf)	126.9	131.8	132.2	129.3		
Dry Density	(pcf)	113.6	115.3	113.8	109.4		

Maximum Dry Density (pcf)	**115.5**

Optimum Moisture Content (%)	**14.5**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B27

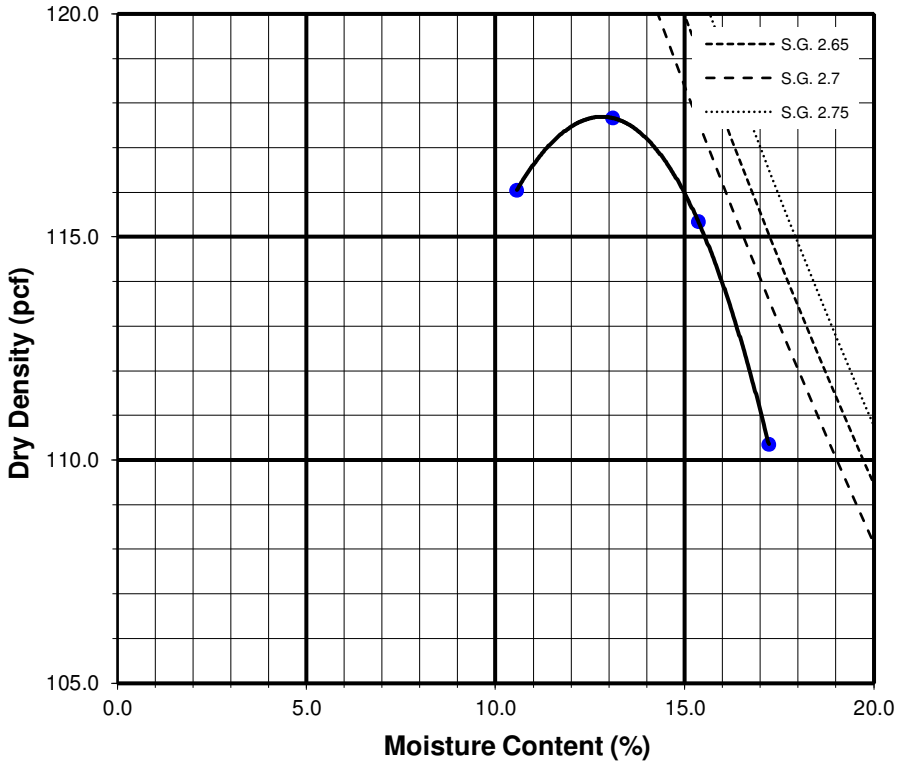
Sample No:

B3@0-5'	Clay (CL), Very Dark Brown

TEST NO.		1	2	3	4	5	6
Wt. Compacted Soil + Mold	(g)	6292	6236	6292	6220		
Weight of Mold	(g)	4282	4282	4282	4282		
Net Weight of Soil	(g)	2010	1954	2010	1938		
Wet Weight of Soil + Cont.	(g)	940.1	1679.4	1063.2	928.8		
Dry Weight of Soil + Cont.	(g)	899.3	1626.6	1041.8	900.6		
Weight of Container	(g)	633.6	1320.0	878.3	633.5		
Moisture Content	(%)	15.4	17.2	13.1	10.6		
Wet Density	(pcf)	133.1	129.4	133.1	128.3		
Dry Density	(pcf)	115.4	110.4	117.7	116.1		

Maximum Dry Density (pcf)	**117.5**

Optimum Moisture Content (%)	**13.0**



Preparation Method: A

GEOCON

COMPACTION CHARACTERISTICS USING MODIFIED EFFORT TEST RESULTS

ASTM D-1557

Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B28

B1B6@0-5'

MOLDED SPECIMEN		BEFORE TEST	AFTER TEST
Specimen Diameter	(in.)	4.0	4.0
Specimen Height	(in.)	1.0	1.1
Wt. Comp. Soil + Mold	(gm)	745.9	799.5
Wt. of Mold	(gm)	367.7	367.7
Specific Gravity	(Assumed)	2.7	2.7
Wet Wt. of Soil + Cont.	(gm)	501.4	799.5
Dry Wt. of Soil + Cont.	(gm)	468.1	336.2
Wt. of Container	(gm)	201.4	367.7
Moisture Content	(%)	12.5	28.4
Wet Density	(pcf)	114.1	130.1
Dry Density	(pcf)	101.4	101.3
Void Ratio		0.7	0.8
Total Porosity		0.4	0.4
Pore Volume	(cc)	82.5	94.3
Degree of Saturation	(%) [S_{meas}]	51.3	101.4

Date	Time	Pressure (psi)	Elapsed Time (min)	Dial Readings (in.)
3/3/2022	10:00	1.0	0	0.297
3/3/2022	10:10	1.0	10	0.2965
Add Distilled Water to the Specimen				
3/4/2022	10:00	1.0	1430	0.3535
3/4/2022	11:00	1.0	1490	0.3535

Expansion Index (EI meas) =	57
Expansion Index (Report) =	**57**

Expansion Index, EI_{50}	CBC CLASSIFICATION *	UBC CLASSIFICATION **
0-20	Non-Expansive	Very Low
21-50	Expansive	Low
51-90	Expansive	Medium
91-130	Expansive	High
>130	Expansive	Very High

* Reference: 2019 California Building Code, Section 1803.5.3

** Reference: 1997 Uniform Building Code, Table 18-I-B.

GEOCON

EXPANSION INDEX TEST RESULTS

ASTM D-4829

Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B29

B3@0-5'

MOLDED SPECIMEN		BEFORE TEST	AFTER TEST
Specimen Diameter	(in.)	4.0	4.0
Specimen Height	(in.)	1.0	1.1
Wt. Comp. Soil + Mold	(gm)	585.4	628.0
Wt. of Mold	(gm)	198.7	198.7
Specific Gravity	(Assumed)	2.7	2.7
Wet Wt. of Soil + Cont.	(gm)	933.5	628.0
Dry Wt. of Soil + Cont.	(gm)	902.3	346.5
Wt. of Container	(gm)	633.5	198.7
Moisture Content	(%)	11.6	23.9
Wet Density	(pcf)	116.6	129.3
Dry Density	(pcf)	104.5	104.4
Void Ratio		0.6	0.7
Total Porosity		0.4	0.4
Pore Volume	(cc)	78.7	93.8
Degree of Saturation	(%) [S_{meas}]	51.5	88.3

Date	Time	Pressure (psi)	Elapsed Time (min)	Dial Readings (in.)
3/11/2022	10:00	1.0	0	0.4294
3/11/2022	10:10	1.0	10	0.4292
Add Distilled Water to the Specimen				
3/12/2022	10:00	1.0	1430	0.5022
3/12/2022	11:00	1.0	1490	0.5022

Expansion Index (EI meas) =	73
Expansion Index (Report) =	**73**

Expansion Index, EI_{50}	CBC CLASSIFICATION *	UBC CLASSIFICATION **
0-20	Non-Expansive	Very Low
21-50	Expansive	Low
51-90	Expansive	Medium
91-130	Expansive	High
>130	Expansive	Very High

* Reference: 2019 California Building Code, Section 1803.5.3

** Reference: 1997 Uniform Building Code, Table 18-I-B.

GEOCON

EXPANSION INDEX TEST RESULTS

ASTM D-4829

Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B30

SUMMARY OF LABORATORY POTENTIAL
OF HYDROGEN (pH) AND RESISTIVITY TEST RESULTS
CALIFORNIA TEST NO. 643

Sample No.	pH	Resistivity (ohm centimeters)
B1B6 @ 0-5'	8.7	4800 (Moderately Corrosive)
B3 @ 0-5'	8.0	1600 (Corrosive)

SUMMARY OF LABORATORY CHLORIDE CONTENT TEST RESULTS
EPA NO. 325.3

Sample No.	Chloride Ion Content (%)
B1B6@0-5'	0.007
B3@0-5'	0.018

SUMMARY OF LABORATORY WATER SOLUBLE SULFATE TEST RESULTS
CALIFORNIA TEST NO. 417

Sample No.	Water Soluble Sulfate (% SO_4)	Sulfate Exposure*
B1B6@0-5'	0.004	S0
B3@0-5'	0.001	S0

GEOCON

CORROSIVITY TEST RESULTS

Checked by: JC

Project No.: W1520-88-01

Chino Hills Parkway
& Romona Ave

March 2022 Figure B31

Appendix C. Phase I Environmental Site Assessment

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PHASE I ENVIRONMENTAL SITE ASSESSMENT

Chino Business Park

Parcel Numbers: 1025191060000, 1025151070000, 1025151080000, 1025482010000, and 1025491010000
Chino, California 91710

PROJECT NUMBER NPARP2202

PREPARED FOR:

Eric Spector
Alliance Realty Partners, LLC
2462 Dupont Drive
Irvine, California 92612

PREPARED BY:

ATC Group Services LLC doing business as (dba) Atlas Technical
1180 Durfee Avenue, Suite 125
South El Monte, California 91733

Report Date March 14, 2022
Site Visit Date March 02, 2022

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DRAFT

SIGNATURE PAGE

Project Information
2022 Alliance Project Folder
Project No. NPARP2202
Parcel Numbers: 1025191060000, 1025151070000, 1025151080000, 1025482010000, and 1025491010000
Chino, California 91710

Reconnaissance Date March 02, 2022

Client Information
Alliance Realty Partners, LLC
2462 Dupont Drive
Irvine, California 92612

Consultant Information
ATC Group Services LLC doing business as (dba)
Atlas Technical
1180 Durfee Avenue, Suite 125
South El Monte, California 91733

Environmental Professional Statement
We declare that, to the best of our professional knowledge and belief, we meet the definition of environmental professional as defined in § 312.10 part of 40 CFR 312. We have the specific qualifications based on education, training and experience to assess a property of the nature, history and setting of the Subject Property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Estella Villacorta
Project Manager
Site Assessor

Estella Villacorta
Project Manager
Environmental Professional

Gwen C. Reed
Due Diligence Program Manager
Senior Reviewer

Andrew Stuart
National Program Director
National Account Manager

1.0 EXECUTIVE SUMMARY

1.1 Subject Property and Area Description

The property for this Phase I Environmental Site Assessment (ESA) is located north of Chino Hills Parkway, east of Ramona Avenue and south of Chino Creek in Chino, California 91710 (the "Subject Property") and is undeveloped land. The surrounding area primarily consists of commercial and industrial properties. Prior to development, the surrounding area was agricultural land.

1.2 Findings, Opinions and Conclusions

ATC Group Services LLC doing business as (dba) Atlas Technical (Atlas) has performed this ESA of the Subject Property in conformance with the scope and limitations of ASTM Standard Practice E1527-13. Any exceptions to, or deletions from, this practice are described in Section 2.0 of this report. This assessment has revealed no evidence of *recognized environmental conditions* (RECs) or other notable findings in connection with the Subject Property.

FINDINGS, OPINIONS AND CONCLUSIONS SUMMARY							
Section	**Report Section**	**Further Action?**	**REC**	**CREC**	**HREC**	**Other**	**Detail #/Description**
3.0	User Provided Information	No					
5.2	Historical Records Sources	No					
5.3	Prior Assessments	No					
5.4.1	Federal, State and Tribal Database Findings	No					
5.4.2	Local Environmental Records Sources	No					
6.2	Hazardous Substances	No					
6.2	Underground Storage Tanks	No					
6.2	Aboveground Storage Tanks	No					
6.2	Other Petroleum Products	No					
6.2	PCB Containing Electrical Equipment	No					
6.2	Hydraulic Equipment	No					
6.2	Unidentified Waste Containers	No					
6.2	Nonhazardous Solid Waste	No					
6.2	Wastewater	No					
6.2	Waste Pits, Ponds and Lagoons	No					
6.2	Drains	No					
6.2	Sumps/Ejectors	No					
6.2	Septic Systems	No					
6.2	Stormwater Management Systems	No					
6.2	Wells	No					
6.2	Other:	No					
7.0	Subsurface Vapor Migration	No					
8.0	Interviews	No					
9.0	Wetlands Document Review	No					

Section	Report Section	Further Action?	REC	CREC	HREC	Other	Detail #/Description
9.0	Flood Plain Document Review	No					
9.0	Radon Document Review	No					
9.0	Lead in Drinking Water Data Review	No					
9.0	Other Additional Service	No					

1.3 Significant Assumptions

The assumptions made by the *Environmental Professional* in this report were not considered to have a significant impact on the determination of *recognized environmental conditions* in connection with the Subject Property.

1.4 Significant Data Gaps

The following is a summary of *significant data gaps* identified in this report.

SIGNIFICANT DATA GAP SUMMARY		
	Report Section	Description
3.1	Environmental Liens or Activity and Use Limitations (AULs)	No significant data gap identified.
4.4	Current Uses of Adjoining Properties	No significant data gap identified.
5.1	Physical Setting Sources	No significant data gap identified.
5.2	Historical Records Sources	No significant data gap identified.
5.4	Standard Environmental Records	No significant data gap identified.
6.1	Methodology and Limiting Conditions	No significant data gap identified.
8.0	Interviews	No significant data gap identified.

1.5 Recommendations

Based on information collected from the Phase I ESA, Atlas offers no recommendations for further assessment at this time.

2.0 INTRODUCTION

2.1 Purpose

The purpose of this ESA was to identify *recognized environmental conditions* (RECs), *controlled recognized environmental conditions* (CRECs) and *historical recognized environmental conditions* (HRECs) in connection with the Subject Property at the time of the site reconnaissance. This report documents the findings, opinions, and conclusions of the ESA.

2.2 Scope of Work

This ESA was conducted in accordance with the ASTM Standard Practice E1527-13, consistent with a level of care and skill ordinarily practiced by the environmental consulting profession currently providing similar services under similar circumstances. Significant additions, deletions, or exceptions to ASTM Standard Practice E1527-13 are noted below or in the applicable sections of this report. The table below summarizes the scope of this ESA, including additional services for conditions beyond the scope of ASTM Standard Practice E1527-13 if authorized by Client. Additional details may be found in Section 10.0, References and Appendix J, Scope of Work.

ESA SCOPE OF WORK
Phase I ESA
Vapor Encroachment Screen
Supplemental Agency File Review
Chain of Title Search
ESA ADDITIONAL SERVICES
Wetlands Document Review
Flood Plain Document Review
Radon Document Review
Lead in Drinking Water Data Review

2.3 Limitations

Atlas has prepared this ESA report using reasonable efforts to identify RECs, CRECs, and HRECs associated with hazardous substances or petroleum products in, on, or at the Subject Property. Findings contained within this report are based on information collected from observations made on the day(s) of the site reconnaissance and from reasonably ascertainable information obtained from certain public agencies and other referenced sources.

The ASTM Standard Practice E1527-13 recognizes inherent limitations for ESAs, including, but not limited to:

- *Uncertainty Not Eliminated* - An ESA cannot completely eliminate uncertainty regarding the potential for RECs in connection with the Subject Property.
- *Not Exhaustive* - An ESA is not an exhaustive investigation of environmental conditions on the Subject Property.
- *Past Uses of the Subject Property* - ESA requirements only require review of standard historical sources at five-year intervals. Therefore, past uses of Subject Property at less than five-year intervals may not be discovered.

Users of this report should refer to ASTM Standard Practice E1527-13, Section 10.0 References, Section 11.0 Terminology, and Appendix J Scope of Work for further information regarding limitations to the scope of this project.

This report is not definitive and should not be assumed to be a complete and/or specific definition of all conditions above or below grade. Current subsurface conditions may differ from the conditions determined by surface observations, interviews, and reviews of historical sources. The most reliable method of evaluating subsurface conditions is through intrusive techniques, which are beyond the scope of this report. Information in this report is not intended to be used as a construction document and

should not be used for demolition, renovation, or other Subject Property construction purposes. Any use of this report by any party, beyond the scope and intent of the original parties, shall be at the sole risk and expense of such user.

Atlas makes no representation or warranty that the past or current operations at the Subject Property are or have been, in compliance with all applicable federal, state, and local laws, regulations, and codes. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated. Regardless of the findings stated in this report, Atlas makes no warranty that the Subject Property is free from existing or threatened pollution, and Atlas is not responsible for consequences or conditions arising from facts not fully disclosed to Atlas during the assessment.

An independent data research company provided the government agency database referenced in this report. Information on surrounding area properties was requested for approximate minimum search distances and is assumed to be correct and complete unless obviously contradicted by Atlas' observations or other credible referenced sources reviewed during the assessment. Atlas shall not be liable for any such database firm's failure to make relevant files or documents properly available, to properly index files, or otherwise to fail to maintain or produce accurate or complete records.

Atlas makes no warranty, guarantee, or certification regarding the quality, accuracy, or reliability of any prior report provided to Atlas and discussed in this ESA report. Atlas expressly disclaims any and all liability for any errors or omissions contained in any prior reports provided to Atlas and discussed in this ESA report.

Atlas used reasonable efforts to identify evidence of aboveground and underground storage tanks and ancillary equipment on the Subject Property during the assessment. "Reasonable efforts" were limited to observation of accessible areas, review of referenced public records, and interviews. These reasonable efforts may not identify subsurface equipment or evidence hidden from view by things including, but not limited to, snow cover, paving, construction activities, stored materials, and landscaping.

Any estimates of costs or quantities in this report are approximations for commercial real estate transaction due diligence purposes and are based on the findings, opinions, and conclusions of this assessment, which are limited by the scope of the assessment, contractual agreement(s) with the client, schedule demands, cost constraints, accessibility limitations and other factors associated with performing the ESA. Subsequent determinations of costs or quantities may vary from the estimates in this report. The estimated costs or quantities in this report are not intended to be used for financial disclosure related to the Financial Accounting Standards Board (FASB) Statement No. 143, FASB Interpretation No. 47, Sarbanes/Oxley Act, or any United States Securities and Exchange Commission reporting obligations, and may not be used for such purposes in any form without the express written permission of Atlas.

Atlas is not a professional title insurance or land surveyor firm and makes no guarantee, express or implied, that any land title records acquired or reviewed in this report, or any physical descriptions or depictions of the Subject Property in this report, represent a comprehensive definition or precise delineation of Subject Property ownership or boundaries.

The "Environmental Professional Statement" in this report does not "certify" the findings contained in this report and is not a legal opinion of such *Environmental Professional*. The statement is intended to document Atlas' opinion that an individual meeting the qualifications of an *Environmental Professional* was involved in the performance of the assessment and that the activities performed by, or under the supervision of, the *Environmental Professional* were performed in conformance with the standards and practices set forth in 40 CFR Part 312 per the methodology in ASTM Standard Practice E1527-13 and the scope of work for this assessment.

Per ASTM Standard Practice E1527-13, Section 6, User Responsibilities, the User of this assessment has specific obligations for performing tasks during this assessment that will help identify the possibility of RECs in connection with the Subject Property. Failure by the User to fully comply with the requirements may impact their ability to use this report to help qualify for *Landowner Liability Protections* (LLPs) under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Atlas makes no representations or warranties regarding a User's qualification for protection under any federal, state, or local laws, rules, or regulations.

In accordance with the ASTM Standard Practice E1527-13, this report is presumed to be valid for a six-month period after the date of the site reconnaissance. If the report is older than 180 days, the following information must be updated in order for the report to be valid: (1) regulatory review, (2) site visit, (3) interviews, (4) specialized knowledge, and (5) environmental liens search. Reports older than one year may not meet the ASTM Standard Practice E1527-13 and therefore, the entire report must be updated to reflect current conditions and Subject Property-specific information.

If there are any conflicts between the Limitations and Exceptions in this Report and the Master Environmental Consulting Agreement between Alliance and ATC, dated September 28, 2017, the Master Agreement shall control.

2.4 Special Terms and Conditions (User Reliance)

This report is for the use and benefit of, and may be relied upon by, Alliance Realty Partners, LLC, Alliance Residential Company, and any of its affiliates, and third parties authorized in writing by Alliance Realty Partners, LLC, Alliance Residential Company and Atlas, including the lender(s) in connection with a secured financing of the Property, and their respective successors and assigns. Any third party agrees by accepting this report that any use or reliance on this report shall be limited by the exceptions and limitations in this report, and with the acknowledgment that actual site conditions may change with time, and that hidden conditions may exist at the Property that were not discovered within the authorized scope of the assessment.

3.0 USER PROVIDED INFORMATION

The following section summarizes information and documentation provided by Alliance Realty Partners, LLC (User) with regard to User Responsibilities outlined in ASTM Standard Practice E1527-13. Documentation may be found in Appendix D or as referenced elsewhere in this report.

3.1 Environmental Liens or Activity and Use Limitations (AULs)

The User excluded from the scope of work for the ESA the search for information regarding the existence of environmental liens or AULs in connection with the Subject Property.

3.2 Specialized Knowledge or Experience of the User

The User provided no information based on specialized knowledge or experience regarding RECs associated with the Subject Property.

3.3 Significant Valuation Reduction for Environmental Issues

The User provided no information regarding a significant valuation reduction for environmental conditions associated with the Subject Property.

3.4 Owner, Property Manager, and Occupant Information

The Subject Property was identified as Chino Business Park located at Parcel Numbers: 1025191060000, 1025151070000, 1025151080000, 1025482010000, and 1025491010000, Chino, CA. Site access was coordinated through the property representative, Mr. Dustin Smith.

3.5 Reason For Performing ESA

The User provided no specific information regarding the reason for performing this ESA. Per ASTM E1527-13, it was assumed that the reason was to assist the User with potentially qualifying for Landowner Liability Protections to CERCLA liability.

3.6 User Provided Documentation

The User provided no prior assessments or other documentation associated with environmental conditions in connection with the Subject Property.

4.0 SITE DESCRIPTION

4.1 Location and Legal Description

The Subject Property has no address and is located north of Chino Hills Parkway and east of Ramona Avenue in the City of Chino, the San Bernardino County, California. The zip code is 91710. According to information obtained from San Bernardino County Assessor, the Subject Property is comprised of five parcels of land identified as Assessor Parcel Numbers: 1025191060000, 1025151070000, 1025151080000, 1025482010000, and 1025491010000. A Site Vicinity Map is located in Appendix A. A Site Plan is located in Appendix B. Site Photographs are provided in Appendix C. A legal description is provided in Appendix L.

4.2 Area Description

The Subject Property is located in an area generally characterized by commercial use. Surface topography across the Subject Property is generally flat with a slope towards the southeast. The specific adjacent property uses are discussed in Section 4.4.

4.3 Property Improvements and Use

The Subject Property consists of five parcels of landing totaling approximately 9.74 acres. Each parcel is largely unimproved land covered with grass or gravel, with limited trees along the northern property perimeter. Illegal trash dumping was observed near the trees and included scrap metal, appliances, wood pieces, pallets, and a tire. A water spout and sign marquee are located in the southwest portion of the Subject Property. A black plastic service box is located near the water spout. The contents are unknown. A Site Plan is present in Appendix B.

The following provides a general description of Subject Property use.

SUBJECT PROPERTY IMPROVEMENTS	
Improvement	**Description**
Size of Subject Property (approximate)	9.74 acres
General Subject Property Use	Zoned for commercial, currently vacant.
Public Roads	Chino Hills Parkway to the south and Ramona Avenue to the west.
Paved or Concrete Areas (including parking)	None.
Unimproved Areas	Entire property with the exception of the sign in the southwest corner of the Subject Property.
Landscaped Areas	Grassland.
Surface Water	None.
Potable Water Source	None.
Sanitary Sewer Utility/Septic	None.
Storm Sewer Utility	None.
Electrical Utility	None.
Natural Gas Utility	None.
Number of Buildings/Description	None.
Current Occupancy Status	Vacant.
Unoccupied Buildings/ Structures	Not applicable.
Type of Use	Vacant land.

4.4 Current Uses of Adjoining Properties

The following summarizes current uses of the adjoining properties, including environmental conditions, features, or operations that were observed or suspected to be present.

Occupant(s) Name and Current Use	Address	Direction From Subject Property	Potential Environmental Conditions, Features or Operations
Various retail stores and restaurants - commercial shopping center	14659, 14671-14683 Ramona Avenue	North, beyond Chino Creek	Some retail tenants are listed on federal databases. However these database listings do not indicate a violation or unauthorized release. These properties are not an environmental concern.
Westesco (tire equipment and supply) - commercial business park	14790, 14802-14808 Yorba Court	North, beyond Chino Creek	See Section 5.4.1 for discussion.
NFI - commercial warehouse and shipping	14701 Yorba Court	North, beyond Chino Creek	See Section 5.4.1 for discussion.
Universal Container & Packaging (retail and contract packaging and distribution of customer products)- commercial warehouse	14880 Monte Vista Avenue	North and northeast, beyond Chino Creek	See Section 5.4.1 for discussion.
Vacant land	No visible address	Southeast, beyond Chino HIlls Parkway	None.
RMV (mobile home park) - residential	15050 Monte Vista Avenue	South - southeast, beyond Chino Hills Parkway	None.
The Commons at Chino Hills (various retail stores and restaurants) - commercial shopping center	4505-4785 Chino Hills Parkway	South, beyond Chino Hills Parkway	Some retail tenants are listed on federal and/or state databases. However these database listings do not indicate a violation or unauthorized release. These properties are not an environmental concern.
Vacant land	No visible address	Southwest, beyond the intersection of Chino Hills Parkway and Ramona Avenue	None.
Chino Hills Ford - car dealership	4480 Chino Hills Parkway	West, beyond Ramona Avenue	See Section 5.4.1 for discussion.
Creative Bus Sales, Creative RV - bus and recreational vehicle (RV) dealership	14740 Ramona Avenue	West, beyond Ramona Avenue	See Section 5.4.1 for discussion.
Multiple tenants, office building	14726 Ramona Avenue	West, beyond Ramona Avenue	One office tenant is listed on a state database. However this database listing did not indicate a violation or unauthorized release. This property is not an environmental concern.
Vacant land - utility corridor	No visible address	Northwest, beyond Ramona Avenue	None.

Based on a curbside reconnaissance of the surrounding area and documented regulatory status, the adjoining properties are not expected to pose an environmental concern or REC to the Subject Property.

5.0 RECORDS REVIEW

5.1 Physical Setting Sources

5.1.1 Topography

Based on the United States Geological Survey (USGS) 7.5-Minute Series Topographic Map, Prado Dam Quadrangle, dated 2018, the Subject Property is located between 610 and 630 feet above mean sea level (MSL). The Subject Property is relatively flat and the surrounding area slopes towards the southeast. A copy of the topographic map is included in Appendix A.

5.1.2 Geology

The *Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11* (P.G. Schruben, R.E. Arndt and W.J. Baiwiec, 1994) indicates that the bedrock in the vicinity of the Subject Property consists of Cenozoic era and Quaternary system and series (stratified sequence). Depth to bedrock was not included, nor did Atlas discover a source indicating the depth to bedrock in the vicinity of the Subject Property.

5.1.3 Soils

According to soils data compiled by EDR from digitized United States Department of Agriculture (USDA) maps and resources, the Subject Property is underlain by Grangeville fine sandy loam and Chino silt loam. Grangeville and Chino soils are characterized by moderate infiltration rates with deep and moderately deep, moderately well and well drained soils with moderately coarse textures. The soils are not considered hydric. A typical profile of Grangeville and Chino soil includes zero to 16 inches below ground surface (bgs) of silt loam and 16 to 59 inches bgs of silty clay loam.

5.1.4 Hydrology

No past groundwater investigations have been identified for the Subject Property; thus, no site-specific groundwater information was available. However, regional groundwater flow direction is generally influenced by major hydrogeologic features such as a river or lake. Surface and/or bedrock topography may also influence regional groundwater flow direction. The available hydrogeologic information indicates that the presumed local groundwater flow direction is to the southeast, which follows Chino Creek, located adjacent to the northeast. It should be noted that local geologic features may cause local groundwater flow direction to differ from the regional flow direction. Local hydraulic gradient at the Subject Property was interpreted based on a review of the *Prado Dam* USGS Topographic Map. Therefore, in assessing potential external environmental impact, properties located directly northwest (presumed upgradient) of the Subject Property are of primary concern. Estimated groundwater levels and/or flow directions may vary due to seasonal fluctuations in precipitation, local usage demands, geology, underground structures, or dewatering operations, and can be more accurately determined through the installation of groundwater monitoring wells.

According to information found on the California State Water Resources Control Board's GeoTracker website for a property located approximately 2,500 feet to the west at 4200 Chino HIlls Parkway, depth to groundwater ranged between 10.13 and 13.73 feet bgs in 2008 and groundwater flow direction was reported to the southeast.

5.2 Historical Records Sources

Atlas' findings pertaining to Subject Property and surrounding area historical uses are presented in the following summary. Notable findings from historical sources are discussed below the table.

Interval gaps (greater than five years) were encountered during the research of historical use information for the Subject Property and surrounding area. However, based on the review of available historical sources, these data gaps did not have an impact on the REC determinations of this assessment and are not significant data gaps.

HISTORICAL USE SUMMARY				
Period	**Subject Property**	**Surrounding Area**	**Source(s)**	**Intervals/Comments**
Prior to 1940	Vacant Agricultural	Vacant Agricultural	Aerial Photographs, Recorded Land Title Records, Topographic Maps, City / Street Directories	Earliest record is a 1902 topographic map, which depicts the Subject Property as vacant land. Interval gap between 1903 and 1920. No use change over gap.
1940 - 1960	Agricultural	Agricultural	Aerial Photographs, Recorded Land Title Records, Topographic Maps, City / Street Directories	No interval gaps.
1961 - 1980	Agricultural Vacant	Agricultural	Aerial Photographs, Property Tax Files, Recorded Land Title Records, Topographic Maps, City / Street Directories	No interval gaps.
1981 - 2000	Vacant	Agricultural Commercial Residential	Aerial Photographs, Property Tax Files, Recorded Land Title Records, Topographic Maps, City / Street Directories	No interval gaps.
2001 - present	Vacant	Commercial Residential	Aerial Photographs, Property Tax Files, Recorded Land Title Records, Topographic Maps, City / Street Directories	No interval gaps.

According to the review of historical records, the Subject Property was undeveloped land until 1938, when the Subject Property was developed with agricultural land. The Subject Property was agriculture from 1938 to 1966. In the 1970s, the Subject Property appears to be vacant land, which is the current development.

The surrounding area has historically been undeveloped until 1938, when agricultural development began. Commercial and residential development of the adjacent properties began in the 1980s.

Given the historical use of the Subject Property as an agricultural field/row crops as observed on review of historical aerial photographs, potential concern is noted regarding the potential use of pesticides, herbicides, and fertilizers. No evidence of orchards was observed on the Subject Property or in the surrounding area. If these materials were stored, used, and applied according to industry standards, they should not have significantly impacted the Subject Property. Evidence of large-scale use or disposal of pesticides, herbicides, or fertilizers, such as mixing tanks, chemical storage areas, sprayers, etc., was not observed on the Subject Property. Evidence for the overuse of these materials, such as stressed vegetation, was not observed. Therefore, Atlas recommends no further investigation related to the use of herbicides, pesticides, or fertilizers.

5.2.1 Aerial Photographs

Atlas reviewed available aerial photographs of the Subject Property and surrounding area as provided by EDR. Available aerial photographs ranged from 1938 to 2016. The following are descriptions and interpretations from the aerial photograph review. Copies of reproducible aerial photographs are included in Appendix F.

AERIAL PHOTOGRAPH SUMMARY			
Year	**Scale**	**Subject Property**	**Surrounding Area**
1938	1" = 500'	Agricultural (possibly row crops). The Chino Creek runs through a portion of the Subject Property along the northern boundary.	North: Chino Creek, beyond which appears to be agriculatural (row crops). East: continuation of Chino Creek and agricultural (row crops). South: a road (currently Chino Hills Parkway), beond which is agricultural (row crops). Southwest: beyond Chino Hills Parkway and what is now Romona Avenue, a rural residence and agricultural (row crops). West: beyond Romona Avenue, agricultural (row crops) and a rural residence. Northwest: beyond Ramona Avenue, agricultural (orchards).
1946 1953 1959	1" = 500'	Similar to the 1938 aerial photograph. However, ther are three small structures (possibly a rural residence) located on the southwest corner of the Subject Property.	Similar to the 1938 aerial photograph. However, the orchards to the northwest are no longer present.
1963 1966	1" = 500'	Similar to the prior aerial photographs.	Similar to the prior aerial photographs with the exception of the western property which appears to be a park or school with a running track, six buildings and parking area. The remaining portion of the western property is vacant lots of land.
1975 1985	1" = 500'	Vacant land.	Similar to the prior aerial photograph, with the exception of the southeast property, which is a housing development.
1989	1" = 500'	Similar to the prior aerial photographs.	North: Chino Creek, beyond which appears to be vacant land. East: continuation of Chino Creek and property under construction. South: a road (currently Chino Hills Parkway), beyond which is agricultural (row crops). Southwest: beyond Chino Hills Parkway and what is now Ramona Avenue, is vacant land. West: beyond Ramona Avenue, commercial properties and vacant land. Northwest: beyond Ramona Avenue, vacant land.
1994	1" = 500'	Similar to the prior aerial photograph.	Similar to the prior aerial photograph with the exception of the southern adjacent property which is vacant land and the eastern adjacent property which is a water tank facility.

Year	Scale	Subject Property	Surrounding Area
2002 2006	1" = 500'	Similar to the prior aerial photograph.	North: Chino Creek, beyond which appears to be vacant land and warehouse buildings. East: continuation of Chino Creek and a water tank facility. Southeast: beyond Chino Hills Parkway is vacant land and a residential development. South: a road (currently Chino Hills Parkway), beyond which is graded land Southwest: beyond Chino Hills Parkway and what is now Ramona Avenue, is vacant land. West: beyond Ramona Avenue, commercial properties. Northwest: beyond Ramona Avenue, vacant land.
2009 2012 2016	1" = 500'	Generally appears as it did during the site reconnaissance.	In all directions, generally appears as it did during the site reconnaissance.

5.2.2 Fire Insurance Maps

A search for fire insurance maps for the Subject Property and surrounding area was conducted by EDR. No such maps for the Subject Property and surrounding area were available. A Certified Sanborn Report is available in Appendix G.

5.2.3 Property Tax Files

Atlas reviewed reasonably ascertainable tax files from the San Bernardino Assessor website for historical ownership information pertaining to the Subject Property. The table below presents the results of the historical ownership information. Documentation is included in Appendix G.

TAX RECORDS OWNERSHIP SUMMARY	
Year	
unknown to 1980	
Lot/Block #	Listing
1025482010000 1025491010000	Vermeer, Dick Vermeer, Jantina

Year	
1980 to 2000	
Lot/Block #	Listing
1025482010000 1025491010000	Cohen, Joan / Cohen, Joan TR Cohen, Said / Cohen, Said TR

Year	
1979 to 2000	
Lot/Block #	Listing
1025191060000 1025151070000 1025151080000	Cohen, Joan TR Cohen, Said TR

Year
2000 to 2016

Lot/Block #	Listing
1025191060000 1025151070000 1025151080000 1025482010000 1025491010000	Cohen, Said RV Survivors Tr

Year	
2016 to present	
Lot/Block #	**Listing**
1025191060000 1025151070000 1025151080000 1025482010000 1025491010000	Cohen, Said RV Surv Tr - Est Of

5.2.4 Recorded Land Title Records

Atlas reviewed recorded land title records for the Subject Property obtained from EDR. Public deed records were reviewed from 1934 or 1939 to 2016. The current owner for all five parcels was listed as Peter J. Cohen, Successor Trustee of the Said Cohen Revocable Survivor's Trust who received it from Said Cohen, deceased, on May 24, 2016.

5.2.5 Historical USGS Topographic Maps

Atlas reviewed available historical USGS Topographic Maps for information regarding past uses of the Subject Property and surrounding area provided by EDR, and USGS Historical Topographic Map Explorer. The following are descriptions and interpretations from the topographic map review. Documentation is included in Appendix G.

TOPOGRAPHIC MAPS SUMMARY		
Year	**Subject Property**	**Surrounding Area**
1902	Vacant land.	Vacant land in all directions. Chino Creek is denoted to the north.
1933 1941	Vacant land.	North: Beyond Chino Creek is vacant land. East: Beyond an dirt road, vacant land. South: Beyond Merrill Road, largely vacant land and two dwelling units. West: Beyond Ramona Avenue, largely vacant land with scattered dwelling units.
1942 1944 1947 1949 1950 1967	Largely vacant land with a dwelling unit.	Generally appears as it did in the prior topographic map.
1967	Generally appears as it did in the prior topographic map.	Generally appears as it did in the prior topographic map with the exception of the west adjacent property. A running track and two larger buildings are added.
1973 1981	Generally appears as it did in the prior topographic map.	Generally appears as it did in the prior topographic map with the exception of the southeast adjacent property which is a trailer park.
2012 2015 2018	Vacant land.	No structures depicted on all adjacent properties. Chino Creek is denoted to the north, Chino Hills Parkway to the south, and Ramona Avenue to the west.

5.2.6 City Directories

Research regarding the availability of historical city directories was obtained from EDR. The following are descriptions and interpretations from the historical city directory review. Directories for the years 1922 through 2017, in approximate five-year intervals, were available for review. Documentation is included in Appendix G.

CITY DIRECTORY SUMMARY		
Year	**Subject Property**	**Surrounding Area**
1922 through 2009	No information provided.	No information provided.
2014 2017	No information provided.	Chino Hills Parkway Various commercial tenants and restaurants. Yorba Court 14790 - Steelman Easy Life Inc.

5.2.7 Building Department Records

Atlas reviewed available historical building department records from the Chino Building Department website for information regarding past uses of the Subject Property. Records were not found for the Subject Property APNs.

5.2.8 Zoning/Land Use Records

Atlas attempted to review available historical zoning/land use records from the City of Chino for information regarding past uses of the Subject Property and surrounding area. No historical zoning/land use information was readily available. A discussion of current zoning information is included in Section 5.4.2.

5.2.9 EDR Exclusive Historical Records

Atlas reviewed potential "high-risk historical records" search results provided by EDR. The EDR Exclusive Historical Record database is composed of selected national historical collections of business directories, proprietary industry data, government agency archives, and other records including gas stations, dry cleaners, manufactured gas plants, landfills, and leaking underground storage tank sites that were available to EDR researchers.

No EDR Exclusive Historical Record database listings were available for the Subject Property or surrounding area.

EDR EXCLUSIVE HISTORICAL RECORDS SUMMARY		
Year	**Subject Property**	**Surrounding Area**
	List multiple Historical Records (Add rows as needed or delete)	

5.2.10 Other Historical Sources

No other readily available historical sources were reviewed.

5.3 Prior Assessments

No prior assessment documentation was reviewed.

5.4 Standard Environmental Records

The regulatory agency database report discussed in this section, provided by EDR of Shelton, Connecticut, was reviewed for information regarding reported use or release of hazardous substances and petroleum products on or near the Subject Property. Unless otherwise noted, the information provided by the regulatory agency database report and other sources referenced in this report were considered sufficient for REC, CREC, HREC, or *de minimis* condition determinations without conducting supplemental agency file reviews. Atlas also reviewed the "unmappable" (also referred to as "orphan") listings within the database report, cross-referencing available address information and facility names. Unmappable sites are listings that could not be plotted with confidence but potentially in the general area of the Subject Property, based on the partial street address, city, or zip code. Unmappable sites that Atlas identified as within the approximate minimum search distance from the Subject Property, based on the site reconnaissance and/or cross-referencing to mapped listings, are included in the discussion within this section. The complete regulatory agency database report may be found in Appendix E.

The following is a summary of the findings of the regulatory agency database review.

NR = Not Researched
TP = Target Property

SUMMARY OF FEDERAL, STATE AND TRIBAL DATABASE FINDINGS								
Regulatory Database	**Target Property**	**Search Distance (Miles)**	**< 1/8**	**1/8 - 1/4**	**1/4 - 1/2**	**1/2 - 1**	**> 1**	**Total Plotted**
National Priority List (NPL)		1	0	0	0	0	NR	0
Proposed National Priority List Sites (Proposed NPL)		1	0	0	0	0	NR	0
Federal Superfund Liens (NPL LIENS)		1	0	0	0	0	NR	0
National Priority List Deletions (Delisted NPL)		1	0	0	0	0	NR	0
Federal Facility Site Information listing (FEDERAL FACILITY)		0.5	0	0	0	NR	NR	0
Superfund Enterprise Management System (SEMS)		0.5	0	0	0	NR	NR	0
Superfund Enterprise Management System Archive (SEMS-ARCHIVE)		0.5	0	0	0	NR	NR	0
Corrective Action Report (CORRACTS)		1	0	0	0	0	NR	0
Resource Conservation Recovery Act (RCRA) - Treatment, Storage and Disposal (RCRA-TSDF)		0.5	0	0	0	NR	NR	0
RCRA - Large Quantity Generators (RCRA-LQG)		0.25	1	0	NR	NR	NR	1
RCRA - Small Quantity Generators (RCRA-SQG)		0.25	3	2	NR	NR	NR	5
RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators) (RCRA-VSQG)		0.25	0	0	NR	NR	NR	0
Land Use Control Information System (LUCIS)		0.5	0	0	0	NR	NR	0

Regulatory Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Engineering Controls Sites List (US ENG CONTROLS)		0.5	0	0	0	NR	NR	0
Institutional Controls Sites List (US INST CONTROLS)		0.5	0	0	0	NR	NR	0
Emergency Response Notification System (ERNS)		TP	NR	NR	NR	NR	NR	0
Land Use Control Information System (LUCIS)		0.5	0	0	0	NR	NR	0
RCRA - Non Generators / No Longer Regulated (RCRA NonGen / NLR)		0.25	8	2	NR	NR	NR	10
Underground Storage Tank Listing (FEMA UST)		0.25	0	0	NR	NR	NR	0
Solid Waste Information System (CA SWF/LF)		0.5	0	0	0	NR	NR	0
Leaking Underground Fuel Tank Report (GEOTRACKER) (CA LUST)		0.5	0	0	3	NR	NR	3
Active UST Facilities (CA UST)		0.25	0	0	NR	NR	NR	0
Aboveground Petroleum Storage Tank Facilities (CA AST)		0.25	3	2	NR	NR	NR	5
Voluntary Cleanup Program Properties (CA VCP)		0.5	0	0	1	NR	NR	1
Considered Brownfieds Sites Listing (CA BROWNFIELDS)		0.5	0	0	1	NR	NR	1
"Cortese" Hazardous Waste & Substances Sites List (CA CORTESE)		0.5	0	0	3	NR	NR	3
PFAS Contamination Site Location Listing (CA PFAS)		0.5	0	0	1	NR	NR	1
EnviroStor Database (CA ENVIROSTOR)		1	0	0	1	1	NR	2
CERS HAZ WASTE (CA CERS HAZ WASTE)		0.25	4	2	NR	NR	NR	6
Proposition 65 Records (CA NOTIFY 65)		1	0	0	0	2	NR	2
EnviroStor Permitted Facilities Listing (CA HWP)		1	0	0	0	2	NR	2
Recycler Database (CA SWRCY)		0.5	0	0	1	NR	NR	1
State Response Sites (CA RESPONSE)		1	0	0	0	0	NR	0
Hazardous Waste & Substance Site List (CA HIST CORTESE)		0.5	0	0	1	NR	NR	1
California Environmental Reporting System (CERS) Tanks (CA CERS TANKS)		0.25	1	1	NR	NR	NR	2
Hazardous Material Permits (CA San Bern. Co. Permit)		0.25	15	6	NR	NR	NR	21
Statewide SLIC Cases (GEOTRACKER) (CA CPS-SLIC)		0.5	0	0	2	NR	NR	2

Regulatory Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
Leaking Underground Storage Tanks on Indian Land (INDIAN LUST)		0.5	0	0	0	NR	NR	0
Underground Storage Tanks on Indian Land (INDIAN UST)		0.25	0	0	NR	NR	NR	0
Voluntary Cleanup Priority Listing (INDIAN VCP)		0.5	0	0	0	NR	NR	0

5.4.1 Federal, State and Tribal Agency Database Findings

The Subject Property was not identified in the federal, state, and tribal agency databases searched.

The following listings with a known or significant potential for release and impact in, on, or at the Subject Property were identified in the federal, state, and tribal agency searched.

Dynamic Auto Images @ Chino Hills Ford / Chino Hills Ford Sales, Inc. / Chino Hills Ford
4480 Chino Hills Parkway
Chino, California 91710
Federal Databases: RCRA Nongen / NLR, RCRA-SQG, FINDS, ECHO
State Databases: HWTS, AST, San Bern. Co. Permit, CERS Haz Waste, CERS Tanks, HAZNET, and CERS
Tribal Databases: None listed
Approximate Distance from the Subject Property: Adjacent to the west, beyond Ramona Avenue
Assumed Groundwater Gradient: Cross- to upgradient
Regulatory Data Summary: This facility is identified as a small quantity generator of RCRA hazardous waste. Hazardous waste removed from this facility include, but are not limited to, other organic solids, unspecified sludge waste, unspecified organic liquid mixtures, other still bottom waste, and oil/water separation sludge. According to the CERS listing, the facility has open violations related to record keeping, inspection reports, and training. The facility is in compliance as of August 20, 2019. A 1,825-gallon aboveground storage tank (AST) containing petroleum products is registered to this facility. No violations or reported releases were noted for the AST. The other listings did not identify reported releases for this facility.
Discussion: Based on the lack of reported releases and the type of open violations (administrative in nature), this facility is not considered to represent a REC to the Subject Property.

Chino Valley Featherlite/ Saturn of Chino Valley/ Creative Bus Sales Inc.
14740 Ramona Avenue
Chino, California 91710
Federal Databases: RCRA Nongen / NLR, RCRA-SQG, FINDS, ECHO
State Databases: AST, San Bern. Co. Permit, CERS Haz Waste, NPDES, CIWQS, and CERS
Tribal Databases: None listed
Approximate Distance from the Subject Property: Adjacent to the west, beyond Ramona Avenue
Assumed Groundwater Gradient: Cross- to upgradient
Regulatory Data Summary: The former tenant, Saturn of Chino Valley, was identified as a small quantity generator of RCRA hazardous waste. No violations were noted for this facility in regards to the waste generator. The current tenant, Creative Bus Sales Inc., is a verified nongenerator of RCRA hazardous waste as of July 24, 2015. According to the CERS listing, past violations for the current tenant include missing permits, labeling, housekeeping issues, and record keeping. The facility is in compliance as of August 20, 2019. A 1,430-gallon AST was registered to the former tenant, Chino Valley Featherlite. No violations or reported releases were noted for the AST. The other listings did not identify reported releases for this facility.
Discussion: Based on the lack of reported releases, this facility is not considered to represent a REC to the Subject Property.

Westesco
14802 Yorba Court

Chino, California 91710
Federal Databases: None listed.
State Databases: San Bern. Co. Permit and CERS
Tribal Databases: None listed
Approximate Distance from the Subject Property: Adjacent to the north, beyond Chino Creek
Approximate Direction from the Subject Property: North
Assumed Groundwater Gradient: Cross- to upgradient
Regulatory Data Summary: This facility has a permit for four to ten hazardous materials from San Bernardino County. According to the CERS listing, past violations for the current tenant include missing permits and record keeping. The facility is in compliance as of October 24, 2018.
Discussion: Based on the lack of reported releases, this facility is not considered to represent a REC to the Subject Property.

Proctor and Gable Distributing LLC West Coast / Exel
14701 Yorba Court
Chino, California 91710
Federal Databases: RCRA Nongen / NLR and RCRA-SQG
State Databases: HWTS, CHMIRS, HAZNET, San Bern. Co. Permit and CERS
Tribal Databases: None listed
Approximate Distance from the Subject Property: Adjacent to the north, beyond Chino Creek
Assumed Groundwater Gradient: Cross- to upgradient
Regulatory Data Summary: This facility was identified as a small quantity generator of RCRA hazardous waste. No violations were noted for this facility in regards to the waste generator. The facility is currently a verified nongenerator of RCRA hazardous waste as of February 15, 2015. Hazardous waste removed from this facility include, but not limited to, other inorganic solid waste, organics, latex waste, and other organic solids. The other listings did not identify reported releases for this facility.
Discussion: Based on the lack of reported releases, this facility is not considered to represent a REC to the Subject Property.

Universal Container and Packaging / Jacuzzi Whirlpool Bath
4480 Chino Hills Parkway
Chino, California 91710
Federal Databases: RCRA-LQG
State Databases: EMI, San Bern. Co. Permit, CIWQS, HAZNET, and CERS
Tribal Databases: None listed
Approximate Distance from the Subject Property: Adjacent to the north, beyond Chino Creek
Assumed Groundwater Gradient: Cross- to upgradient
Regulatory Data Summary: This facility is identified as a large quantity generator of RCRA hazardous waste. Hazardous waste removed from this facility include, but not limited to, methyl ethyl ketone and nonhalogenated solvents. The other listings did not identify reported releases for this facility.
Discussion: Based on the lack of reported releases, this facility is not considered to represent a REC to the Subject Property.

Based on distance, topography, assumed groundwater gradient, current regulatory status, and/or the absence of reported releases, none of the other sites listed in the federal, state or tribal agency databases searched are considered to represent a likely past, present or material threat of release in, on, or at the Subject Property. Given the physical setting characteristics of the Subject Property and surrounding area, supplemental agency file reviews were not warranted to verify the database report information.

5.4.2 Local Environmental Records Sources

The following paragraphs in this section describe interviews and/or file reviews with local and state regulatory agencies.

California Environmental Protection Agency, Department of Toxic Substances Control (DTSC)

According to an area search conducted on the DTSC EnviroStor website (https://www.envirostor.dtsc.ca.gov/public/map/), the DTSC has no files for the Subject Property address.

Regional Water Quality Control Board (RWQCB)

According to the RWQCB GeoTracker website (http://geotracker.waterboards.ca.gov/map/), GeoTracker has no files for the Subject Property.

South Coast Air Quality Management District (SCAQMD)

According to information contained on the SCAQMD website (https://xappprod.aqmd.gov/find//facility/AQMDsearch), there are no files for the Subject Property.

Department of Planning and Zoning

According to the City of Chino Zoning Map, the Subject Property is zoned C for Commercial Land Use District and C/O for Commercial Office Land Use District.

Other Local Environmental Records Sources

California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR)

According to information contained on the DOGGR Wellfinder website (https://maps.conservation.ca.gov/doggr/wellfinder), no current or former oil wells are located on or within 500 feet of the Subject Property.

No additional local environmental records sources were reviewed.

6.0 SITE RECONNAISSANCE

The following is a summary of the date, participants, and weather conditions associated with the site reconnaissance.

SITE OBSERVATION SUMMARY	
Visit Details	
Date(s)	March 2, 2022
Atlas Assessor	Estella Villacorta, Project Manager
Escorted By	Unescorted
General Weather Conditions	74 degrees Fahrenheit, sunny

6.1 Methodology and Limiting Conditions

The site reconnaissance consisted of visual and/or physical observations of: the Subject Property and improvements; adjoining sites as viewed from the Subject Property; and, the surrounding area based on visual observations made during the trip to and from the Subject Property as described below.

METHODOLOGY AND LIMITING CONDITIONS		
Subject Property Areas	**Methodology**	**Notes**
Exterior	Atlas observed the exterior conditions, improvements and operations of the Subject Property from safely accessible common areas, roads and/or from the understood perimeter boundaries. Significant exterior features were observed when safely accessible.	No limiting conditions.
Adjoining Properties	Atlas observed properties adjoining the Subject Property from safely accessible adjacent public roads and/or along the understood Subject Property perimeter boundaries.	No limiting conditions.

6.2 Site Reconnaissance Summary

The following is a summary of visual and/or physical observations of the Subject Property and adjoining properties on the day of the site visit. Conditions, features or operations observed, likely present or identified from interviews, records review or prior reports will be discussed further below the table, if applicable. Photographs can be found in Appendix C.

Condition, Feature or Operation Observed or Identified?	Yes	No
Hazardous Substances		X
Underground Storage Tanks (USTs)		X
Aboveground Storage Tanks (ASTs)		X
Other Petroleum Products		X
Railroad Spurs		X
Pipeline Markers		X
PCB Containing Electrical Equipment		X
Hydraulic Equipment		X
Unidentified Substance Containers		X
Nonhazardous Solid Waste		X
Wastewater		X
Waste Pits, Ponds and Lagoons		X
Drains		X
Sumps/Ejectors		X
Septic Systems		X
Stormwater Management System		X
Wells		X
Other	X	

6.2.1 Other Condition, Feature or Operation

Atlas observed illegal dumping at the northern perimeter of the Subject Property. Illegal trash dumping was observed near the trees and included scrap metal, appliances, wood pieces, pallets, and a tire. De minimis trash debris (paper, plastic, etc) was noted sporadically in some areas throughout the Subject Property. The observed features do not represent a REC at the Subject Property.

7.0 SUBSURFACE VAPOR MIGRATION

Atlas conducted a Tier 1 vapor encroachment screen (VES) in accordance with ASTM E2600-15 *Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions* for potential vapor encroachment conditions (VECs). A VEC is the presence or likely presence of chemicals of concern (COC) vapors in the vadose zone of the Subject Property caused by the release of vapors from contaminated soil and/or groundwater either on or near the Subject Property. A Tier 2 Non-Invasive Data Collection Screen was performed if prior assessment reports or regulatory documents were readily available.

Atlas considered the nature and extent of on-site and nearby sources of potential subsurface vapor migration by evaluating the current and historical usage of the Subject Property, the construction type and history, the physical setting, and the potential sources of subsurface vapor migration through the review of regulatory agency database information and/or prior reports to identify contaminated properties.

COCs include volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), volatile inorganic analytes, and petroleum hydrocarbons, in most circumstances. Certain metals and radionuclides can represent VECs based on the known volatility of the constituents but are uncommon. The vadose zone is the zone between the land surface and the water table within which moisture content is less than saturation (except in the capillary fringe) and pressure is less than atmospheric. Conditions may exist where there could be no vadose zone, such as the case of a building foundation sitting below the water table. In this case, it may be possible for COC vapors to adversely impact the indoor air without migrating through a vadose zone.

The default area of concern (AOC) is the approximate minimum search distance measured from the Subject Property boundary to a contaminated property with known or suspected COC contamination of soil and/or groundwater. If COC and/or petroleum hydrocarbon COC are used or stored on the Subject Property, or there is an institutional control recorded on the Subject Property for these COC, then the Subject Property is included in the default AOC.

The default AOC was adjusted accordingly based on the review of groundwater flow direction, subsurface characteristics, surficial features, man-made features, known release information, and local knowledge. When groundwater flow direction can be estimated or determined, the crossgradient or downgradient radius distances can be significantly reduced.

The adjusted AOC are defined as the following distances from the Subject Property boundary:

Tier 1 Screening	Petroleum COC AOC Distance (LNAPL)	Petroleum COC AOC Distance (Non-LNAPL)	Non-Petroleum COC AOC Distance
Up-Gradient	528 feet	528 feet	1,760 feet
Cross-Gradient	165 feet	95 feet	365 feet
Down-Gradient	100 feet	30 feet	100 feet

Atlas reviewed potential sources of COC from current and historical Subject Property operations, and known or suspected releases in the surrounding area, using Tier 1 and, if warranted, Tier 2 approaches.

Reported releases were not identified, therefore, a VEC does not exist.

8.0 INTERVIEWS

The following persons were interviewed to obtain information regarding environmental conditions in connection with the Subject Property.

INTERVIEW SUMMARY					
Role	**Name**	**Title/Company**	**Type**	**# Attempts**	**Response?**
Key Site Manager	Dustin Smith	DL Smith Company	Email	One	Yes
Client (User)	Eric Spector	Alliance Realty Partners, LLC	Questionnaire	One	Yes

Not included in this list are those governmental employees that were contacted solely for the purpose of retrieving public information pertaining to the Subject Property and who would not be expected to have firsthand knowledge of recognized environmental conditions at the Subject Property.

Atlas was not provided contact information for the property owner; therefore, a direct interview was not completed in 2022. However, all questions were directed to the site representative, Dustin Smith, DL Smith Company. Based on the review of other historical sources, regulatory records, and other interviews, this is not considered a significant data gap. Pertinent information from the interviews is discussed in applicable sections of this report.

9.0 ADDITIONAL SERVICES

The following additional services beyond the scope of ASTM E1527 were included in the scope of work for this ESA and are discussed further below.

9.1 Wetlands Document Review

Atlas reviewed the United States Fish & Wildlife Service (USFWS) National Wetlands Inventory (NWI) Wetlands Online Mapper website for documented wetlands at the Subject Property. A riverine wetland adjoins the Subject Property to the north. A copy of the National Wetlands Inventory map is included in Appendix L.

9.2 Flood Plain Document Review

Atlas reviewed the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Community-Panel Number 06071C9330H, dated August 28, 2008. The Subject Property is located in Zone X, which is defined as area of minimal flood hazard. A copy of the flood plain map is included in Appendix L.

9.3 Radon Document Review

Radon is a naturally occurring colorless, odorless gas that is a by-product of the decay of thorium or uranium when present in indigenous bedrock, soil or, in rare cases, well water. The United States Environmental Protection Agency (EPA) guidance action level for annual residential exposure to radon is 4.0 picoCuries per liter of air (pCi/L). Radon testing is not a regulatory requirement for private owners of commercial real estate, but comparing testing results to the guidance action level is commonly done to suggest whether or not further action to test or limit radon exposure at a building may be prudent.

Atlas' review of published radon data indicates that the Subject Property is located in U.S. EPA Radon Zone 2, an area of medium propensity with regard to the potential for elevated levels of radon gas. Average first floor activity for the zipcode 91710 was 2.9 pCi/L. Based on the lack of development of the Subject Property improvements and the moderate propensity for elevated levels of radon gas, additional investigation is not recommended at this time.

9.4 Lead in Drinking Water Data Review

Atlas confirmed with the City of Chino that the municipally-supplied water meets drinking water standards, including those for lead. Lead in drinking water testing was not conducted for this ESA.

10.0 REFERENCES

ASTM International. *E1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. West Conshohocken, PA; ASTM International, 2013. doi: https://doi.org/10.1520/E1527-13.

ASTM International. *E2600-15 Standard Guide for Vapor Encroachment Screening on Property Involved in Real Estate Transactions*. West Conshohocken, PA; ASTM International, 2015. doi: https://doi.org/10.1520/E2600-15.

California, State of, Department of Conservation CalGEM Online Mapping System website, https://maps.conservation.ca.gov/doggr/.

California, State of, Environmental Protection Agency, Department of Toxic Substances Control, EnviroStor website, http://www.envirostor.dtsc.ca.gov/public.

Chino, city of, website, www.cityofchino.org.

EDR, *Certified Sanborn Map Report*, Chino Business Park, Parcel Numbers: 1025191060000, 1025151070000, 1025151080000, 1025482010000, and 1025491010000, Chino, CA, 6874920, dated February 25, 2022.

EDR, *EDR- Historical Topo Map Report,* Chino Business Park, Parcel Numbers: 1025191060000, 1025151070000, 1025151080000, 1025482010000, and 1025491010000, Chino, CA, 6874920, dated February 25, 2022.

EDR, *The EDR Aerial Photo Decade Package,* Chino Business Park, Parcel Numbers: 1025191060000, 1025151070000, 1025151080000, 1025482010000, and 1025491010000, Chino, CA,6874920, dated February 28, 2022.

EDR, *The EDR-City Directory Image Report*, Chino Business Park, Parcel Numbers: 1025191060000, 1025151070000, 1025151080000, 1025482010000, and 1025491010000, Chino, CA, 6874920, dated February 25, 2022.

EDR, *The EDR Radius Map with GeoCheck*, Chino Business Park, Parcel Numbers: 1025191060000, 1025151070000, 1025151080000, 1025482010000, and 1025491010000, Chino, CA, 6874920, dated February 25, 2022.

EDR, *The EDR 1940 Chain of Title,* Chino Business Park, Chino HIlls Pkwy and Ramona Ave, Chino, CA, 6874920, dated March 2, 2022.

EPA. VISL Calculator, https://epa-visl.ornl.gov/cgi-bin/visl_search.

EPA Cleanups in My Community database, https://ofmpub.epa.gov/apex/cimc/f?p=cimc:map::::71.

EPA Envirofacts database, https://enviro.epa.gov/index.html.

EPA, Site Specific National Cleanup Databases, https://www.epa.gov/cleanups/site-specific-national-cleanup-databases.

EWG, PFAS Contamination in the U.S. (January 6, 2021), https://www.ewg.org/interactive-maps/pfas_contamination/.

FEMA, FEMA Flood Map Service Center website, https://msc.fema.gov/portal/home.

Google Earth, https://www.google.com/earth/.

Regional Water Quality Control Board, GeoTracker website, http://geotracker.swrcb.ca.gov.

San Bernardino, County of, Assessor website, http://www.co.san-bernardino.ca.us/assessor.

South Coast Air Quality Management District, website, http://www.aqmd.gov.

USDA. Natural Resources Conservation Service, Web Soil Survey, https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx.

USFWS, National Wetland Inventory Mapper, http://www.fws.gov/nwi/.

USGS Historical Topographic Map Explorer, https://livingatlas.arcgis.com/topoexplorer/index.html.

USGS Topographic Map, *Prado Dam* Quadrangle Map, 7.5 Minute Series, dated 2018.

11.0 TERMS & ACRONYMS

The following provides definitions and descriptions of key terms and acronyms that may be used in this report. Italics indicate terms that are defined by ASTM Standard Practice E1527-13. The Standard Practice should be referenced for further detail (such as the precise wording), related definitions or additional explanation regarding the meaning of terms.

recognized environmental condition(s) (REC) - the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.

material threat - a physically observable or obvious threat which is reasonably likely to lead to a release that, in the opinion of the environmental professional (EP), is threatening and might result in impact to public health or the environment.

de minimis condition — is a condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of the appropriate governmental agencies. Conditions determined to be *de minimis* are not RECs nor *controlled recognized environmental conditions.*

historical recognized environmental condition (HREC) - a past release of any hazardous substances or petroleum products that has occurred in connection with the Subject Property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls). Before calling the past release an HREC, the EP must determine whether the past release is a REC at the time the assessment is conducted (for example, if there has been a change in the regulatory criteria). If the EP considers the past release to be a REC at the time the Phase I ESA is conducted, the condition will be reported as a REC.

controlled recognized environmental condition (CREC) - a REC resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitation, institutional controls, or engineering controls).

migrate/migration - refers to the movement of hazardous substances or petroleum products in any form, including, for example, solid and liquid at the surface or subsurface, and vapor in the subsurface.

business environmental risk (BER) - a risk which can have a material environmental or environmentally-driven impact on the business associated with the current or planned use of a parcel of commercial real estate, not necessarily limited to those environmental issues required to be investigated in this practice. Evaluation of business environmental risk issues may involve addressing one or more non-ASTM scope considerations.

Subject Property — a lot or assemblage of lots that comprise a parcel of commercial real estate as described in Section 1.1 that is the subject of this ESA report.

Appendix D. Traffic Memo

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APPROVED

CITY OF CHINO TRANSPORTATION

BY: _____ DATE: 11/29/2023

LINSCOTT LAW & GREENSPAN engineers

REVISED TRAFFIC STUDY

CHINO CREEK APARTMENTS

CHINO, CALIFORNIA

Chino, California

October 30, 2023

Prepared for:

CHINO VALLEY INVESTMENTS, LP
32210 Via Angelica
San Juan Capistrano, CA 92675

LLG Ref. 2-23-4646-1
Chino Planning Ref: PL22-0096 (Site Approval) PL23-0002 (TTM No. 20693)





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EXECUTIVE SUMMARY

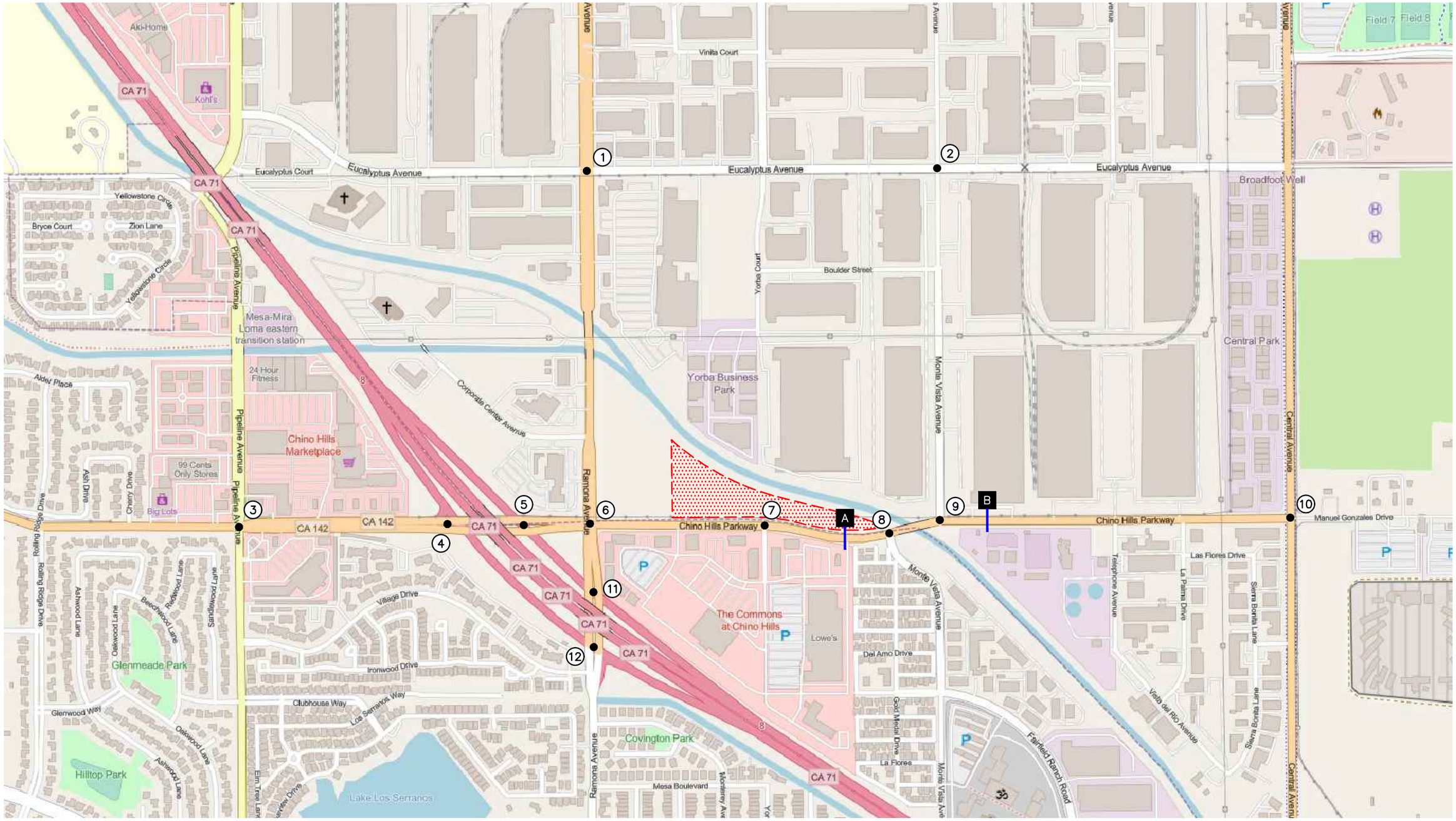
- ***Introduction*** – This Traffic Impact Analysis Report assesses the potential traffic and transportation impacts associated with the proposed Chino Creek Apartments project. The Scope of Work for this Project was developed in conjunction with City staff and satisfies the City of Chino requirements as outlined the *Traffic Impact Analysis Guidelines (dated December 2020).* Given the Project location in proximity to Chino Valley Freeway (SR-71), the criteria outlined in the current *Caltrans Vehicle Miles Traveled-Focused Transportation Impact Study Guide (TISG) dated May 20, 2020* was considered.

- ***Project Location*** – The Project site is a 9.74±-acre triangular-shaped vacant parcel of land that is located generally located east of Ramona Avenue, north of Chino Hills Parkway, and south of Chino Creek in the City of Chino, California. ***Figure ES-1*** presents a Vicinity Map, which illustrates the general location of the proposed Project.

- ***Project Description –*** The proposed Project includes the development of a new residential community with 298 residential apartment units, consisting of two (4) four-story buildings and a mix of 159 one-bedroom units and 139 two-bedroom units, of which 15 unit will be designated as affordable housing. The Project's on-site parking supply totals 477 spaces and will consist of 123 carport spaces and 354 surface spaces, of which 91 stalls will be "compact". As a Project Design Feature (i.e., project-specific improvement) the Project proposes to modify the Chino Hills Parkway/Commons Drive intersection and construct the north leg of this intersection to provide vehicular access to Project. A secondary gated "right-turn out only" driveway on Chino Hills Parkway is also planned. The proposed Project will construct sidewalks along the Project frontage and proposes, subject to review and approval by the City and the LOS analysis, to install a pedestrian crosswalk on the west leg of the signalized study intersection of Commons Drive/Project Driveway A at Chino Hills Parkway, while maintaining the pedestrian crosswalk on the east leg. These pedestrian improvements will connect to the existing public sidewalk system within the Project vicinity ***Figure ES-2*** presents the proposed Project Site Plan prepared by AO Architecture.

- ***Study Scope*** – The traffic study evaluated the Project's potential effect on the Level of Service (LOS) at the twelve (12) intersections and two (2) roadway segments. The study intersections and roadway segments, inclusive of jurisdictions where they are located, are identified below:

Key Intersection	**Jurisdiction**
1. Ramona Avenue at Eucalyptus Avenue	Chino
2. Monte Vista Avenue at Eucalyptus Avenue	Chino
3. Pipeline Avenue at Chino Hills Parkway	Caltrans/Chino Hills
4. SR-71 SB Ramps at Chino Hills Parkway	Caltrans/Chino Hills



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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: GOOGLE

KEY

(#) = STUDY INTERSECTION

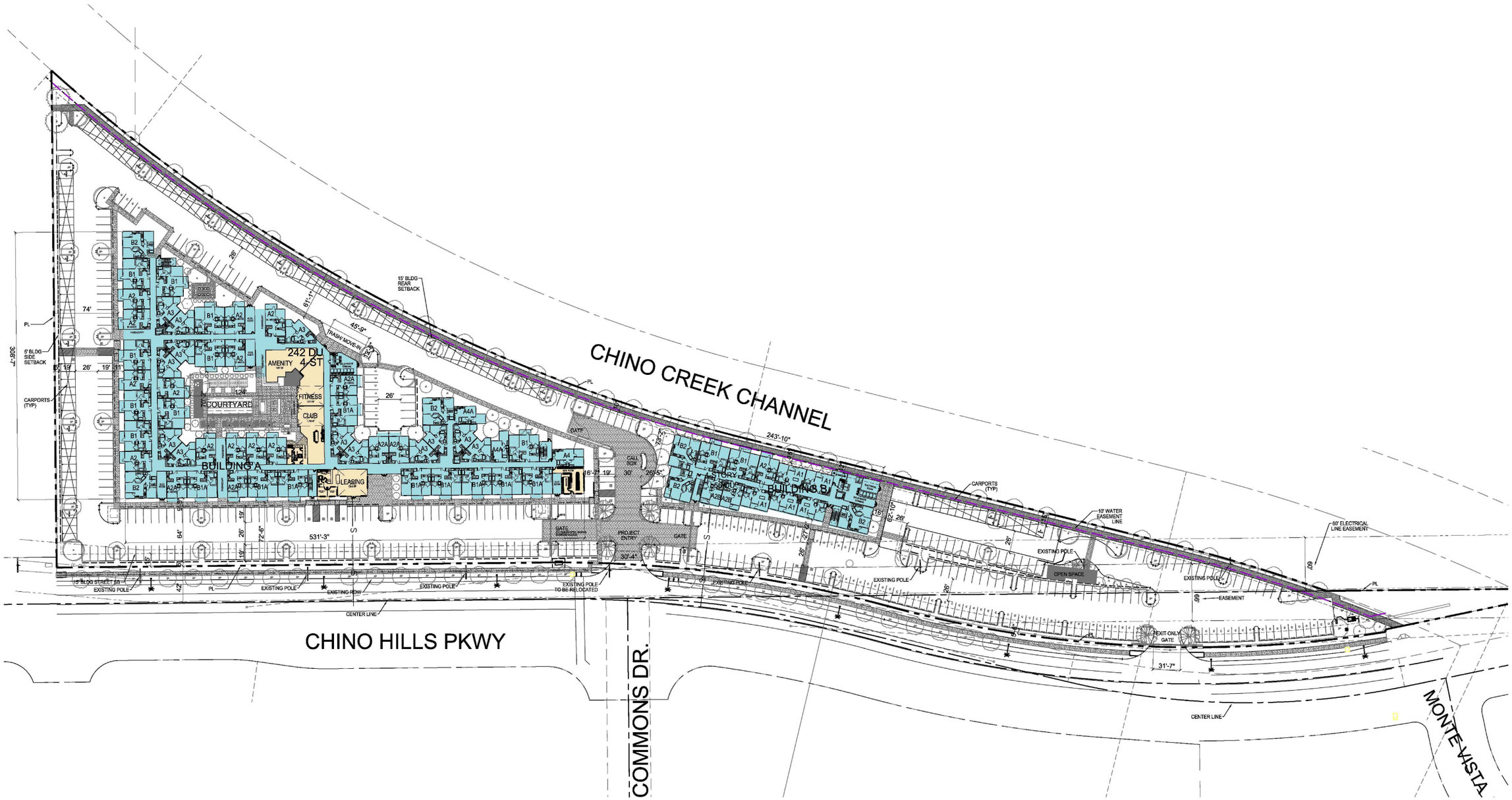
= STUDY ROADWAY SEGMENT

= PROJECT SITE

FIGURE ES-1

VICINITY MAP

CHINO CREEK APARTMENTS, CHINO



SOURCE: ARCHITECTS ORANGE

LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

FIGURE ES-2

PROPOSED SITE PLAN

CHINO CREEK APARTMENTS, CHINO

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Key Intersection		Jurisdiction
5.	SR-71 NB Ramps at Chino Hills Parkway	Caltrans/Chino Hills/ Chino
6.	Ramona Avenue at Chino Hills Parkway	Chino
7.	Commons Drive at Chino Hills Parkway	Chino Hills
8.	Monte Vista Avenue (South) at Chino Hills Parkway	Chino
9.	Monte Vista Avenue (North) at Chino Hills Parkway	Chino
10.	Central Avenue at Chino Hills Parkway	Chino
11.	Ramona Avenue at SR-71 NB Ramps	Caltrans/Chino Hills
12.	Ramona Avenue at SR-71 SB Ramps	Caltrans/Chino Hills
Roadway Segment		**Jurisdiction**
A.	Chino Hills Parkway, between Commons Drive and Monte Vista Avenue (South)	Chino/Chino Hills
B.	Chino Hills Parkway, between Monte Vista Avenue (North) and Telephone Avenue	Chino

Detailed level of service analyses was prepared at the above locations under the Existing traffic conditions, Existing With Project traffic conditions, Year 2026 Without Project traffic conditions, Year 2026 With Project traffic conditions, Year 2040 Without Project traffic conditions and Year 2040 With Project traffic conditions.

- ***Project Trip Generation*** – The proposed Project is forecast to generate 1,353 daily trips, with 110 trips (25 inbound, 85 outbound) produced in the AM peak hour and 116 trips (71 inbound, 45 outbound) produced in the PM peak hour on a "typical" weekday.

- ***Related Projects Traffic Characteristics –*** Twenty-seven (27) related projects located within the City of Chino and City of Chino Hills were considered to assess the Project's potential LOS impacts within a near-term Year 2026 cumulative traffic setting. Although not all related projects are expected to be completed and occupied by Year 2026, the traffic analysis assumes otherwise to provide a conservative traffic assessment. The twenty-seven (27) related projects included in the Year 2026 traffic conditions would generate a total of 34,067 daily trips, with 2,423 trips (1,383 inbound and 1,040 outbound) forecast during the AM peak hour and 2,758 trips (1,260 inbound and 1,498 outbound) forecast during the PM peak hour.

- ***Level of Service Analysis of 12 Study Intersections –*** The results of the traffic analysis indicates that with the addition of proposed Project-generated traffic the twelve (12) key study intersections, under Existing Plus Project, Year 2026 Cumulative Plus Project and Year 2040 Buildout Plus Project traffic conditions, are forecast to operate at an acceptable LOS or remain the same with the addition of Project generated traffic. Further, based on either the City of Chino or City of Chino Hills LOS standards and/or impact thresholds, the Project would not have any

significant impacts. Hence, none of the study intersections would require intersection capacity enhancing or operational improvements, and therefore none is recommended.

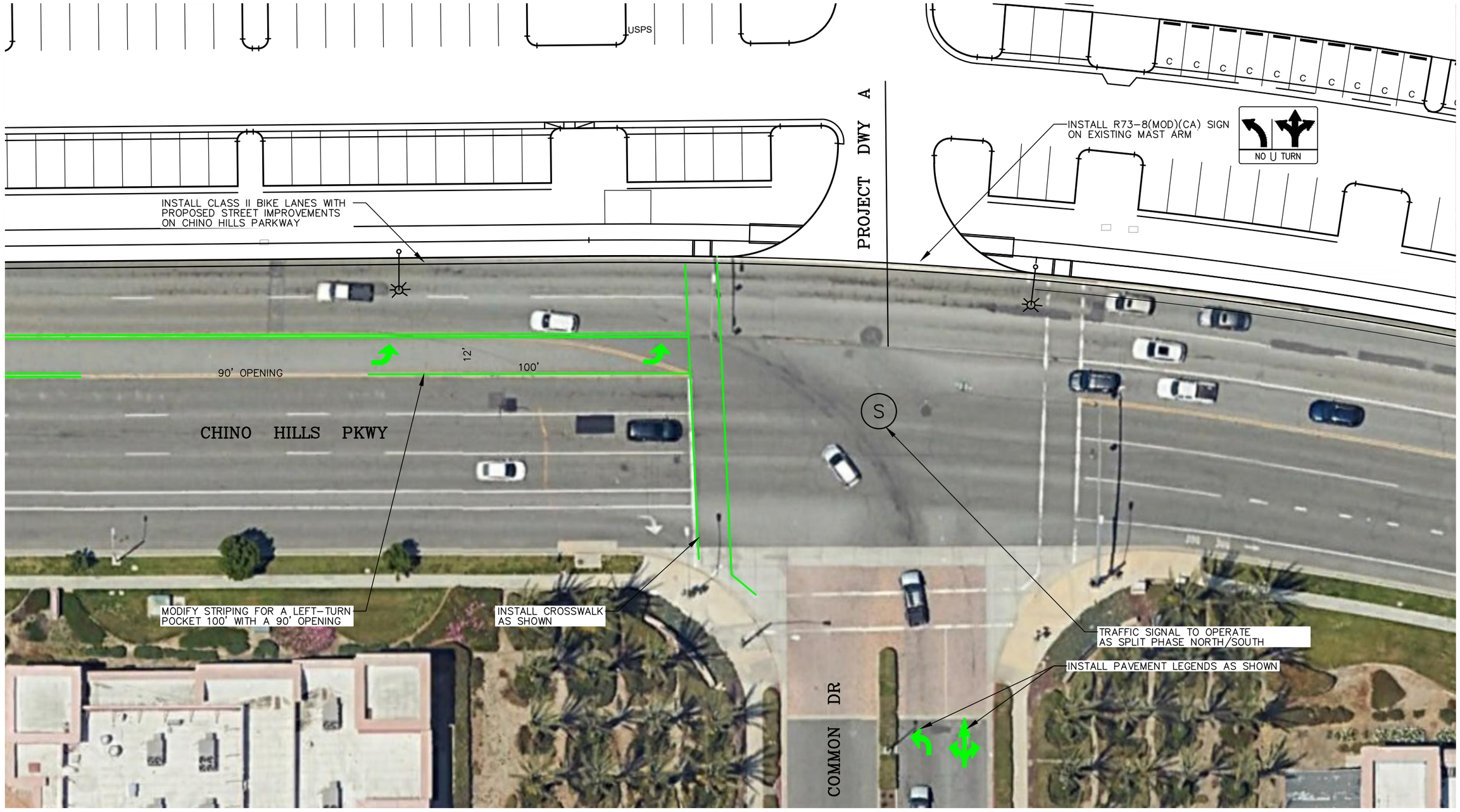
- ***Level of Service Analysis of Two (2) Roadway Segments –*** The results of the traffic analysis indicates that with the addition of proposed Project-generated traffic, the two (2) study roadway segments on Chino Hills Parkway under Existing Plus Project, Year 2026 Cumulative Plus Project and Year 2040 Buildout Plus Project traffic conditions, are forecast to operate at an acceptable LOS under the current roadway configuration/geometry. Therefore, no roadway capacity improvements are recommended or required, and there is no need to provide a six-lane roadway on Chino Hills Parkway from Ramona Avenue east to Central Avenue.

- ***Project Specific Improvements -*** The following Project design features are to be implemented in conjunction with development of the proposed Project to ensure adequate access and egress to the site is provided and have been included in Existing With Project, Year 2026 With Project and Year 2040 With Project traffic conditions:

  Intersection No. 7 – Commons Drive/Project Driveway A at Chino Hills Parkway: Construct the north leg of the intersection to include a single inbound and outbound lane. Widen and/or restripe the eastbound approach to include an exclusive left-turn lane with 100-feet of storage and a 90-foot transition. Restripe the northbound shared left/right-turn lane to a shared left/through/right lane. Maintain the existing pedestrian crosswalk on the east leg and install a crosswalk on the west leg.. Modify the existing traffic signal to include split phasing in the north-south directions and protected phasing for the eastbound left-turn movement. It should be noted that a focused assessment at the project driveway identified that both vehicular and pedestrian access could be achieved with or without the pedestrian crosswalk on the west leg. Therefore, the final design are subject to the approval of the City of Chino and the City of Chino Hills. ***Figure ES-3*** presents a conceptual improvement plan for Chino Hills Parkway at Commons Drive/Project Driveway A that illustrates the recommended intersection configuration and associated striping layout.

- ***City of Chino Traffic-Related Development Impact Fee (DIF) Requirement*** – The proposed Project results in a preliminary estimate of **$564,412.00**, all of which is attributable to the Traffic Impact Fee. The precise fee will be collected prior to the issuance of building permits by the City of Chino.

- ***Site Access Evaluation*** – The proposed Project Driveway is forecast to operate an acceptable LOS during the weekday AM and PM peak hours in the Existing With Project, Year 2026 With Project, and Year 2040 With Project traffic conditions. As such, motorists entering and exiting the Project site will be able to do so comfortably without undue congestion. As indicated above the LOS results assume that the pedestrian crosswalk on the east leg will be maintained while also installing a pedestrian crosswalk on the west leg of Commons Drive at Chino Hills Parkway. However, a focused assessment at the project driveway identified that both vehicular and pedestrian access could be achieved with or without the pedestrian crosswalk on the west leg.



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SCALE: 1"=30'

SOURCE: FUSCOE

FIGURE ES-3

CONCEPTUAL IMPROVEMENT PLAN
CHINO HILLS PARKWAY AT COMMONS DRIVE/PROJECT DRIVEWAY A

CHINO CREEK APARTMENTS, CHINO

Therefore, the final design are subject to the approval of the City of Chino and the City of Chino Hills.

Based on our evaluation, curb return radii at the project driveways have been confirmed and are generally considered adequate. The design of the entry/exit points of the project driveways are adequate for the expected traffic volumes.

A motorist's sight distance may be obstructed by future landscaping and/or hardscapes. Therefore, any landscaping and/or hardscapes should be designed such that a driver's clear line of sight is not obstructed and does not threaten vehicular or pedestrian safety, as determined by the City Engineer.

- ***Parking Management Plan (PMP)* –** The Project satisfies the parking requirement for affordable housing developments specified in the *California Government Code Section 65915.* The Project is required to provide 437 spaces as a result of 159 one-bedroom units and 139 two-bedroom units. The Project is proposing to provide 477 spaces which satisfies state requirement. Regardless of meeting the state minimum the City has requested a Parking Management Plan (PMP) be prepared.

  A residential parking permit system will be utilized to ensure that residents have a designated parking spot(s). All residential parking permits will be issued by the property manager at the time of move-in. The Property Owner/Property Management Company shall issue one (1) parking permit and assign one (1) parking space to every unit. Additional permits may be issued upon request, dependent on the number of bedrooms provided within said unit. Any additional parking permits will be required to park in the unassigned parking spaces which will operate on a first come first served basis. Additional rules are included in the Parking Management Plan Section of the report.

  In the event that additional parking is needed the Property Owner and/or Property Management Company will consider implementing a valet/valet assist program, and/or alternative parking strategies/programs to manage the parking demand to the project's proposed parking supply.

- **Construction Management Plan –** To ensure impacts to the surrounding street system are kept to a minimum during the construction process, it is recommended that a Construction Management Plan for the proposed Project be developed.

- ***Vehicle Miles Traveled (VMT) Analysis* –** The Project's detailed VMT assessment was prepared by LSA and the summary of findings, results and conclusions is documented in the *Trip Generation and Vehicle Miles Traveled Due-Diligence Assessment for Proposed 4700 Chino Hills Parkway Residential Development dated August 24, 2023*. The findings from the VMT analysis concluded that the proposed residential project would generate fewer daily and peak-hour trips than the approved land uses within the Specific Plan. In addition, the project's

potential VMT impact was evaluated using SBTAM. As shown, the project will have a less than significant transportation/VMT impact.

REVISED TRAFFIC STUDY

CHINO CREEK APARTMENTS

Chino, California

October 30, 2023

1.0 INTRODUCTION

1.1 Senate Bill 743

Senate Bill (SB) 743 (2013), codified in Public Resources Code section 21099, changed the methodology for analyzing transportation impacts under the California Environmental Quality Act (CEQA). SB 743 directed the Office of Planning and Research (OPR) to prepare proposed revisions to the CEQA Guidelines establishing new criteria for determining the significance of transportation impacts. The Secretary of the Natural Resources Agency subsequently certified CEQA Guideline 15064.3, establishing vehicle miles traveled (VMT) as the most appropriate metric to evaluate a project's transportation impacts. Upon certification of the new Guideline, automobile delay, as measured by "level of service" and other similar metrics, is no longer considered a significant impact on the environment under CEQA. (Public Resources Code 21099(b)(2).) However, the amendments to the Public Resources Code and the Guidelines did not relieve a public agency of the requirement to analyze a project's potentially significant transportation impacts related to air quality, noise, safety, or other secondary impacts associated with transportation. (Pub. Res. Code 21099(b)(3).) Consequently, this study has been commissioned to provide an evidentiary basis for analyzing the secondary impacts of the project associated with transportation and as detailed more fully below, the project's consistency with the City's General Plan Transportation Element.

1.2 Compliance with City of Chino General Plan Transportation Element

In addition to providing an evidentiary basis for evaluating a project's potentially significant impacts related to air quality, noise, safety, or other secondary impacts associated with transportation, a traffic study is necessary to evaluate a project's consistency with applicable goals and policies of the City's General Plan Transportation Element, including:

- *Objective TRA-1.1: Develop and maintain a street network that meets Chino's needs and responds to new development.*
- *Objective TRA-1.2: Adopt and enforce level of service standards that provide safe and efficient transportation for Chino's residents and workers.*
- *Objective TRA-11.1: Increase the pedestrian share of travel within Chino.*

1.3 Traffic Study

This traffic study report addresses the potential traffic circulation needs associated with the Chino Creek Apartments Project (hereinafter referred to as Project). The Project site is a 9.74±-acre triangular-shaped vacant parcel of land that is located generally located east of Ramona Avenue, north of Chino Hills Parkway, and south of Chino Creek in the City of Chino, California. The proposed Project includes the development of a new residential community with 298 residential apartment units, consisting of two (4) four-story buildings and a mix of 159 one-bedroom units and 139 two-bedroom units, of which 15 units will be designated as affordable housing. The subject property is located within the *Eucalyptus Business Park Specific Plan (EBPSP)* and was identified for development of commercial/office uses.

1.3.1 *Scope of Work*

The Scope of Work for this Project was developed in conjunction with City staff and satisfies the City of Chino requirements as outlined the *Traffic Impact Analysis Guidelines (dated December 2020)* and is consistent with the current *Congestion Management Program (CMP) for San Bernardino County, 2016 Update Traffic Impact Analysis Report Guidelines,* prepared by the SANBAG. Given the Project location in proximity to Chino Valley Freeway (SR-71), the criteria outlined in the current Caltrans Vehicle Miles Traveled-Focused *Transportation Impact Study Guide (TISG) dated May 20, 2020* was considered. ***Appendix A*** contains the Scope of Work memorandum as approved by the City of Chino.

The traffic analysis evaluates the existing operating conditions at twelve (12) key study intersections and two (2) roadway segments within the Project vicinity, estimates the trip generation potential of the proposed Project and forecasts future operating conditions without and with the additional traffic generated by the proposed Project. Where necessary, roadway and/or intersection improvements are identified. Additionally, this report includes evaluation of pedestrian/bike infrastructure and safety/hazards related to the project.

The Project site has been visited and an inventory of adjacent area roadways and intersections was performed. Existing peak hour traffic information has been collected at twelve (12) key study intersections and two (2) roadway segments for use in the preparation of intersection level of service calculations. Information concerning cumulative projects (planned and/or approved) in the vicinity of the proposed Project has been researched at the City of Chino and City of Chino Hills. Based on our research, there are twenty-seven (27) cumulative projects in the City of Chino and City of Chino Hills. These twenty-seven (27) planned and/or approved cumulative projects were considered in the cumulative traffic analysis for this Project.

This traffic report analyzes existing and future weekday AM peak hour and PM peak hour traffic conditions for a near-term (Year 2026) and long-term (Year 2040) traffic setting upon completion of the proposed Project. Peak hour traffic forecasts for the Year 2026 horizon year have been projected by increasing existing traffic volumes by an annual growth rate of 2.0% per year and adding traffic volumes generated by twenty-seven (27) cumulative projects. Long-term (Year 2040) traffic projections were derived from the San Bernardino County Traffic Analysis Model (SBTAM).

1.4 Study Area

The twelve (12) study intersections were selected for evaluation based on coordination efforts with the City Traffic Engineer and in consideration of the City's "50 PCE or more peak hour trip" criterion. The twelve (12) existing key study intersections and two (2) roadway segments listed below provide local access to the study area and define the extent of the boundaries for this traffic impact investigation. The jurisdictions where the study intersections are located are identified as well:

Key Intersection		Jurisdiction
1.	Ramona Avenue at Eucalyptus Avenue	Chino
2.	Monte Vista Avenue at Eucalyptus Avenue	Chino
3.	Pipeline Avenue at Chino Hills Parkway	Caltrans/Chino Hills
4.	SR-71 SB Ramps at Chino Hills Parkway	Caltrans/Chino Hills
5.	SR-71 NB Ramps at Chino Hills Parkway	Caltrans/Chino Hills/Chino
6.	Ramona Avenue at Chino Hills Parkway	Chino
7.	Commons Drive at Chino Hills Parkway	Chino Hills
8.	Monte Vista Avenue (South) at Chino Hills Parkway	Chino
9.	Monte Vista Avenue (North) at Chino Hills Parkway	Chino
10.	Central Avenue at Chino Hills Parkway	Chino
11.	Ramona Avenue at SR-71 NB Ramps	Caltrans/Chino Hills
12.	Ramona Avenue at SR-71 SB Ramps	Caltrans/Chino Hills

In addition, two (2) roadway segments were selected for evaluation. The jurisdictions where the roadway segments are located are identified as well:

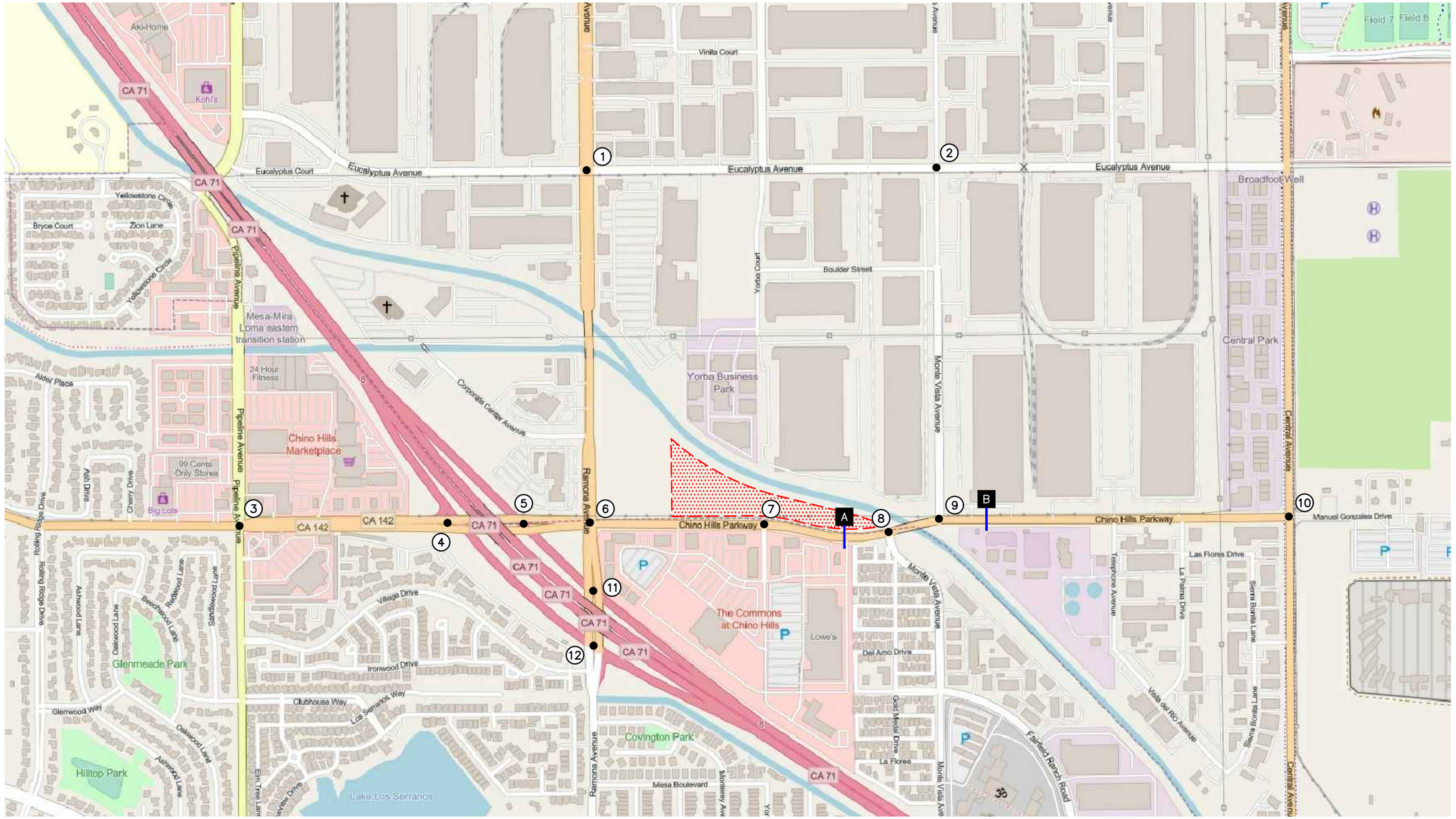
Roadway Segment		Jurisdiction
A.	Chino Hills Parkway, between Commons Drive and Monte Vista Avenue (South)	Chino/Chino Hills
B.	Chino Hills Parkway, between Monte Vista Avenue (North) and Telephone Avenue	Chino

Based on results of roadway segment analysis for Chino Hills Parkway, determine roadway capacity/number of travels lanes required to accommodate existing and future traffic volumes and maintain acceptable service levels. The *EBPSP* identifies Chino Hills Parkway as a Major (6-lane) Arterial from 600 feet east of Ramona Avenue and from 600 feet west of Central Avenue to Central Avenue, and 4-lane (Secondary) arterial on the remainder of this section.

Figure 1-1 presents a Vicinity Map, which illustrates the general location of the proposed Project and depicts the study locations and surrounding street system. The Level of Service (LOS) investigations at these key locations were used to evaluate the potential traffic-related impacts associated with area growth, cumulative projects and the proposed Project. When necessary, this report recommends roadway network improvements and/or circulation enhancements that may be required to accommodate future traffic volumes and restore/maintain an acceptable Level of Service and/or accommodate added traffic volumes generated by the Project.

Included in this Traffic Study are:

- Existing traffic counts,
- Estimated Project traffic generation/distribution/assignment,
- Estimated cumulative projects traffic generation/distribution/assignment,
- AM and PM peak hour capacity analyses for existing conditions,
- AM and PM peak hour capacity analyses for existing plus Project conditions,
- AM and PM peak hour capacity analyses for near-term (Year 2026) conditions without and with Project traffic,
- AM and PM peak hour capacity analyses for long-term (Year 2040) conditions without and with Project traffic,
- Caltrans off-ramp queuing analysis,
- Area Traffic Improvements and Circulation Enhancements,
- Site Access and Internal Circulation, and
- Parking Management Plan (PMP).



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SOURCE: GOOGLE

KEY

(#) = STUDY INTERSECTION

= STUDY ROADWAY SEGMENT

= PROJECT SITE

FIGURE 1-1

VICINITY MAP

CHINO CREEK APARTMENTS, CHINO

2.0 PROJECT DESCRIPTION

The Project site is a 9.74±-acre triangular-shaped vacant parcel of land that is located generally located east of Ramona Avenue, north of Chino Hills Parkway, and south of Chino Creek in the City of Chino, California. The subject property is located within the *Eucalyptus Business Park Specific Plan (EBPSP)* and was identified for development of commercial/office uses. Based on the information provided in the 1990 Environmental Impact Report (EIR) for the Specific Plan, the 9.74-acre parcel was approved for 339,406 square-feet (SF) of office use and 84,847 SF of commercial (retail) use. ***Figure 2-1*** presents an existing aerial photograph of the Project site.

The proposed Project includes the development of a new residential community with 298 residential apartment units, consisting of two (4) four-story buildings and a mix of 159 one-bedroom units and 139 two-bedroom units, of which 15 unit will be designated as affordable housing. The Project's on-site parking supply totals 477 spaces and will consists of 123 carport spaces and 354 surface spaces, of which 91 stalls will be "compact". ***Table 2-1*** presents the development summary for the proposed Project. ***Figure 2-2*** presents the proposed Project Site Plan prepared by AO Architecture, dated June 2023.

The Project is expected to be completed and occupied within the next couple of years, but is dependent on several factors, including the Project funding and market conditions. Hence, Year 2026 will be utilized to assess the full Project's potential opening year (full buildout/occupancy) traffic effect on the local area circulation network within a near-term cumulative traffic setting.

2.1 Site Access

Vehicular access to Project will be provided via a "full access" driveway located opposite Commons Drive, at its signalized intersection with Chino Hills Parkway, and a gated "right-turn out only" driveway on Chino Hills Parkway. It should be noted that this analysis conservatively assumes that all traffic associated with the proposed Project will utilize the signalized driveway.

The following Project design features are to be implemented in conjunction with development of the proposed Project:

- Intersection No. 7 – Commons Drive/Project Driveway A at Chino Hills Parkway: Construct the north leg of the intersection to include a single inbound and outbound lane. Widen and/or restripe the eastbound approach to include an exclusive left-turn lane with 100-feet of storage and a 90-foot transition. Restripe the northbound shared left/right-turn lane to a shared left/through/right lane. Maintain the existing pedestrian crosswalk on the east leg and evaluate the potential operational impacts with the installation of a pedestrian crosswalk on the west leg. Modify the existing traffic signal to include split phasing in the north-south directions and protected phasing for the eastbound left-turn movement. These improvements are subject to the approval of the City of Chino and the City of Chino Hills. In addition, as a part of the proposed frontage improvements along Chino Hills Parkway, the Project proposes to construct/install a Class II on-street bike lane.

2.2 Pedestrian Circulation

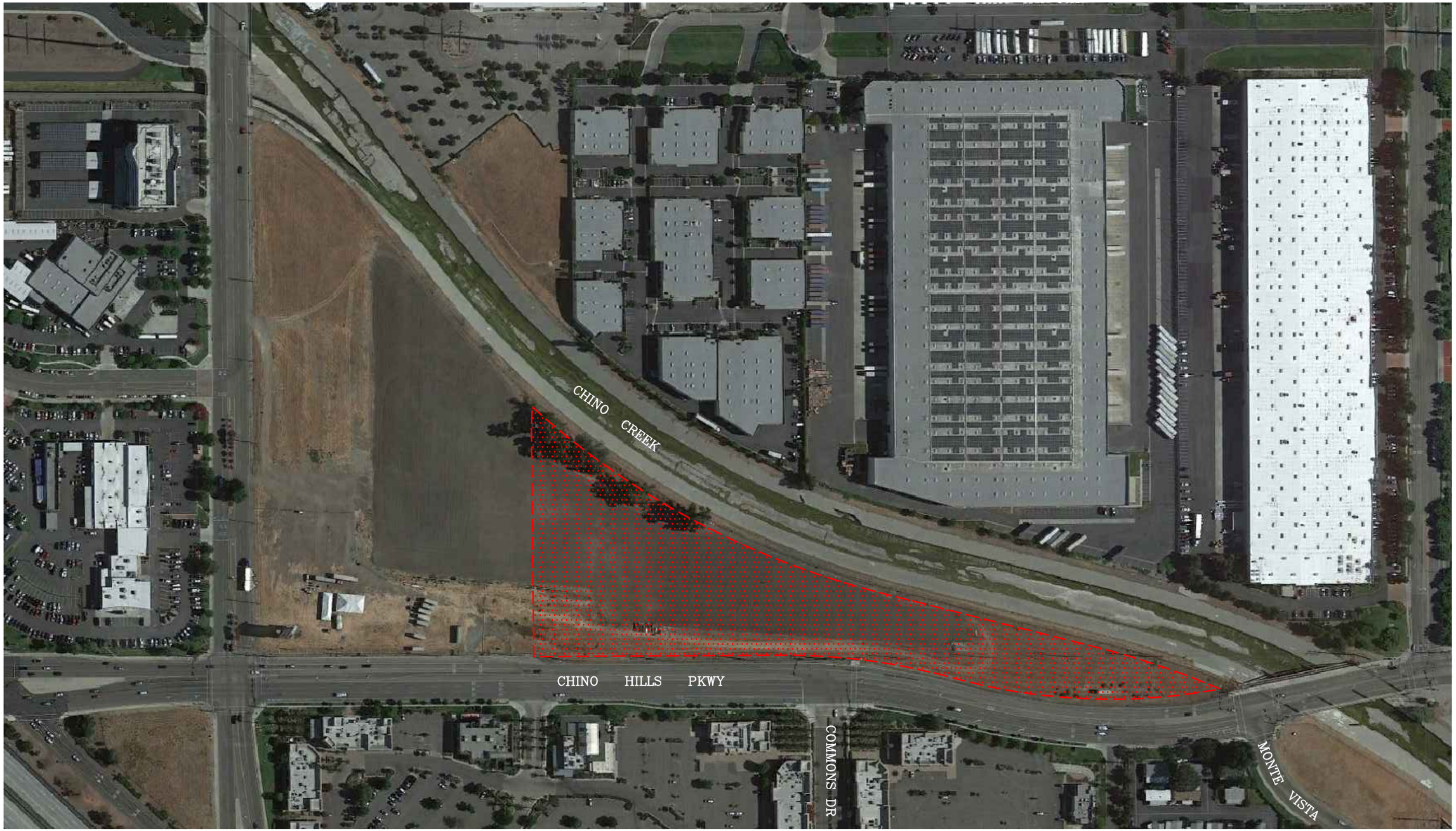
The proposed Project will construct sidewalks along the Project frontage and proposes to install, subject to the review and approval of the City, a pedestrian crosswalk on the west leg of the signalized study intersection of Commons Drive/Project Driveway A at Chino Hills Parkway while maintaining the pedestrian crosswalk on the east leg. These improvements will connect to the existing public sidewalk system within the Project vicinity. This provides direct connectivity to the major thoroughfares of Chino Hills Parkway and Ramona Avenue and pedestrian connectivity to the existing residential, recreational, institutional, and commercial development in the surrounding area, inclusive the Commons at Chino Hills shopping center, which is located directly south of the site. Internally, a pedestrian circulation access plan is proposed that will link the buildings as well as allow for a pedestrian trail that is provided along the Chino Creek Channel.

TABLE 2-1

PROJECT DEVELOPMENT SUMMARY[1]

Land Use / Project Description	Project Development Totals
Chino Creek Apartments	
❑ Building A	
o 1 Bedroom Units	127 Units (52%)
o 2 Bedroom Units	116 Units (48%)
Building A Units:	243 Units
❑ Building B	
o 1 Bedroom Units	32 Units (58%)
o 2 Bedroom Units	23 Units (42%)
Building B Units:	55 Units
Total Residential Units:	***298 Units***
Parking Supply	
o Carport Spaces	123 spaces
o Surface – Standard	263 spaces
o Surface - Compact	91 spaces
Total Parking Supply:	***477 spaces***
Bicycle Parking:	***24 spaces***

[1] Source: Architects Orange, June 2023



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LINSCOTT LAW & GREENSPAN engineers

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SOURCE: GOOGLE

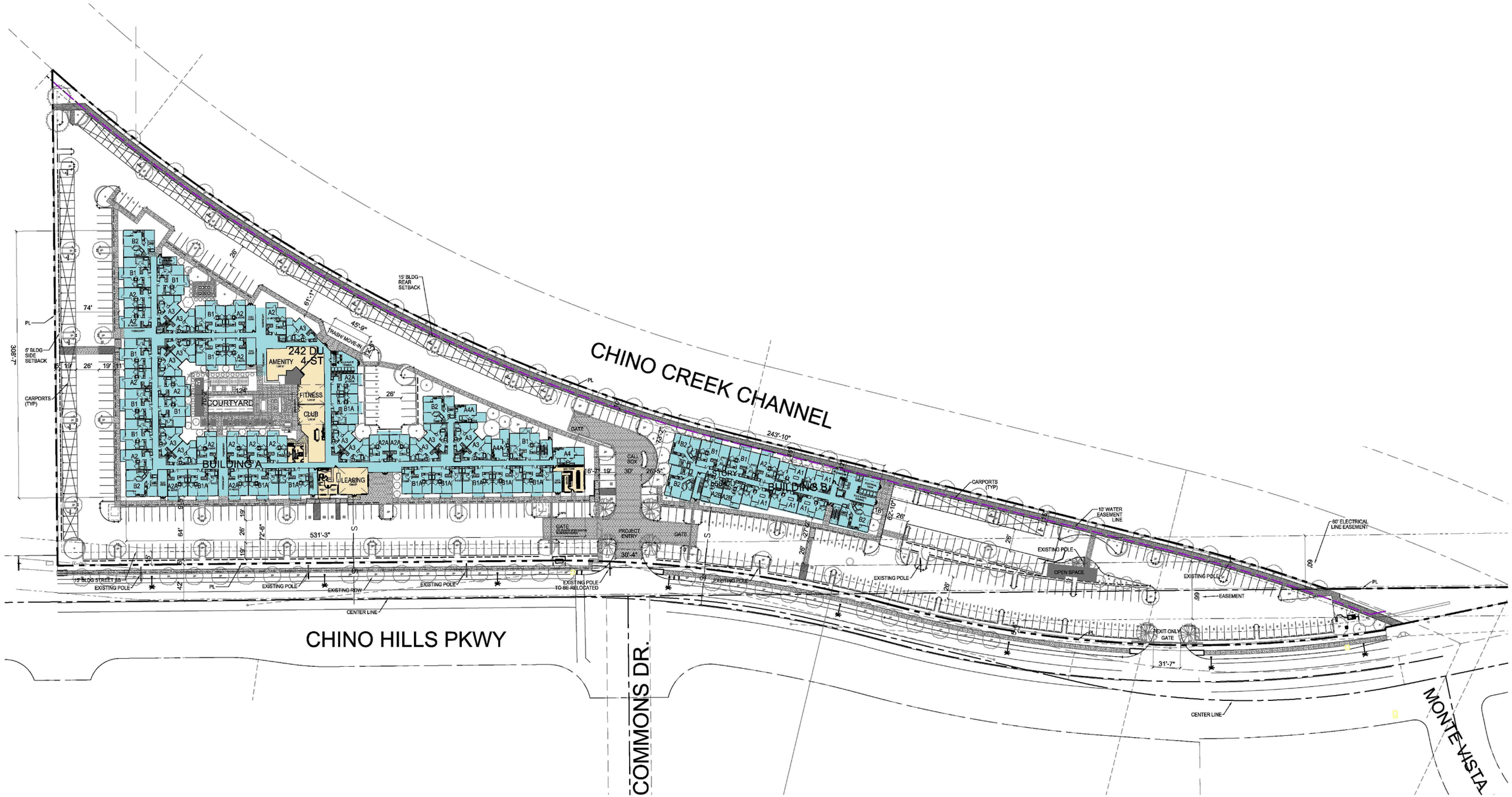
KEY

= PROJECT SITE

FIGURE 2-1

EXISTING SITE AERIAL

CHINO CREEK APARTMENTS, CHINO



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SOURCE: ARCHITECTS ORANGE

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FIGURE 2-2

PROPOSED SITE PLAN
CHINO CREEK APARTMENTS, CHINO

3.0 EXISTING CONDITIONS

3.1 Existing Street Network

The Chino Valley Freeway (State Route-71) provides primary regional access to the proposed Project site via the freeway interchanges at Chino Hills Parkway and Ramona Avenue. The principal local network of streets serving the Project site consists of Eucalyptus Avenue, Chino Hills Parkway, Pipeline Avenue, Ramona Avenue, Monte Vista Avenue, and Central Avenue. The following discussion provides a brief synopsis of these key area streets.

Eucalyptus Avenue is an east-west, four-lane divided roadway located north of the Project site. The posted speed limit on Eucalyptus Avenue is 40 miles per hour (mph). On-street parking is generally not permitted on either side of the roadway within the vicinity of the Project. Traffic signals control the study intersections of Ramona Avenue and Monte Vista Avenue (North). Per the City of Chino General Plan, Eucalyptus Avenue is classified as a secondary arterial between Ramona Avenue and Central Avenue and a primary arterial west of Ramona Avenue.

Chino Hills Parkway (SR-142) is generally a six-lane divided roadway west of SR-71 SB Ramps, a five-lane divided roadway east of SR-71 NB Ramps, and a four-lane divided roadway east of Monte Vista Avenue (South), oriented in the east-west direction, and borders the Project site to the south. The posted speed limit on this roadway is 40 mph east of Ramona Avenue and 45 mph west of Ramona Avenue. On-street parking is generally not permitted along this roadway within the vicinity of the Project. Traffic signals control the study intersections of Chino Hills Parkway at Pipeline Avenue, SR-71 SB Ramps, SR-71 NB Ramps, Ramona Avenue, Commons Drive, Monte Vista Avenue (South), Monte Vista Avenue (North), and Central Avenue. Per the *EBPSP* Chino Hills Parkway is designated as a Major (6-lane) Arterial from 600 feet east of Ramona Avenue and from 600 feet west of Central Avenue to Central Avenue, and 4-lane (Secondary) arterial on the remainder of this sections of this roadway. The City of Chino General Plan identifies Chino Hills Parkway as a primary arterial west of Monte Vista Avenue and a major arterial east of Monte Vista Avenue.

Pipeline Avenue is generally a four-lane divided roadway oriented in the north-south direction located west of the Project site. On-street parking is generally not permitted along this roadway. The posted speed limit on Pipeline Avenue is 35 mph. Traffic signals controls the study intersection of Pipeline Avenue at Chino Hills Parkway. Per the City of Chino Hills General Plan, Pipeline Avenue is classified as a minor arterial north of Chino Hills Parkway and a collector road south of Chino Hills Parkway.

Ramona Avenue is generally a four-lane divided roadway oriented in the north-south direction located west of the Project site. On-street parking is generally not permitted along this roadway. The posted speed limit on Ramona Avenue is 40 mph within the vicinity of the project. Traffic signals control the study intersections of Ramona Avenue at Eucalyptus Avenue, Chino Hills Parkway, SR-71 NB Ramps, and SR-71 SB Ramps. Per the City of Chino General Plan, Ramona Avenue is classified as a major arterial north of Chino Hills Parkway. Per the City of Chino Hills General Plan, Ramona Avenue is classified as a collector road south of Chino Hills Parkway.

Monte Vista Avenue is generally a four-lane divided roadway north of Chino Hills Parkway and a two-lane divided roadway south of Chino Hills Parkway, oriented in the north-south direction, located east of the Project site. On-street parking is generally not permitted along this roadway. The posted speed limit on Monte Vista Avenue is 40 mph north of Chino Hills Parkway and 35 mph south of Chino Hills Parkway. Traffic signals control the study intersections of Monte Vista Avenue (South) at Chino Hills Parkway and Monte Viste Avenue (North) at Chino Hills Parkway and Eucalyptus Avenue. Per the City of Chino General Plan, Monte Vista Avenue is classified as a secondary arterial.

Central Avenue is generally a four-lane divided roadway oriented in the north-south direction located east of the Project site. The posted speed limit on Central Avenue is 45 mph. On-street parking is generally not permitted along this roadway. A ttraffic signal controls the study intersection of Central Avenue at Chino Hills Parkway. Per the City of Chino General Plan, Central Avenue is classified as a major arterial.

Figure 3-1 presents an inventory of the existing roadway conditions for the arterials and intersections evaluated in this report. This figure identifies the number of travel lanes for key arterials, as well as intersection configurations and controls for the key area study intersections.

3.1.1 *Bicycle Master Plan*

The City of Chino Bicycle and Pedestrian Master Plan aims to create a more bicycle and pedestrian friendly place to encourage more residents to ride or walk rather than drive. Existing Class II bike lanes are provided along Central Avenue, Monte Vista Avenue, and Eucalyptus Avenue (between Central Avenue and Yorba Avenue), while a Class III bicycle route is provided along Chino Hills Parkway (between Central Avenue and Monte Vista Avenue) within the vicinity of the project. Per the City's General Plan, a future Class II bike lane along Pipeline Avenue and Eucalyptus Avenue (between Yorba Avenue and Pipeline Avenue) will be implemented to promote bicycle connectivity throughout the City. The City of Chino Hills identifies a future Class II bike lane along Chino Hills Parkway. An existing Class II bike lane now exists along the south side of Chino Hills Parkway, from Ramona Avenue to just east of Commons Drive. ***Figure 3-2*** and ***Figure 3-3*** present the City of Chino Future Bicycle Facilities, and Chino Hills Bikeway Master Plan, respectively.

3.1.2 *Public Transit*

Public transit bus service is provided in the Project area by Omnitrans, a public transportation agency in San Bernardino County. OmniRide, a reservation-based, on-demand shared transit service, replaced the OmniGo Route 365 and the Access ADA Service which previously served the Chino and Chino Hills communities.

3.2 Existing Traffic Volumes

Twelve (12) key study intersections and two (2) roadway segments have been identified as the locations at which to evaluate existing and future traffic operating conditions. Some portion of potential Project-related traffic will pass through each of these intersections and their analysis will reveal the expected relative effect of the Project.

Existing daily, AM and PM peak hour traffic counts were collected in May 2023 by Counts Unlimited, Inc. ***Figure 3-4*** and ***Figure 3-5*** illustrate the existing AM and PM peak hour traffic volumes at the twelve (12) key study intersections evaluated in this report, respectively. The traffic volumes illustrated in *Figures 3-5* and *3-6* are comprised of passenger vehicles, large 2-axle trucks, 3-axle trucks and 4+-axle trucks. The truck traffic turning movements were converted to passenger car equivalents (P.C.E.'s) using SANBAG approved factors. P.C.E. factors of 1.5, 2.0 and 3.0 were utilized for large 2-axle trucks, 3-axle trucks and 4+-axle trucks, respectively. *Figure 3-6* also illustrates the existing daily traffic volumes on key roadway segments within the Project study area. ***Appendix B*** contains copies of the existing traffic counts.

3.3 Existing Intersection Operating Conditions

In conformance with the Cities of Chino and Chino Hills study guidelines and San Bernardino County CMP requirements, existing AM peak hour and PM peak hour intersection operating conditions were evaluated using the methodology outlined in the *Highway Capacity Manual 7th Edition (HCM 7)* for signalized and unsignalized intersections. It is noted that the HCM operations method of analysis is also utilized by Caltrans when calculating LOS. The analysis of the roadway segments were evaluated per the Volume to Capacity (V/C) Ratio methodology.

3.3.1 *Highway Capacity Manual 7 (HCM7) Method of Analysis (Signalized Intersections)*

Based on the HCM operations method of analysis, level of service for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption and lost travel time. This method is in conformance with Caltrans standards. The delay experienced by a motorist is made up of a number of factors that relate to control, geometries, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during ideal conditions: in the absence of traffic control, in the absence of geometric delay, in the absence of any incidents and when there are no other vehicles on the road.

In the HCM, only the portion of total delay attributed to the control facility is quantified. This delay is called *control delay.* Control delay includes initial deceleration delay, queue move-up time, stopped delay and final acceleration delay. Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle. The six qualitative categories of Level of Service that have been defined along with the corresponding HCM control delay value range for signalized intersections are shown in ***Table 3-1***.

3.3.2 *Highway Capacity Manual 7 (HCM 7) Method of Analysis (Unsignalized Intersections)*

The HCM unsignalized methodology for stop-controlled intersections was utilized for the analysis of the unsignalized intersections. This methodology estimates the average control delay for each of the subject movements and determines the level of service for each movement. For all-way stop controlled intersections, the overall average control delay measured in seconds per vehicle and level of service is then calculated for the entire intersection. For one-way and two-way stop-controlled (minor street stop-controlled) intersections, this methodology estimates the worst side street delay, measured in seconds per vehicle and determines the level of service for that approach. The HCM control delay value translates to a Level of Service (LOS) estimate, which is a relative measure of the intersection performance. The six qualitative categories of Level of Service have been defined along with the corresponding HCM control delay value range, as shown in ***Table 3-2***.

3.3.3 *Daily Volume to Capacity (V/C) Ratio Method of Analysis (Roadway Segments)*

Daily operating conditions for the key study roadway segments have been investigated according to the Volume to Capacity (V/C) Ratio of each roadway segment. The V/C relationship is used to estimate the LOS of the roadway segment with the volume based on the 24-hour traffic volumes and the capacity based on the City's classification of each roadway. The six qualitative categories of Level of Service have been defined along with the corresponding Volume to Capacity (V/C) value range and are shown in ***Table 3-3***.

The roadway link capacity of each street classification according to the City of Chino General Plan is presented in ***Table 3-4***, along with the six corresponding service levels and associated V/C ratios.

TABLE 3-1

LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS (HCM)[2]

Level of Service (LOS)	Control Delay Per Vehicle (seconds/vehicle)	Level of Service Description
A	$\leq$ 10.0	LOS A describes operations with a control delay of 10 s/veh or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume –to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If it is due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.
B	> 10.0 and $\leq$ 20.0	LOS B describes operations with a control delay between 10 and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume – to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.
C	> 20.0 and $\leq$ 35.0	LOS C describes operations with a control delay between 20 and 35 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual *cycle failures* (i.e. one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.
D	> 35.0 and $\leq$ 55.0	LOS D describes operations with a control delay between 35 and 55 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.
E	> 55.0 and $\leq$ 80.0	LOS E describes operations with a control delay between 55 and 80 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable and the cycle length is long. Individual cycle failures are frequent.
F	$\geq$ 80.0	LOS F describes operations with a control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor and the cycle length is long. Most cycles fail to clear the queue.

[2] Source: *Highway Capacity Manual* (Signalized Intersections).

TABLE 3-2

LEVEL OF SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS (HCM)[3]

Level of Service (LOS)	Highway Capacity Manual Delay Value (sec/veh)	Level of Service Description
A	≤ 10.0	Little or no delay
B	> 10.0 and ≤ 15.0	Short traffic delays
C	> 15.0 and ≤ 25.0	Average traffic delays
D	> 25.0 and ≤ 35.0	Long traffic delays
E	> 35.0 and ≤ 50.0	Very long traffic delays
F	> 50.0	Severe congestion

[3] Source: *Highway Capacity Manual 7th Edition*, Chapter 20 (Two-Way Stop Control).

TABLE 3-3
LEVEL OF SERVICE CRITERIA FOR ROADWAY SEGMENTS (V/C METHODOLOGY)[4]

Level of Service (LOS)	Volume to Capacity Ratio (V/C)	Level of Service Description
A	≤ 0.600	**EXCELLENT**. Describes primarily free flow operations at average travel speeds, usually about 90% of the free flow speed for the arterial class. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Stopped delay at signalized intersections is minimal.
B	0.601 – 0.700	**VERY GOOD**. Represents reasonably unimpeded operations at average travel speeds, usually about 70% of the free flow speed for the arterial class. The ability to maneuver within the traffic stream is only slightly restricted and stopped delays are not bothersome. Drivers are not generally subjected to appreciable tension.
C	0.701 – 0.800	**GOOD**. Represents stable conditions; however, ability to maneuver and change lanes in mid-block location may be more restricted than in LOS B, and longer queues and/or adverse signal coordination may contribute to lower average travel speeds of about 50% of the average free flow speed for the arterial class. Motorists will experience appreciable tension while driving.
D	0.801 – 0.900	**FAIR**. Borders on a range in which small increases in flow may cause substantial increases in approach delay and, hence, decreases in arterial speed. This may be due to adverse signal progression, inappropriate signal timing, high volumes, or some combination of these. Average travel speeds are about 40% of free flow speed.
E	0.901 – 1.000	**POOR**. Characterized by significant approach delays and average travel speeds of one-third the free flow speed or lower. Such operations are caused by some combination of adverse progression, high signal density, extensive queuing at critical intersections, and inappropriate signal timing.
F	> 1.000	**FAILURE**. Characterizes arterial flow at extremely low speeds below one-third to one-quarter of the free flow speed. Intersection congestion is likely at critical signalized locations, with resultant high approach delays. Adverse progression is frequently a contributor to this condition.

[4] Source: *Transportation Research Board 2000.*

TABLE 3-4

LEVEL OF SERVICE CRITERIA FOR ROADWAY SEGMENTS (V/C METHODOLOGY)[5]

Facility Type	Number of Lanes	Level of Service Criteria With Associated Roadway Capacity					
		City of Chino Daily Values (VPD)[6]					
		Level of Service (LOS)					
		A	B	C	D	E	F
Major	8-lanes divided	43,000	50,200	57,400	64,600	71,800	--
Major	6-lanes divided	32,300	37,700	43,100	48,500	53,900	--
Major	4-lanes divided	21,500	25,100	28,700	32,300	35,900	--
Primary	6-lanes divided	29,000	34,000	38,000	43,000	48,000	--
Primary	4-lanes divided	18,000	20,000	24,000	27,000	30,000	--
Primary	2-lanes divided	10,000	11,000	13,000	14,000	16,000	--
Secondary	4-lanes undivided	17,000	20,000	22,000	25,000	28,000	--
Secondary	2-lanes undivided	8,000	10,000	11,000	13,000	14,000	--
Collector	2-lanes undivided	8,000	9,000	10,000	12,000	13,000	--
V/C Ratio		≤ 0.600	0.601-0.700	0.701-0.800	0.801-0.900	0.901-1.000	≥ 1.01

Notes:
- VPD = vehicles per day

[5] Source: *Transportation Research Board 2000.*

[6] Source: *City of Chino General Plan (July 2010).*

3.3.4 *Level of Service (LOS) Standards*

According to the City of Chino, as well as City of Chino Hills, LOS "D" is the minimum acceptable condition that should be maintained during the peak commute hours. Hence, any intersection or roadway segment operating at LOS "E" or "F" is considered deficient/unsatisfactory. The County of San Bernardino CMP definition of deficiency is based on maintaining a level of service standard of LOS "E" or better, except where an existing LOS "F" condition is identified in the CMP document.

Since Caltrans no longer required delay base intersection analysis for joint jurisdiction locations thresholds of significant are based on the applicable City's standards.

3.3.5 *Existing Level of Service Results – Intersections*

Table 3-5 summarizes the existing peak hour service level calculations for the twelve (12) key study intersections based on existing traffic volumes and current street geometry. Review of *Table 3-5* indicates that the twelve (12) key study intersections currently operate at an acceptable service level (LOS D or better) during the weekday AM and PM peak hours.

Appendix C presents the Delay/LOS calculation worksheets for the key study intersections.

3.3.6 *Existing Level of Service Results – Roadway Segments*

Table 3-6 summarizes the existing roadway segment service level calculations for the two (2) roadway segments based on existing traffic volumes and current street geometry. Review of *Table 3-6* indicates that the two (2) roadway segments currently operate at LOS A on a daily basis.

Appendix C presents the Delay/LOS calculation worksheets for the key study intersections.

TABLE 3-5
EXISTING (YEAR 2023) PEAK HOUR INTERSECTION CAPACITY ANALYSIS

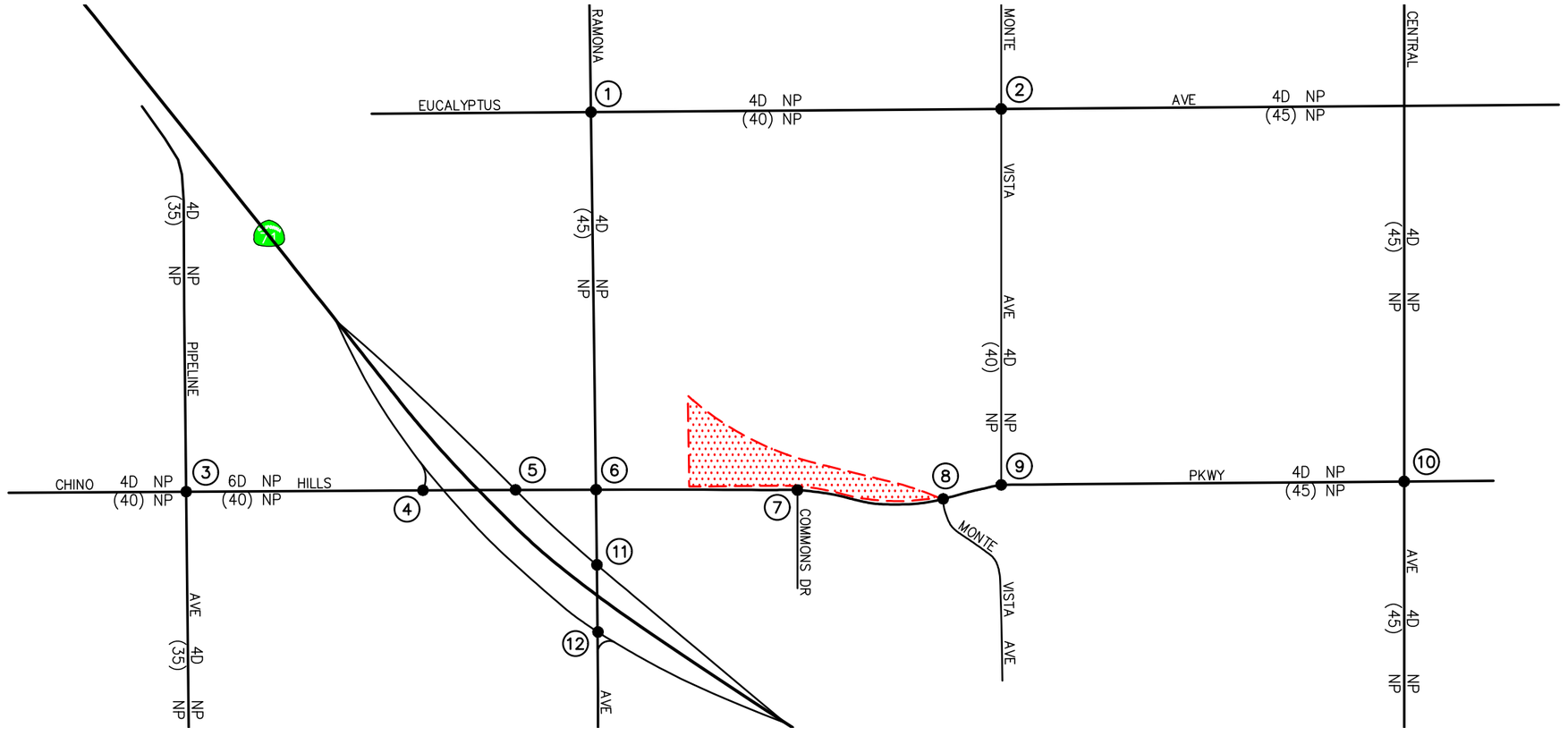
Key Intersections	Time Period	City/ Jurisdiction	Control Type	Delay (sec/veh)	V/C Ratio	LOS
1. Ramona Avenue at Eucalyptus Avenue	AM	Chino	8∅ Traffic	28.3	0.421	C
	PM		Signal	32.1	0.631	C
2. Monte Vista Avenue at Eucalyptus Avenue	AM	Chino	2∅ Traffic	26.5	0.224	C
	PM		Signal	27.3	0.254	C
3. Pipeline Avenue at Chino Hills Parkway	AM	Caltrans/ Chino Hills	8∅ Traffic	37.8	0.621	D
	PM		Signal	44.5	0.745	D
4. SR-71 SB Ramps at Chino Hills Parkway	AM	Caltrans/ Chino Hills	3∅ Traffic	25.1	0.528	C
	PM		Signal	25.7	0.655	C
5. SR-71 NB Ramps at Chino Hills Parkway	AM	Caltrans/ Chino Hills/ Chino	3∅ Traffic	25.5	0.565	C
	PM		Signal	23.3	0.611	C
6. Ramona Avenue at Chino Hills Parkway	AM	Chino	8∅ Traffic	31.8	0.618	C
	PM		Signal	33.8	0.636	C
7. Commons Drive at Chino Hills parkway	AM	Chino Hills	3∅ Traffic	5.2	0.286	A
	PM		Signal	12.0	0.416	B
8. Monte Vista Avenue (South) at Chino Hills Parkway	AM	Chino	3∅ Traffic	10.6	0.351	B
	PM		Signal	10.0	0.475	A
9. Monte Vista Avenue (North) at Chino Hills Parkway	AM	Chino	3∅ Traffic	12.2	0.392	B
	PM		Signal	10.5	0.415	B
10. Central Avenue at Chino Hills Parkway	AM	Chino	6∅ Traffic	23.5	0.575	C
	PM		Signal	28.4	0.657	C
11. Ramona Avenue at SR-71 NB Ramps	AM	Caltrans/ Chino Hills	3∅ Traffic	28.3	0.551	C
	PM		Signal	25.5	0.538	C
12. Ramona Avenue at SR-71 SB Ramps	AM	Caltrans/ Chino Hills	3∅ Traffic	20.9	0.409	C
	PM		Signal	24.4	0.526	C

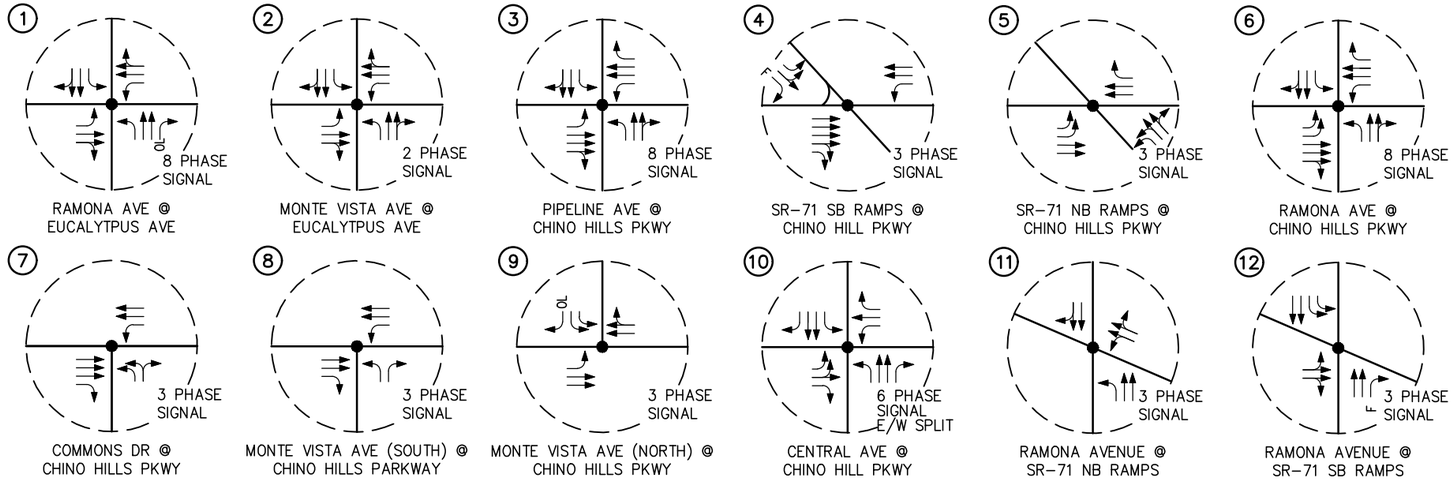
Note:
- **Bold LOS values** indicate adverse service levels based on City LOS standards.
- LOS = Level of Service, please refer to *Tables 3-1* and *3-2* for the LOS definitions.
- ∅ = Phase

TABLE 3-6
EXISTING (YEAR 2023) DAILY ROADWAY SEGMENT ANALYSIS

	Roadway Segment	City/ Jurisdiction	Classification	No. of Lanes	LOS "E" Capacity (VPD)	Daily Volume	V/C Ratio	LOS
A.	Chino Hills Parkway, between Commons Drive and Monte Vista Avenue (South)	Chino/ Chino Hills	Primary	5D	39,000	22,842	0.586	A
B.	Chino Hills Parkway, between Monte Vista Avenue (North) and Telephone Avenue	Chino	Major	4D	35,900	17,548	0.489	A

Notes:
- D = Divided; U = Undivided; VPD = Vehicles per day; V/C = Volume over capacity
- **Bold LOS values** indicate adverse service levels





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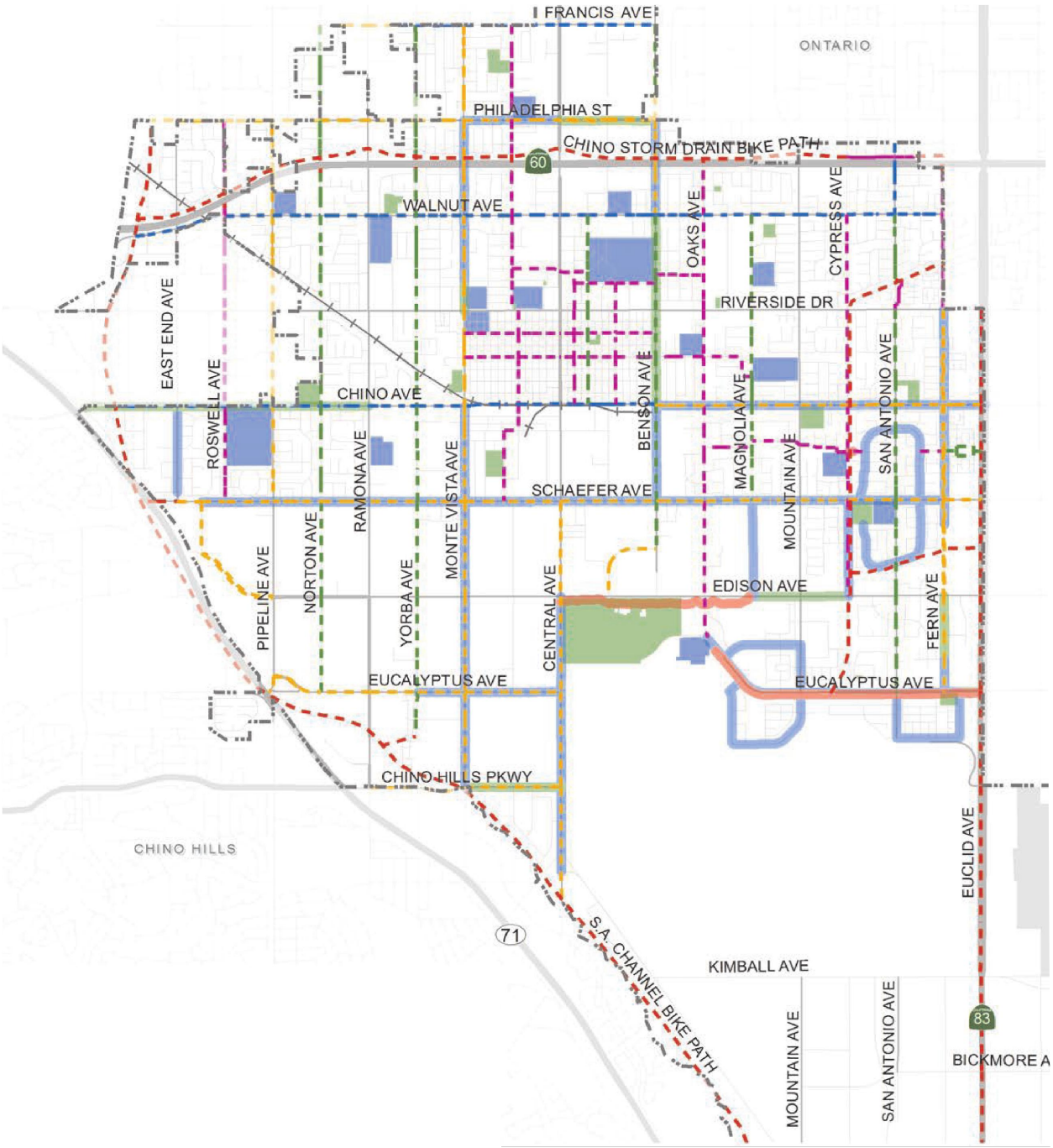
KEY

= APPROACH LANE ASSIGNMENT
= TRAFFIC SIGNAL
P = PARKING, NP = NO PARKING
U = UNDIVIDED, D = DIVIDED
2 = NUMBER OF TRAVEL LANES
(XX)= POSTED SPEED LIMIT (MPH)
F = FREE-RIGHT, OL = OVERLAP
= PROJECT SITE

FIGURE 3-1

EXISTING ROADWAY CONDITIONS AND INTERSECTION CONTROLS

CHINO CREEK APARTMENTS, CHINO



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SOURCE: CHINO BICYCLE AND PEDESTRIAN MASTER PLAN

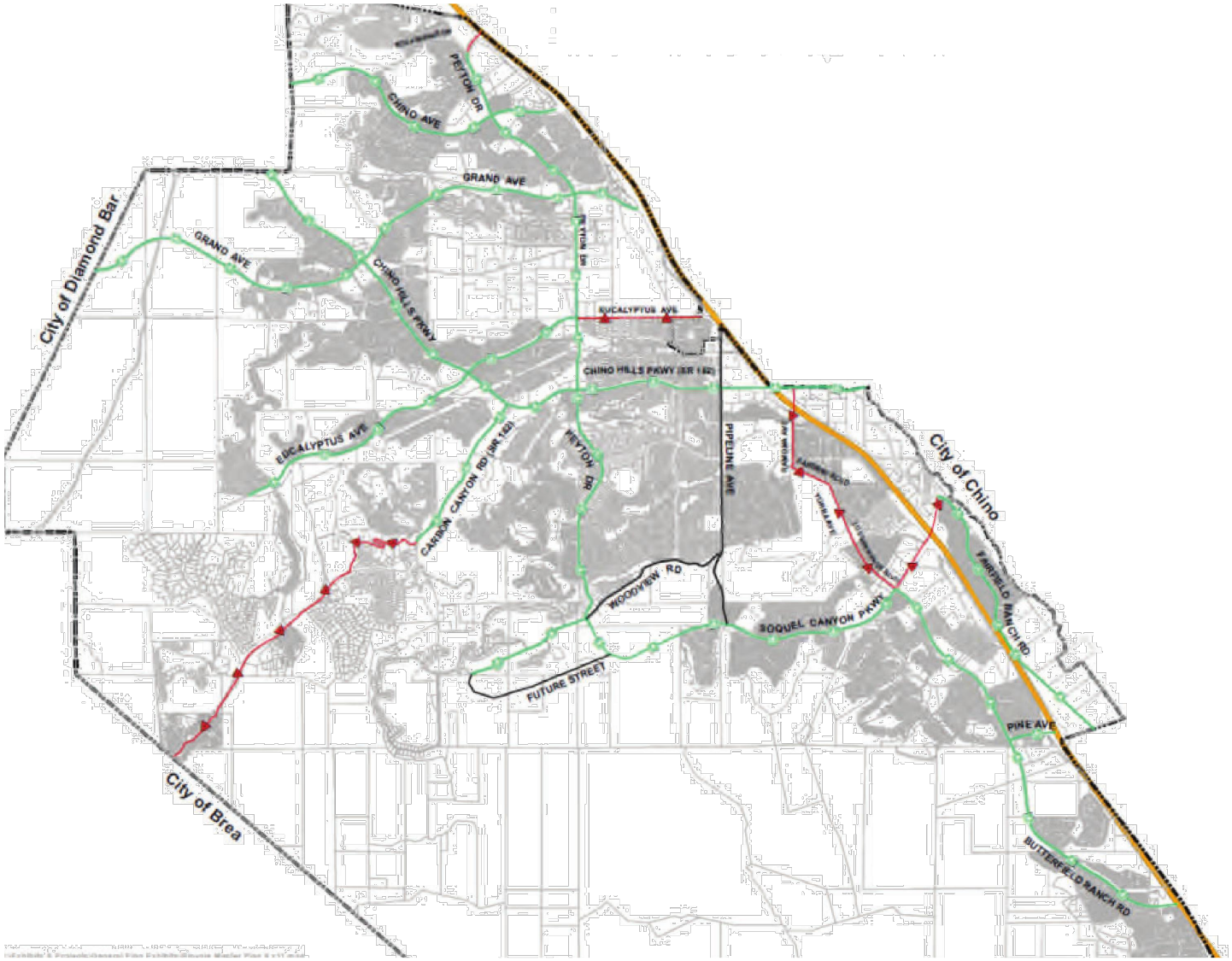
KEY

Existing Bicycle Facilities	Proposed Bicycle Projects
Class I - Shared Use Path	Class I - Shared Use Path
Class II - Bicycle Lane	Class II - Bicycle Lane
Class III - Bicycle Route	Class III - Bicycle Route
	Cycle Track
	Bicycle Boulevard

FIGURE 3-2

CHINO FUTURE BICYCLE FACILITIES

CHINO CREEK APARTMENTS, CHINO



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SOURCE: CHINO HILLS GENERAL PLAN

KEY

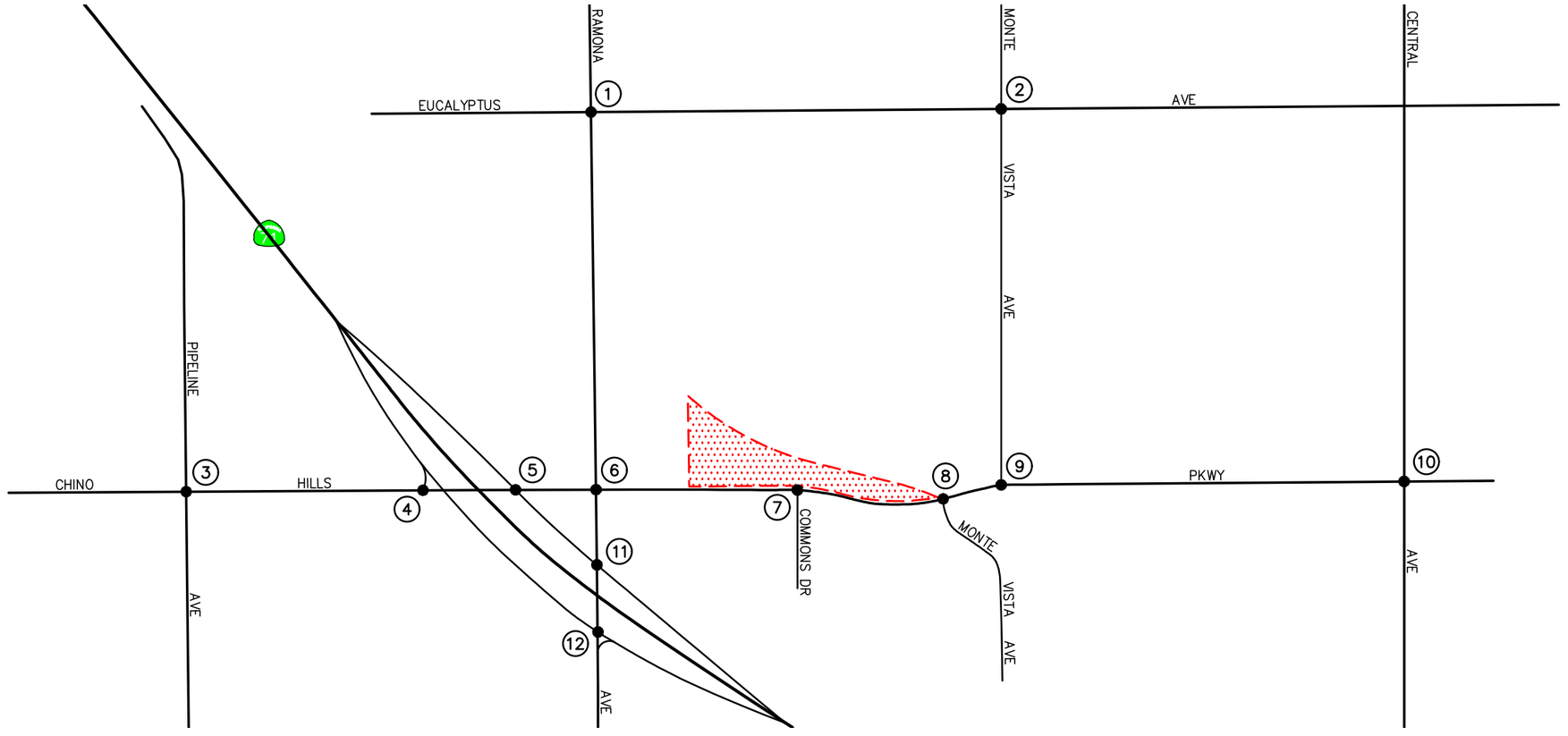
= CLASS 2 BIKE LANE

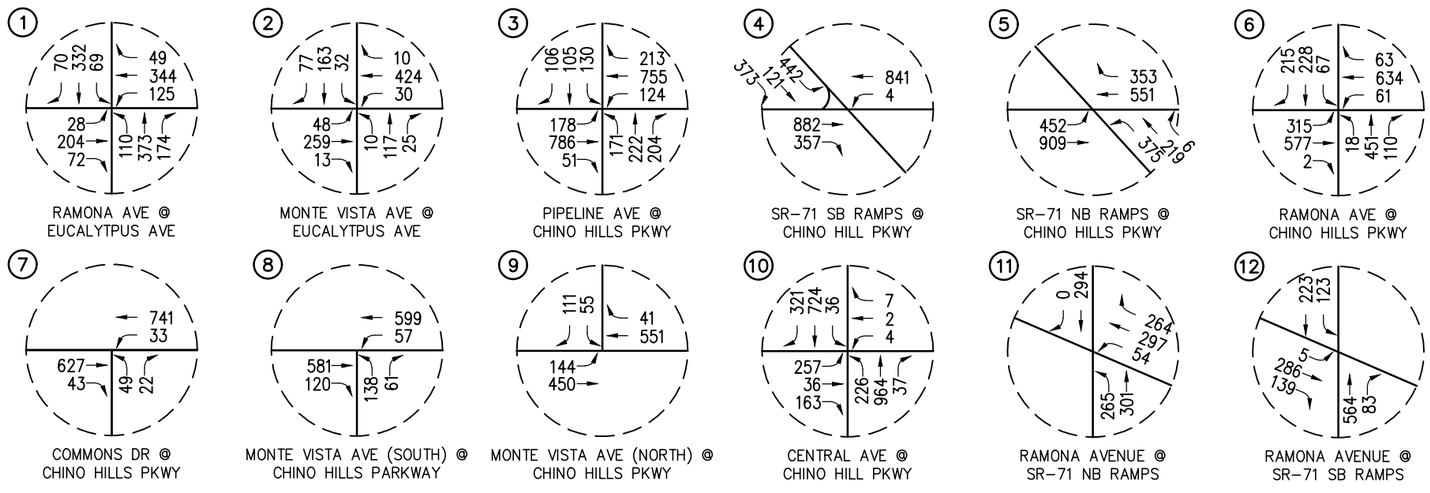
= CLASS 3 BIKE ROUTE

FIGURE 3-3

CHINO HILLS BICYCLE MASTER PLAN

CHINO CREEK APARTMENTS, CHINO





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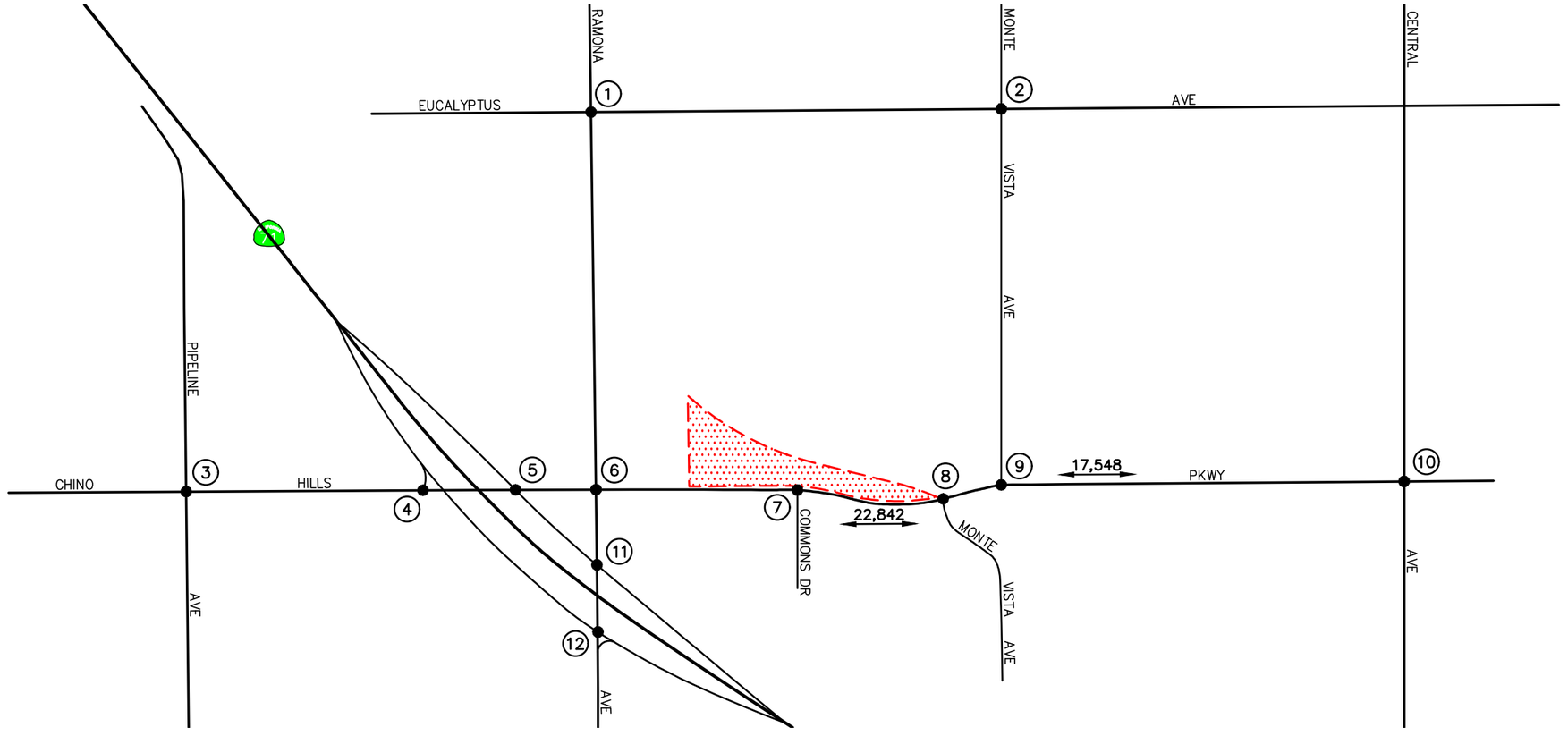
(#) = STUDY INTERSECTION

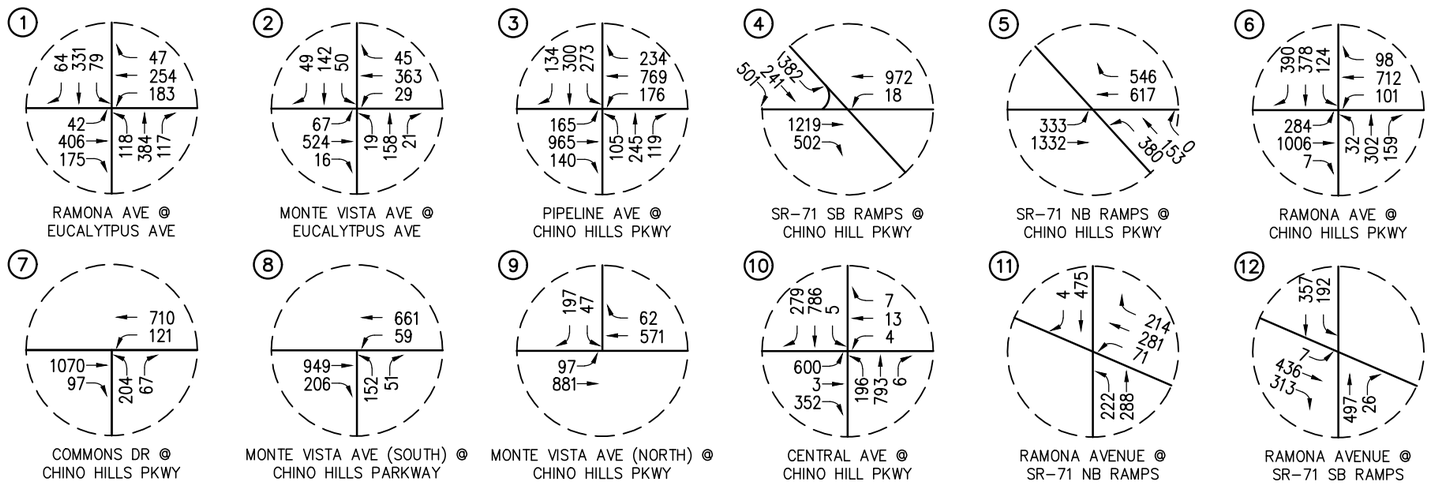
= PROJECT SITE

FIGURE 3-4

EXISTING AM PEAK HOUR TRAFFIC VOLUMES

CHINO CREEK APARTMENTS, CHINO





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KEY

(#) = STUDY INTERSECTION

XX,XXX = DAILY TRAFFIC VOLUMES

= PROJECT SITE

FIGURE 3-5

EXISTING PM PEAK HOUR AND DAILY TRAFFIC VOLUMES

CHINO CREEK APARTMENTS, CHINO

4.0 TRAFFIC FORECASTING METHODOLOGY

In order to estimate the traffic characteristics of the proposed Project, a multi-step process has been utilized. The first step is trip generation, which estimates the total arriving and departing traffic on a peak hour and daily basis. The traffic generation potential is forecast by applying the appropriate vehicle trip generation equations or rates to the Project development tabulation.

The second step of the forecasting process is trip distribution, which identifies the origins and destinations of inbound and outbound Project traffic. These origins and destinations are typically based on demographics and existing/anticipated travel patterns in the study area.

The third step is traffic assignment, which involves the allocation of Project traffic to study area streets and intersections. Traffic assignment is typically based on minimization of travel time, which may or may not involve the shortest route, depending on prevailing operating conditions and travel speeds. Traffic distribution patterns are indicated by general percentage orientation, while traffic assignment allocates specific volume forecasts to individual roadway links and intersection turning movements throughout the study area.

With the forecasting process complete and Project traffic assignments developed, the effect of the proposed Project's added traffic is isolated by comparing operational (LOS) conditions at selected key intersections using expected future traffic volumes with and without forecast Project traffic. The need for site-specific and/or cumulative local area traffic improvements can then be evaluated.

5.0 PROJECT TRAFFIC CHARACTERISTICS

5.1 Project Trip Generation

The trip generation potential of the proposed Project will be estimated using trip rates contained in the 11th Edition of *Trip Generation,* published by the Institute of Transportation Engineers (ITE), [Washington, D.C., 2021].

Table 5-1 summarizes the trip generation rates used in forecasting the vehicular trips generated by the entitled land use and proposed Project and presents the Project's forecast peak hour and daily traffic volumes. Given the description of the Entitled Land Uses and the proposed Project, as shown in the upper portion of *Table 5-1*, the trip generation potential for these uses were estimated using ITE Land Use 221: Multifamily Housing Mid Rise Not Close to Rail Transit, ITE Land Use 821: Shopping Plaza (40K to 150K) with Supermarket, and ITE Land Use 710: General Office Building trip rates.

A review of the middle portion of *Table 5-1* indicates that the proposed Project has a trip generation potential of 1,353 daily trips, with 110 trips (25 inbound, 85 outbound) produced in the AM peak hour and 116 trips (71 inbound, 45 outbound) produced in the PM peak hour on a "typical" weekday.

A review of the lower portion of *Table 5-1* indicates that the Entitled Land Uses have a potential to generate approximately 10,894 daily trips, with 786 trips (621 inbound, 165 outbound) produced in the AM peak hour and 949 trips (304 inbound, 645 outbound) produced in the PM peak hour on a "typical" weekday.

As shown at the bottom of *Table 5-1,* comparison of the trips generated by the Entitled Land Uses to the trips generated by the proposed Project shows that the proposed Project will generate 9,541 fewer daily trips, 676 fewer AM peak hour trips and 833 fewer PM peak hour trips.

Nevertheless, the potential traffic impact of the added Project weekday trips (1,353 daily, 110 AM peak hour and 116 PM peak hour) has been assessed in this traffic study.

TABLE 5-1

PROJECT TRAFFIC GENERATION RATES AND FORECAST[7]

ITE Land Use Code / Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Trip Generation Rates:							
▪ 221: Multifamily Housing (Mid-Rise) Not Close to Rail Transit (TE/DU)	4.54	23%	77%	0.37	61%	39%	0.39
▪ 821: Shopping Plaza (40K to 150K) with Supermarket (TE/TSF)	94.49	62%	38%	3.53	48%	52%	9.03
▪ 710: General Office Building (TE/TSF)	10.84	88%	12%	1.52	17%	83%	1.44
Proposed Project Trip Generation Forecast:							
▪ Apartments (298 DU)	1,353	25	85	110	71	45	116
Total Proposed Project Trip Generation	***1,353***	***25***	***85***	***110***	***71***	***45***	***116***
Approved/Entitled Trip Generation Forecast:							
▪ Retail (84,847 SF)	8,017	186	114	300	368	398	766
Pass-by (Daily: 10%, AM: 10%, PM: 40%)[8]	-802	-19	-11	-30	-147	-159	-306
Subtotal	7,215	167	103	270	221	239	460
▪ Office Buildings (339,406 SF)[9]	3,679	454	62	516	83	406	489
Approved/Entitled Trip Generation	***10,894***	***621***	***165***	***786***	***304***	***645***	***949***
Net Project Trip Generation Forecast (Proposed Project vs. Entitled)	**-9,541**	**-596**	**-80**	**-676**	**-233**	**-600**	**-833**

Notes:

- TE/DU = trip ends per dwelling unit
- TE/TSF = trip ends per 1,000 square feet

7 Source*: Trip Generation, 11th Edition*, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2021)].

8 Pass-by trips are made as intermediate stop on the way from one origin to a primary trip destination. Pass-by trips are attracted from traffic passing the site on adjacent streets, which contain direct access to the generator. For this analysis, the following pass-by reduction factors were used *Trip Generation, 11th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2021)*:

- ITE LU 821 Shopping Plaza (40K to 150K) with Supermarket: Daily – Estimated to be 10% / AM Peak Hour – Estimated to be 10% / PM Peak Hour – 40%

9 Source: *Eucalyptus Business Park Specific Plan and 1990 EIR for the Specific Plan*.

5.2 Project Trip Distribution and Assignment

Figure 5-1, as well as the tabular summary in ***Table 5-2,*** illustrates the general, directional traffic distribution pattern for the proposed Project. Project traffic volumes both entering and exiting the Project site have been distributed and assigned to the adjacent street system based on the following considerations:

- location of site access points in relation to the surrounding street system,
- the site's proximity to major traffic carriers and regional access routes,
- physical characteristics of the circulation system such as lane channelization and presence of traffic signals that affect travel patterns,
- presence of traffic congestion in the surrounding vicinity,
- ingress/egress availability at the Project site, and
- input from City staff.

The anticipated AM and PM peak hour traffic volumes associated with the proposed Project are presented in ***Figures 5-2*** and ***5-3***, respectively. The traffic volume assignments presented in *Figures 5-2* and *5-3* reflect the traffic distribution characteristics shown in *Figure 5-1* and the traffic generation forecast presented in the lower portion of *Table 5-1*. *Figure 5-3* also illustrates the added proposed Project daily traffic volumes on key roadway segments.

5.3 Existing With Project Traffic Conditions

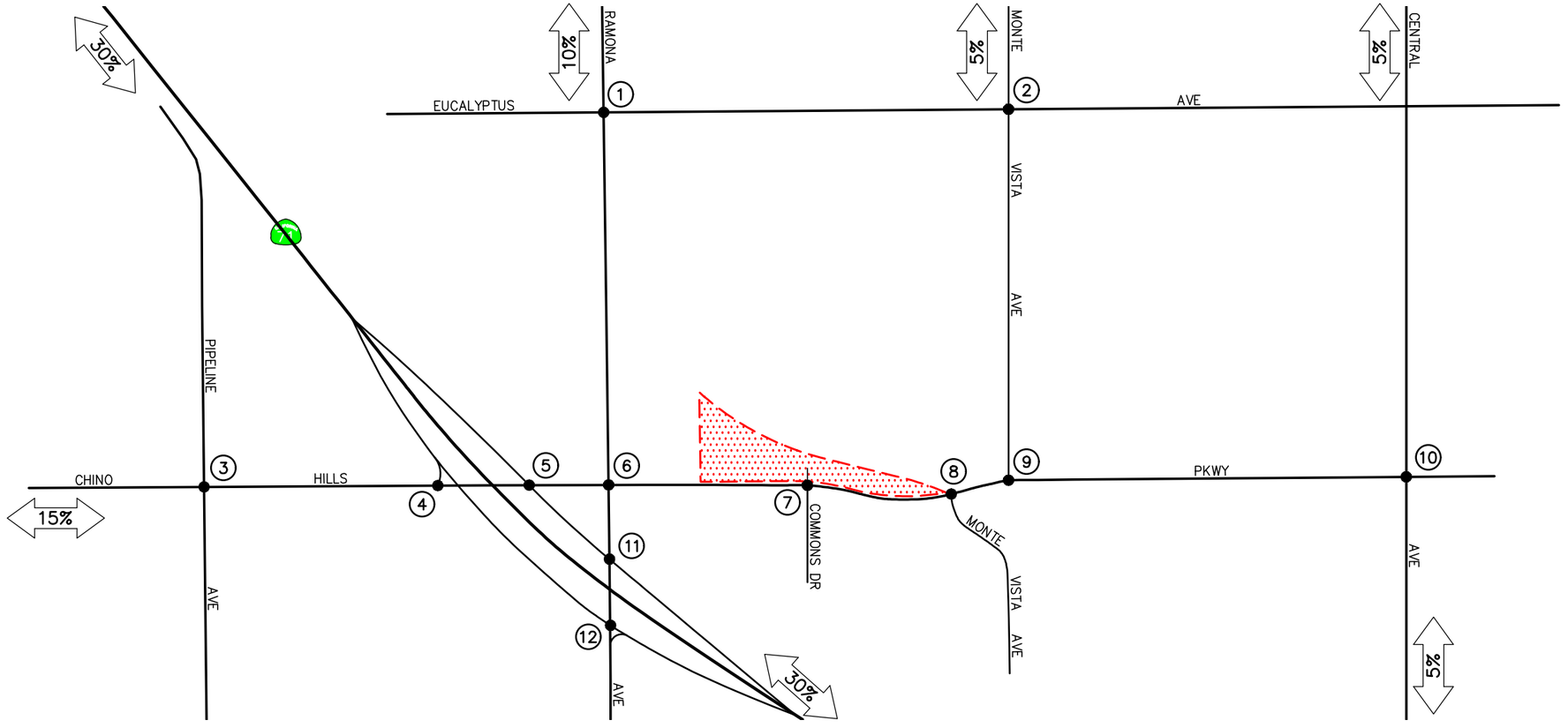
The Existing With Project traffic conditions have been generated based upon existing conditions and estimated traffic generated from the proposed Project. These forecast traffic conditions have been prepared to assess if circulation enhancements would be necessary to offset the effect of added Project-related traffic upon the circulation system as it currently exists. This traffic volume scenario and the related intersection capacity analyses will identify the roadway improvements necessary to accommodate the Project, if any.

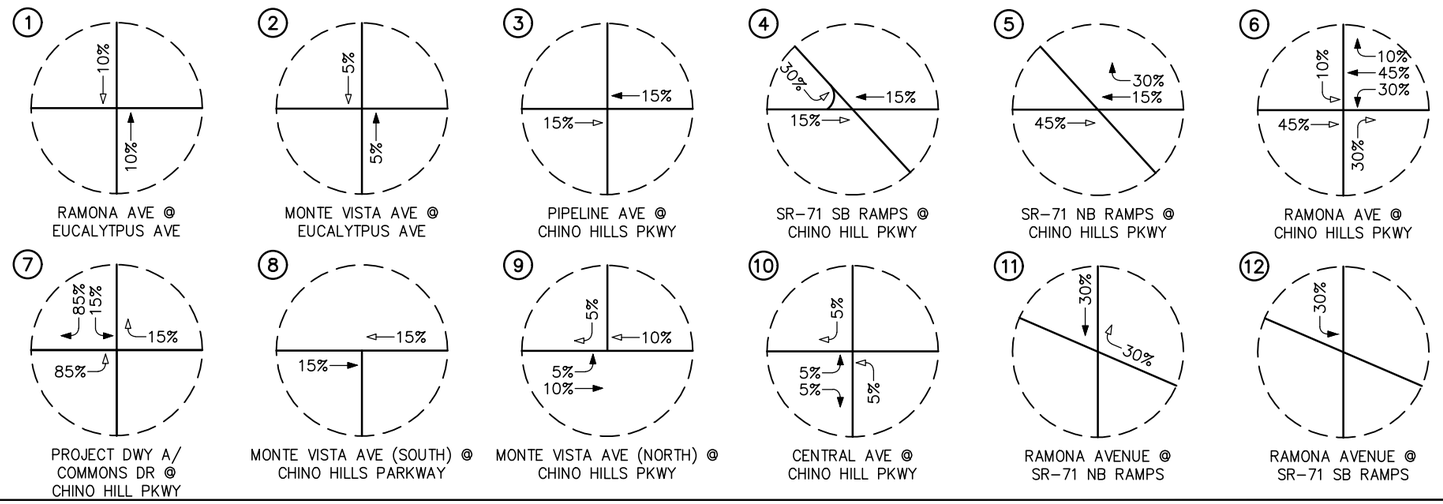
Figures 5-4 and ***5-5*** present projected AM and PM peak hour traffic volumes at the twelve (12) key study intersections with the addition of the trips generated by the proposed Project to existing traffic volumes, respectively. *Figure 5-5* also illustrates the Existing With Project daily traffic volumes on key roadway segments.

TABLE 5-2

PROJECT DIRECTIONAL DISTRIBUTION PATTERN

Distribution Percentage	Orientation/Direction
30%	To/from the north via SR-71
30%	To/from the south via SR-71
15%	To/from the west via Chino Hills Parkway
10%	To/from the north via Ramona Avenue
5%	To/from the north via Monte Vista Avenue
5%	To/from the north via Central Avenue
5%	To/from the south via Central Avenue
100%	**Total**





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KEY

(#) = STUDY INTERSECTION

⇦ = INBOUND PERCENTAGE

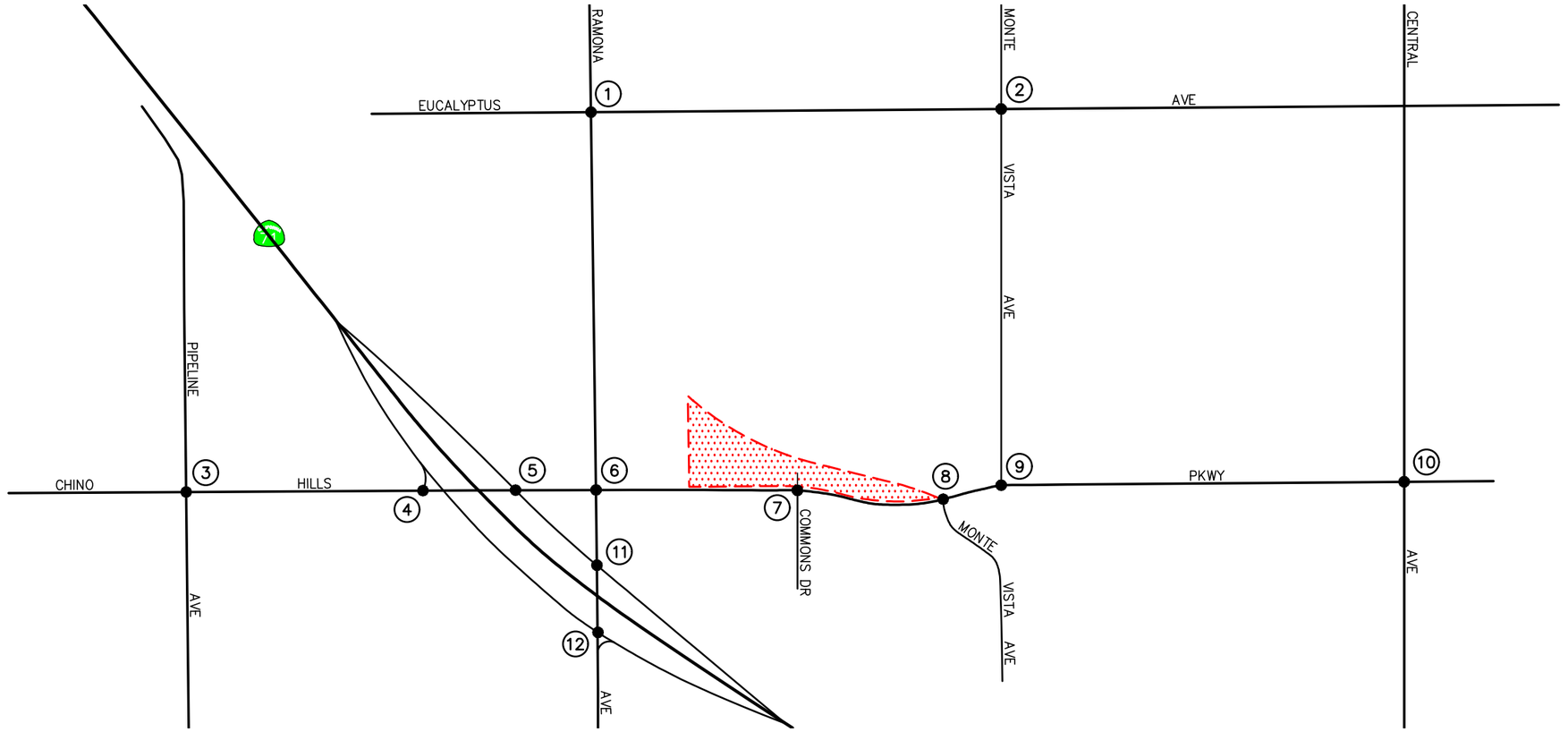
⇦ = OUTBOUND PERCENTAGE

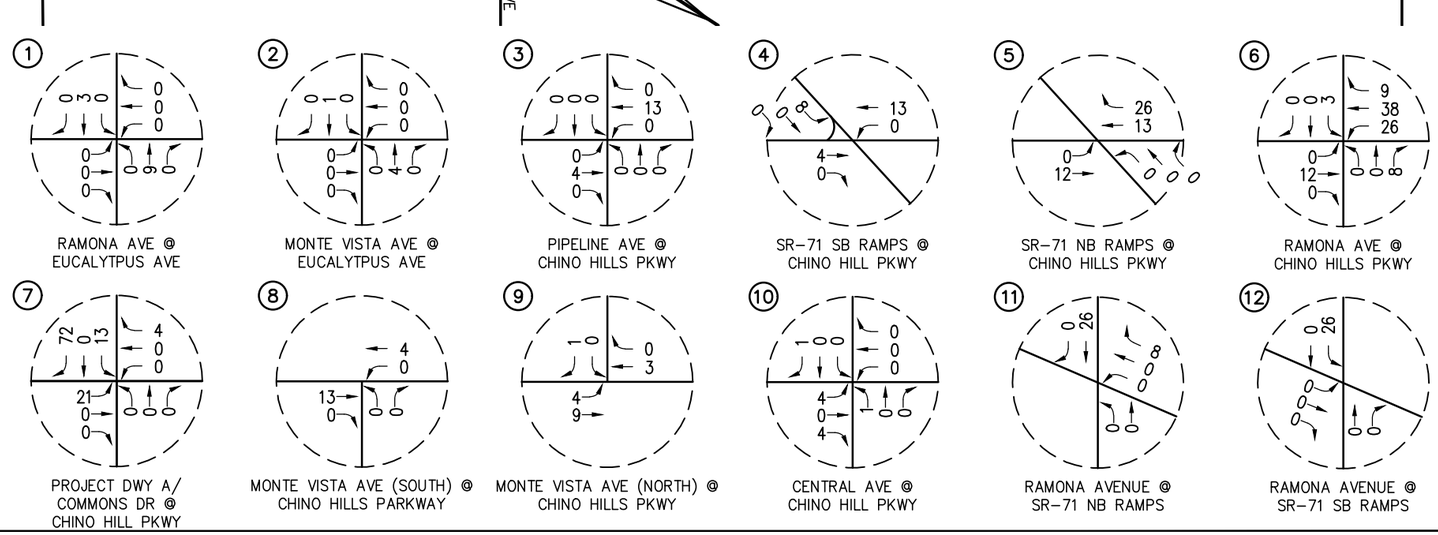
▭ = PROJECT SITE

FIGURE 5-1

PROJECT TRIP DISTRIBUTION PATTERN

CHINO CREEK APARTMENTS, CHINO





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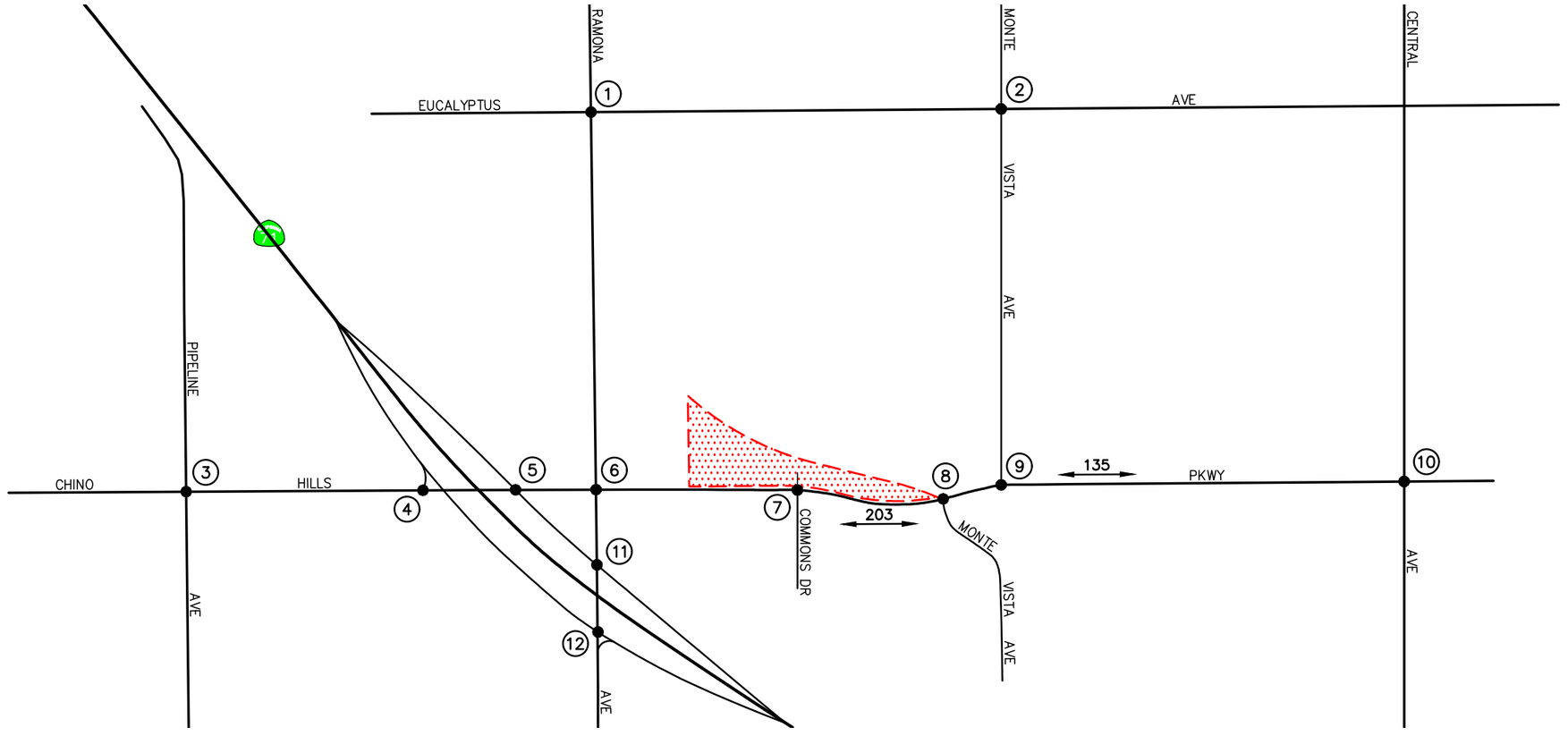
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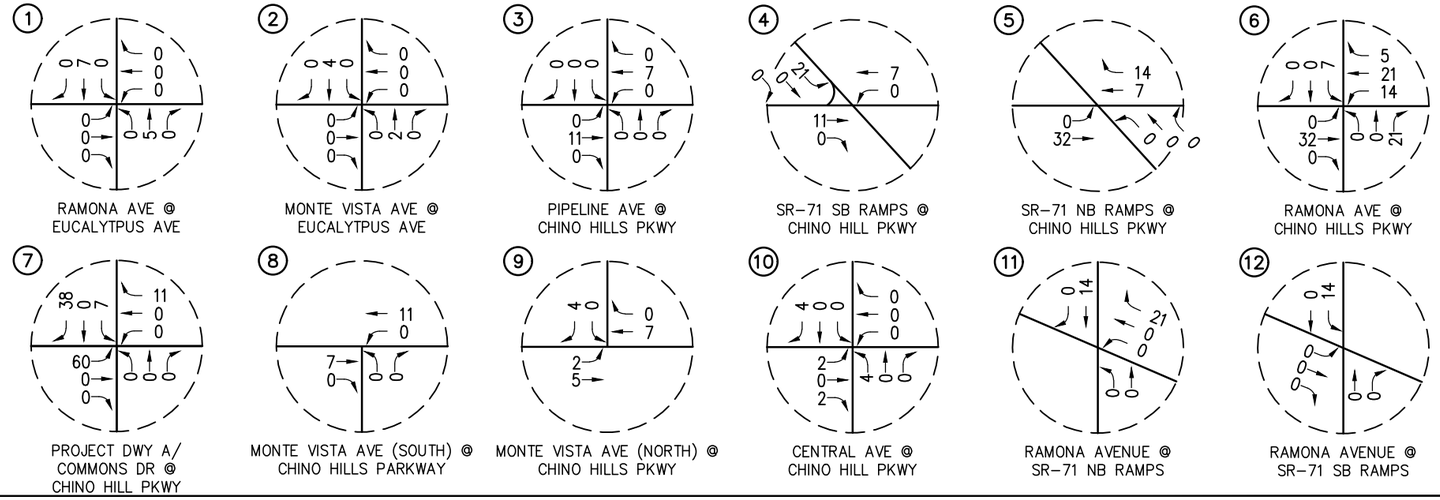
= PROJECT SITE

FIGURE 5-2

AM PEAK HOUR PROJECT ONLY TRAFFIC VOLUMES

CHINO CREEK APARTMENTS, CHINO





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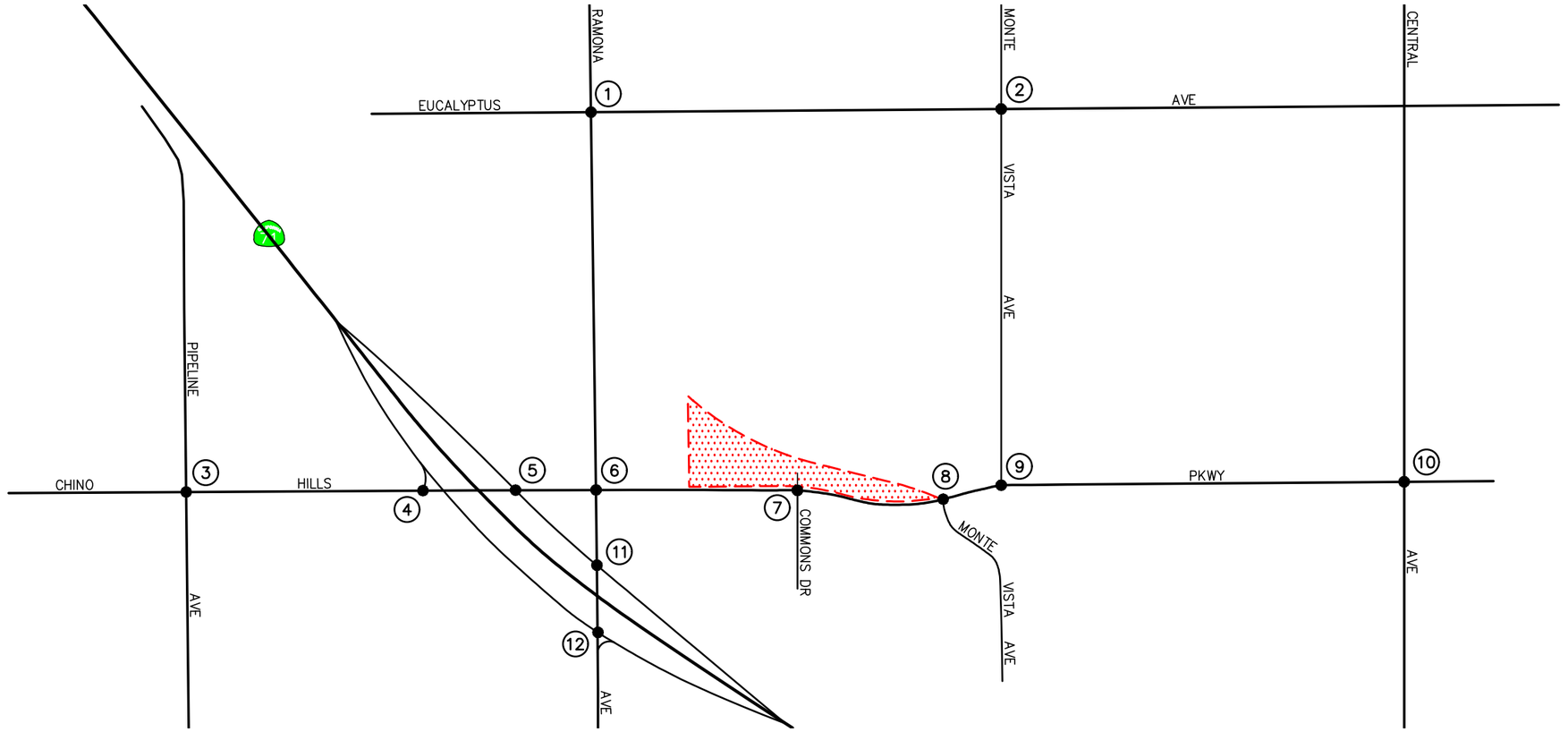
XX,XXX = DAILY TRAFFIC VOLUMES

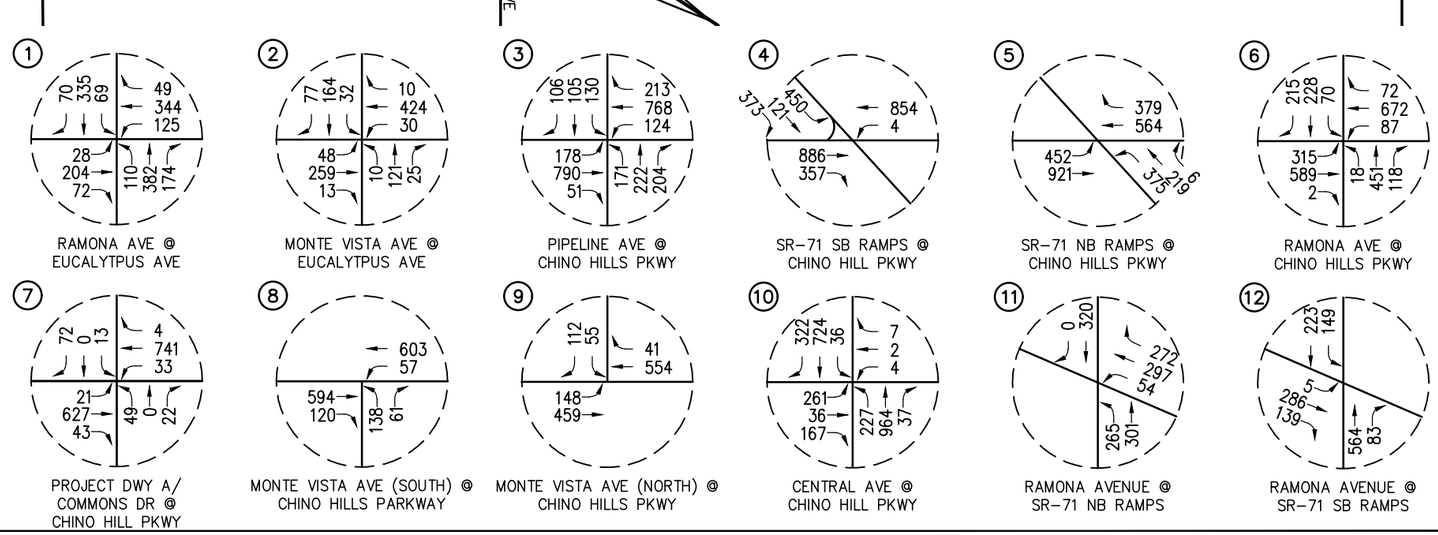
= PROJECT SITE

FIGURE 5-3

PM PEAK HOUR AND DAILY PROJECT ONLY TRAFFIC VOLUMES

CHINO CREEK APARTMENTS, CHINO





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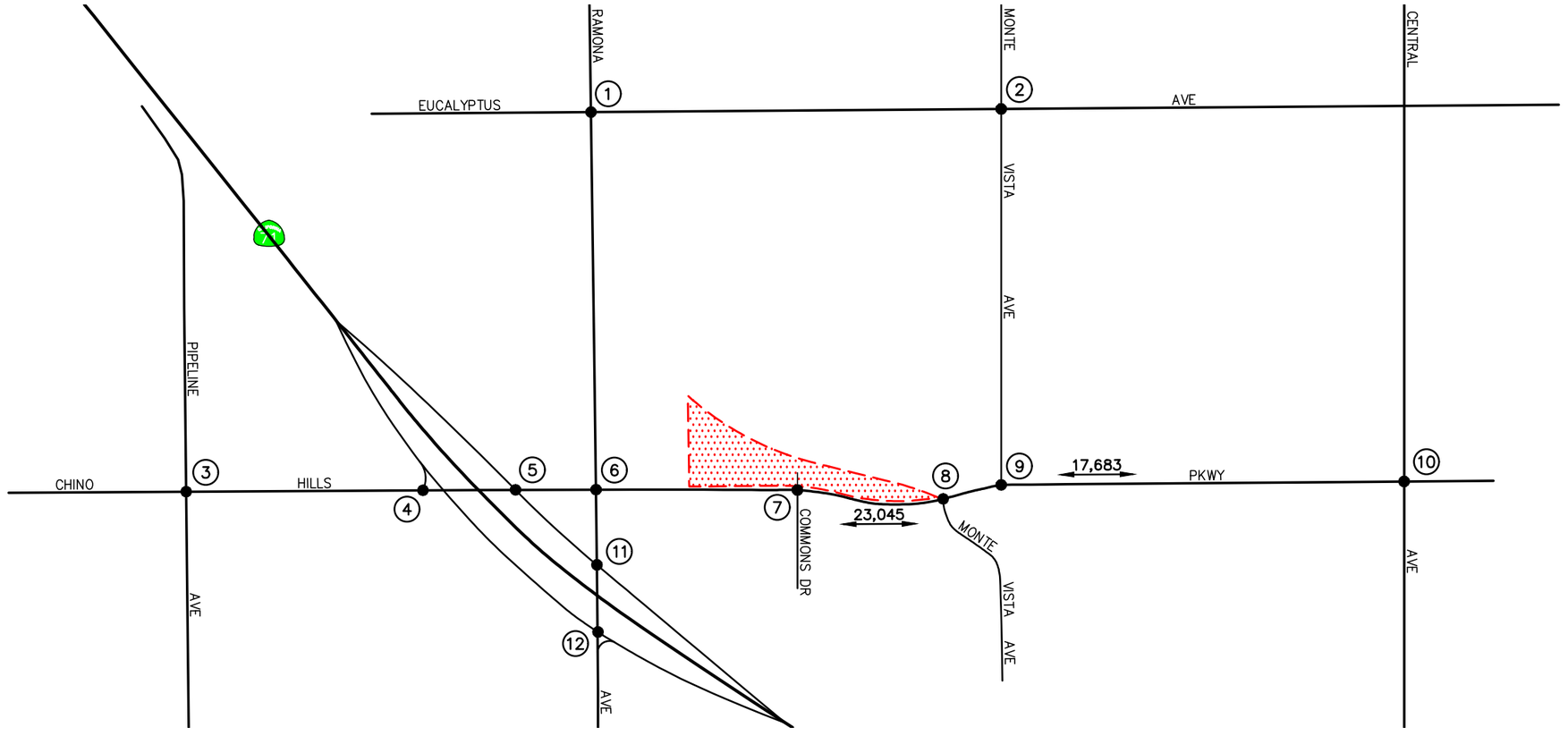
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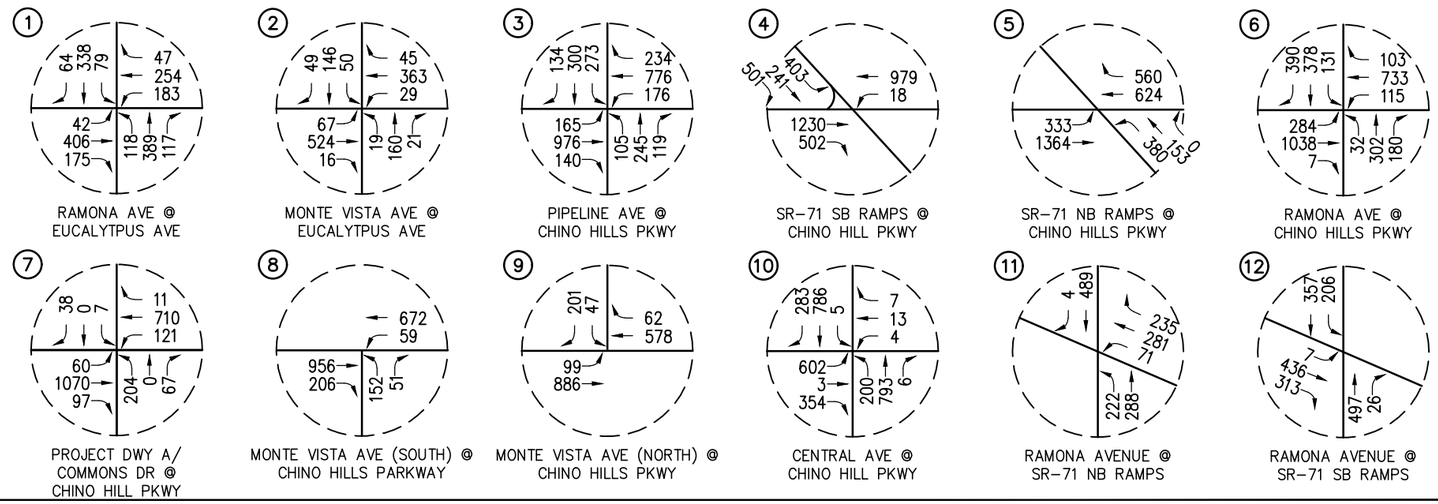
= PROJECT SITE

FIGURE 5-4

EXISTING WITH PROJECT AM PEAK HOUR TRAFFIC VOLUMES

CHINO CREEK APARTMENTS, CHINO





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KEY

(#) = STUDY INTERSECTION

XX,XXX = DAILY TRAFFIC VOLUMES

= PROJECT SITE

FIGURE 5-5

EXISTING WITH PROJECT PM PEAK HOUR AND DAILY TRAFFIC VOLUMES

CHINO CREEK APARTMENTS, CHINO

6.0 FUTURE TRAFFIC CONDITIONS

6.1 Ambient Traffic Growth

Horizon year, background traffic growth estimates have been calculated using an ambient growth factor. The ambient traffic growth factor is intended to include unknown and future related projects in the study area, as well as account for regular growth in traffic volumes due to the development of projects outside the study area in other jurisdictions. The future growth in traffic volumes has been calculated at two percent (2%) per year. Applied to the Year 2023 existing traffic volumes, this factor results in a 6% growth in existing volumes to the near-term horizon Year 2026.

6.2 Cumulative Projects Description and Location

In order to make a realistic estimate of future on-street conditions prior to implementation of the proposed Project, the status of other known development projects (cumulative projects) in the vicinity of the proposed Project has been researched at the City of Chino and City of Chino Hills. With this information, the service levels of key study intersections with the proposed Project can be evaluated within the context of the cumulative impact of all ongoing development and these cumulative projects' added traffic volumes. Based on our research completed in September 2023, there are seven (7) cumulative projects in the City of Chino and twenty (20) cumulative projects in the City of Chino Hills within the vicinity of the subject site. These twenty-seven (27) cumulative projects have been included as part of the cumulative background setting. It should be noted that changes to the status of cumulative projects (e.g. proposed to approved) will not change the results of the cumulative traffic analysis.

Table 6-1 provides the location and a brief description for each of the twenty-seven (27) cumulative projects. ***Figure 6-1*** graphically illustrates the location of the cumulative projects. These cumulative projects are expected to generate vehicular traffic, which may affect the operating conditions of the key study intersections.

6.3 Cumulative Projects Trip Generation and Assignment

Table 6-2 summarizes the trip generation rates for the various land uses of the twenty-seven (27) cumulative projects. ***Table 6-3*** presents the trip generation potential for all twenty-seven (27) cumulative projects. As shown, the cumulative projects are forecast to generate a total of 34,067 daily trips, with 2,423 trips (1,383 inbound and 1,040 outbound) forecast during the AM peak hour and 2,758 trips (1,260 inbound and 1,498 outbound) forecast during the PM peak hour.

Distribution patterns for each of the cumulative projects were developed based on the location of the trip attractors, type of land use, the site's proximity to major traffic carriers and freeways and previously completed traffic studies. The AM and PM peak hour traffic volumes associated with the twenty-seven (27) cumulative projects in Year 2026 are presented in ***Figures 6-2*** and ***6-3***, respectively. *Figure 6-3* also illustrates the added cumulative projects daily traffic volumes on key roadway segments.

TABLE 6-1

LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS[10]

No.	Cumulative Project	Location/Address	Description
City of Chino			
1.	PL18-0047	NEC of Central Avenue at El Prado Road	4,120 SF gas station with 3,200 SF convenience store, 1,800 SF fast-food restaurant without drive-thru, and 1,540 SF automated car wash
2.	PL19-0003	15022 La Palma Drive	15,460 SF industrial
3.	PL20-0026	SEC of Ramona Avenue at Danito Court	59,755 SF school district office
4.	PL20-0029	13404 Yorba Avenue	325,300 SF industrial
5.	PL21-0004	5985 Eucalyptus Avenue	17,785 SF commercial, 16,969 SF office, 15,876 SF restaurant and 27,000 SF church
6.	PL23-0034	13610 Yorba Avenue	305,000 SF industrial
7.	PL23-0058	14670 Ramona Avenue	125 student private school
City of Chino Hills			
8.	Buddhist Temple of Chino Hills	NEC of Rustic Drive at Chino Hills Parkway	23,400 SF Buddhist temple expansion
9.	Biz Park (formerly Heritage Professional Center)	Generally at SEC of Soquel Canyon Parkway and Pomona Rincon Road and east of Chino Hills High School	141,650 SF office/retail, 46,000 SF warehouse/manufacturing – 187,650 SF of Building
10.	The Commons	South of Chino Hills Parkway, east of Ramona Avenue and north of SR-71	533,675 SF existing shopping center Built/Unoccupied: 63,300 SF of floor area for Anchor tenant Entitled/Unbuilt: 53,500 SF of floor area
11.	Coptic Orthodox Church	East side of Peyton Drive, north of the Chino Creek Drainage Channel and south of the Chino Valley Community Church property	14,695 SF multi-purpose room, 8,645 SF Sanctuary and 555 SF Bookstore
12.	Fire Station 68	Soquel Canyon Parkway and the terminus of Pipeline Avenue	11,813 SF Fire Station and a 6,332 SF Essential Resource Facility (ERF)
13.	Canyon Estates	3300 Woodview Road	165 DU Single Family and 163 DU Multifamily
14.	Country Club Villas	Pomona Rincon Road between Wallace Avenue and Los Serranos Road	70 DU Multifamily
15.	Morningfield Estates and Loving Savior of the Hills Lutheran Church and School Master Plan	South of Morningfield Drive, west of Peyton Drive, north of Chino Hills Parkway, adjacent to San Bernardino County Flood Channel	7-Lot Subdivision with semi-custom single-family homes, plus 3 classrooms/71 student addition to the Lutheran School
16.	Paradise Ranch	Canyon Hills Road, north of Hillcrest Development	50 DU Single Family
17.	Rancho Cielito	48.37 acres is generally located north of Los Serranos Boulevard, south of Lakeview Drive and east of Pipeline Avenue	354 residential apartment units, consisting of seven (7) two-story and seven (7) three-story residential carriage buildings, ten (10) three-story residential buildings and two (2) clubhouses.

[10] Source*: City of Chino Planning Department and City of Chino Hills Community Development Department.*

TABLE 6-1 (CONTINUED)

LOCATION AND DESCRIPTION OF CUMULATIVE PROJECTS[11]

No.	Cumulative Project	Location/Address	Description
City of Chino Hills (Continued)			
18.	Stonefield Development	Northwest of Carbon Canyon Road and east of Fairway Drive	28 DU Single Family
19.	The Reserve at Chino Hills	Reserve at Chino Hills Apartment Complex	42 DU Multifamily
20.	Western Hills Residences	Western Hills Golf Course	187 DU Multifamily
21.	Prime Wash Express	SWC of Romona Avenue at Chino Hills Parkway	135-foot automated car wash tunnel and 82-foot polish tunnel
22.	Vila Borba	West and east of Butterfield Ranch Road near Pine Avenue	Tract 16413 19 DU single family and Tract 16414 - 220 DU multifamily units
23.	Go Storeit	Southeast of Monte Vista and Chino Hills Parkway	115,740 SF self-storage facility
24.	Shady View	Terminus of Shady View Drive	159 DU Single Family
25.	Costco Expansion	Peyton Drive within Crossroads Marketplace	16 VFP gas station, 4,745 SF car wash and 19,498 SF building expansion
26.	Golftec	Yorba Avenue, adjacent to Los Serranos Golf Course Clubhouse parking lot	3,376 SF retail
27.	Commercial Building	Pomona Rincon Road	8,819 SF building for tutoring, office, and commercial

[11] Source*: City of Chino Hills Community Development Department.*

TABLE 6-2

TRIP GENERATION RATES APPLIED TO CUMULATIVE PROJECTS[12]

ITE Land Use Code	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
▪ 110: General Light Industrial (TE/1000 SF)	4.87	88%	12%	0.74	14%	86%	0.65
▪ 140: Manufacturing (TE/1000 SF)[13]	3.93	77%	23%	0.62	31%	69%	0.67
▪ 150: Warehousing (TE/1000 SF)[13]	1.74	77%	23%	0.17	27%	73%	0.19
▪ 151: Mini-Warehouse (TE/1000 SF)	1.45	59%	41%	0.09	47%	53%	0.15
▪ 210: Single Family Detached (TE/DU)	9.43	26%	74%	0.70	63%	37%	0.94
▪ 220: Multifamily Housing Low Rise (TE/DU)	6.74	24%	76%	0.40	63%	37%	0.51
▪ 220: Multifamily Housing Low Rise (TE/DU)[13]	7.32	23%	77%	0.46	63%	37%	0.56
▪ 221: Multifamily Housing Mid Rise (TE/DU)[13]	5.44	26%	74%	0.36	61%	39%	0.44
▪ 495: Recreational Community Center (TE/1000 SF)[14]	33.82	66%	34%	2.05	49%	51%	2.74
▪ 530: Private School (K-8) (TE/Student)	4.11	56%	44%	1.01	46%	54%	0.26
▪ 560: Church (TE/1000 SF)	7.60	62%	38%	0.32	44%	56%	0.49
▪ 560: Church (TE/1000 SF)[14]	9.11	62%	38%	0.56	48%	52%	0.55
▪ 575: Fire and Rescue Station (TE/1000 SF)	4.80[15]	71%[16]	29%[16]	0.48[16]	29%	71%	0.48
▪ 710: General Office Building (TE/1000 SF)	10.84	88%	12%	1.52	17%	83%	1.44
▪ 710: General Office Building (TE/1000 SF)[13]	9.74	86%	14%	1.16	16%	84%	1.15
▪ 710: General Office Building (TE/1000 SF)[14]	11.03	88%	12%	1.56	17%	83%	1.49
▪ 720: Medical-Dental Office Building[14]	36.13	79%	21%	2.39	28%	72%	3.57
▪ 760: Research & Development Center (TE/1000 SF)[13]	11.26	75%	25%	0.42	15%	85%	0.49
▪ 820: Shopping Center (TE/1000 SF)[13]	37.75	62%	38%	0.94	48%	52%	3.81
▪ 821: Shopping Plaza 40k to 150k without Supermarket (TE/1000 SF)	67.52	62%	38%	1.73	49%	51%	5.19
▪ 822: Strip Retail Plaza less than 40k (TE/1000 SF)	54.45	60%	40%	2.36	50%	50%	6.59

[12] Unless otherwise noted, Source: *Trip Generation*, 11th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2021).

[13] Source*: Trip Generation, 10th Edition*, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2017)]. Trip rates are consistent with the methodology identified in the *Chino Hills Biz Park TIA*, prepared by LLG Engineers in November 2022 and *The Reserve at Chino Hills TIA,* prepared .

[14] Source*: Trip Generation, 9th Edition*, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2012)]. Trip rates are consistent with the methodology identified in the *Coptic Orthodox Church TIA*, prepared by LLG Engineers in January 2017 and *Buddhist Temple TIA,* prepared by LLG Engineers in January 2017. Furthermore, it should also be noted that the trip rates identified for ITE Land Use 495: Recreational Community Center in the *Trip Generation 9th Edition* are considered more conservative when compared to the trip rates identified in the *Trip Generation 11th Edition*.

[15] Due to unavailable daily trip generation data for ITE Land Use 575: Fire and Rescue Station (Trip Ends Per Thousand Square Feet), the daily rate was based on the total PM peak hour rate multiplied by 10 resulting in: 0.48 * 10 = 4.80.

[16] Due to unavailable AM peak hour trip generation data for ITE Land Use 575: Fire and Rescue Station (Trip Ends Per Thousand Square Feet), the AM peak hour rate was based on the total PM peak hour rate, with the entering and exiting percentages assumed to be the reverse of the PM peak hour enter/exit percentages.

TABLE 6-2 (CONTINUED)
TRIP GENERATION RATES APPLIED TO CUMULATIVE PROJECTS[17]

ITE Land Use Code	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
▪ 857: Discount Club	42.46	61%	39%	0.80	50%	50%	4.19
▪ 932: High-Turnover Sit-Down Restaurant (TE/1000 SF)	107.20	55%	45%	9.57	61%	39%	9.05
▪ 932: High-Turnover Sit-Down Restaurant (TE/1000 SF)[18]	112.18	55%	45%	9.94	62%	38%	9.77
▪ 933: Fast Food Restaurant without Drive Through Window (TE/1000 SF)	450.49	58%	42%	43.18	50%	50%	33.21
▪ 945: Gasoline Service Station with Convenience Store - VFP 2 to 8 (TE/1000 SF)	624.20	50%	50%	40.59	50%	50%	48.48
▪ 948: Automated Car Wash (TE/1000 SF)[19]	142.00	50%	50%	14.20	50%	50%	14.20
▪ Speedwash (TE/LFWT)[20]	8.663	0.275	0.204	0.479	0.450	0.463	0.913

[17] Unless otherwise noted, Source: *Trip Generation*, 11th Edition, Institute of Transportation Engineers (ITE), Washington, D.C. (2021).

[18] Source*: Trip Generation, 10th Edition*, Institute of Transportation Engineers, (ITE) [Washington, D.C. (2017)]. Trip rates are consistent with the methodology identified in the *Chino Hills Biz Park TIA*, prepared by LLG Engineers in November 2022.

[19] ITE Land Use 948: Automated Car Wash assumes car washes are closed during the AM peak hour. Conservatively, the AM peak hour rates have been matched to the PM peak hour rates and the Daily total is 10 times the PM peak hour total.

[20] Based on driveway traffic counts conducted on Friday (2/7/2014) at Victorville Speedwash (12147 Industrial Boulevard, Victorville).

TABLE 6-3
CUMULATIVE PROJECTS TRIP GENERATION FORECAST

No.	Cumulative Project Description	Daily Two-Way	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
City of Chino								
1.	PL18-0047	2,392	74	64	138	59	59	118
2.	PL19-0003	75	10	1	11	1	9	10
3.	PL20-0026	648	80	11	91	15	71	86
4.	PL20-0029	1,584	212	29	241	30	181	211
5.	PL21-0004	2,792	127	83	210	95	94	189
6.	PL23-0034	1,485	199	27	226	28	170	198
7.	PL23-0058	514	71	55	126	15	18	33
City of Chino Hills								
8.	Buddhist Temple of Chino Hills[21]	200	7	5	12	6	6	12
9.	Biz Park (formerly Heritage Professional Center)[22]	2,267	173	47	220	63	167	230
10.	The Commons	7,097	112	70	182	178	186	364
11.	Coptic Orthodox Church[23]	581	23	12	35	22	23	45
12.	Fire Station 68[24]	87	6	3	9	3	6	9
13.	Canyon Estates	2,655	46	135	181	150	88	238
14.	Country Club Villas	472	7	21	28	23	13	36
15.	Morningfield Estates and Loving Savior of the Hills Lutheran Church and School Master Plan[25]	264	36	33	69	24	26	50
16.	Paradise Ranch[26]	481	9	27	36	30	18	48
17.	Rancho Cielito[27]	2,591	37	125	162	125	73	198
18.	Stonefield Development	189	3	8	11	9	5	14
19.	The Reserve at Chino Hills[28]	307	4	15	19	15	9	24
20.	Western Hills Residences[29]	1,260	18	57	75	60	35	95
21.	Prime Wash Express	1,410	45	33	78	73	75	148
22.	Vila Borba	1,662	24	77	101	82	48	130
23.	Go Storeit[30]	172	6	5	11	8	10	18
24.	Shady View	1,499	29	82	111	94	55	149

21 Source: *Buddhist Temple TIA,* prepared by LLG Engineers in January 2017.

22 Source: *Chino Hills Biz Park TIA*, prepared by LLG Engineers in November 2022.

23 Source: *Coptic Orthodox Church TIA*, prepared by LLG Engineers in January 2017.

24 Source: *Chino Valley Fire Station 68 Focused TIA*, prepared by LLG Engineers in April 2023.

25 Source: *Morningfield Estates and Loving Savior of the Hills Lutheran Church and School TIA Report,* prepared by LLG Engineers in April 2017.

26 Source: *Paradise Ranch Traffic Study,* prepared by LLG Engineers in March 2022.

27 Source: *Rancho Cielito TIA Report,* prepared by LLG Engineers in June 2021.

28 Source: *The Reserve at Chino Hills TIA Report,* prepared by LLG Engineers in April 2020.

29 Source: *Chino Hills General Plan Update Traffic Study – Site 4,* prepared by LLG Engineers in November 2022.

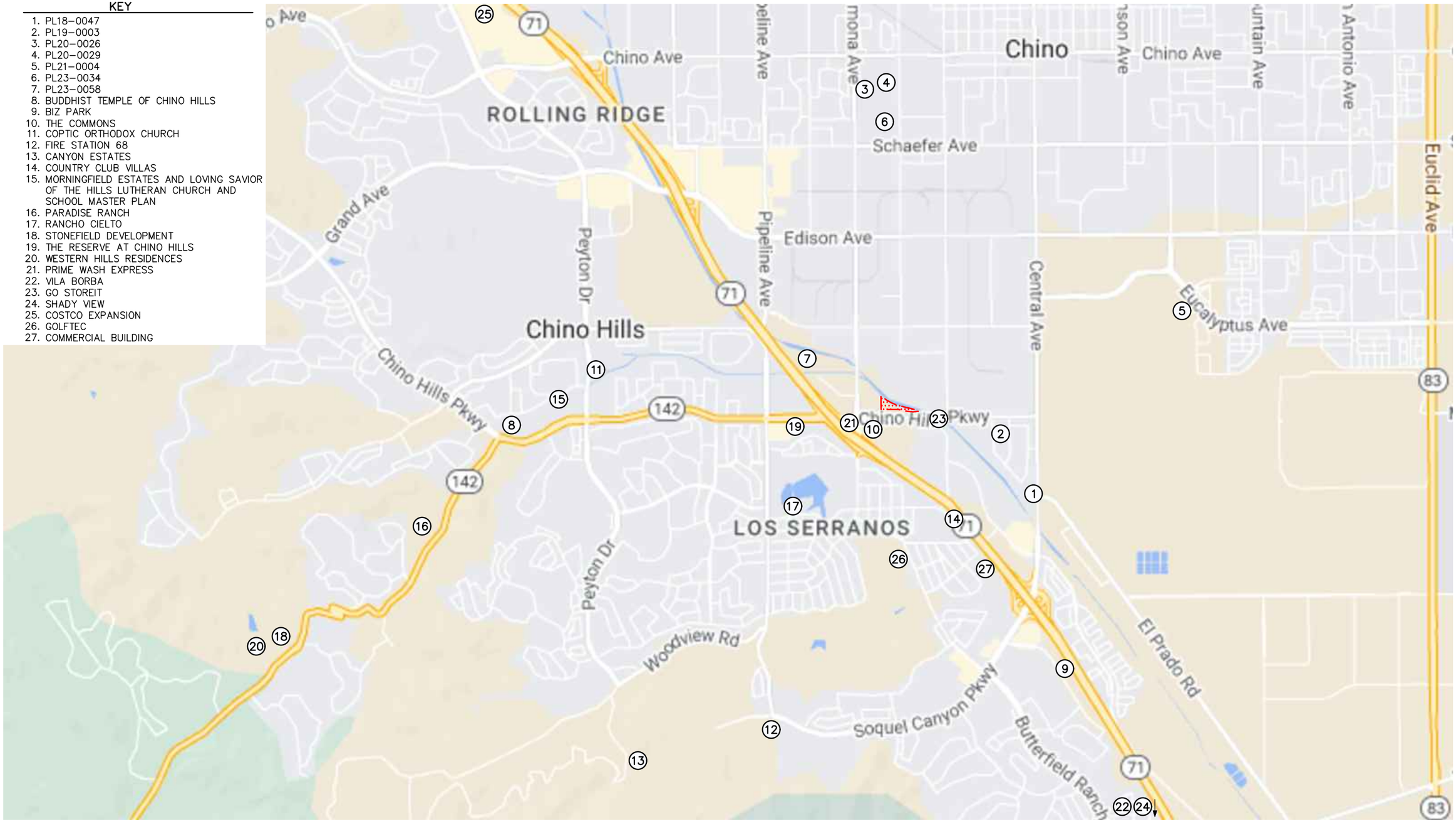
30 Source: *GoStoreIt Traffic Study,* prepared by LLG Engineers in December 2022.

TABLE 6-3 (CONTINUED)
CUMULATIVE PROJECTS TRIP GENERATION FORECAST

No.	Cumulative Project Description	Daily Two-Way	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
City of Chino Hills (Continued)								
25.	Costco Expansion	785	9	5	14	28	29	57
26.	Golftec	166	4	3	7	7	6	13
27.	Commercial Building	432	12	7	19	17	18	35
	Total Cumulative Projects Net Trip Generation Forecast	**34,067**	**1,383**	**1,040**	**2,423**	**1,260**	**1,498**	**2,758**

KEY

1. PL18-0047
2. PL19-0003
3. PL20-0026
4. PL20-0029
5. PL21-0004
6. PL23-0034
7. PL23-0058
8. BUDDHIST TEMPLE OF CHINO HILLS
9. BIZ PARK
10. THE COMMONS
11. COPTIC ORTHODOX CHURCH
12. FIRE STATION 68
13. CANYON ESTATES
14. COUNTRY CLUB VILLAS
15. MORNINGFIELD ESTATES AND LOVING SAVIOR OF THE HILLS LUTHERAN CHURCH AND SCHOOL MASTER PLAN
16. PARADISE RANCH
17. RANCHO CIELTO
18. STONEFIELD DEVELOPMENT
19. THE RESERVE AT CHINO HILLS
20. WESTERN HILLS RESIDENCES
21. PRIME WASH EXPRESS
22. VILA BORBA
23. GO STOREIT
24. SHADY VIEW
25. COSTCO EXPANSION
26. GOLFTEC
27. COMMERCIAL BUILDING



SOURCE: GOOGLE

KEY

(#) = CUMULATIVE PROJECTS LOCATION

= PROJECT SITE

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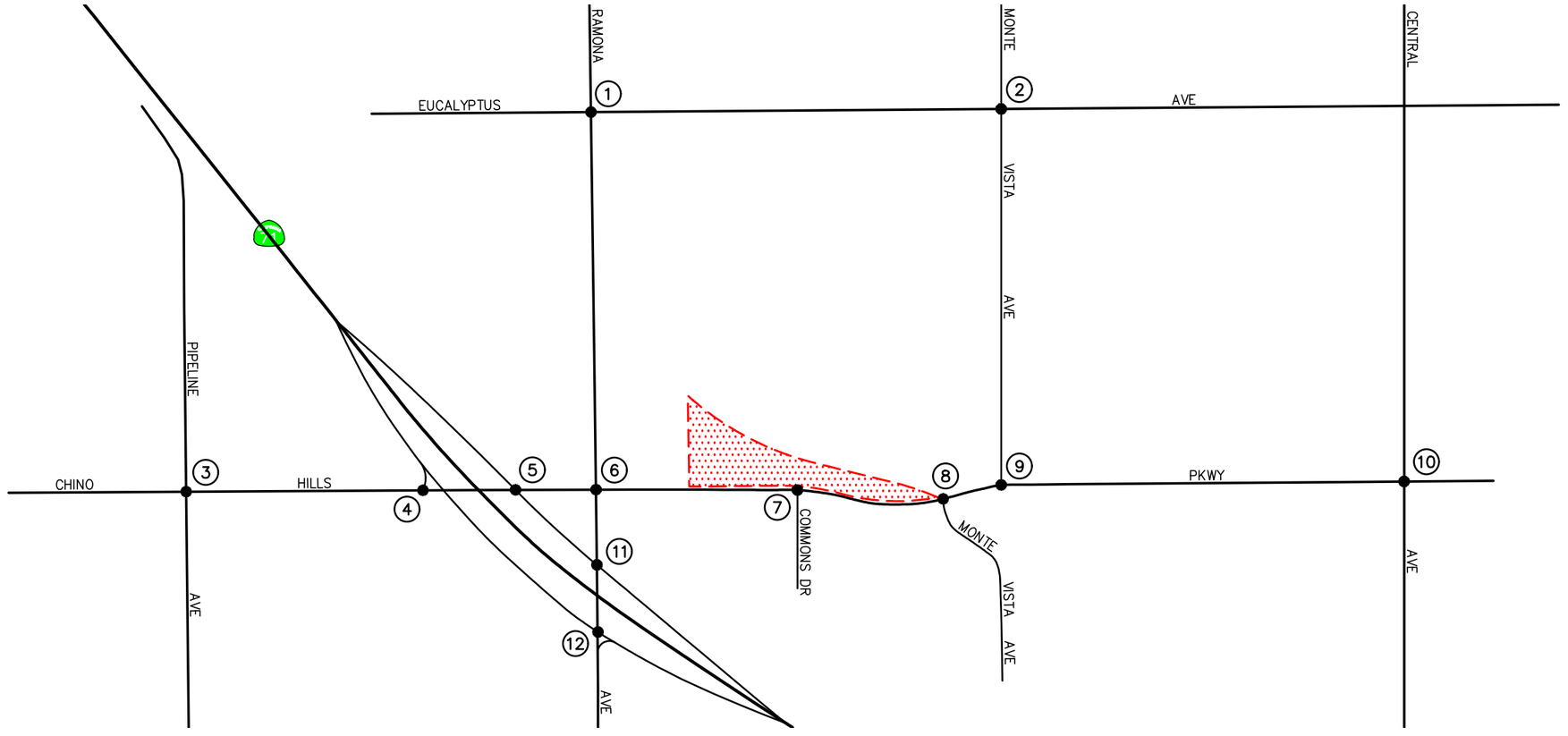
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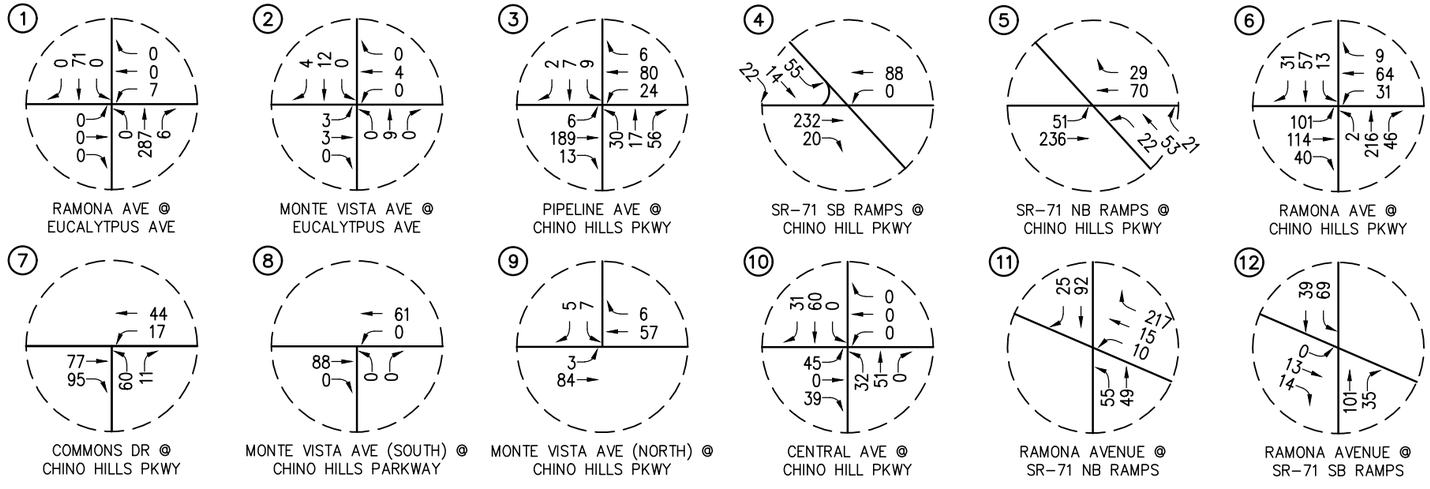
FIGURE 6-1

LOCATION OF CUMULATIVE PROJECTS

CHINO CREEK APARTMENTS, CHINO

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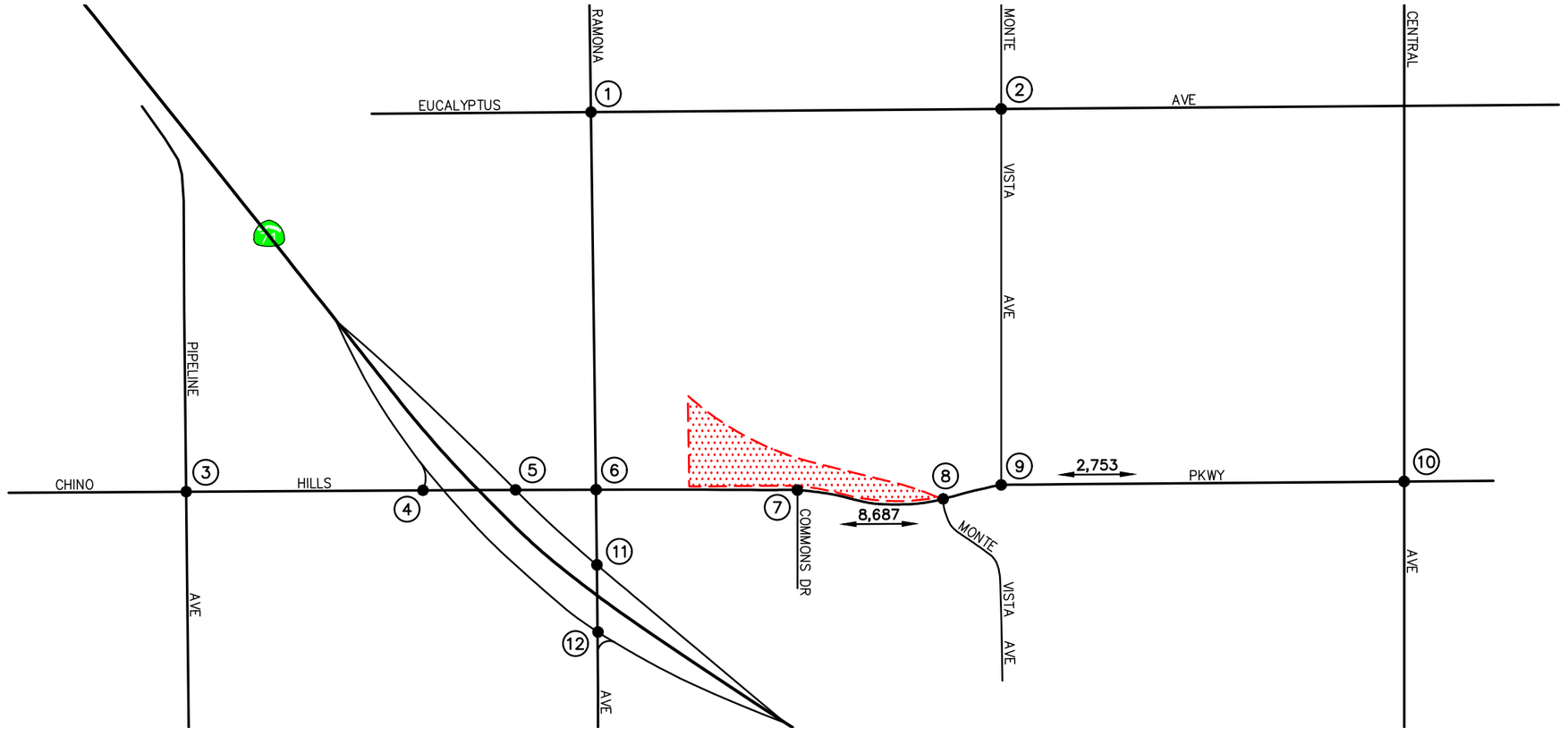
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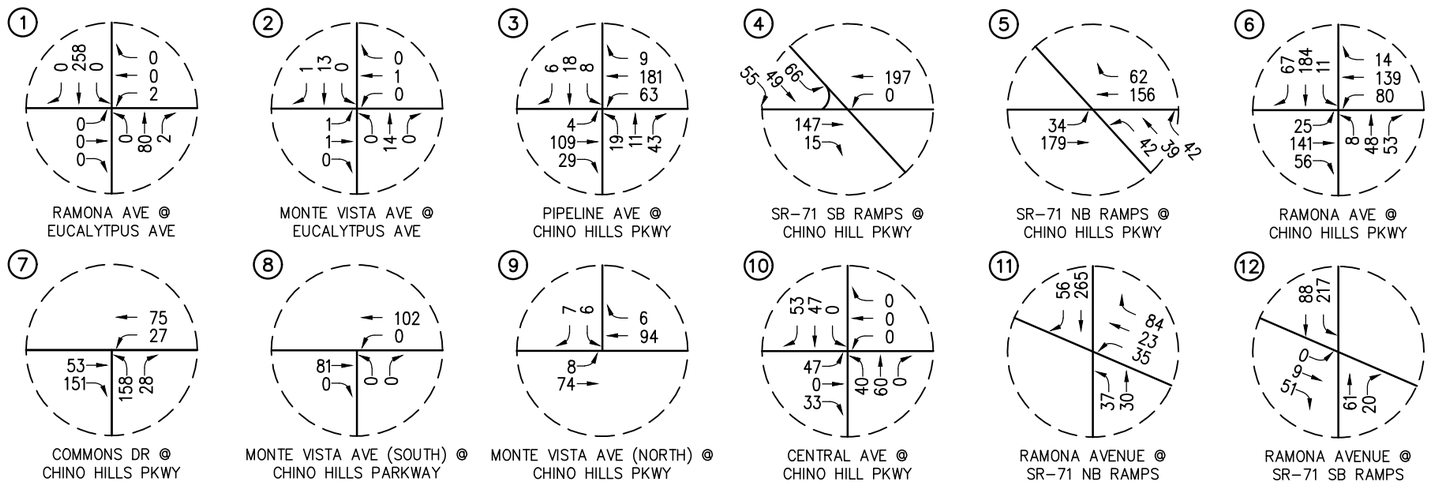
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FIGURE 6-2

AM PEAK HOUR CUMULATIVE PROJECT TRAFFIC VOLUMES

CHINO CREEK APARTMENTS, CHINO





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KEY

(#) = STUDY INTERSECTION

XX,XXX = DAILY TRAFFIC VOLUMES

= PROJECT SITE

FIGURE 6-3

PM PEAK HOUR AND DAILY CUMULATIVE PROJECT TRAFFIC VOLUMES

CHINO CREEK APARTMENTS, CHINO

6.4 Year 2026 Traffic Conditions

Figures 6-4 and ***6-5*** present the Year 2026 Without Project AM and PM peak hour cumulative traffic volumes at the twelve (12) key study intersections, respectively. Please note that the cumulative traffic volumes represent the accumulation of existing traffic, ambient growth traffic and cumulative projects traffic. *Figure 6-5* also illustrates the cumulative daily traffic volumes on key roadway segments in the Year 2026 Without Project.

Figures 6-6 and ***6-7*** illustrate the Year 2026 forecast AM and PM peak hour traffic volumes with the inclusion of the trips generated by the proposed Project, respectively. *Figure 6-7* also illustrates the Year 2026 With Project daily traffic volumes on key roadway segments.

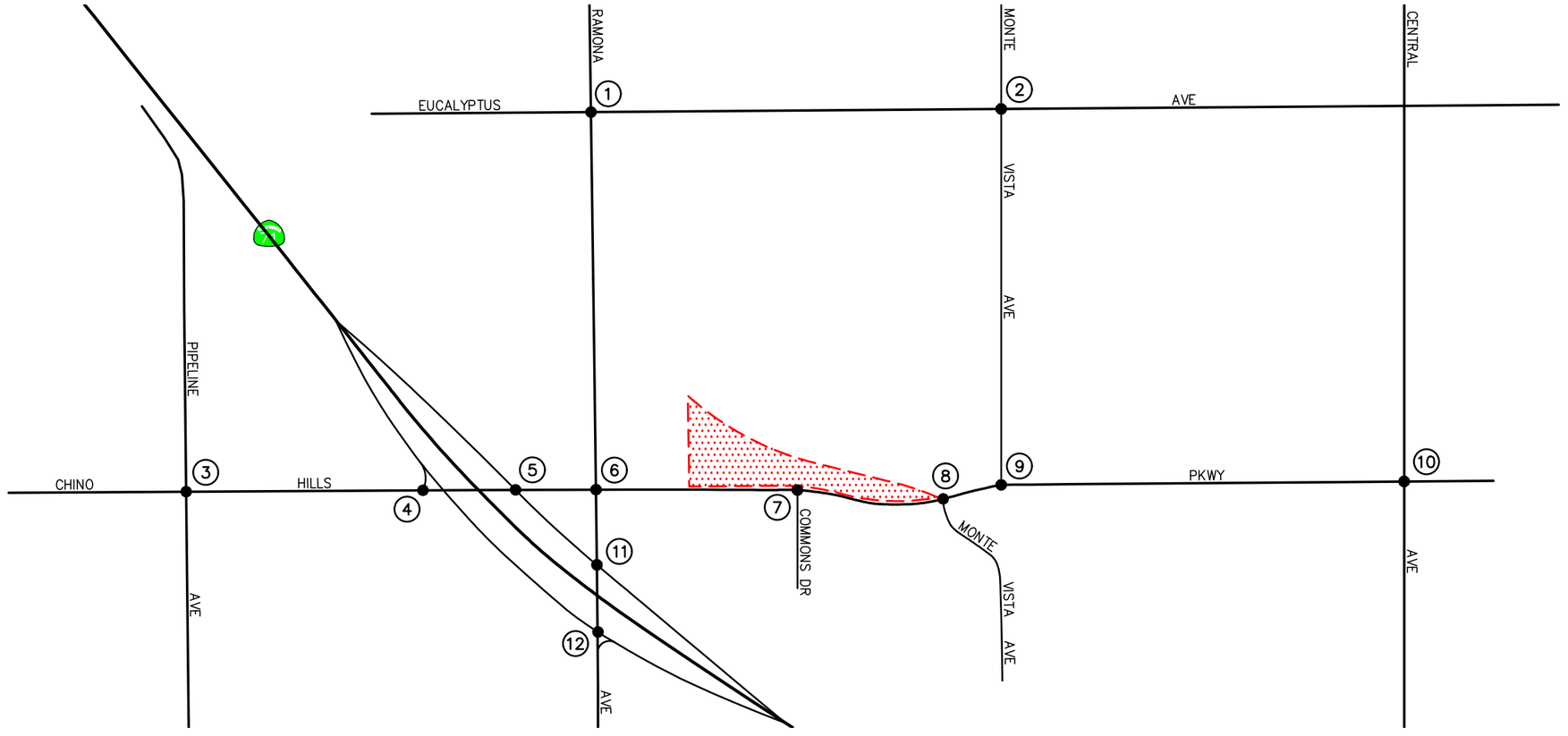
6.5 Year 2040 Traffic Conditions

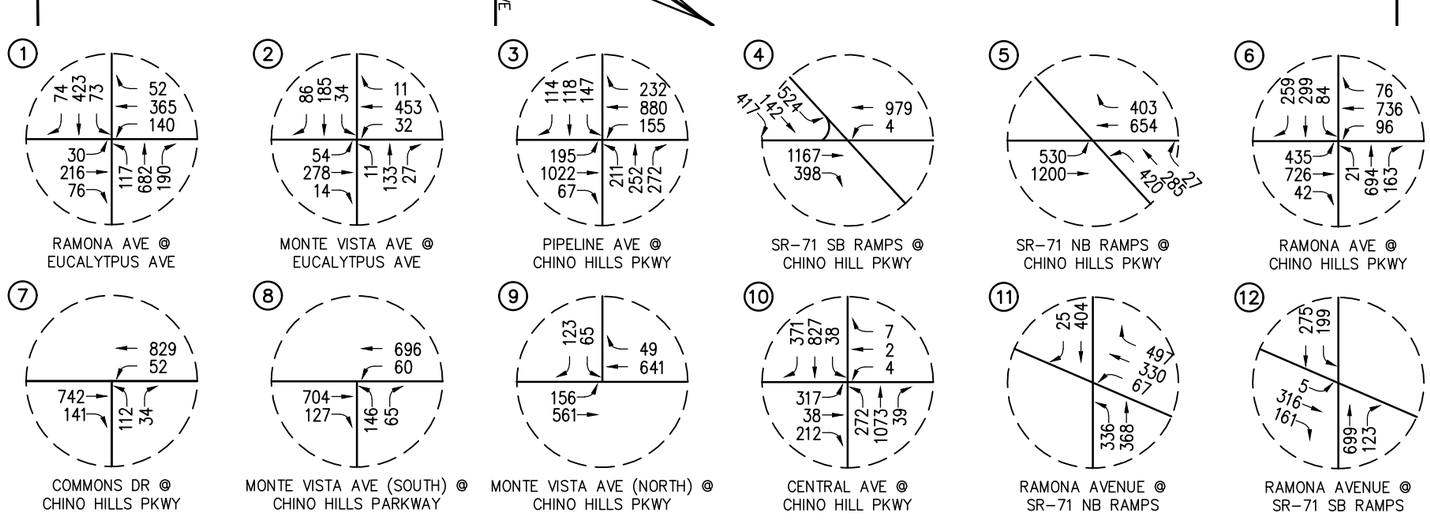
Long-term (Year 2040) traffic volume forecasts for this traffic analysis were determined through utilization of the San Bernardino Traffic Analysis Model (SBTAM) developed by SANBAG. The future Year 2040 traffic volumes were post-processed based on the relationship of SBTAM's Year 2016 base year validation model run output to the base year ground traffic counts. The projected volume was reviewed carefully and adjustments were applied as warranted based on local conditions and professional judgment.

6.6 Year 2040 Traffic Volumes

The anticipated AM and PM peak hour traffic volumes, at the key study intersections, associated with Year 2040 Without Project traffic conditions are presented in ***Figures 6-8*** and ***6-9***, respectively. *Figure 6-9* also illustrates Year 2040 With Project daily traffic volumes on key roadway segments.

Figures 6-10 and ***6-11*** illustrate the Year 2040 With Project traffic conditions during the AM peak hour and PM peak hour, respectively. *Figure 6-11* also illustrates the Year 2040 With Project traffic conditions daily traffic volumes on key roadway segments.





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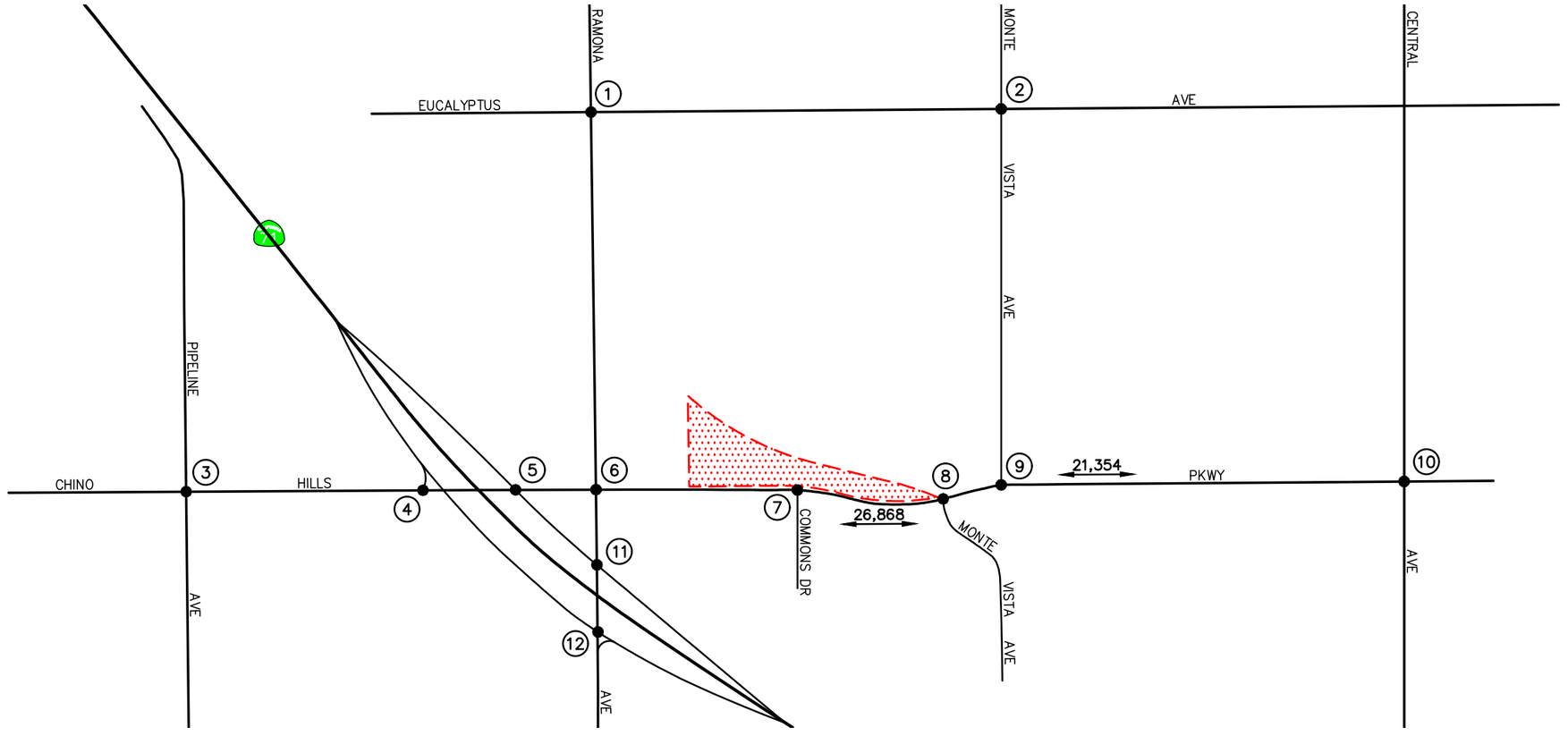
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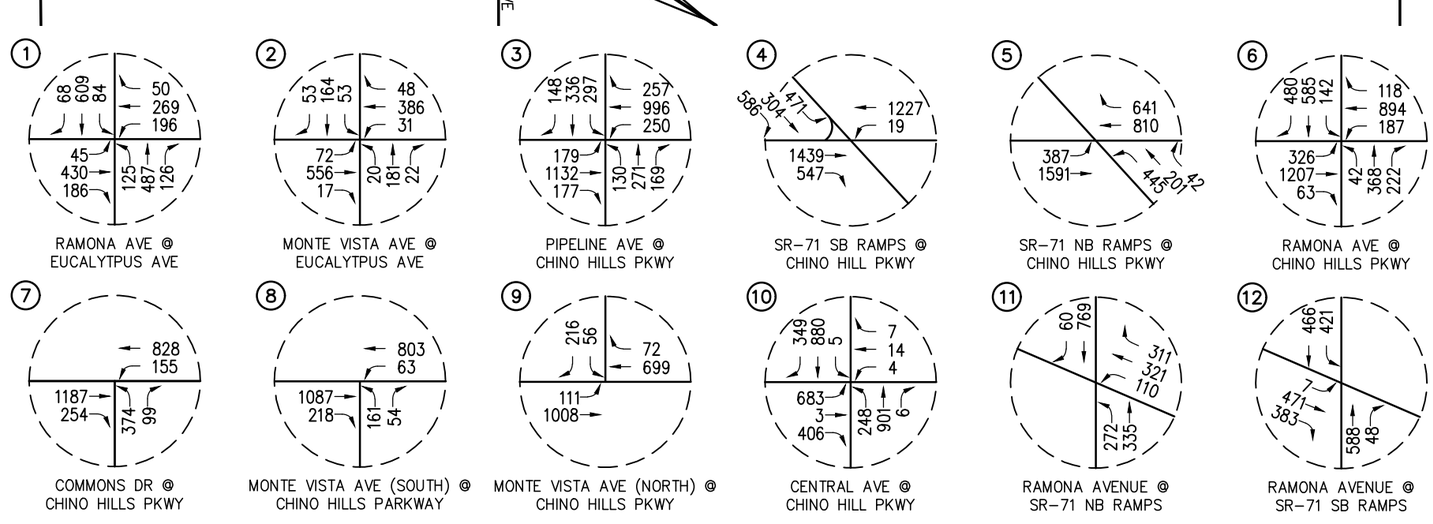
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FIGURE 6-4

YEAR 2026 WITHOUT PROJECT AM PEAK HOUR TRAFFIC VOLUMES

CHINO CREEK APARTMENTS, CHINO





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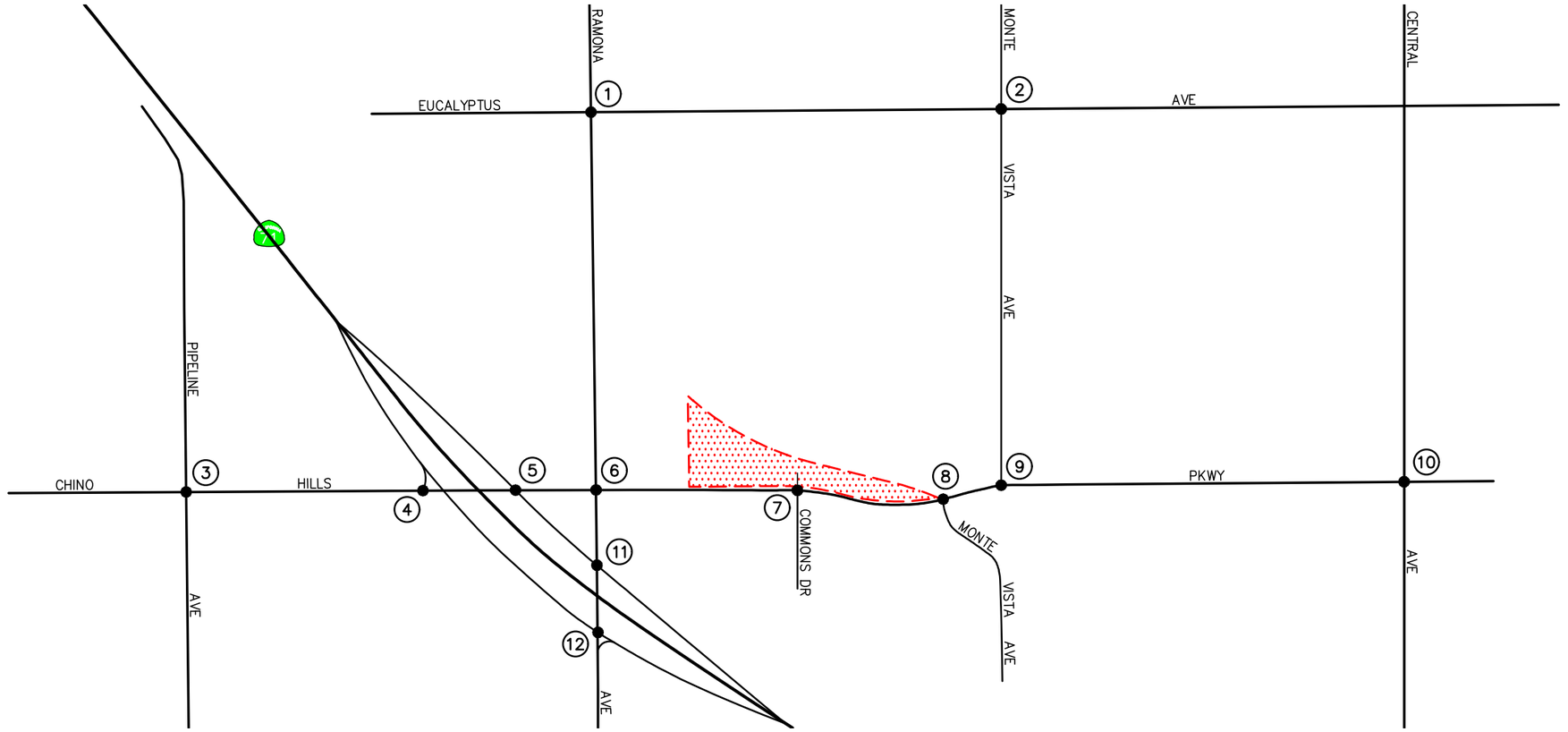
XX,XXX = DAILY TRAFFIC VOLUMES

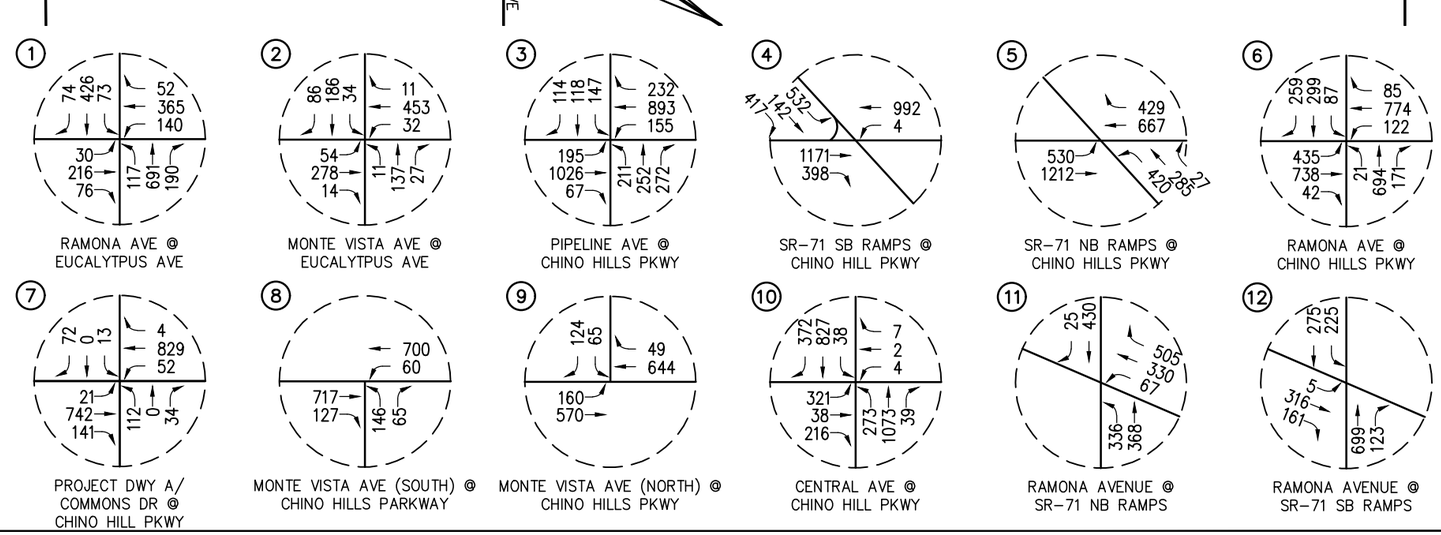
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FIGURE 6-5

YEAR 2026 WITHOUT PROJECT PM PEAK HOUR AND DAILY TRAFFIC VOLUMES

CHINO CREEK APARTMENTS, CHINO





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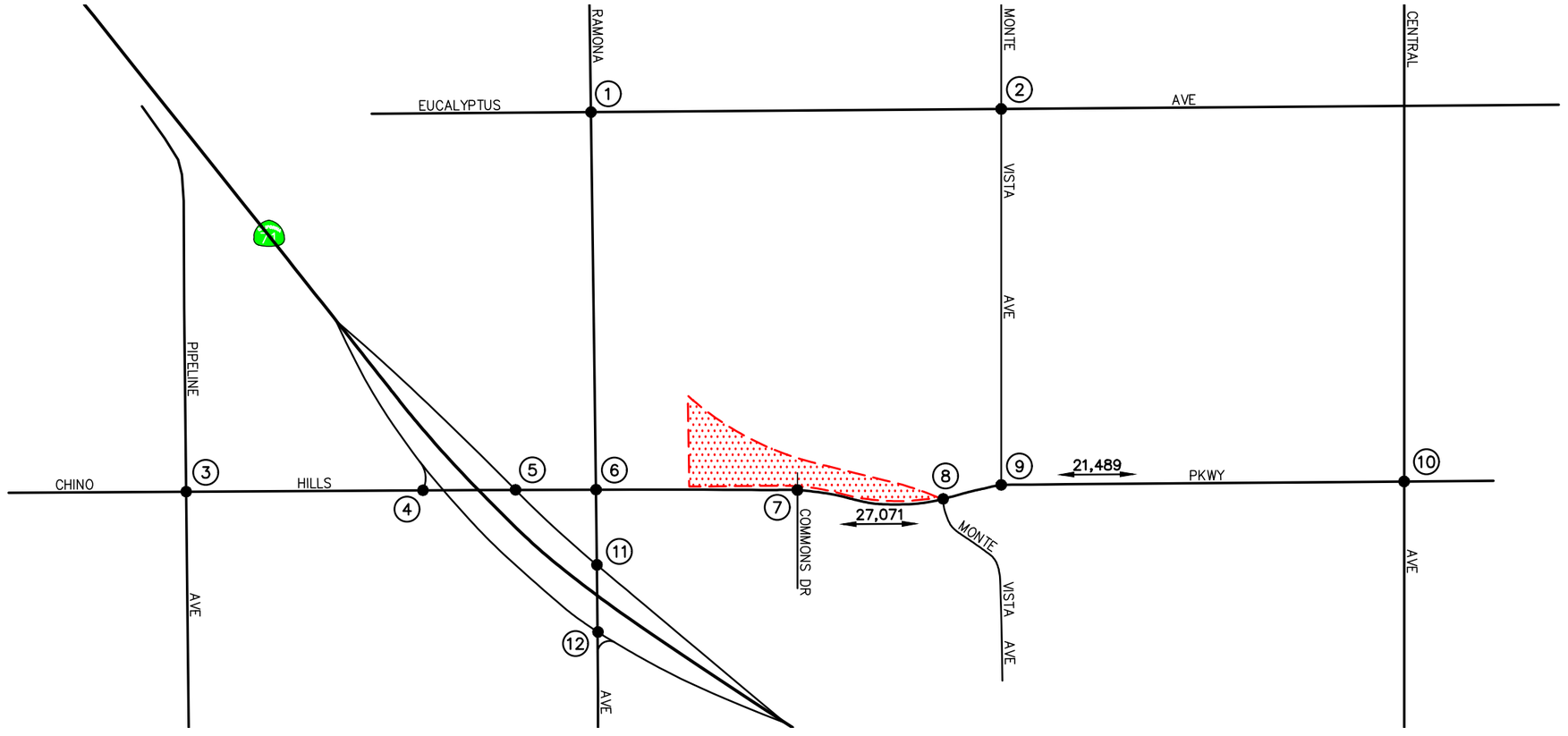
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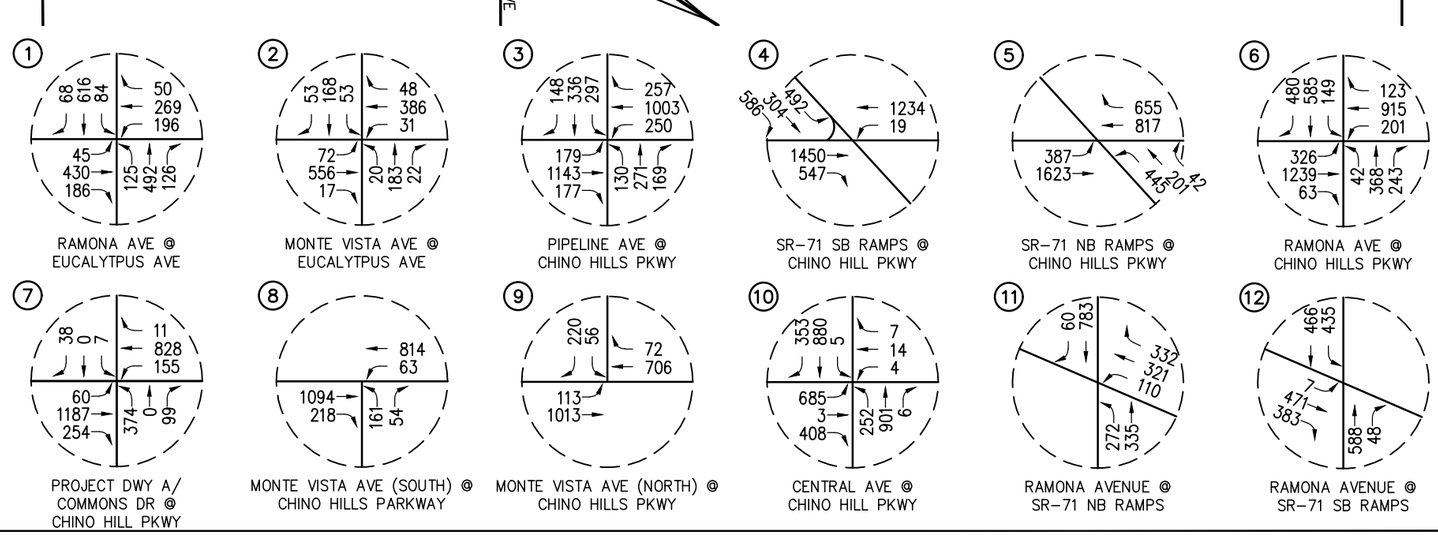
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FIGURE 6-6

YEAR 2026 WITH PROJECT AM PEAK HOUR TRAFFIC VOLUMES

CHINO CREEK APARTMENTS, CHINO





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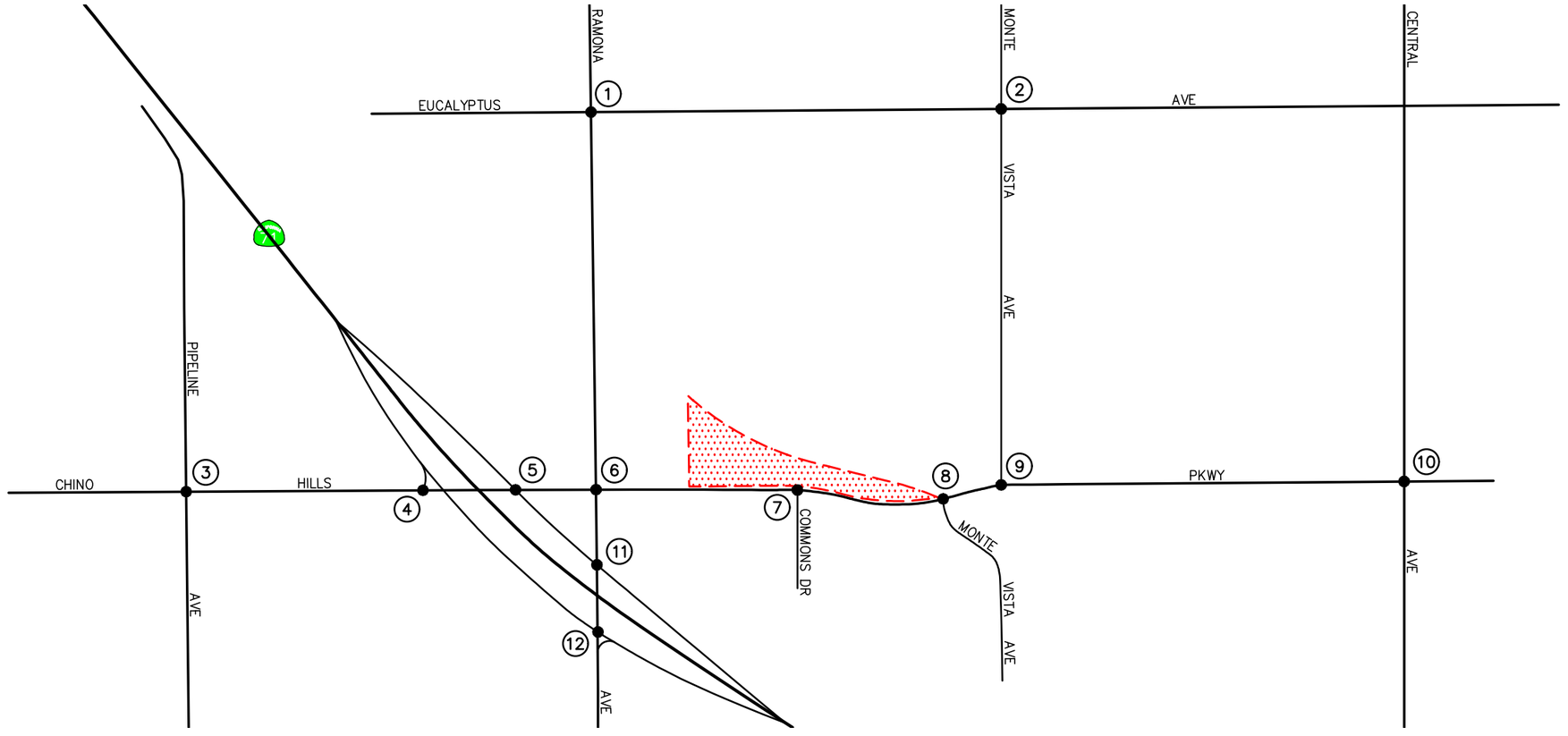
XX,XXX = DAILY TRAFFIC VOLUMES

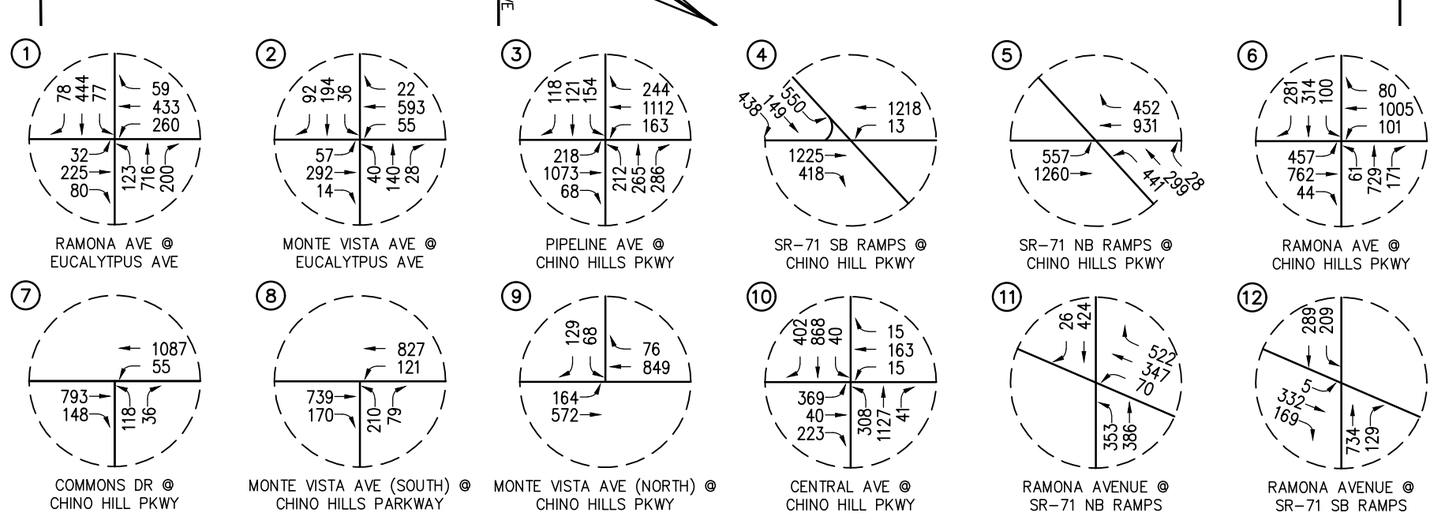
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FIGURE 6-7

YEAR 2026 WITH PROJECT PM PEAK HOUR AND DAILY TRAFFIC VOLUMES

CHINO CREEK APARTMENTS, CHINO





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LINSCOTT LAW & GREENSPAN engineers

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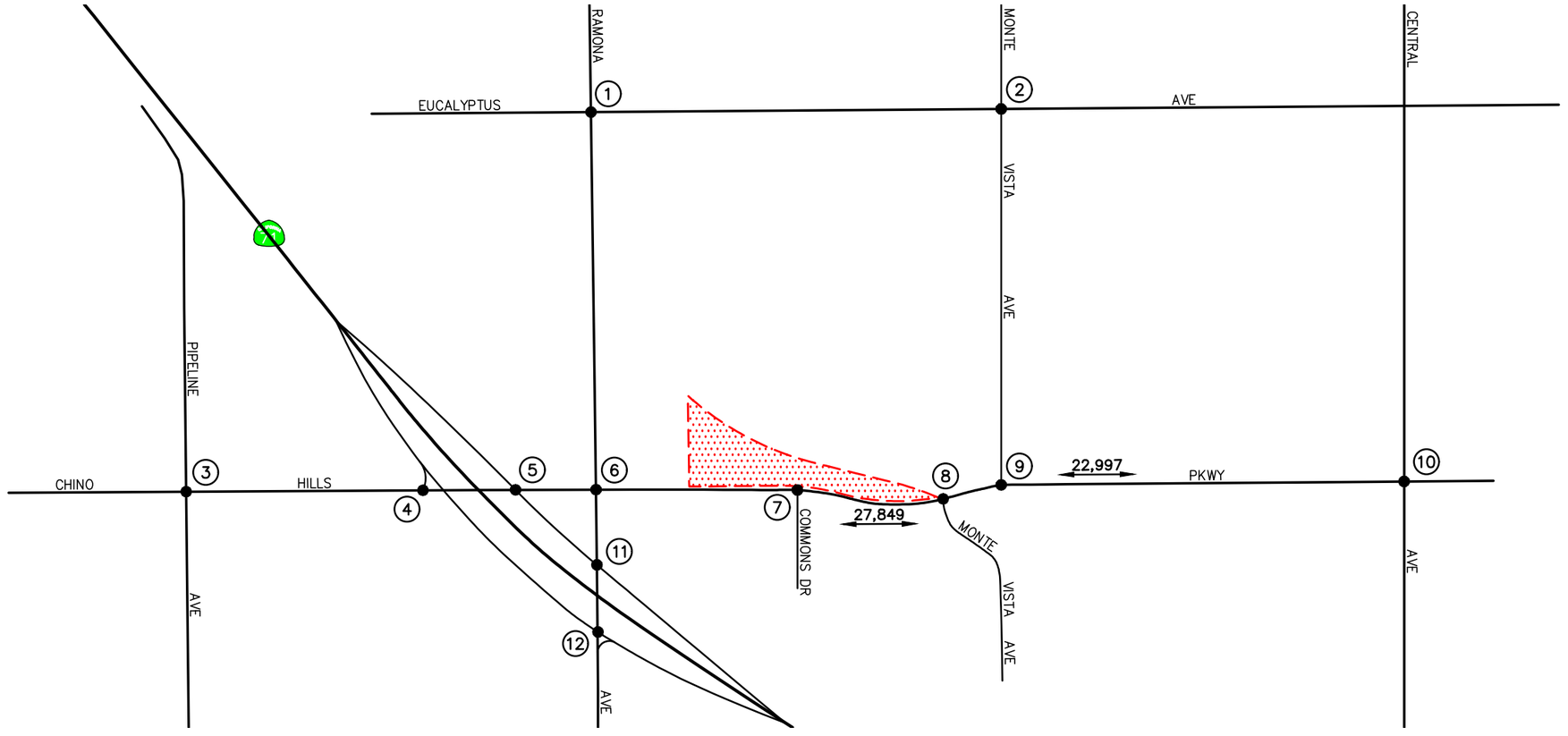
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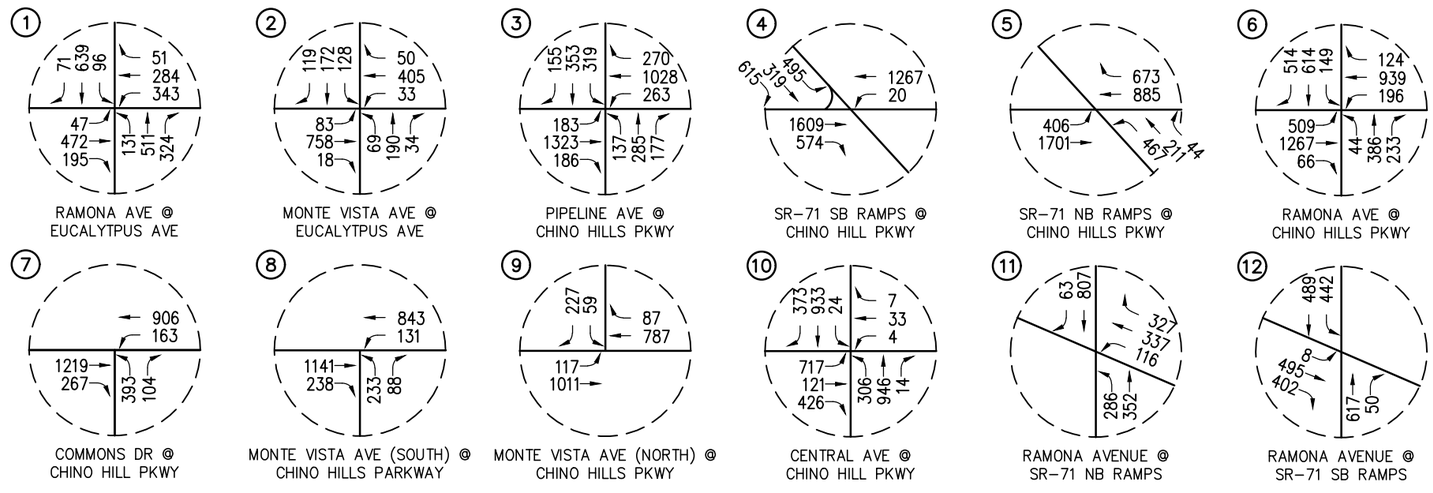
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FIGURE 6-8

YEAR 2040 WITHOUT PROJECT AM PEAK HOUR TRAFFIC VOLUMES

CHINO CREEK APARTMENTS, CHINO





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(#) = STUDY INTERSECTION

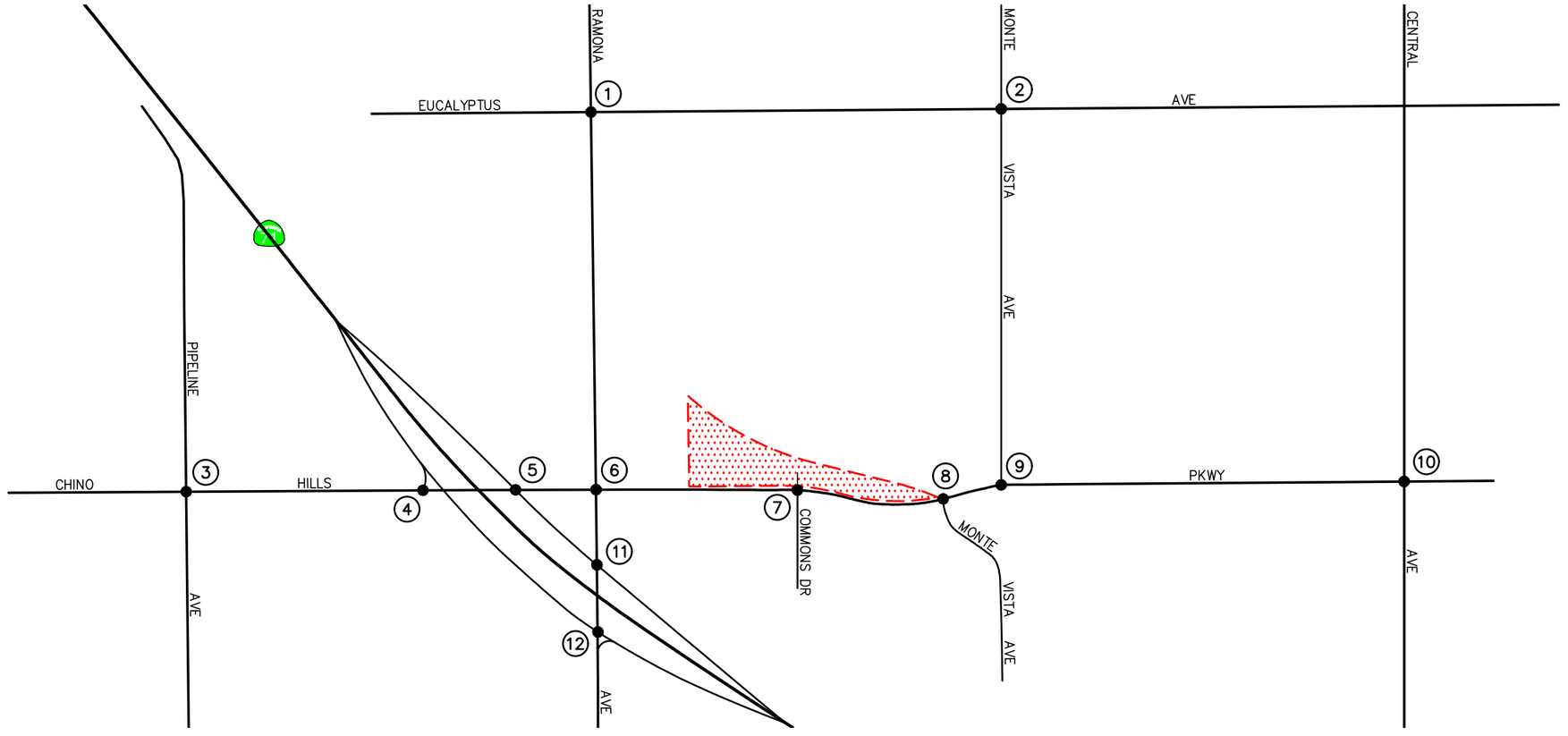
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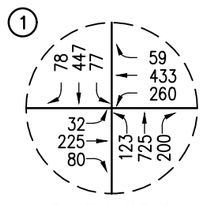
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FIGURE 6-9

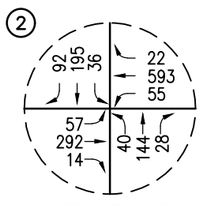
YEAR 2040 WITHOUT PROJECT PM PEAK HOUR AND DAILY TRAFFIC VOLUMES

CHINO CREEK APARTMENTS, CHINO

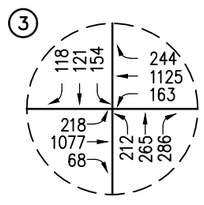




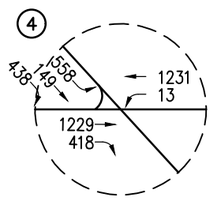
1 RAMONA AVE @ EUCALYTPUS AVE



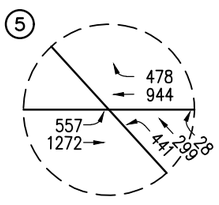
2 MONTE VISTA AVE @ EUCALYPTUS AVE



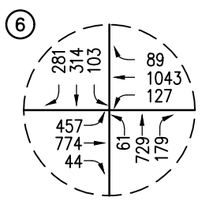
3 PIPELINE AVE @ CHINO HILLS PKWY



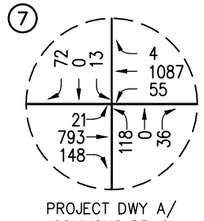
4 SR-71 SB RAMPS @ CHINO HILL PKWY



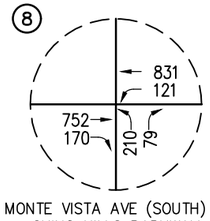
5 SR-71 NB RAMPS @ CHINO HILLS PKWY



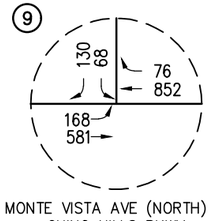
6 RAMONA AVE @ CHINO HILLS PKWY



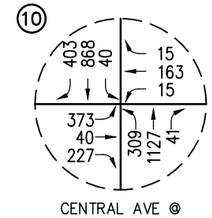
7 PROJECT DWY A/ COMMONS DR @ CHINO HILL PKWY



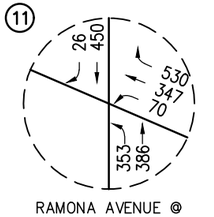
8 MONTE VISTA AVE (SOUTH) @ CHINO HILLS PARKWAY



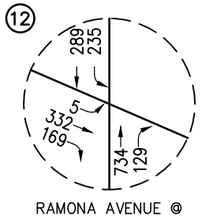
9 MONTE VISTA AVE (NORTH) @ CHINO HILLS PKWY



10 CENTRAL AVE @ CHINO HILL PKWY



11 RAMONA AVENUE @ SR-71 NB RAMPS



12 RAMONA AVENUE @ SR-71 SB RAMPS

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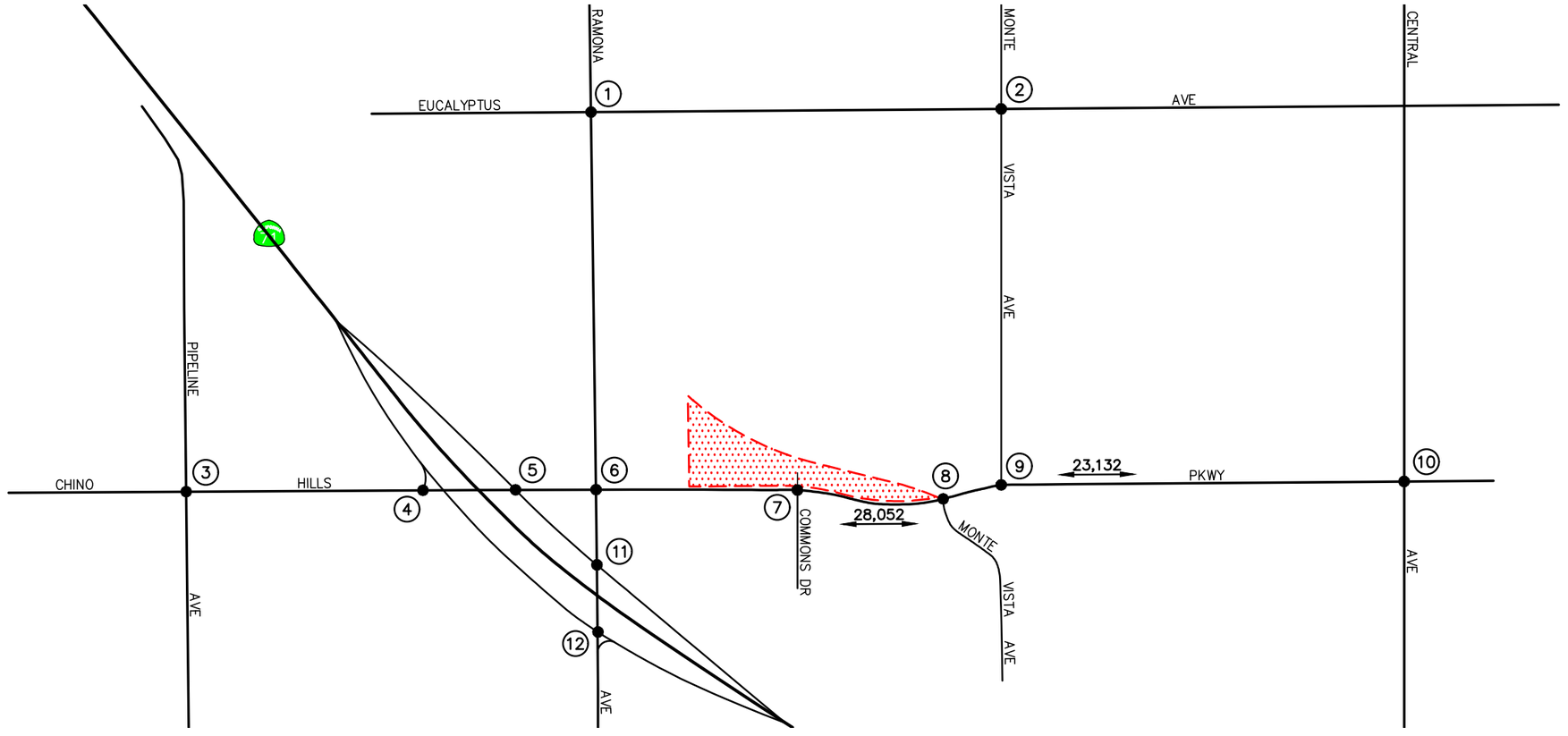
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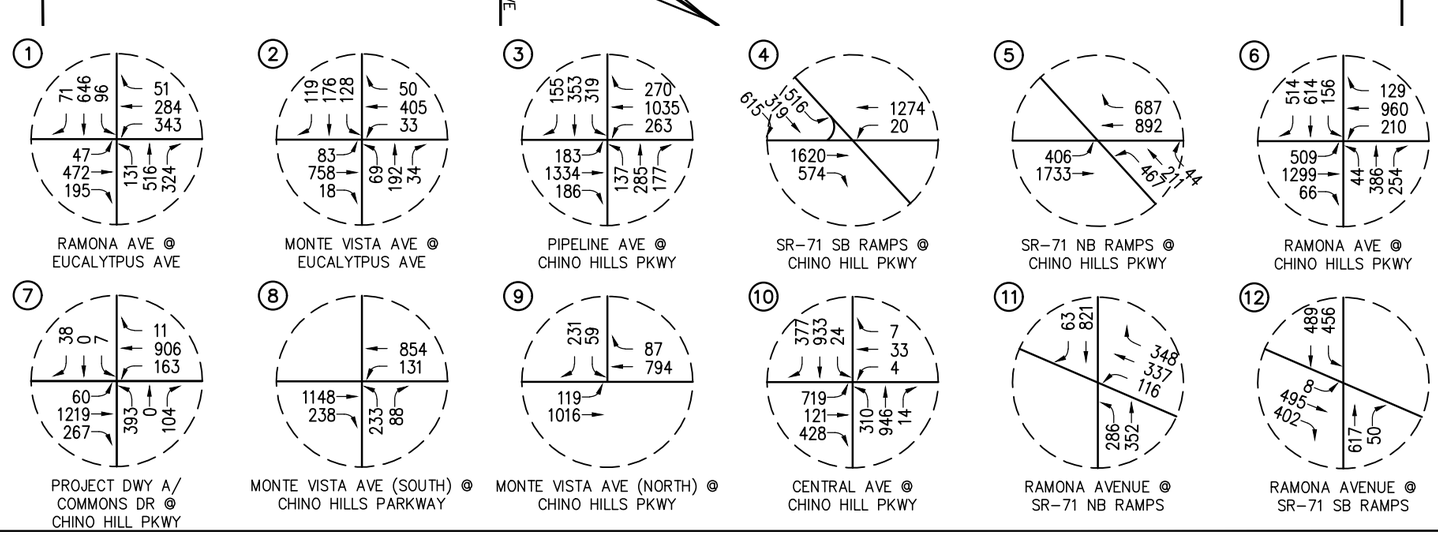
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FIGURE 6-10

YEAR 2040 WITH PROJECT AM PEAK HOUR TRAFFIC VOLUMES

CHINO CREEK APARTMENTS, CHINO





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LINSCOTT LAW & GREENSPAN engineers

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KEY

(#) = STUDY INTERSECTION

XX,XXX = DAILY TRAFFIC VOLUMES

= PROJECT SITE

FIGURE 6-11

YEAR 2040 WITH PROJECT PM PEAK HOUR AND DAILY TRAFFIC VOLUMES

CHINO CREEK APARTMENTS, CHINO

7.0 TRAFFIC ANALYSIS METHODOLOGY

The relative effect of the added peak hour Project traffic volumes generated by the Project have been evaluated based on the analysis of future operating conditions at twelve (12) key study intersections and two (2) roadway segments. Operating conditions at the key study intersections were evaluated during the AM and PM peak hours for existing traffic conditions and future near-term (2026) and long-term (2040) traffic conditions without, then with the proposed Project. The previously discussed capacity analysis procedures were utilized to investigate the future volume-to-capacity relationships and LOS characteristics at each study intersection. The potential effect of the Project at each key intersection was then evaluated using LOS standards and thresholds identified earlier and again summarized below.

7.1 Traffic Analysis Scenarios

The following scenarios are those for which volume/capacity calculations have been performed at the twelve (12) key intersections for near-term (Year 2026) and long-term (2040) conditions:

(a) Existing traffic;
(b) Existing plus Project conditions;
(c) Traffic in (b) plus recommended improvements (as required);
(d) Existing traffic plus ambient growth to the Year 2026 plus cumulative Project traffic;
(e) Traffic in (d) plus Project conditions;
(f) Traffic in (e) plus recommended improvements (as required);
(g) Long-term (Year 2040) Buildout traffic;
(h) Traffic in (g) plus Project conditions; and
(i) Traffic in (h) plus recommended improvements (as required).

7.2 LOS Standards and Thresholds

7.2.1 *City of Chino*

According to City of Chino, LOS "D" is the minimum acceptable condition that should be maintained during the peak commute hours. Hence, any intersection operating at LOS "E" or "F" is considered deficient/unsatisfactory. The City of Chino utilizes the following LOS thresholds. First, when the pre-Project condition is at or above LOS D and Project traffic causes deterioration below LOS D, improvements would be required. However, when the pre-Project condition is already below LOS D (i.e., LOS E or F), the Project will be responsible for fully offsetting its effect to a level of service equal to or better than it was without the Project. This is a standard protocol in many urban jurisdictions because to require a Project to achieve LOS D operating conditions would in effect force the Project to fix current unsatisfactory operating conditions. As noted earlier, this criterion would apply to the following eight (8) study locations within the City of Chino city limits:

1.	Ramona Avenue at Eucalyptus Avenue	Chino
2.	Monte Vista Avenue at Eucalyptus Avenue	Chino
5.	SR-71 NB Ramps at Chino Hills Parkway	Caltrans/Chino
6.	Ramona Avenue at Chino Hills Parkway	Chino
7.	Commons Drive at Chino Hills Parkway	Chino
8.	Monte Vista Avenue (South) at Chino Hills Parkway	Chino
9.	Monte Vista Avenue (North) at Chino Hills Parkway	Chino
10.	Central Avenue at Chino Hills Parkway	Chino

7.2.2 *City of Chino Hills*

According to the City of Chino Hills General Plan Circulation Element, LOS D is the minimum service level that should be achieved/maintained at all intersections. The City's TIA guidelines indicate that improvements would be required when the intersections or roadway projected to operate at LOS D or better without the Project would exceed LOS D with the Project. Improvements would also be required if added Project-related traffic results in an increase of 0.01 or more in the volume-to-capacity (V/C) ratio at a location that is projected to operate at LOS E or F without the Project. This criterion would apply to the following four (4) study locations within the City of Chino Hills city limits:

3.	Pipeline Avenue at Chino Hills Parkway	Caltrans/Chino Hills
4.	SR-71 SB Ramps at Chino Hills Parkway	Caltrans/Chino Hills
11.	Ramona Avenue at SR-71 NB Ramps	Caltrans/Chino Hills
12.	Ramona Avenue at SR-71 SB Ramps	Caltrans/Chino Hills

8.0 EXISTING CONDITIONS TRAFFIC ANALYSIS

8.1 Existing With Project Traffic Analysis – Intersections

Table 8-1 summarizes the peak hour level of service results at the twelve (12) key study intersections for Existing traffic conditions. The first column (1) of HCM//LOS values in *Table 8-1* presents a summary of existing AM and PM peak hour traffic conditions (which were also presented in *Table 3-5*). The second column (2) lists Existing With Project traffic conditions. The third column (3) shows the increase in delay and V/C ratio due to the added peak hour Project trips and indicates whether the traffic associated with the Project will exceed the LOS thresholds defined in this report. The fourth column (4) indicates the anticipated LOS with planned and/or recommended improvements, if any.

8.1.1 *Existing With Project Traffic Conditions*

Review of columns (2) and (3) of *Table 8-1* indicates that all twelve (12) key study intersections are forecast to operate an acceptable service level (LOS D or better) during the weekday AM and PM peak hours with the addition of Project generated traffic to existing traffic.

Appendix C presents the Existing With Project Delay/LOS calculations for the key study intersections for the AM peak hour and PM peak hour.

8.2 Existing With Project Traffic Analysis – Roadway Segments

Table 8-2 summarizes the daily level of service results at the two (2) roadway segments for Existing traffic conditions. The first column (1) of *Table 8-2* presents a summary of existing traffic conditions (which were also presented in *Table 3-6*). The second column (2) lists Existing With Project traffic conditions. The third column (3) shows the increase in V/C ratio due to the added peak hour Project trips and indicates whether the traffic associated with the Project will exceed the LOS thresholds defined in this report. The fourth column (4) indicates the anticipated LOS with planned and/or recommended improvements, if any. It should be noted that the City of Chino guidelines do not have a daily threshold for significance, however, to provide a conservative assessment the daily threshold of significance for this analysis will be consistent with the peak hour criteria.

8.2.1 *Existing With Project Traffic Conditions*

Review of *Table 8-2* indicates the two (2) roadway segments are forecast to operate at an acceptable service level (LOS D or better) on a daily basis with the addition of Project generated traffic to existing traffic.

TABLE 8-1

EXISTING WITH PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersections	Time Period	(1) Existing Traffic Conditions			(2) Existing With Project Traffic Conditions			(3) Exceeds LOS Thresholds			(4) Existing With Project Traffic Conditions With Improvements		
		Delay (s/v)	V/C	LOS	Delay (s/v)	V/C	LOS	Delay Increase[31]	V/C Increase	Yes/No	Delay (s/v)	V/C	LOS
1. Ramona Avenue at Eucalyptus Avenue	AM	28.3	0.421	C	28.2	0.422	C	-0.1	0.001	No	--	--	--
	PM	32.1	0.631	C	32.1	0.633	C	0.0	0.002	No	--	--	--
2. Monte Vista Avenue at Eucalyptus Avenue	AM	26.5	0.224	C	26.4	0.224	C	-0.1	0.000	No	--	--	--
	PM	27.3	0.254	C	27.2	0.255	C	-0.1	0.001	No	--	--	--
3. Pipeline Avenue at Chino Hills Parkway	AM	37.8	0.621	D	37.8	0.625	D	0.0	0.004	No	--	--	--
	PM	44.5	0.745	D	44.5	0.748	D	0.0	0.003	No	--	--	--
4. SR-71 SB Ramps at Chino Hills Parkway	AM	25.1	0.528	C	24.9	0.532	C	-0.2	0.004	No	--	--	--
	PM	25.7	0.655	C	25.7	0.658	C	0.0	0.003	No	--	--	--
5. SR-71 NB Ramps at Chino Hills Parkway	AM	25.5	0.565	C	25.2	0.583	C	-0.3	0.018	No	--	--	--
	PM	23.3	0.611	C	23.2	0.620	C	-0.1	0.009	No	--	--	--
6. Ramona Avenue at Chino Hills Parkway	AM	31.8	0.618	C	32.4	0.638	C	0.6	0.020	No	--	--	--
	PM	33.8	0.636	C	34.4	0.650	C	0.6	0.014	No	--	--	--
7. Commons Drive/Project Driveway A at Chino Hills Parkway[32]	AM	5.2	0.286	A	14.3	0.379	B	9.1	0.093	No	--	--	--
	PM	12.0	0.416	B	20.7	0.455	C	8.7	0.039	No	--	--	--

Note:

- **Bold** LOS values indicate adverse service levels based on City LOS standards; s/v = seconds per vehicle (delay).

[31] A theoretical decrease in delay is possible with HCM calculations and is a result of adding volume to an intersection movement that is already operating well, which in turn decreases the overall delay for that particular intersection approach.

[32] The service level reported under "With Project" traffic conditions (Column 2) assume split phase traffic signal operations on Commons Drive/Project Driveway A. Lane configurations include an exclusive eastbound left-turn lane and converting the northbound shared left/right turn lane into a shared left/thru/right turn lane. In addition, the provision of a pedestrian crosswalk on the west leg are included, while maintained the pedestrian crosswalk on the east leg.

TABLE 8-1 (CONTINUED)
EXISTING WITH PROJECT PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersections	Time Period	(1) Existing Traffic Conditions			(2) Existing With Project Traffic Conditions			(3) Exceeds LOS Thresholds			(4) Existing With Project Traffic Conditions With Improvements		
		Delay (s/v)	V/C	LOS	Delay (s/v)	V/C	LOS	Delay Increase[33]	V/C Increase	Yes/No	Delay (s/v)	V/C	LOS
8. Monte Vista Avenue (South) at Chino Hills Parkway	AM	10.6	0.351	B	10.5	0.356	B	-0.1	0.005	No	--	--	--
	PM	10.0	0.475	A	9.9	0.477	A	-0.1	0.002	No	--	--	--
9. Monte Vista Avenue (North) at Chino Hills Parkway	AM	12.2	0.392	B	12.2	0.397	B	0.0	0.005	No	--	--	--
	PM	10.5	0.415	B	10.9	0.416	B	0.4	0.001	No	--	--	--
10. Central Avenue at Chino Hills Parkway	AM	23.5	0.575	C	23.7	0.578	C	0.2	0.003	No	--	--	--
	PM	28.4	0.657	C	28.5	0.661	C	0.1	0.004	No	--	--	--
11. Ramona Avenue at SR-71 NB Ramps	AM	28.3	0.551	C	28.3	0.564	C	0.0	0.013	No	--	--	--
	PM	25.5	0.538	C	25.9	0.552	C	0.4	0.014	No	--	--	--
12. Ramona Avenue at SR-71 SB Ramps	AM	20.9	0.409	C	21.5	0.420	C	0.6	0.011	No	--	--	--
	PM	24.4	0.526	C	24.9	0.532	C	0.5	0.006	No	--	--	--

Note:

- **Bold** LOS values indicate adverse service levels based on City LOS standards; s/v = seconds per vehicle (delay).

[33] A theoretical decrease in delay and/or V/C is possible with HCM calculations and is a result of adding volume to an intersection movement that is already operating well, which in turn decreases the overall delay and/or V/C for that particular intersection approach.

TABLE 8-2

EXISTING DAILY ROADWAY SEGMENTS LEVEL OF SERVICE ANALYSIS

Key Roadway Segment	No. of Lanes	LOS "D" Threshold (VPD)	(1) Existing Traffic Conditions			(2) Existing With Project Traffic Conditions			(3) Exceed LOS Thresholds (2) – (1)		(4) Existing With Project Traffic Conditions with Improvements		
			Daily Volume	V/C Ratio	LOS	Daily Volume	V/C Ratio	LOS	Increase	Yes/No	Daily Volume	V/C Ratio	LOS
A. Chino Hills Parkway, between Commons Drive and Monte Vista Avenue (South)	5D[34]	35,000	22,842	0.586	A	23,045	0.591	A	0.005	No	--	--	--
B. Chino Hills Parkway, between Monte Vista Avenue (North) and Telephone Avenue	4D	32,300	17,548	0.489	A	17,683	0.493	A	0.004	No	--	--	--

Notes:

- D = Divided; U = Undivided; VPD = Vehicles per day; V/C = Volume over capacity
- **Bold LOS values** indicate adverse service levels

[34] Please note if Segment A was considered a four-lane divided roadway the results for Existing traffic conditions would be a V/C ratio of 0.636 with LOS B and the results for Existing With Project traffic conditions would a V/C ratio of 0.642 with LOS B. These results would not exceed the LOS Thresholds.

9.0 YEAR 2026 TRAFFIC ANALYSIS

9.1 Year 2026 Traffic Analysis – Intersections

Table 9-1 summarizes the weekday AM peak hour and PM peak Level of Service results at the twelve (12) key study intersections for the Year 2026. The second column (2) of *Table 9-1* lists projected cumulative traffic conditions (existing plus ambient plus cumulative projects traffic) based on existing intersection geometry, while the third column (3) presents forecast Year 2026 cumulative conditions with the addition of Project traffic. The fourth column (4) of *Table 9-1* illustrates the increase in delay and V/C ratio due to the added peak hour Project trips and indicates whether the traffic associated with the Project will exceed the LOS thresholds defined in this report. The fifth column (5) indicates the anticipated LOS with planned and/or recommended improvements, if any.

9.1.1 *Year 2026 Without Project Traffic Conditions*

Review of column (2) of *Table 9-1* indicates that one (1) out of the twelve (12) key study intersections are forecast to operate adversely with the addition ambient traffic growth and cumulative project traffic based on the LOS standards specified in this report. The remaining key study intersections are forecast to operate at acceptable service level (LOS D or better) during the weekday AM and PM peak hours with the addition of ambient traffic growth and cumulative project traffic.

Appendix D presents the Year 2026 Without Project Delay/LOS calculations for the key study intersections for the AM peak hour and PM peak hour.

9.1.2 *Year 2026 With Project Traffic Conditions*

Review of columns (3) and (4) of *Table 9-1* indicates that Pipeline Avenue at Chino Hills Parkway (Intersection No. 3) will continue to operate with adverse service levels. However, it should be noted that since the intersection is forecast to operate at LOS E without and with the Project, and the effect of added Project-related traffic is expected result in a less than 0.01 to the volume-to-capacity ratio at this location, the intersection does not require improvements based on the Chino Hills LOS standards. The remaining key study intersections are forecast to operate at an acceptable service level (LOS D or better) with the addition of Project generated traffic.

Appendix D presents the Year 2026 With Project Delay/LOS calculations for the key study intersections for the AM peak hour and PM peak hour.

9.2 Year 2026 Traffic Analysis – Roadway Segments

Table 9-2 summarizes the daily level of service results at the two (2) roadway segments for Year 2026 traffic conditions. The first column (1) of *Table 9-2* presents a summary of Year 2026 without Project traffic conditions. The second column (2) lists Year 2026 With Project traffic conditions. The third column (3) shows the increase in V/C ratio due to the added peak hour Project trips and indicates whether the traffic associated with the Project will exceed the LOS thresholds defined in this report. The fourth column (4) indicates the anticipated LOS with planned and/or recommended improvements, if any. It should be noted that the City of Chino guidelines do not have a daily

threshold for significance, however, to provide a conservative assessment the daily threshold of significance for this analysis will be consistent with the peak hour criteria.

9.2.1 *Year 2026 Without Project Traffic Conditions*

Review of column (1) of *Table 9-2* indicates that the two (2) roadway segments are forecast to operate at acceptable service level (LOS D or better) on a daily basis under Year 2026 cumulative traffic conditions.

9.2.2 *Year 2026 With Project Traffic Conditions*

Review of column (2) of *Table 9-2* indicates that the two (2) roadway segments are forecast to operate at acceptable service level (LOS D or better) on a daily basis with the addition of Project generated traffic to Year 2026 cumulative traffic conditions.

TABLE 9-1
YEAR 2026 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersections	Time Period	(1) Existing Traffic Conditions			(2) Year 2026 Without Project Traffic Conditions			(3) Year 2026 With Project Traffic Conditions			(4) Exceeds LOS Thresholds			(5) Year 2026 With Project Traffic Conditions With Improvements		
		Delay (s/v)	V/C	LOS	Delay (s/v)	V/C	LOS	Delay (s/v)	V/C	LOS	Delay Increase[35]	V/C Increase	Yes/ No	Delay (s/v)	V/C	LOS
1. Ramona Avenue at Eucalyptus Avenue	AM	28.3	0.421	C	26.5	0.506	C	26.4	0.509	C	-0.1	0.003	No	--	--	--
	PM	32.1	0.631	C	34.3	0.763	C	34.4	0.765	C	0.1	0.002	No	--	--	--
2. Monte Vista Avenue at Eucalyptus Avenue	AM	26.5	0.224	C	25.9	0.244	C	25.8	0.244	C	-0.1	0.000	No	--	--	--
	PM	27.3	0.254	C	26.5	0.275	C	26.4	0.276	C	-0.1	0.001	No	--	--	--
3. Pipeline Avenue at Chino Hills Parkway	AM	37.8	0.621	D	43.1	0.704	D	43.1	0.709	D	0.0	0.005	No	--	--	--
	PM	44.5	0.745	D	**58.3**	**0.898**	**E**	**59.2**	**0.901**	**E**	0.9	0.003	No	--	--	--
4. SR-71 SB Ramps at Chino Hills Parkway	AM	25.1	0.528	C	24.5	0.602	C	24.4	0.606	C	-0.1	0.004	No	--	--	--
	PM	25.7	0.655	C	24.4	0.797	C	24.4	0.799	C	0.0	0.002	No	--	--	--
5. SR-71 NB Ramps at Chino Hills Parkway	AM	25.5	0.565	C	24.9	0.660	C	24.6	0.678	C	-0.3	0.018	No	--	--	--
	PM	23.3	0.611	C	22.6	0.719	C	22.5	0.728	C	-0.1	0.009	No	--	--	--
6. Ramona Avenue at Chino Hills Parkway	AM	31.8	0.618	C	36.2	0.820	D	38.2	0.833	D	2.0	0.013	No	--	--	--
	PM	33.8	0.636	C	42.1	0.872	D	43.0	0.891	D	0.9	0.019	No	--	--	--
7. Commons Drive/Project Driveway A at Chino Hills Parkway[36]	AM	5.2	0.286	A	7.3	0.345	A	16.1	0.440	B	8.8	0.095	No	--	--	--
	PM	12.0	0.416	B	15.8	0.538	B	25.1	0.583	C	9.3	0.045	No	--	--	--

Note:

- **Bold** LOS values indicate adverse service levels based on City LOS standards; s/v = seconds per vehicle (delay).

[35] A theoretical decrease in delay is possible with HCM calculations and is a result of adding volume to an intersection movement that is already operating well, which in turn decreases the overall delay for that particular intersection approach.

[36] The service level reported under "With Project" traffic conditions (Column 3) assume split phase traffic signal operations on Commons Drive/Project Driveway A. Lane configurations include an exclusive eastbound left-turn lane and converting the northbound shared left/right turn lane into a shared left/thru/right turn lane. In addition, the provision of a pedestrian crosswalk on the west leg are included, while maintained the pedestrian crosswalk on the east leg.

TABLE 9-1 (CONTINUED)
YEAR 2026 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersections	Time Period	(1) Existing Traffic Conditions			(2) Year 2026 Without Project Traffic Conditions			(3) Year 2026 With Project Traffic Conditions			(4) Exceeds LOS Thresholds			(5) Year 2026 With Project Traffic Conditions With Improvements		
		Delay (s/v)	V/C	LOS	Delay (s/v)	V/C	LOS	Delay (s/v)	V/C	LOS	Delay Increase[37]	V/C Increase	Yes/ No	Delay (s/v)	V/C	LOS
8. Monte Vista Avenue (South) at Chino Hills Parkway	AM	10.6	0.351	B	10.4	0.403	B	10.3	0.408	B	-0.1	0.005	No	--	--	--
	PM	10.0	0.475	A	10.1	0.531	B	10.1	0.534	B	0.0	0.003	No	--	--	--
9. Monte Vista Avenue (North) at Chino Hills Parkway	AM	12.2	0.392	B	12.0	0.444	B	12.1	0.448	B	0.1	0.004	No	--	--	--
	PM	10.5	0.415	B	11.0	0.468	B	11.1	0.474	B	0.1	0.006	No	--	--	--
10. Central Avenue at Chino Hills Parkway	AM	23.5	0.575	C	27.8	0.680	C	28.0	0.683	C	0.2	0.003	No	--	--	--
	PM	28.4	0.657	C	32.1	0.763	C	32.3	0.768	C	0.2	0.005	No	--	--	--
11. Ramona Avenue at SR-71 NB Ramps	AM	28.3	0.551	C	32.0	0.769	C	32.0	0.785	C	0.0	0.016	No	--	--	--
	PM	25.5	0.538	C	28.6	0.764	C	28.9	0.777	C	0.3	0.013	No	--	--	--
12. Ramona Avenue at SR-71 SB Ramps	AM	20.9	0.409	C	22.7	0.503	C	23.2	0.513	C	0.5	0.010	No	--	--	--
	PM	24.4	0.526	C	26.8	0.687	C	26.9	0.692	C	0.1	0.005	No	--	--	--

Note:

- **Bold** LOS values indicate adverse service levels based on City LOS standards; s/v = seconds per vehicle (delay).

[37] A theoretical decrease in delay is possible with HCM calculations and is a result of adding volume to an intersection movement that is already operating well, which in turn decreases the overall delay for that particular intersection approach.

TABLE 9-2
YEAR 2026 DAILY ROADWAY SEGMENTS LEVEL OF SERVICE ANALYSIS

Key Roadway Segment	No. of Lanes	LOS "D" Threshold (VPD)	(1) Year 2026 Without Project Traffic Conditions			(2) Year 2026 With Project Traffic Conditions			(3) Exceed LOS Thresholds (2) – (1)		(4) Year 2026 With Project Traffic Conditions with Improvements		
			Daily Volume	V/C Ratio	LOS	Daily Volume	V/C Ratio	LOS	Increase	Yes/No	Daily Volume	V/C Ratio	LOS
A. Chino Hills Parkway, between Commons Drive and Monte Vista Avenue (South)	5D[38]	35,000	26,868	0.689	B	27,071	0.694	B	0.005	No	--	--	--
B. Chino Hills Parkway, between Monte Vista Avenue (North) and Telephone Avenue	4D	32,300	21,354	0.595	A	21,489	0.599	A	0.004	No	--	--	--

Notes:

- D = Divided; U = Undivided; VPD = Vehicles per day; V/C = Volume over capacity
- **Bold LOS values** indicate adverse service levels

[38] Please note if Segment A was considered a four-lane divided roadway the results for Year 2026 Without Project traffic conditions would be a V/C ratio of 0.748 with LOS C and the results for Year 2026 With Project traffic conditions would a V/C ratio of 0.754 with LOS C. These results would not exceed the LOS Thresholds.

10.0 YEAR 2040 TRAFFIC ANALYSIS

10.1 Year 2040 Traffic Analysis – Intersections

Table 10-1 summarizes the weekday AM peak hour and PM peak Level of Service results at the twelve (12) key study intersections for the Year 2040 scenario. The structure of this table is similar to that of *Table 9-1.* The second column (2) lists forecast Year 2040 traffic conditions based on existing intersection geometry and/or planned improvements/traffic control, but without any traffic generated from the proposed Project. The third column (3) presents forecast Year 2040 traffic conditions with the addition of traffic generated by the Project. The fourth column (4) illustrates the increase in delay and V/C ratio due to the added peak hour Project trips and indicates whether the traffic associated with the Project will exceed the LOS thresholds previously mentioned. The fifth column (5) indicates the anticipated level of service with recommended improvements to accommodate long-term (Year 2040) traffic volumes.

10.1.1 *Year 2040 Without Project Traffic Conditions*

Review of column (2) of *Table 10-1* indicates that one (1) out of the twelve (12) key study intersections are forecast to operate adversely under Year 2040 traffic conditions based on the LOS standards specified in this report. The remaining key study intersections are forecast to operate at acceptable service level (LOS D or better) during the weekday AM and PM peak hours.

Appendix E presents the Year 2040 Without Project Delay/LOS calculations for the key study intersections for the AM peak hour and PM peak hour.

10.1.2 *Year 2040 With Project Traffic Conditions*

Review of columns (3) and (4) of *Table 10-1* indicates that Pipeline Avenue at Chino Hills Parkway (Intersection No. 3) will continue to operate with adverse service levels. However,. it should be noted that since the intersection is forecast to operate at LOS E without and with the Project, and the effect of added Project-related traffic is expected result in a less than 0.01 to the volume-to-capacity ratio at this location, the intersection does not require improvements based on the Chino Hills LOS standards. The remaining key study intersections are forecast to operate at an acceptable service level (LOS D or better) with the addition of Project generated traffic.

Appendix E presents the Year 2040 With Project Delay/LOS calculations for the key study intersections for the AM peak hour and PM peak hour.

10.2 Year 2040 Traffic Analysis – Roadway Segments

Table 10-2 summarizes the daily level of service results at the two (2) roadway segments for Year 2040 traffic conditions. The structure of this table is similar to that of *Table 9-1.* The first column (1) of *Table 10-2* presents a summary of Year 2040 without Project traffic conditions. The second column (2) lists Year 2040 With Project traffic conditions. The third column (3) shows the increase in V/C ratio due to the added peak hour Project trips and indicates whether the traffic associated with the Project will exceed the LOS thresholds defined in this report. The fourth column (4) indicates the anticipated LOS with planned and/or recommended improvements, if any. It should be noted that the City of Chino guidelines do not have a daily threshold for significance, however, to provide a

conservative assessment the daily threshold of significance for this analysis will be consistent with the peak hour criteria.

10.2.1 *Year 2040 Without Project Traffic Conditions*

Review of column (1) of *Table 10-2* indicates that the two (2) roadway segments are forecast to operate at acceptable service levels (LOS D or better) on a daily basis under Year 2040 traffic conditions.

10.2.2 *Year 2040 With Project Traffic Conditions*

Review of column (2) of *Table 10-2* indicates that the two (2) roadway segments are forecast to operate at acceptable service levels (LOS D or better) on a daily basis with the addition of Project generated traffic to Year 2040 traffic conditions.

10.3 Commons Drive/Project Driveway A at Chino Hills Parkway Operations Assessment

In response to City comments, a traffic operations assessment for the intersection of Common Drive/Project Driveway A at Chino Hills Parkway has been prepared. The operations assessment evaluated the potential impacts associated with operating the traffic signal in split phase operation for Commons Drive and Project Driveway A with the prior identified lane configurations. Typically, it is very common for only one crosswalk to be provided under this type of signal phasing. As presented in the LOS analysis summarized in *Table 10-1* as well as *Table 8-1* and *Table 9-1*, this study intersection would operate at an acceptable LOS assuming split phase operation and that the pedestrian crosswalk on the east leg would be maintained, and that a pedestrian crosswalk on the west leg would be installed to provide pedestrian connectivity across all legs of the intersection. To assess the impact on the service level of on each vehicular movement of the intersection, an analysis with and without the pedestrian crosswalk on the west leg was conducted for Year 2040 Buildout Plus Project traffic conditions. ***Table 10-3*** presents result of this comparative assessment.

As shown in Column (1) of *Table 10-3*, during the AM peak hour with a pedestrian crosswalk assumed on the west leg, the westbound approach and the eastbound left-turn movements are forecast to operate at LOS E; during the PM peak hour, the overall intersection and all movements are forecast to operate at LOS D or better.

Without the provision of a pedestrian crosswalk on the west leg, only the westbound and eastbound left-turn movements are forecast to operate at LOS E, while the rest of the vehicular movements, inclusive of eastbound and westbound through traffic flow, are forecast to operate LOS D or better during the AM peak hour; all movements are forecast to operate at LOS D or better during the PM peak hour (See Column (2) of *Table 10-3*).

Based on the information provided above, vehicular service levels for ingress and egress to the site will remain relatively the same regardless of the crosswalk options picked. Additionally, pedestrian connectivity can be provided regardless of the crosswalk options picked. As a result, both vehicular and pedestrian access could be achieved with or without the pedestrian crosswalk on the west leg.

Appendix F presents the Year 2040 Delay/LOS calculations for this operations assessment for Chino Hills Parkway at Commons Drive/Project Driveway A, with and without a pedestrian crosswalk on the west of this key study intersection for the AM peak hour and PM peak hour.

TABLE 10-1

YEAR 2040 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersections	Time Period	(1) Existing Traffic Conditions			(2) Year 2040 Without Project Traffic Conditions			(3) Year 2040 With Project Traffic Conditions			(4) Exceeds LOS Thresholds			(5) Year 2040 With Project Traffic Conditions With Improvements		
		Delay (s/v)	V/C	LOS	Delay (s/v)	V/C	LOS	Delay (s/v)	V/C	LOS	Delay Increase[39]	V/C Increase	Yes/ No	Delay (s/v)	V/C	LOS
1. Ramona Avenue at Eucalyptus Avenue	AM	28.3	0.421	C	31.1	0.565	C	31.1	0.567	C	0.0	0.002	No	--	--	--
	PM	32.1	0.631	C	38.7	0.780	D	38.7	0.782	D	0.0	0.002	No	--	--	--
2. Monte Vista Avenue at Eucalyptus Avenue	AM	26.5	0.224	C	25.4	0.278	C	25.3	0.278	C	-0.1	0.000	No	--	--	--
	PM	27.3	0.254	C	23.9	0.330	C	23.9	0.331	C	0.0	0.001	No	--	--	--
3. Pipeline Avenue at Chino Hills Parkway	AM	37.8	0.621	D	41.8	0.789	D	41.8	0.793	D	0.0	0.004	No	--	--	--
	PM	44.5	0.745	D	**67.3**	**0.939**	**E**	**68.2**	**0.942**	**E**	0.9	0.003	No	--	--	--
4. SR-71 SB Ramps at Chino Hills Parkway	AM	25.1	0.528	C	22.8	0.669	C	22.7	0.673	C	-0.1	0.004	No	--	--	--
	PM	25.7	0.655	C	24.6	0.798	C	24.6	0.800	C	0.0	0.002	No	--	--	--
5. SR-71 NB Ramps at Chino Hills Parkway	AM	25.5	0.565	C	24.7	0.669	C	24.6	0.677	C	-0.1	0.008	No	--	--	--
	PM	23.4	0.611	C	22.2	0.736	C	22.1	0.746	C	-0.1	0.010	No	--	--	--
6. Ramona Avenue at Chino Hills Parkway	AM	31.8	0.618	C	38.8	0.861	D	42.0	0.866	D	3.2	0.005	No	--	--	--
	PM	33.8	0.636	C	45.9	0.897	D	47.0	0.904	D	1.1	0.007	No	--	--	--
7. Commons Drive/Project Driveway A at Chino Hills Parkway[40]	AM	5.2	0.286	A	6.8	0.400	A	48.1	0.499	D	41.3	0.099	No	--	--	--
	PM	12.0	0.416	B	15.8	0.542	B	39.0	0.594	D	23.2	0.052	No	--	--	--

Note:

- **Bold** LOS values indicate adverse service levels based on City LOS standards; s/v = seconds per vehicle (delay).

[39] A theoretical decrease in delay is possible with HCM calculations and is a result of adding volume to an intersection movement that is already operating well, which in turn decreases the overall delay for that particular intersection approach.

[40] The service level reported under "With Project" traffic conditions (Column 3) assume split phase traffic signal operations on Commons Drive/Project Driveway A. Lane configurations include an exclusive eastbound left-turn lane and converting the northbound shared left/right turn lane into a shared left/thru/right turn lane. In addition, the provision of a pedestrian crosswalk on the west leg are included, while maintained the pedestrian crosswalk on the east leg.

TABLE 10-1 (CONTINUED)
YEAR 2040 PEAK HOUR INTERSECTION CAPACITY ANALYSIS

Key Intersections	Time Period	(1) Existing Traffic Conditions			(2) Year 2040 Without Project Traffic Conditions			(3) Year 2040 With Project Traffic Conditions			(4) Exceeds LOS Thresholds			(5) Year 2040 With Project Traffic Conditions With Improvements		
		Delay (s/v)	V/C	LOS	Delay (s/v)	V/C	LOS	Delay (s/v)	V/C	LOS	Delay Increase[41]	V/C Increase	Yes/ No	Delay (s/v)	V/C	LOS
8. Monte Vista Avenue (South) at Chino Hills Parkway	AM	10.6	0.351	B	13.0	0.459	B	13.0	0.464	B	0.0	0.005	No	--	--	--
	PM	10.0	0.475	A	13.9	0.610	B	13.9	0.612	B	0.0	0.002	No	--	--	--
9. Monte Vista Avenue (North) at Chino Hills Parkway	AM	12.2	0.392	B	11.7	0.477	B	11.8	0.481	B	0.1	0.004	No	--	--	--
	PM	10.5	0.415	B	11.1	0.478	B	11.2	0.483	B	0.1	0.005	No	--	--	--
10. Central Avenue at Chino Hills Parkway	AM	23.5	0.575	C	32.9	0.743	C	33.0	0.746	C	0.1	0.003	No	--	--	--
	PM	28.4	0.657	C	40.3	0.827	D	40.6	0.830	D	0.3	0.003	No	--	--	--
11. Ramona Avenue at SR-71 NB Ramps	AM	28.3	0.551	C	30.1	0.715	C	30.3	0.729	C	0.2	0.014	No	--	--	--
	PM	25.5	0.538	C	27.7	0.743	C	28.0	0.756	C	0.3	0.013	No	--	--	--
12. Ramona Avenue at SR-71 SB Ramps	AM	20.9	0.409	C	21.7	0.483	C	21.8	0.492	C	0.1	0.009	No	--	--	--
	PM	24.4	0.526	C	26.2	0.674	C	26.3	0.679	C	0.1	0.005	No	--	--	--

Note:

- **Bold** LOS values indicate adverse service levels based on City LOS standards; s/v = seconds per vehicle (delay).

[41] A theoretical decrease in delay is possible with HCM calculations and is a result of adding volume to an intersection movement that is already operating well, which in turn decreases the overall delay for that particular intersection approach.

TABLE 10-2

YEAR 2040 DAILY ROADWAY SEGMENTS LEVEL OF SERVICE ANALYSIS

Key Roadway Segment	No. of Lanes	LOS "D" Threshold (VPD)	(1) Year 2040 Without Project Traffic Conditions			(2) Year 2040 With Project Traffic Conditions			(3) Exceed LOS Thresholds (2) – (1)		(4) Year 2040 With Project Traffic Conditions With Improvements		
			Daily Volume	V/C Ratio	LOS	Daily Volume	V/C Ratio	LOS	Increase	Yes/No	Daily Volume	V/C Ratio	LOS
A. Chino Hills Parkway, between Commons Drive and Monte Vista Avenue (South)	5D[42]	35,000	27,849	0.714	C	28,052	0.719	C	0.005	No	--	--	--
B. Chino Hills Parkway, between Monte Vista Avenue (North) and Telephone Avenue	4D	32,300	22,997	0.641	B	23,132	0.644	B	0.003	No	--	--	--

Notes:

- D = Divided; U = Undivided; VPD = Vehicles per day; V/C = Volume over capacity
- **Bold LOS values** indicate adverse service levels

[42] Please note if Segment A was considered a four-lane divided roadway the results for Year 2040 Without Project traffic conditions would be a V/C ratio of 0.776 with LOS C and the results for Year 2040 With Project traffic conditions would a V/C ratio of 0.781 with LOS C. These results would not exceed the LOS Thresholds.

TABLE 10-3
YEAR 2040 BUILDOUT PLUS PROJECT OPERATIONS ASSESSMENT
CHINO HILLS PARKWAY AT COMMONS DRIVE/PROJECT DRIVEWAY A

Chino Hills Parkway at Commons Drive – Individual Lane Group Movements	(1) Traffic Signal North/South Split Phase Operation With Pedestrian Crosswalk on East Leg AND West Leg						(2) Traffic Signal North/South Split Phase Operation With Pedestrian Crosswalk on East Leg but NONE on the West Leg					
	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	Delay (s/v)	V/C	LOS	Delay (s/v)	V/C	LOS	Delay (s/v)	V/C	LOS	Delay (s/v)	V/C	LOS
❑ NBL	36.16	0.18	D	42.52	0.65	D	34.58	0.19	C	42.63	0.70	D
❑ NBT/R	36.11	0.18	D	41.72	0.62	D	34.52	0.19	C	41.57	0.67	D
❑ SBL/T/R	36.94	0.22	D	31.50	0.13	C	35.40	0.24	D	29.71	0.14	C
❑ EBL	**61.04**	**0.39**	**E**	50.25	0.56	D	**55.59**	**0.36**	**E**	44.51	0.53	D
❑ EBT	33.14	0.46	C	35.95	0.84	D	29.35	0.45	C	31.20	0.81	C
❑ EBR	30.87	0.26	C	32.43	0.55	C	27.34	0.25	C	28.28	0.53	C
❑ WBL	**63.44**	**0.64**	**E**	50.83	0.82	D	**56.76**	**0.60**	**E**	45.59	0.80	D
❑ WBT	**62.95**	**0.96**	**E**	40.71	0.83	D	46.43	0.92	D	34.04	0.80	C
❑ WBT/R	**62.83**	**0.95**	**E**	40.56	0.82	D	46.36	0.92	D	33.93	0.80	C
OVERALL VALUES	48.15	0.499	D	39.1	0.594	D	38.60	0.506	D	34.51	0.607	C

Notes:

- **Bold LOS values** indicate adverse service levels per movement and/or overall intersection LOS

11.0 CALTRANS QUEUING ANALYSIS

The Department of Transportation (Caltrans) has also formally adopted VMT as the metric for reviewing the transportation impacts of a land use development project. Caltrans has released the *Vehicle Miles Traveled-Focused Transportation Impact Study Guide (TISG)*, dated May 20, 2020 in order to provide guidance on Caltrans' review of land use projects.

Caltrans' TISG references the *Technical Advisory on Evaluating Transportation Impacts In California Environmental Quality Act* (CEQA), dated December 2018, prepared by the State of California Governor's Office of Planning and Research (OPR) as the basis for its guidance on VMT assessment. The City of Chino adopted new traffic impact criteria to be consistent with the CEQA revisions and OPR recommendations. These new guidelines are contained within the *City of Chino Traffic Impact Analysis Guidelines (dated December 2020)* and provide screening criteria and methodology for VMT analysis. Since the City's guidelines are generally consistent with OPR guidelines, no separate VMT analysis has been prepared for Caltrans' review of the proposed project. The VMT analysis for this project is contained within a separate document (i.e. refer *The Trip Generation and Vehicle Miles Traveled Due-Diligence Assessment for Proposed 4700 Chino Hills Parkway Residential Development dated August 24, 2023, prepared by LSA* that is included as an appendix to this report).

11.1 Off-Ramp Vehicle Queueing Analysis

The *Caltrans Interim Land Development and Intergovernmental Review (LDIGR) Safety Review Practitioners Guidance*, dated December 2020, provides direction on a simplified safety analysis approach that reduces the risk to all road users and that focuses on multi-modal conflict analysis as well as access management issues. District traffic safety staff are encouraged to consider the proposed Project's potential influence on safety on state roadways, including the following factors:

- Increased presence of pedestrians and bicyclists
- Degradation of the walking and bicycling environment and experience
- New pedestrian and bicyclist connection desires
- Multimodal conflict points, especially at intersections and project access locations
- Change in traffic mix such as an increase in bicyclists or pedestrians where features such as shoulders or sidewalks may not exist or are inconsistent with facility design (sidewalks, bike and multi-user paths, multimodal roadways, etc.)
- Increased vehicular speeds
- Transition between free flow and metered flow
- Increased traffic volumes
- Queuing at off-ramps resulting in slow or stopped traffic on the mainline or speed differentials between adjacent lanes
- Queuing exceeding turn pocket length that impedes through-traffic

The proposed Project does not take direct access from a State facility; however, an evaluation of the Project's potential impacts on queuing at Caltrans intersections was prepared in order to determine if the Project would cause, or contribute towards, slowing or stopped traffic on freeway mainline travel

lanes, off-ramps, and State highway lanes that could result in unsafe speed differentials between adjacent lanes. This Caltrans queueing analysis was conducted using the Highway Capacity Manual (HCM) operational method for signalized intersections. The Average Queue methodology was utilized, which calculates the average queue value in terms of number of vehicles per lane. At signalized intersections, the storage length for left-turn and right-turn lanes may be based on one and one-half (1½) to two (2) times the average number of vehicles that would store per signal cycle[43]. For the purposes of this traffic analysis, the minimum storage requirement for left-turn lanes and right-turn lanes was calculated by taking 1½ times the average queue length. (Minimum required storage = Q_{av} (feet) x 1.5).

11.1.1 *Existing With Project Traffic Conditions*

Table 11-1 identifies the minimum required stacking/storage lengths for the off-ramp lanes at the four (4) ramp intersections for Existing With Project traffic conditions. Review of *Table 11-1* indicates that the existing storage for the off-ramp lanes is considered adequate to accommodate the anticipated queues with and without the Project under Existing traffic conditions. *Appendix C* presents the corresponding queueing analysis worksheets.

11.1.2 *Year 2026 Traffic Conditions*

Table 11-2 identifies the minimum required stacking/storage lengths for the off-ramp lanes at the four (4) ramp intersections for Year 2026 traffic conditions. Review of *Table 11-2* indicates that the existing storage for the off-ramp lanes is considered adequate to accommodate the anticipated queues with and without the Project under Year 2026 traffic conditions. *Appendix D* presents the corresponding queueing analysis worksheets.

11.1.3 *Year 2040 Traffic Conditions*

Table 11-3 identifies the minimum required stacking/storage lengths for the off-ramp lanes at the four (4) ramp intersections for Year 2040 traffic conditions. Review of *Table 11-3* indicates that the existing storage for the off-ramp lanes is considered adequate to accommodate the anticipated queues with and without the Project under Year 2040 traffic conditions. *Appendix E* presents the corresponding queueing analysis worksheets.

Therefore, based on this analysis, the proposed Project is not anticipated to negatively affect traffic flow on the State Highway System as the existing vehicular storage capacity on the off-ramps are considered adequate.

[43] Source: Highway Design Manual, Intersections at Grade, page 400-9, CALTRANS

TABLE 11-1
EXISTING WITH PROJECT CALTRANS OFF-RAMP PEAK HOUR QUEUING ANALYSIS[44]

Key Intersections	Storage Provided (feet)	(1) Existing Traffic Conditions				(2) Existing With Project Traffic Conditions				(3) Existing With Project Traffic Conditions with Improvements			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required (feet)	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required (feet)	Adequate Storage (Yes/No	Max. Queue/ Min. Storage Required (feet)	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required (feet)	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required (feet)	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required (feet)	Adequate Storage (Yes/No)
4. SR-71 SB Ramps at Chino Hills Parkway													
Southbound Left-Turn	770’	92’	Yes	125’	Yes	93’	Yes	131’	Yes	--	--	--	--
Southbound Left/Through	1,180’	92’	Yes	125’	Yes	93’	Yes	131’	Yes	--	--	--	--
Southbound Right-Turn	480’	128’	Yes	230’	Yes	129’	Yes	231’	Yes	--	--	--	--
5. SR-71 NB Ramps at Chino Hills Parkway													
Northbound Left-Turn	105’	108’	Yes[45]	111’	Yes[45]	113’	Yes[45]	113’	Yes[45]	--	--	--	--
Northbound Left/Through	550’	108’	Yes	111’	Yes	113’	Yes	113’	Yes	--	--	--	--
Northbound Through/Right	550’	120’	Yes	86’	Yes	123’	Yes	87’	Yes	--	--	--	--
11. Ramona Avenue at SR-71 NB Ramps at													
Westbound Left/Through	590’	315’	Yes	261’	Yes	320’	Yes	275’	Yes	--	--	--	--
Westbound Through/Right	1,265’	263’	Yes	237’	Yes	266’	Yes	243’	Yes	--	--	--	--
12. Ramona Avenue at SR-71 SB Ramps at													
Eastbound Left/Through	1,155’	204’	Yes	339’	Yes	204’	Yes	339’	Yes	--	--	--	--
Eastbound Through/Right	1,155’	192’	Yes	291’	Yes	192’	Yes	291’	Yes	--	--	--	--

[44] Maximum queue in feet (ft) is calculated by multiplying the *Average Queue* by a factor of 1.5.

[45] Although the queue exceeds the left-turn storage, the ramp has a 440’ capacity to accommodate the additional spillover queue.

TABLE 11-2
YEAR 2026 CALTRANS OFF-RAMP PEAK HOUR QUEUING ANALYSIS[46]

Key Intersections	Storage Provided (feet)	(1) Year 2026 Without Project Traffic Conditions				(2) Year 2026 With Project Traffic Conditions				(3) Year 2026 With Project Traffic Conditions with Improvements			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required (feet)	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required (feet)	Adequate Storage (Yes/No	Max. Queue/ Min. Storage Required (feet)	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required (feet)	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required (feet)	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required (feet)	Adequate Storage (Yes/No)
4. SR-71 SB Ramps at Chino Hills Parkway													
Southbound Left-Turn	770’	131’	Yes	204’	Yes	135’	Yes	215’	Yes	--	--	--	--
Southbound Left/Through	1,180’	131’	Yes	204’	Yes	135’	Yes	215’	Yes	--	--	--	--
Southbound Right-Turn	480’	173’	Yes	365’	Yes	174’	Yes	368’	Yes	--	--	--	--
5. SR-71 NB Ramps at Chino Hills Parkway													
Northbound Left-Turn	105’	156’	Yes[47]	158’	Yes[47]	162’	Yes[47]	161’	Yes[47]	--	--	--	--
Northbound Left/Through	550’	159’	Yes	158’	Yes	164’	Yes	161’	Yes	--	--	--	--
Northbound Through/Right	550’	171’	Yes	170’	Yes	177’	Yes	173’	Yes	--	--	--	--
11. Ramona Avenue at SR-71 NB Ramps at													
Westbound Left/Through	590’	333’	Yes	351’	Yes	327’	Yes	357’	Yes	--	--	--	--
Westbound Through/Right	1,265’	497’	Yes	294’	Yes	501’	Yes	299’	Yes	--	--	--	--
12. Ramona Avenue at SR-71 SB Ramps at													
Eastbound Left/Through	1,155’	243’	Yes	392’	Yes	243’	Yes	392’	Yes	--	--	--	--
Eastbound Through/Right	1,155’	225’	Yes	320’	Yes	225’	Yes	320’	Yes	--	--	--	--

[46] Maximum queue in feet (ft) is calculated by multiplying the *Average Queue* by a factor of 1.5.

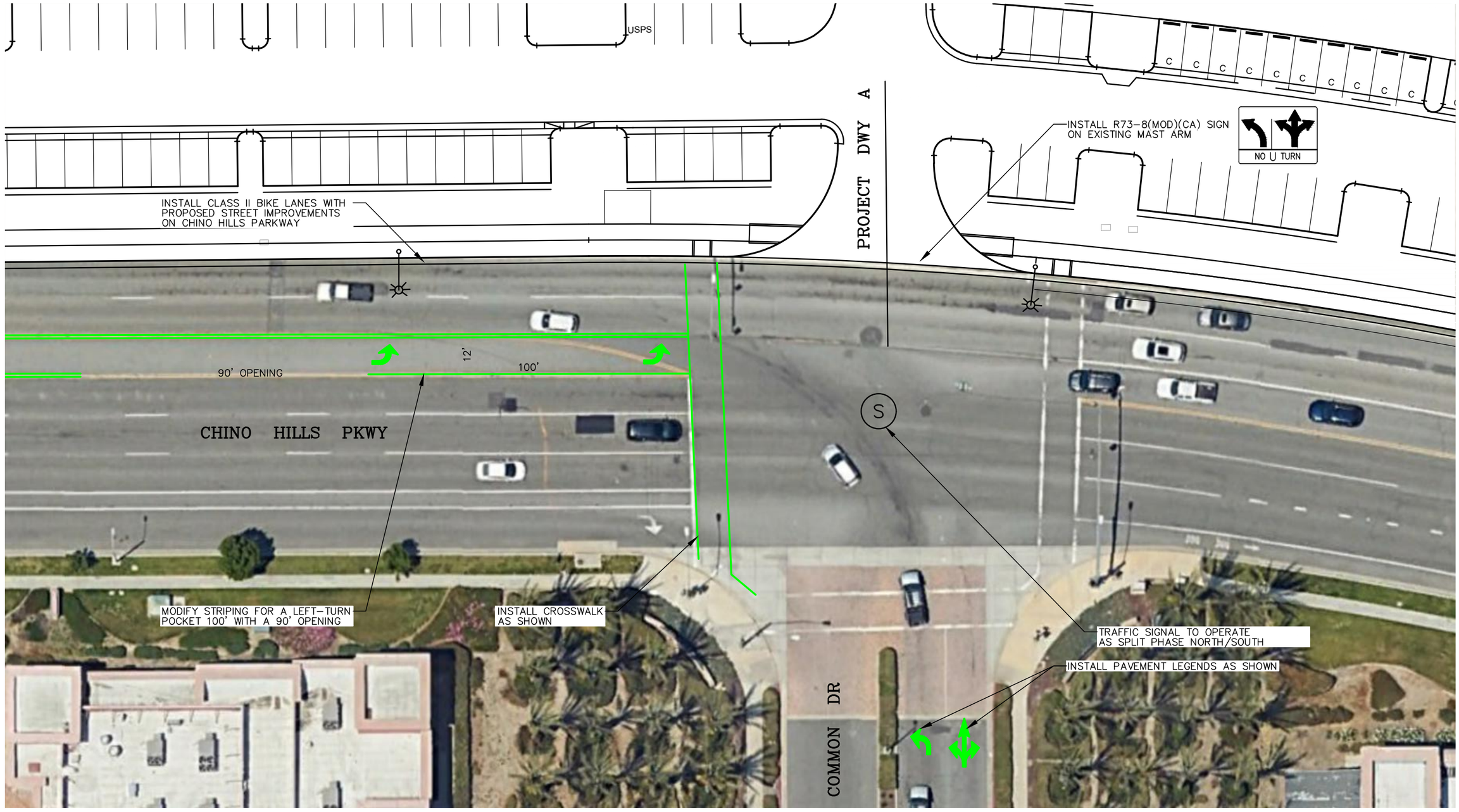
[47] Although the queue exceeds the left-turn storage, the ramp has a 440’ capacity to accommodate the additional spillover queue.

TABLE 11-3
YEAR 2040 CALTRANS OFF-RAMP PEAK HOUR QUEUING ANALYSIS[48]

Key Intersections	Storage Provided (feet)	(1) Year 2040 Traffic Conditions				(2) Year 2040 With Project Traffic Conditions				(3) Year 2040 With Project Traffic Conditions with Improvements			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Max. Queue/ Min. Storage Required (feet)	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required (feet)	Adequate Storage (Yes/No	Max. Queue/ Min. Storage Required (feet)	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required (feet)	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required (feet)	Adequate Storage (Yes/No)	Max. Queue/ Min. Storage Required (feet)	Adequate Storage (Yes/No)
4. SR-71 SB Ramps at Chino Hills Parkway													
Southbound Left-Turn	770’	173’	Yes	221’	Yes	177’	Yes	230’	Yes	--	--	--	--
Southbound Left/Through	1,180’	173’	Yes	221’	Yes	177’	Yes	230’	Yes	--	--	--	--
Southbound Right-Turn	480’	227’	Yes	395’	Yes	230’	Yes	398’	Yes	--	--	--	--
5. SR-71 NB Ramps at Chino Hills Parkway													
Northbound Left-Turn	105’	168’	Yes[49]	176’	Yes[49]	171’	Yes[49]	179’	Yes[49]	--	--	--	--
Northbound Left/Through	550’	170’	Yes	177’	Yes	173’	Yes	180’	Yes	--	--	--	--
Northbound Through/Right	550’	183’	Yes	191’	Yes	188’	Yes	194’	Yes	--	--	--	--
11. Ramona Avenue at SR-71 NB Ramps at													
Westbound Left/Through	590’	326’	Yes	356’	Yes	323’	Yes	366’	Yes	--	--	--	--
Westbound Through/Right	1,265’	474’	Yes	303’	Yes	483’	Yes	308’	Yes	--	--	--	--
12. Ramona Avenue at SR-71 SB Ramps at													
Eastbound Left/Through	1,155’	228’	Yes	396’	Yes	228’	Yes	396’	Yes	--	--	--	--
Eastbound Through/Right	1,155’	212’	Yes	332’	Yes	212’	Yes	332’	Yes	--	--	--	--

[48] Maximum queue in feet (ft) is calculated by multiplying the *Average Queue* by a factor of 1.5.

[49] Although the queue exceeds the left-turn storage, the ramp has a 440’ capacity to accommodate the additional spillover queue.



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LINSCOTT LAW & GREENSPAN engineers

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SCALE: 1"=30'

SOURCE: FUSCOE

FIGURE 12-1

CONCEPTUAL IMPROVEMENT PLAN
CHINO HILLS PARKWAY AT COMMONS DRIVE/PROJECT DRIVEWAY A

CHINO CREEK APARTMENTS, CHINO

12.0 AREA-WIDE TRAFFIC IMPROVEMENTS

For the intersections where projected traffic volumes are expected to result in poor operating conditions, this report recommends (identifies) improvements, which change the intersection geometry to increase capacity. These capacity enhancing improvements usually involve roadway widening and/or restriping to reconfigure or add lanes to various approaches of a key intersection. The proposed improvements are expected to offset the impact of future traffic and improve Levels of Service to an acceptable range and/or to pre-Project conditions.

Transportation improvements throughout San Bernardino County are funded through a combination of direct implementation of recommended improvements by the Project, fair share contributions or development impact fee programs. Identification and timing of needed improvements is generally determined through local jurisdictions based upon a variety of factors.

12.1 Project Specific Improvements

The following Project design features are to be implemented in conjunction with development of the proposed Project to ensure adequate access and egress to the site is provided and have been included in Existing With Project, Year 2026 With Project and Year 2040 With Project traffic conditions:

- Intersection No. 7 – Commons Drive/Project Driveway A at Chino Hills Parkway: Construct the north leg of the intersection to include a single inbound and outbound lane. Widen and/or restripe the eastbound approach to include an exclusive left-turn lane with 100-feet of storage and a 90-foot transition. Restripe the northbound shared left/right-turn lane to a shared left/through/right lane. Maintain the existing pedestrian crosswalk on the east leg and install a crosswalk on the west leg. Modify the existing traffic signal to include split phasing in the north-south directions and protected phasing for the eastbound left-turn movement. It should be noted that a focused assessment at the project driveway identified that both vehicular and pedestrian access could be achieved with or without the pedestrian crosswalk on the west leg. Therefore, the final design are subject to the approval of the City of Chino and the City of Chino Hills.

  Figure 12-1 presents a conceptual improvement plan for Chino Hills Parkway at Commons Drive/Project Driveway A that illustrates the recommended intersection configuration and associated striping layout.

12.2 Recommended Improvements

12.2.1 *Existing With Project Recommended Improvements*

The results of the intersection capacity analyses summarized in *Table 8-1* indicates that Project-related improvements are not required at any of the twelve (12) key study intersections or two (2) study roadway segments under Existing With Project traffic conditions.

12.2.2 *Year 2026 With Project Recommended Improvements*

The results of the intersection capacity analyses summarized in *Table 9-1* indicates that Project-related improvements are not required at any of the twelve (12) key study intersections or two (2) study roadway segments under Year 2026 With Project traffic conditions.

12.2.3 *Year 2040 With Project Recommended Improvements*

The results of the intersection capacity analyses summarized in *Table 10-1* indicates that Project-related improvements are not required at any of the twelve (12) key study intersections or two (2) study roadway segments under Year 2040 With Project traffic conditions.

It is noted that the results of the roadway capacity analyses for the two (2) study roadway segments on Chino Hills Parkway indicate that roadway capacity improvements are not required or recommended.

13.0 DEVELOPMENT IMPACT FEES

13.1 City of Chino Traffic-Related Development Impact Fees

Pursuant to the requirements of the City of Chino, a Circulation System Fee will be required of the Project per the current City's Development Impact Fee (DIF) schedule. The traffic-related DIF is applied to pay a portion of the costs identified for public facilities, including transportation-related improvements. According to information provided by the City and review of the *City of Chino Approved DIF Fee Resolution,* the current fee schedule is summarized in ***Table 13-1.*** The DIF is based on the size of all new developments, with the cost per unit or cost per square-foot of development determined based on the type of development (i.e. Low Density Detached, Medium Density Detached, Medium Density Attached, office/commercial, industrial, etc.). Per the *City of Chino Approved DIF Fee Resolution*, the Circulation System Fee is used toward public facilities and improvements to be constructed in all areas of the City except The Preserve.

Application to the appropriate DIF rates summarized in *Table 13-1* to the proposed Project results in a preliminary estimate of **$564,412.00**, all of which is attributable to the Circulation System Fee and is detailed below:

- 298 DU Apartment x $1,894 per Unit = $564,412.00

It is noted that Project's payment of the Circulation System-related DIF fee will mitigate its contributory impacts to those facilities included in the City's DIF program. The precise fee will be collected prior to the issuance of building permits by the City of Chino.

TABLE 13-1

CITY OF CHINO TRAFFIC-RELATED DEVELOPMENT IMPACT FEE RATES[50]

Land Use	Fee ($ per unit or SF)
▪ Low Density Detached Units	$4,586/unit
▪ Medium Density Detached Units	$4,586/unit
▪ Medium Density Attached Units	$3,061/unit
▪ High Density Attached Units	$1,894/unit
▪ Manufactured Home	$2,386/unit
▪ Commercial Lodging	$2,418/unit
▪ Commercial Retail	$9.40/SF
▪ Office or Business Park	$7.13/SF
▪ Industrial Uses	$2.31/SF
▪ Institutional Uses	$7.80/SF

[50] Source: City of Chino *Development Impact Fees Nexus/MFP, Resolution No. 2022-026.*

14.0 SITE ACCESS EVALUATION

14.1 Project Access Level of Service Analysis

Vehicular access to Project will be provided via a "full access" driveway located opposite Commons Drive, at its signalized intersection with Chino Hills Parkway, and a gated "right-turn out only" driveway on Chino Hills Parkway. It should be noted that this analysis conservatively assumes that all traffic associated with the proposed Project will utilize the signalized driveway.

Tables 8-1, 9-1 and 10-1 summarize the intersection operations for the Project Driveway opposite of Commons Drive (Intersection No. 7) for Existing With Project, Year 2026 With Project, and Year 2040 With Project traffic conditions upon completion of the proposed Project.

Review of *Table 8-1, 9-1 and 10-1* shows that the proposed Project Driveway is forecast to operate an acceptable LOS during the weekday AM and PM peak hours in the Existing With Project, Year 2026 With Project, and Year 2040 With Project traffic conditions. As such, motorists entering and exiting the Project site will be able to do so comfortably without undue congestion. It should be noted that the LOS results assume the installation of a pedestrian crosswalk along the west leg of Commons Drive at Chino Hills Parkway. However, for split phased intersections it is very common for only one crosswalk to be provided. If the west leg crosswalk were to be eliminated as part of the design review process the anticipated LOS would be improved from what is reported in this report.

14.2 Multimodal Circulation

It is our understanding that the Project intends to add striping for a Class II Bike Lane along the project frontage. Additionally, as part of the Project, a private pedestrian access path will be constructed internal to the project site along the Chino Creek Channel.

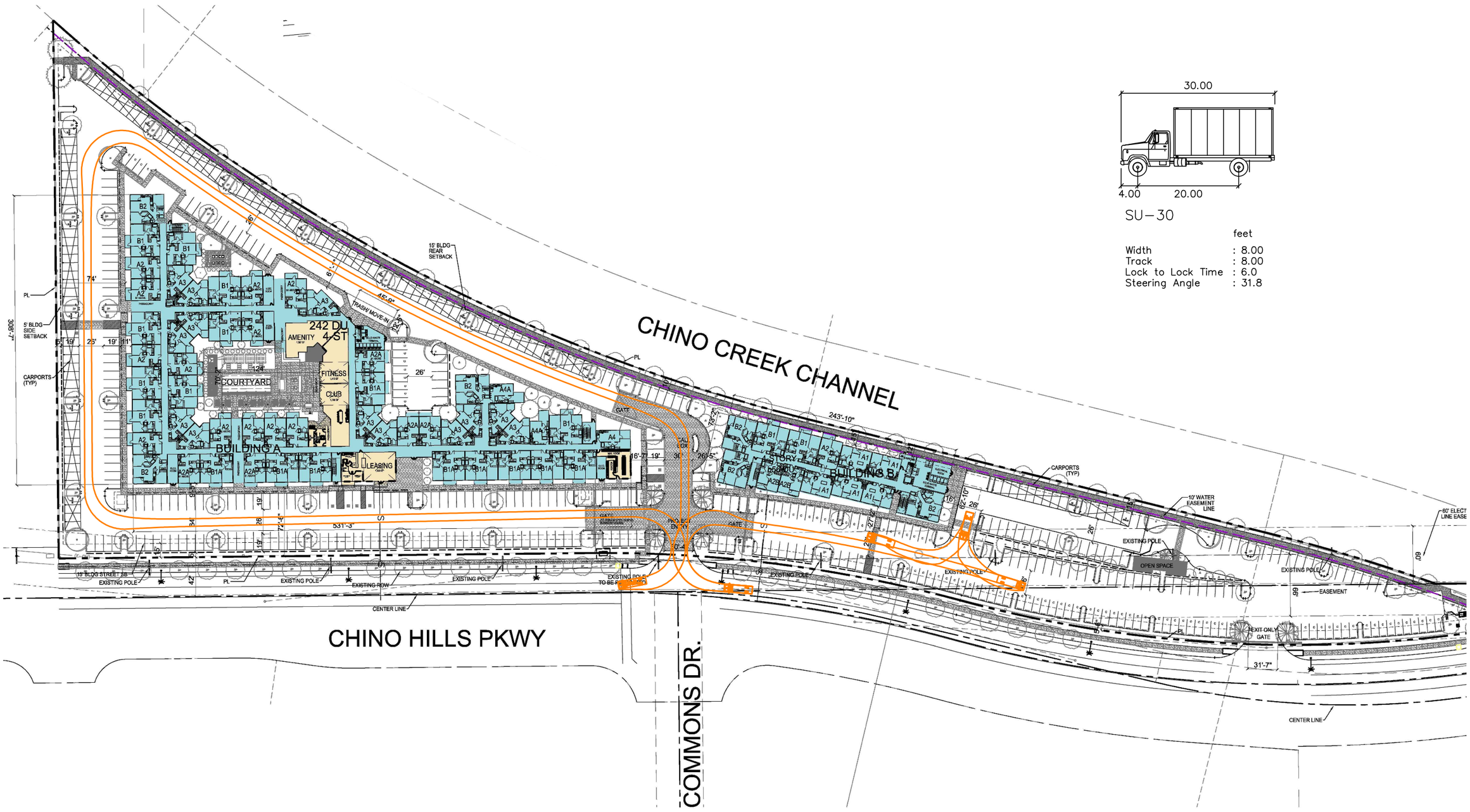
14.3 Internal Circulation Evaluation

Evaluation of the on-site circulation for the Project was performed using the *Turning Vehicle Templates*, developed by Jack E. Leisch & Associates and *AutoTURN for AutoCAD* computer software that simulates turning maneuvers for various types of vehicles. A fire truck, trash truck, and SU-30 turning templates were utilized in this evaluation.

Based on our evaluation, curb return radii at the project driveways have been confirmed and are generally considered adequate. The design of the entry/exit points of the project driveways are adequate for the expected traffic volumes. ***Figures 14-1*** through ***14-3*** present the turning movements required of a SU-30, trash truck, and fire truck as it circulates throughout the project site, respectively. Overall, the turning maneuvers for the SU-30, trash truck, and fire truck are considered adequate.

14.4 Sight Distance Evaluation

At intersections and/or project driveways, a substantially clear line of sight should be maintained between the driver of a vehicle waiting at the crossroad and the driver of an approaching vehicle. Adequate time must be provided for the waiting vehicle to either cross all lanes of through traffic,



SU–30

	feet
Width	: 8.00
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 31.8

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SOURCE: ARCHITECTS ORANGE

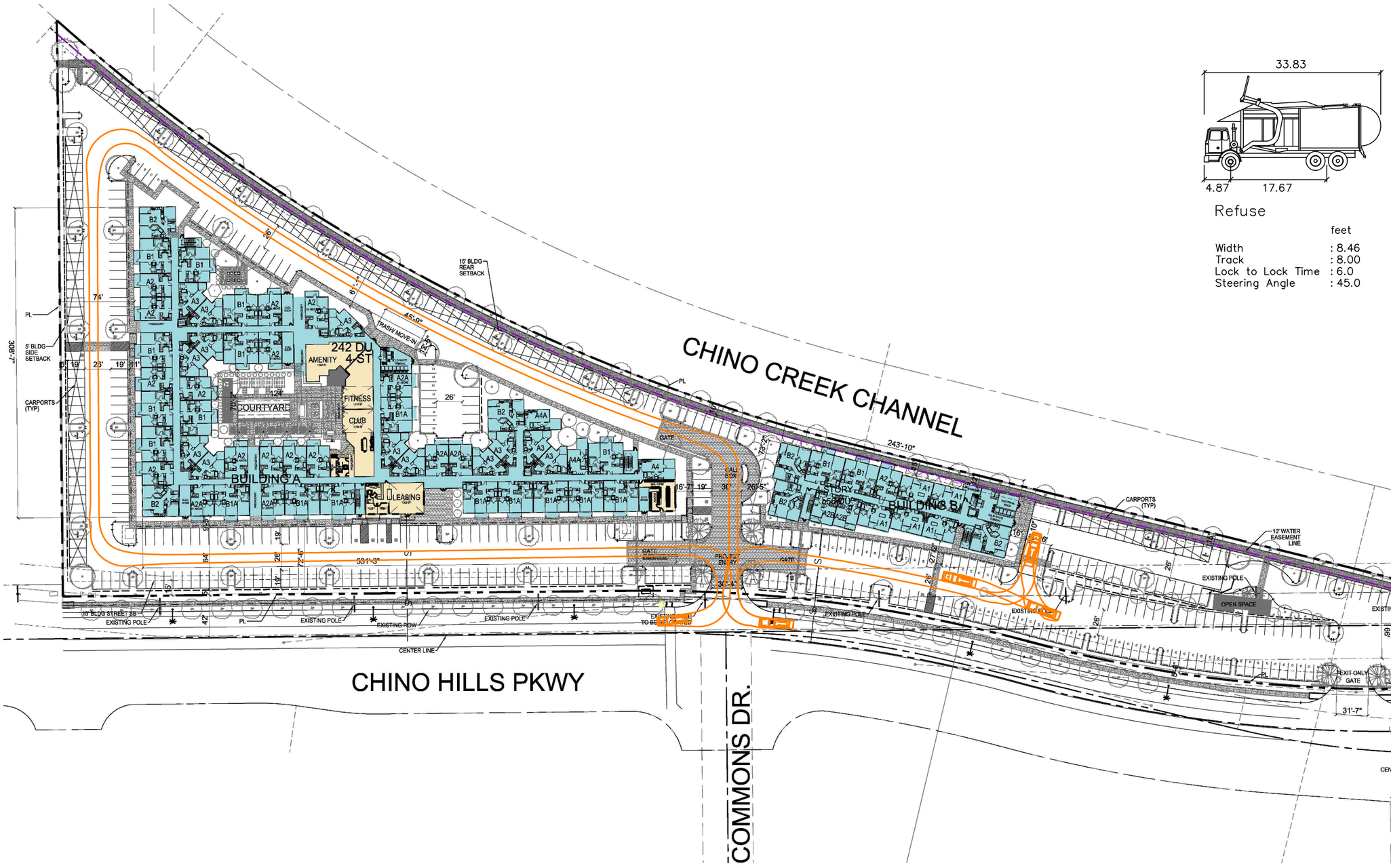
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FIGURE 14–1

SU–30 TRUCK TURNING ANALYSIS

CHINO CREEK APARTMENTS, CHINO



Refuse

	feet
Width	: 8.46
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 45.0

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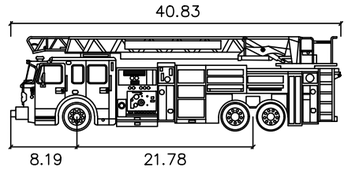
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FIGURE 14-2

TRASH TRUCK TURNING ANALYSIS

CHINO CREEK APARTMENTS, CHINO



Fire Truck

	feet
Width	: 8.25
Track	: 7.87
Lock to Lock Time	: 6.0
Steering Angle	: 46.3

CHINO CREEK CHANNEL

CHINO HILLS PKWY

COMMONS DR.

BUILDING A

BUILDING B

242 DU 4 ST

AMENITY

FITNESS

CLUB

COURTYARD

LEASING

OPEN SPACE

GATE

EXIT ONLY GATE

CARPORTS (TYP)

5' BLDG SIDE SETBACK

15' BLDG REAR SETBACK

10' WATER EASEMENT LINE

60' ELECT LINE EASE

EASEMENT

EXISTING POLE

EXISTING ROW

CENTER LINE

TRASH MOVE-IN

PROJECT ENTRY

SOURCE: ARCHITECTS ORANGE

LINSCOTT LAW & GREENSPAN engineers

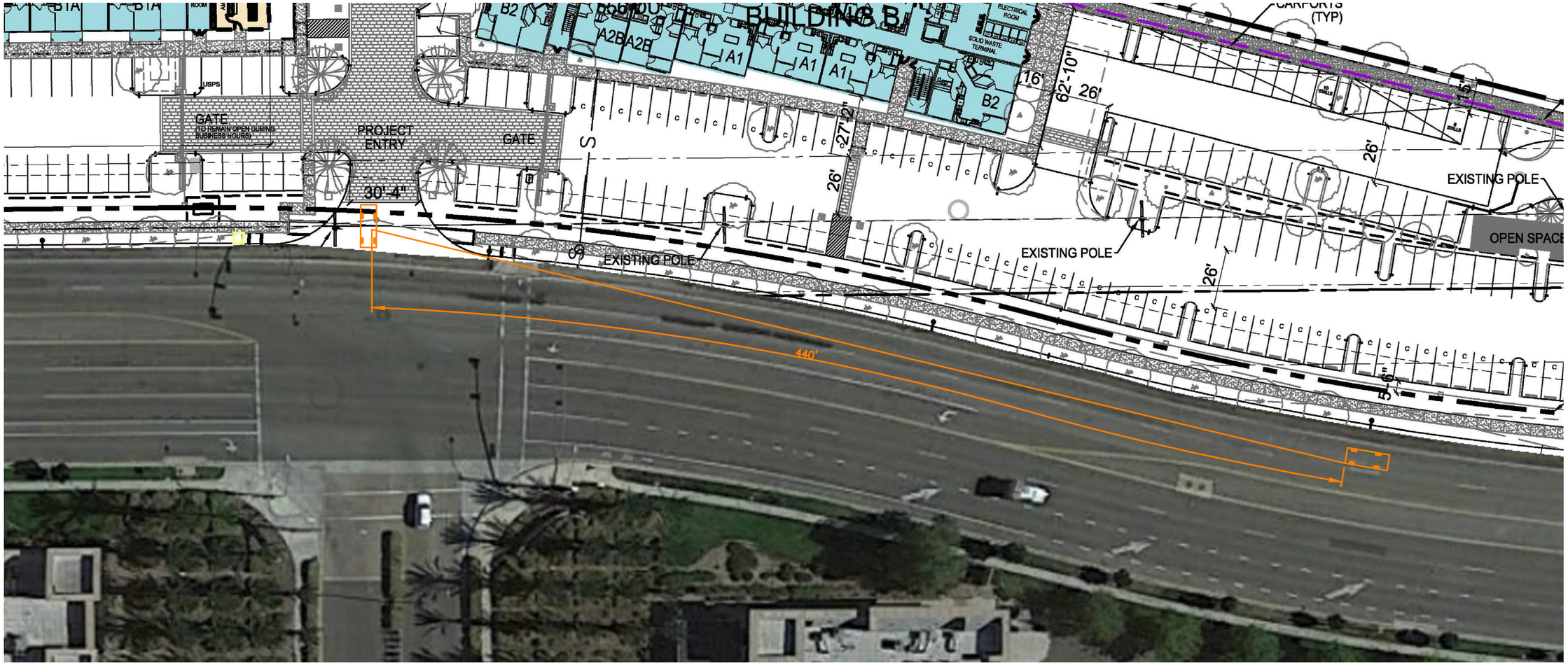
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FIGURE 14-3

FIRE TRUCK TURNING ANALYSIS

CHINO CREEK APARTMENTS, CHINO

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SIGHT DISTANCE

DESIGN SPEED LIMIT:	45 MPH
REQUIRED STOPPING SIGHT DISTANCE:	440 FEET

LEGEND

PUBLIC RIGHT-OF-WAY LIMITED USE AREA: TO ENSURE ADEQUATE SIGHT DISTANCE, HARDSCAPE AND/OR LANDSCAPE SHALL NOT BE HIGHER THAN 30 INCHES ABOVE THE CURB/SIDEWALK. NO FENCES OR WALLS IN LIMITED USE AREA.

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LINSCOTT LAW & GREENSPAN engineers

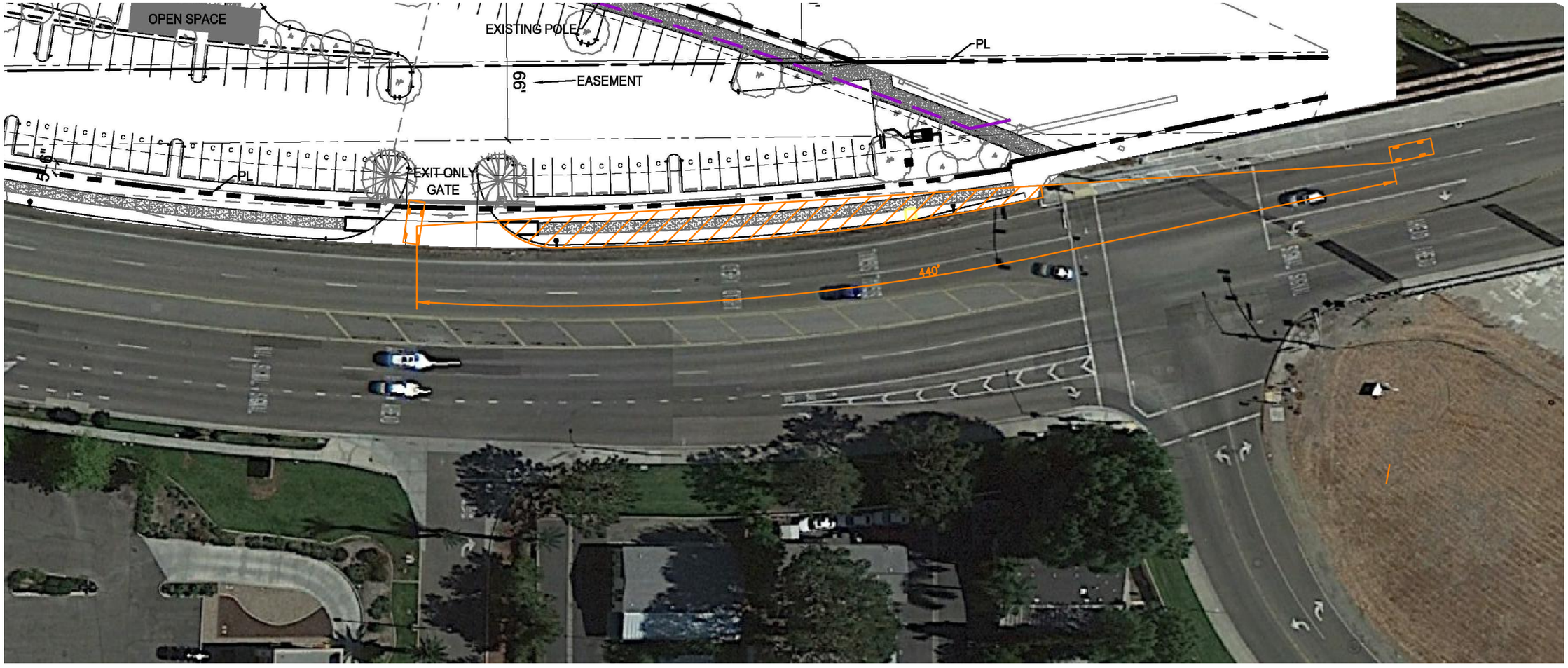
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SOURCE: ARCHITECTS ORANGE

FIGURE 14-4

SIGHT DISTANCE ANALYSIS

CHINO CREEK APARTMENTS, CHINO



SIGHT DISTANCE

DESIGN SPEED LIMIT:	45 MPH
REQUIRED STOPPING SIGHT DISTANCE:	440 FEET

LEGEND

PUBLIC RIGHT-OF-WAY LIMITED USE AREA: TO ENSURE ADEQUATE SIGHT DISTANCE, HARDSCAPE AND/OR LANDSCAPE SHALL NOT BE HIGHER THAN 30 INCHES ABOVE THE CURB/SIDEWALK. NO FENCES OR WALLS IN LIMITED USE AREA.

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LINSCOTT LAW & GREENSPAN engineers

N NO SCALE

SOURCE: ARCHITECTS ORANGE

FIGURE 14-5

SIGHT DISTANCE ANALYSIS – EXIT ONLY DRIVEWAY

CHINO CREEK APARTMENTS, CHINO

cross the near lanes and turn left, or turn right, without requiring through traffic to radically alter their speed.

Sight distance evaluations were prepared for the project driveway, opposite of Commons Drive, and the exit only project driveway using the City of Chino Public Works Department Standard Drawing No. 865 – Limited Use Area (Adequate Sight Distance). Minimum stopping sight distance was utilized for this evaluation and is defined as the distance required by the driver of a vehicle, traveling at a given speed, to bring his vehicle to a stop after an object on the road becomes visible. Stopping sight distance is measured from the driver's eyes, which are assumed to be 3.5 feet above the pavement surface, to an object 0.5-feet high on the roadway. For this analysis, a speed limit of 45 mph was used for Chino Hills Parkway. Based on the criteria set forth in Standard Drawing No. 865, a minimum stopping sight distance of 440 feet is recommended for the Project driveways.

Figures 14-4 and ***14-5*** present a schematic of the sight distance evaluations performed at the proposed Project driveways, which illustrates the actual sight distances and corresponding limited use areas. As shown, a motorist's sight distance may be obstructed by future landscaping and/or hardscapes. Therefore, any landscaping and/or hardscapes should be designed such that a driver's clear line of sight is not obstructed and does not threaten vehicular or pedestrian safety, as determined by the City Engineer (see limited use areas on *Figures 14-4* and *14-5*).

14.4.1 *Design Compliance*

During the design permitting review process, curb radii shall be design to accommodate a small service/delivery truck (SU-30), fire truck and large moving vehicles. Additionally, landscaping around the perimeter of the project site shall be designed to avoid obstructions to sight lines at the project driveways. The installation of any new signal and/or signal modifications, inclusive of all necessary signing and striping modifications, and stop bars, plus the Project Design Features, at the Project driveways will be required to conform to City of Chino design standards. As such, this will ensure that the site is designed appropriately to accommodate the Project. As a result, the project as it is proposed would not create any hazardous conditions.

16.0 CONGESTION MANAGEMENT PROGRAM (CMP) ASSESSMENT

The procedures outlined in the current *San Bernadino County Congestion Management Program (CMP)* requires that a traffic analysis be conducted for any project generating 250 two-way peak hour trips. Review of *Table 5-1* shows that the project will not exceed this threshold. Therefore, a CMP analysis is not required. However, the analysis within this report is consistent with the methodology and parameters contained within the CMP.

17.0 CONSTRUCTION MANAGEMENT PLAN

To ensure impacts to the surrounding street system are kept to a minimum during the construction process, it is recommended that a Construction Management Plan for the proposed Project be developed. Construction activities typical to development like the proposed Project would include site demolition/preparation, site grading/excavation and building construction. The Construction Management Plan should be developed in coordination with the City of Chino Transportation Manager/Traffic Engineer and at a minimum, address the following:

- Traffic control shall be prepared for any street closure, detour, or other disruption to traffic circulation.
- Identify the routes that trucks will utilize for the export of soil.
- Specify the hours during which transport activities can occur.
- The haul route will be reviewed by the City Transportation Manager/Traffic Engineer and may include circulation modifications to help reduce impacts.
- Subject to the direction of the City Transportation Manager/Traffic Engineer, haul operations associated with the hauling of materials may be prohibited during the AM and PM peak commuter periods (i.e. between 7:00-9:00 AM and 4:00-6:00 PM).
- Require the Applicant to keep all haul routes clean and free of debris including but not limited to gravel and dirt as a result of its operations. The Applicant shall clean adjacent streets, as directed by the City Transportation Manager/Traffic Engineer (or representative of the City Traffic Engineer), of any material which may have been spilled, tracked, or blown onto adjacent streets or areas.
- Use of local streets shall be prohibited.
- Haul trucks entering or exiting public streets shall at all times yield to public traffic.
- If hauling operations cause any damage to existing pavement, street, curb, and/or gutter along the haul route, the applicant will be fully responsible for repairs. The repairs shall be completed to the satisfaction of the City Transportation Manager/Traffic Engineer.
- This Plan shall meet standards established in the current *California Manual on Uniform Traffic Control Device (MUTCD)* as well as City of Chino requirements.

18.0 VEHICLE MILES TRAVELED (VMT) ANALYSIS

The purpose of this Vehicle Miles Traveled (VMT) analysis is to evaluate the Project based on Senate Bill 743 (SB 743) requirements consistent with the *Technical Advisory on Evaluating Transportation Impacts In California Environmental Quality Act* (CEQA), December 2018, prepared by the State of California Governor's Office of Planning and Research (OPR). The OPR Technical Advisory provides project screening criteria and guidance for analysis of VMT assessments under SB 743. With the adopted guidelines, transportation impacts are to be evaluated based on a project's effect on vehicle miles traveled which took effect July 1, 2020, as required in CEQA section 15064.3.

LSA prepared a detailed VMT assessment for the project which is documented in the *Trip Generation and Vehicle Miles Traveled Due-Diligence Assessment for Proposed 4700 Chino Hills Parkway Residential Development dated August 24, 2023*. The findings from the VMT analysis concluded that the proposed residential project would generate fewer daily and peak-hour trips than the approved land uses within the Specific Plan. In addition, the project's potential VMT impact was evaluated using SBTAM. According to the VMT Analysis prepared by LSA, the project will have a less than significant transportation/VMT impact based on the thresholds in *City of Chino Traffic Impact Analysis Guidelines, December 2020.* ***Appendix G*** presents the LSA VMT assessment.

19.0 PARKING MANAGEMENT PLAN (PMP)

The Project satisfies the parking requirement for affordable housing developments specified in the *California Government Code Section 65915.* The residential component of the Project identifies 5% of the units are designated as very low affordable units. The affordable housing parking ratios, inclusive of handicapped and guest parking, are as follows:

- Zero to one bedroom units: one (1) onsite space per dwelling unit
- Two to three bedroom units: one and one-half (1.5) onsite spaces per dwelling unit

Based on the above, the Project is required to provide 368 spaces as a result of 159 one-bedroom units parked at a ratio of 1.0 space per dwelling unit and 139 two-bedroom units parked at a ratio of 1.5 spaces per dwelling unit (159 spaces + 209 spaces = 368 spaces). The Project is proposing to provide 477 spaces which satisfies the state requirements. Regardless of meeting the state minimum the City has requested a Parking Management Plan (PMP) be prepared.

Relative to the City's requirements, a total of 547 parking stalls are required per the *City of Chino Municipal Code, Table 20.18-1 Off-Street Parking Requirements* based on the following parking ratios:

- *Studio Multi-Family Units = 1.0 parking spaces per unit*
- *One-Bedroom Multi-Family Units = 1.50 parking spaces per unit.*
- *Two-Bedroom or more Multi-Family Units = 2.00 parking spaces per unit.*
- *Guest Spaces = 1.00 parking space per 10 units*

The Project requires 239 stalls for the one-bedroom apartments, 278 stalls for the two-bedroom apartments, and 30 guest spaces. A total of 477 parking stalls are provided, 386 of which are standard parking stalls (123 carport stalls and 263 surface stalls) and 91 are compact surface parking stalls. Ten parking stalls are reserved as accessible stalls. A reduction of parking is being requested as part of the density bonus, consistent with density bonus law, California Government Code Section 65915.

This PMP has been designed to ensure that residents and visitors have access to adequate parking. To ensure adequate parking is provided for residents and visitors of the Project, the following key Parking Management Strategies should be implemented by the Property Owner and/or Property Management Company.

19.1 Residential Parking Plan

A residential parking permit system will be utilized to ensure that residents have a designated parking spot(s). All residential parking permits will be issued by the property manager at the time of move-in. All residents who are assigned a spot are required to sign and comply with a parking agreement that stipulates that they abide by the following rules:

1. The property will provide a total of 477 parking spaces, of which 123 are carport spaces and 354 are surface stalls. The Property Owner/Property Management Company shall issue one (1) parking permit and assign one (1) parking space to every unit. Additional permits may be issued upon request, dependent on the number of bedrooms provided within said unit. Any additional parking permits will be required to park in the unassigned parking spaces which will operate on a first come first served basis. The Property Owner/Property Management Company shall determine the allocation of parking spaces for staff, resident tenants, and location of guest parking spaces, inclusive of spaces designated and signed for prospective resident tenants.

2. Should the number of tenants requesting parking exceed the number of parking spaces available, a parking waiting list will be established.

3. Visitor spaces will be designated and be restricted to parking for two-hour periods Monday-Friday between 8:00 am and 6:00 pm.

4. Every tenant who owns a vehicle **MUST** fill out a vehicle registration form. Once the form is filled out, a copy of the **current registration** and a copy of the **current insurance** must be given to the manager. This is also required on an annual basis at the time of recertification.

5. All vehicles, with current registration in the resident's name, will be issued a parking sticker. This sticker **MUST** be placed in the rear window on the driver's side. Any vehicle not displaying this sticker will be considered unauthorized and will be subject to towing at the expense of the owner of the vehicle.

6. Any vehicle leaking any fluid will be cited. The owner of the vehicle will be responsible for cleaning the area and keeping it clean. If necessary, an "oil pan/sheet" must be placed under the vehicle. If the car damages the parking area at any time, the owner reserves the right to revoke the parking space in the parking area.

7. At no time, can any person(s) work on their vehicles (IE: Change oil, repair vehicle, change tires, etc.) Minor repairs such as window wiper blades, and lamp fuses are allowed.

8. Parking spaces should not be used for storage areas. Items found in the parking area will be disposed of.

9. Prior written authorization must be obtained before a tenant can park a "rented or borrowed" vehicle using their permit. If prior written authorization is not obtained, the vehicle will be considered unauthorized.

10. If a tenant plans to be away from the property and not using their vehicle for more than two weeks, they should notify the manager in writing to avoid the vehicle being classified as abandoned.

11. From time to time, it may be necessary for the manager to reassign parking permits to help accommodate other residents.

12. No vehicle shall be parked in such a manner as to block roadways or the comings and/or goings of residents. A violator's car will be ticketed and/or towed at owner's expense.

13. No person shall operate a motorized vehicle within the complex without proper operating license. No unlicensed motor vehicles, for example, motorbikes or go- carts, shall be ridden within the complex. Any damages to property within the complex by use of any vehicle (including hired and leased moving vans) shall be fined by an amount to repair or replace the damaged areas or items.

14. The speed limit in the community is 5 miles per hour.

15. Motorcycles are to be ridden on driveway areas only for the express purpose of coming and going.

16. In no event is the Project owner and/or property manager liable for consequential damages or loss of use of vehicle.

17. Residents are responsible for the parking practices and vehicle operations of any visitors they allow in the community.

19.2 Parking Monitoring Program

The parking conditions for the Project will be reviewed/monitored on an annual basis by the Property Owner/Property Management Company and appropriate actions detailed above will be taken to ensure that the necessary PMP measures are being implemented and enforced.

As a result of the annual review/monitoring, a partnership will be formed to ensure that the Management Team and residents partners all work together to ensure the parking program is enforced property wide.

In the event that additional parking is needed the Property Owner and/or Property Management Company will consider implementing a valet/valet assist program. Based on the feasibility of this parking strategy, alternative programs may be considered as well.