Final

Initial Study/ Mitigated Negative Declaration for the Placentia Crowther Project at 110 and 132 E. Crowther Avenue

August 2017

Provided By:

The Placentia TOD Project Owner, LLC

Placentia Crowther Project
at 110 and 132 East Crowther Avenue

Final Initial Study / Mitigated Negative Declaration

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1.0 INTRODUCTION

This ~~Draft~~ Final Initial Study/Mitigated Negative Declaration (IS/MND) addresses the Placentia Crowther Project (project/proposed project), located at 110 and 132 East Crowther Avenue. This IS/MND analyzes the environmental impacts associated with the proposed project in conformance with the California Environmental Quality Act (CEQA) and the associated Guidelines (State CEQA Guidelines). The analysis includes responses to the State CEQA Guidelines Appendix G Initial Study Checklist. Where potential impacts have been identified, mitigation measures have been specified to reduce impacts to a less than significant level. The project site is located within the City of Placentia (City) and the City is the CEQA Lead Agency for the proposed project. Because the IS/MND demonstrates that all potentially significant project impacts would be reduced to less than significant levels, with mitigation incorporated, the City has filed a Notice of Intent to adopt a Mitigated Negative Declaration for the proposed project.

The proposed project is within the Packing House District Transit-Oriented Development District (TOD District) that was approved in 2017, with an IS/MND. The proposed project is subject to the applicable requirements of the approved TOD District and represents a portion of the development that was evaluated within the TOD District IS/MND. The analyses within this document therefore utilize studies that were completed for the TOD District IS/MND, as well as new environmental analyses focused on the proposed project. Where applicable and/or appropriate, information has been incorporated by reference and summarized in the analysis presented in this document for the proposed project as permitted by Section 15150 of the CEQA Guidelines.

The Notice of Intent to adopt the IS/MND was published in the local paper and filed with the County Clerk (See Attachment J) and the IS/MND was available for a 20-day public review from July 10 to July 31. No public comments were received. A letter was received from the Gabrieleño Band of Mission Indians – Kizh Nation requesting consultation regarding the proposed project. Since the same request had already been made for the Packing House District as a whole, within which the proposed project is located, the need for consultation and monitoring by a qualified archaeologist and Native American Monitor during construction had already been reflected in the Draft IS/MND. Minor edits to the Final IS/MND has been made to address the more recent request and no changes in the impact conclusions or mitigation measures were required. Passages within this Final IS/MND that have been revised since public circulation are marked with a line in the left-hand margin.

This Final IS/MND also incorporates the required Mitigation Monitoring and Reporting Program (MMRP) for the project, within Attachment K.

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2.0 PROJECT LOCATION AND SETTING

2.1 Project Location

The 2.95-acre project site is located in the City of Placentia (City), approximately 0.4 mile east of State Route (SR) 57 and 1.3 miles north of SR 91 in northern Orange County, California (Figure 1, *Regional Location*). More specifically, the project site is located along the south side of East Crowther Avenue, approximately 0.12 mile east of South Melrose Street and 100 feet west of Cameron Street (Figure 2, *Project Vicinity*).

2.2 General Plan Designation

The General Plan designation for the site is Transit-Oriented Development (TOD).

2.3 Zoning Designation

The zoning for the site is TOD.

2.4 Existing Land Uses and Environmental Setting

The project site is located within a predominantly urban area, with existing adjacent uses including industrial development to the east, west and south; and East Crowther Avenue, a parking lot, and a graded/undeveloped lot to the north. More distant land uses include the rail corridor and mixed residential, commercial, institutional (school/church), and recreational (park) uses to the north; a mix of residential and commercial sites to the east and south; and predominantly commercial and industrial development to the west. Land use and zoning designations in surrounding areas reflect these uses, and include a number of residential, commercial, and industrial/manufacturing categories.

The project site has been previously graded/filled and developed with industrial uses. Existing development on the site includes four buildings with a combined area of approximately 36,225 square feet (SF), several sheet metal canopy structures, a carport, fencing, utility and drainage structures, a number of paved/unpaved parking areas, and former paved storage areas. The project site is generally level, and exhibits elevations of between approximately 230 and 240 feet above mean sea level (AMSL). Existing on-site drainage occurs primarily as overland flow moving generally north to East Crowther Avenue (with some local variation), with flows in this roadway continuing along the curb before entering downstream City drainage facilities and ultimately flowing south to the Santa Ana River.

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Regional Location

PLACENTIA CROWTHER PROJECT

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N 0 6 Miles

Figure 1

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Project Vicinity Map

PLACENTIA CROWTHER PROJECT

HELIX Environmental Planning

0 600 Feet

Figure 2

3.0 PROJECT CHARACTERISTICS

3.1 Project Description

Project Features

The proposed project involves the demolition/removal of existing vacant industrial/warehouse buildings and associated facilities, and the construction of a 215-unit multi-family residential development and related amenities as outlined below.

The proposed residential facilities include 215 multi-family residential dwelling units (DU) with an overall density of 72.9 DU per acre (which is below the maximum allowable density of 95 DU per acre permitted in the TOD District), as well as related amenities such as two landscaped courtyards (with recreational features including fire tables, BBQs, and water features), a 6-story/7-level parking structure, a pool/club house and fitness center located on the rooftop terrace (7th level) of the parking structure (with related BBQ, fire table/lounge, cabana and spa facilities), a tot lot, a dog run/spa, pedestrian walkways/corridors, and extensive landscaping (Figures 3a, *Project Site Plan*, and 3b, *Rooftop Terrace*). The proposed residential facilities include 100 one-bedroom units and 115 two-bedroom units located within 5-story structures. The residential units encompass 10 distinct model designs, with net residential areas ranging between 734 and 1,185 SF, an average unit net area of 901 SF, and a total (gross) residential area of 256,482 SF (i.e., including balconies, corridors/storage, stairs/elevators, etc., refer to Figure 3a). Additional requirements, such as structure heights, setbacks, common areas, and parking would conform to local requirements, such as the adopted TOD District development standards, with additional discussion provided below (i.e., for parking) and in applicable sections of this IS/MND. A 2,400-SF leasing office would also be located on the ground floor residential level, near the northeastern corner of the development. Specifically, while the proposed residential sites would initially be offered as rental units, the project approval would include an option for future conversion/sale as condominiums.

Access for residents and guests would be provided through the primary site entry located east of the leasing office, and would extend along the eastern site boundary to the proposed parking structure (Figure 3a). This proposed access road includes an automatic gate that would open via entry codes and/or remote-control openers to be provided to on-site residents, as well as a fire turn-around/pullout located near the parking structure. An additional fire access corridor would be located along the northwestern site boundary, with associated use to be limited to emergency vehicles (Figure 3a). No other roadways are proposed on site. A series of internal pedestrian walkways and corridors is proposed to accommodate resident/guest access to units and recreational amenities. The proposed parking structure would include 179,800 gross SF with seven levels as noted, including the previously described rooftop terrace and a basement level encompassing a maintenance shop and bicycle storage in addition to vehicle parking. A total of 394 parking spaces would be provided on site, including 388 within the noted structure and 6 surface spaces located near the leasing office (Figures 3a and 3b). This would equate to approximately 1.8 parking spaces per unit (the minimum requirement is 316 parking spaces or approximately 1.5 spaces per unit), including a minimum of 100 spaces for the one-bedroom units, 173 spaces for the two-bedroom units, and 43 spaces for guest parking (refer to Figure 3a).

Proposed landscaping would include a mix of native and ornamental varieties along much of the site perimeter, the on-site courtyards, and rooftop terrace, as well as an enlarged planting area at the main site entry. Tree plantings would occur along the northern property boundary with East Crowther Drive and other applicable portions of the site perimeter and interior, and would include varieties such as oaks, sycamores, palms, and other native/ornamental species. Artificial turf would be installed in portions of the courtyard, along with accent vegetation and architectural features to provide screening and separation between active (e.g., games) and passive (lounge) recreational areas.

The project site would be served by connections to existing local utilities including water, sewer, and gas/electric facilities. Proposed connections and internal utility design, as well as related services such as solid waste pickup/disposal, would conform with applicable agency/utility requirements (with additional discussion provided below in associated sections of this IS/MND).

Project Grading/Construction

The facilities proposed for demolition/removal include four existing buildings with a combined area of approximately 36,225 SF, several sheet metal canopy structures, a carport, fencing, utility and drainage structures, a number of paved/unpaved parking areas, and former paved storage areas. After demolition and removal of existing facilities, as described, the site would be graded to accommodate proposed development, with grading to include approximately 7,144 cubic yards (CY) of cut and 2,120 CY of on-site fill to provide a level building pad (and the remaining 5,024 CY of excavated material to be exported for off-site use/disposal at one or more approved locations). At 13 CY per load, 386 truck trips would be required to export this material from the project site. The project site has been previously graded and filled to accommodate the described existing development, and includes approximately 4 to 6 feet of existing artificial fill, although deeper fill may be encountered in some areas of the site. Proposed excavation would extend to maximum depths of approximately 10 feet. Retaining walls would also be provided along the east and west site boundaries, and portions of the southern site boundary to accommodate the proposed cut-and-fill activities and pad elevations.

Project-related construction would utilize typical equipment, including graders, excavators, scrapers, bulldozers, vibratory rollers, and support vehicles (e.g., water, material delivery, and dump trucks). Final equipment types and numbers would be determined by the project contractor(s). Access to the project site during construction would be provided by a number of larger existing roadways, including SR 91, SR 57, and Crowther Avenue. Construction-related traffic would include one-time ingress/egress for construction equipment and vehicles, as well as daily trips for construction workers and material deliveries/hauling. Construction within or adjacent to public streets would be limited to access and utility connections along East Crowther Avenue. Appropriate traffic control measures would be implemented as necessary to maintain access and ensure public safety. These measures would likely include standard efforts such as the use of cones, barriers, signs, and flaggers where appropriate, in compliance with applicable requirements and guidelines of the California Manual of Uniform Traffic Control Devices (MUTCD). Construction-related equipment/material staging and storage would be located either within the project site disturbance area, and/or in one or more previously disturbed/developed off-site locations, such as paved surface parking lots (with off-site staging areas to be identified by the project contractor[s]). Pursuant to Title 23 of the City Municipal Code

Source: Humphreys and Partners Architects, L.P. 2017

Project Site Plan

PLACENTIA CROWTHER PROJECT

Figure 3a

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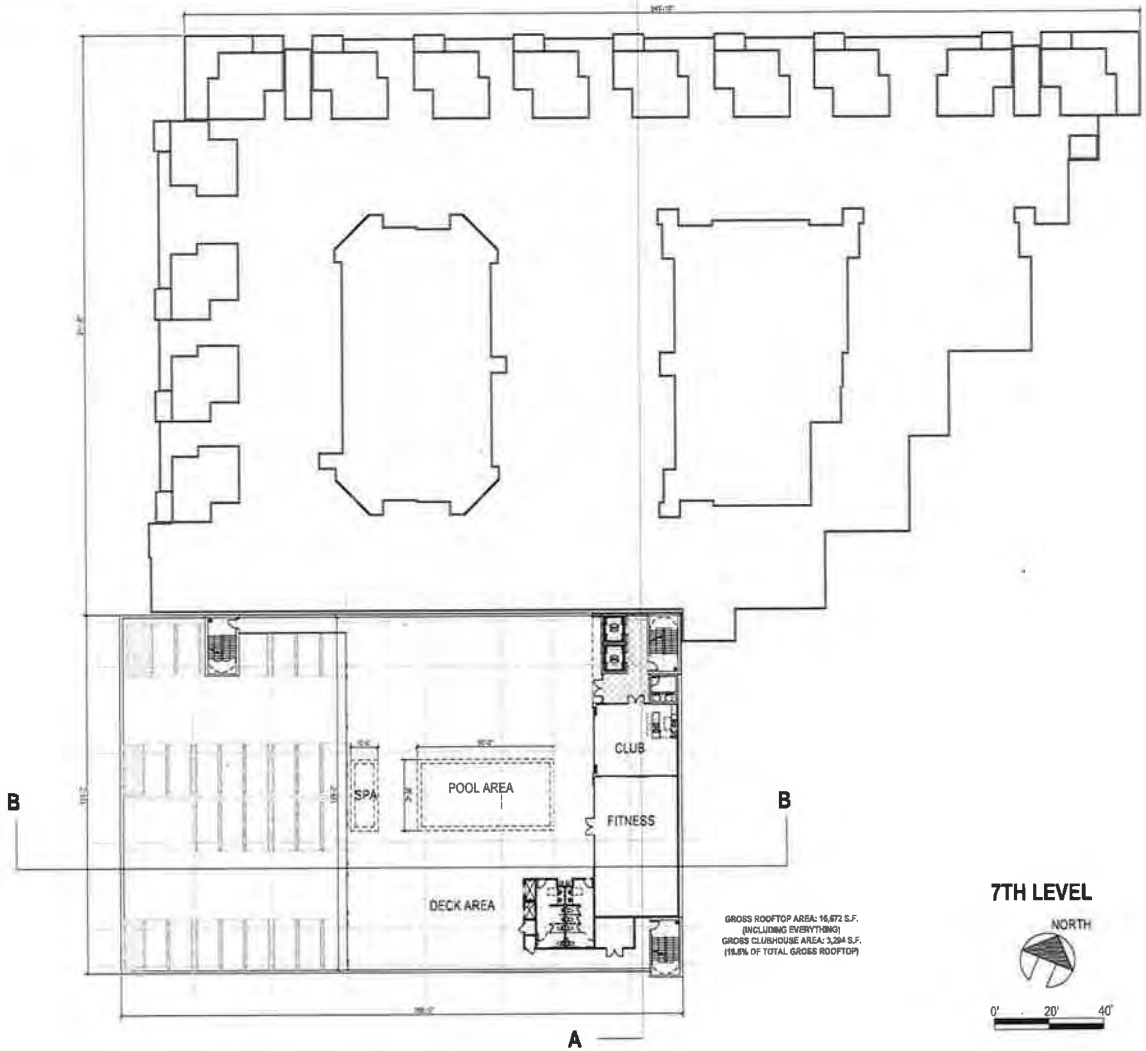

Source: Humphreys and Partners Architects, L.P. 2017

Rooftop Terrace

PLACENTIA CROWTHER PROJECT

Figure 3b

HELIX Environmental Planning

(Section 23.81.170), project construction activities would be limited to the hours of 7:00 a.m. to 7:00 p.m. on Monday through Friday, and 9:00 a.m. to 6:00 p.m. on Saturday (with construction generally prohibited on Sundays and holidays). Construction is currently anticipated to extend approximately 18 months between June 2018 and January 2020.

3.2 Other Required Agency Approvals

No required permits or approvals from other agencies have been identified at this time.

3.3 Previous Environmental Documentation

An IS/MND was adopted by the City in April 2017 for the General Plan Amendment (GPA) and zone change to establish the Packing House District TOD Project (Tom Dodson & Associates [Dodson], 2017). The referenced IS/MND included mitigation measures that apply to future development in the District; applicable mitigation measures and other information from the TOD document are included in this environmental analysis for the proposed project.

3.4 Summary of Environmental Factors Potentially Affected

A summary of the environmental factors potentially affected by this project, consisting of a Potentially Significant Impact or Potentially Significant Impact Unless Mitigated, include:

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

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4.0 ENVIRONMENTAL CHECKLIST

This section analyzes the potential environmental impacts which may result from the proposed project. For the evaluation of potential impacts, the questions in the CEQA Initial Study Checklist are stated and answers are provided according to the analysis undertaken as part of the Initial Study. The analysis considers the project's short-term impacts (construction-related), and its operational or day-to-day impacts. For each question, there are four possible responses. They include:

1. *No Impact*. Future development arising from the project's implementation will not have any measurable environmental impact on the environment and no additional analysis is required.

2. *Less Than Significant Impact*. The development associated with project implementation will have the potential to impact the environment; these impacts, however, will be less than the levels or thresholds that are considered significant, and no additional analysis is required.

3. *Potentially Significant Unless Mitigated*. The development will have the potential to generate impacts which may be considered as a significant effect on the environment, although mitigation measures or changes to the project's physical or operational characteristics can reduce these impacts to levels that are less than significant.

4. *Potentially Significant Impact*. Future implementation will have impacts that are considered significant, and additional analysis is required to identify mitigation measures that could reduce these impacts to less than significant levels.

Measures from the TOD District IS/MND that are applicable to the proposed project are identified within the CEQA Initial Study Checklist responses.

4.1 AESTHETICS

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
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 stated scenic highway?	☐	☐	☐	■
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	■	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	■	☐	☐

CEQA Checklist Analysis

a. *Have a substantial adverse effect on a scenic vista?*

Less Than Significant Impact. The project site and surrounding areas are characterized by generally flat topography and one- to two-story industrial and residential development. There are no designated scenic vistas identified in the Placentia General Plan or other relevant long-range documents adopted by the City in the project area, and the surrounding viewshed is limited due to low variability in elevation and the relatively uniform urban development pattern. While the proposed structures would be taller than the surrounding development, they would be consistent with the development standards adopted for the TOD District (Dodson 2017), and impacts related to scenic vistas would be less than significant.

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

No Impact. SR 91 is located approximately 1.2 miles south of the proposed project, and is listed as an Officially Designated State Scenic Highway on the California Scenic Highway Mapping System website from SR 55 to east of the Anaheim city limit (Caltrans 2017). As previously indicated, the site has been extensively altered as a result of previous development that has occurred on the property. As such, the site is devoid of any important trees, rock outcroppings, or other natural features. The project site is not visible from SR 91, as views from the highway towards the City are blocked by sound walls and adjacent development.

Mitigation identified in the TOD District IS/MND (Dodson 2017) requires an evaluation of the scenic value of structures that will be replaced by new facilities in the TOD District. A survey of the historic value of existing buildings on the project site was conducted and the buildings were determined not to have historical value pursuant to CEQA Guidelines Section 15064.5. The Historic Resource Evaluation Report (HRER) is attached to this IS/MND (ASM 2017). The buildings are rectangular industrial buildings with simple concrete and painted brick exteriors. They do not have any unique or especially scenic qualities. All but three of the structures are less than 45 years old. The three older buildings were constructed between 1964 and 1972. Historical evaluations were prepared and recorded at the South Central Coastal Information Center for these three buildings, however, because they are more than 45 years old. The evaluations conclude that these structures are not historically significant.

No impacts related to scenic resources within a state scenic highway would occur.

c. *Substantially degrade the existing visual character or quality of the site and its surroundings?*

Less Than Significant Impact. During the construction period, activities associated with the project, such as the presence of construction vehicles, equipment, and staging area(s), would result in short-term visual effects to the project site and its surroundings. Due to the short-term nature of these potential effects, impacts related to existing visual character or quality of the site and surrounding areas would be less than significant during construction. Upon project completion, all materials associated with construction would be removed and the roads and surrounding areas would be restored to their original condition. Furthermore, construction and

development of the site must comply with the TOD District ordinance and other applicable City codes. Therefore, construction-related impacts to existing visual character or quality of the site and surrounding areas would remain less than significant at project completion.

The architectural style of the proposed structures would be contemporary, with a stucco finish, some metal siding, and brick accents. The facade would include a variety of complimentary colors and architectural projections, such as overhangs, to create visual contrast/interest. Windows would be slightly inset and would cover approximately one-third of the exterior. Residential units would include a balcony enclosed with metal railing.

The structures would be appropriately set back and separated from the street with a pedestrian walkway and sculptural/patterned plantings. The entryway on Crowther Avenue would contain enlarged planting areas and signage.

Surrounding development consists primarily of industrial land uses. The proposed project would conform to the TOD District development standards which aim to create an aesthetically appealing neighborhood of mixed residential/commercial land uses and an active streetscape along Crowther Avenue. Operational impacts to the visual character and quality of the site would, therefore, also be less than significant.

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

Potentially Significant Unless Mitigated. This analysis addresses potential light/glare impacts on views, as well as potential impacts to occupants of adjacent structures or drivers on adjacent streets, including the potential for impacts to driver safety, as required by mitigation specified in the TOD District IS/MND (Dodson 2017).

Project construction would be limited to the hours of 7:00 a.m. to 7:00 p.m., as described in the Project Description. While the majority of construction activities would be conducted during daylight hours, lighting may be needed to illuminate the construction site during times when dawn and/or dusk overlap the allowable construction time frame. Nighttime security lighting of the construction site may also be needed. Associated impacts would be potentially significant.

Operation of the proposed project would introduce new sources of light/glare to the area. Although no residential or other sensitive land uses are currently located adjacent to the project site, such uses could be developed in the future pursuant to the new TOD District land use designation and zoning adopted for this area. Additionally, travelers on Crowther Avenue and the rail corridor could potentially be impacted if project-related exterior lighting is not properly implemented or if project building materials produce substantial glare.

Mitigation Measures **Aes-1**, **Aes-2**, and **Aes-3** shall be implemented to address potentially significant impacts related to lighting during construction and light/glare emanating from the project once construction is completed.

Aes-1 Nighttime construction or security lighting, if required, shall be shielded, selectively placed, and directed toward the project site, so that light will not spill beyond the

boundary of the project site onto off-site sensitive receptors, such as drivers, residents, or train operators.

Aes-2 Building design and/or lighting features shall be incorporated into the final project design to minimize glare, in conformance with the TOD District, such as: (1) overhangs and recessed windows to reduce potential glare from reflective windows; (2) landscaping near the buildings, such as trees along the street frontage, which would shade the building and reduce the potential for drivers to be affected by glare from reflective windows; and/or (3) non-reflective building materials.

Aes-3 Permanent lighting associated with the proposed development shall conform to the TOD District development standards and applicable City Municipal Code requirements. Examples of standard requirements include: (1) lighting along walkways, on exterior signage, within landscaped areas and in parking areas must be appropriately directed and shielded to reflect light away from the public right-of-way and from any adjoining residential premises; (2) lighting is not to blink, flash, flutter, or change light intensity, brightness, or color; and (3) neither direct nor reflected light from primary light sources shall create hazards for pedestrians or operators of motor vehicles. The developer shall submit a detailed lighting plan to the City for approval, prior to issuance of a building permit.

4.2 AGRICULTURE AND FORESTRY RESOURCES

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as depicted on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	■
b. Conflict with existing zoning for agricultural use, or a Williamson Act Contract?	☐	☐	☐	■

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code 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 Farmland, to non-agricultural use or conversion of forest land to non-forest use?	□	□	□	■

CEQA Checklist Analysis

a. *Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as depicted on maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency?*

No Impact. The project site and surrounding areas are mapped as Urban and Built-Up Land by the California Department of Conservation (CDC), with no designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance located within or adjacent to the property (CDC 2017). Accordingly, no impacts to the noted Farmland categories would result from project implementation.

b. *Conflict with existing zoning for agricultural use, or a Williamson Act Contract?*

No Impact. There are no areas zoned for agriculture or designated as Williamson Act Contract lands within or adjacent to the project site (City 2017a; CDC 2017b). As a result, project implementation would not result in impacts to such resources.

c. *Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code 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 project site is not within or adjacent to areas designated or zoned for forest land, timberland, or timberland zoned Timberland Production (City 2017a, 2017b). Therefore, implementation of the project would not conflict with existing zoning for such lands or cause such lands to be rezoned, and no related impacts would occur.

d. *Result in the loss of forest land or conversion of forest land to non-forest use?*

No Impact. As previously stated, the project site is not located within or adjacent to areas designated or zoned as forest land. As a result, project implementation would not convert forest land to non-forest use, and no associated impacts would occur.

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?*

No Impact. As described above in Responses 4.2.a through 4.2.d, there are no pertinent agricultural- or forestry-related designations or associated uses located within or adjacent to the project site. Accordingly, the proposed project would not involve changes that could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use, and no related impacts would occur.

4.3 AIR QUALITY

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a. Conflict with or obstruct implementation of the applicable air quality plan?	□	□	□	■
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	□	□	■	□
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under the applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	□	□	■	□
d. Expose sensitive receptors to substantial pollutant concentrations?	□	□	■	□
e. Create objectionable odors affecting a substantial number of people?	□	□	■	□

An Air Quality Study has been completed for the project (HELIX 2017) and is located in Attachment A.

CEQA Checklist Analysis

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

No Impact. The project is located in the Orange County portion of the South Coast Air Basin (SCAB), where the South Coast Air Quality Management District (SCAQMD) is the agency principally responsible for comprehensive air pollution control. The SCAQMD, a regional agency, works directly with the Southern California Association of Governments (SCAG), County transportation commissions, and local governments, and cooperates actively with all federal and state government agencies. The SCAQMD develops rules and regulations; establishes permitting requirements for stationary sources; inspects emissions sources; and enforces such measures through educational programs or fines, when necessary.

The SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources. It has responded to this requirement by preparing a sequence of Air

Quality Management Plans (AQMPs). An AQMP establishes a program of rules and regulations directed at attaining the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The regional plan applicable to the proposed project is the SCAQMD's AQMP.

On March 3, 2017, the SCAQMD adopted the 2016 AQMP, which is a regional and multi-agency effort (SCAQMD, California Air Resources Board [CARB], SCAG, and the U.S. Environmental Protection Agency [USEPA]). The 2016 AQMP incorporates the latest scientific and technical information and planning assumptions, including the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS); updated emission inventory methodologies for various source categories; and SCAG's latest growth forecasts (SCAQMD 2017).

The main purpose of an AQMP is to bring an area into compliance with the requirements of federal and state air quality standards. For a project to be consistent with the AQMP, the project should not (1) result in emissions that exceed the SCAQMD CEQA air quality significance thresholds or (2) conflict with or exceed the assumptions in the AQMP. With respect to the first criterion, as shown below, pollutant emissions from the proposed project would be less than the SCAQMD thresholds. With respect to the second criterion, although the project would be consistent with the existing TOD District, it should be noted that the development intensities for the TOD District were adopted following certification of the 2016 AQMP and are, therefore, not included in the 2016 AQMP. Even though the project's land use is not consistent with the land uses analyzed in the 2016 AQMP, the project is clearly consistent with SCAG regional programs.

SCAG's 2016 RTP/SCS Plan identifies coordinated transportation and land use planning strategies intended to reduce GHG emissions in accordance with SB 375 and to benefit regional quality of life. The RTP/SCS Plan emphasizes placing high intensity housing and jobs in locations with existing high-quality transit infrastructure that make daily travel via transit or active transportation (biking, walking, etc.) feasible and attractive alternatives to single occupancy vehicle travel. The project is designed to achieve this specific goal with the inclusion of sidewalks, on-site bicycle parking, and most importantly, close proximity to mass transit, including the new Placentia Metrolink Station. The site is located within a high-quality transit area and future TOD development will be within reasonable walking distance of mass transit.

The project would be consistent with SCAG 2016 RTP/SCS Goals as summarized below.

RTP/SCS Goal 1: Align the plan investments and policies with improving regional economic development and competitiveness.

Consistent. The project would replace existing vacant industrial buildings with a transit oriented development to take advantage of a new Metrolink Station adjacent to the site.

RTP/SCS Goal 2: Maximize mobility and accessibility for all people and goods in the region.

Consistent. Through a combination of higher density development, connections to mass transit systems, and incorporation of new mass transit features, the project fulfills this goal.

RTP/SCS Goal 3: Ensure travel safety and reliability for all people and goods in the region.

Consistent. The project will re-construct roadways within and surrounding the project site to their ultimate or half-width paved sections. Through fair share contributions, improvements to the connecting circulation system will be enhanced. Both routine and emergency response will be enhanced to the project area.

RTP/SCS Goal 4: Preserve and ensure a sustainable regional transportation system.

Consistent. The project will contribute to a sustainable regional transportation system through creation of high density residential development combined with high quality connections to both the local and regional transportation systems. The project is designed specifically to sustain alternative transportation systems to the automobile.

RTP/SCS Goal 5: Maximize the productivity of our transportation system.

Consistent. By creating high density residential adjacent to the new Metrolink Station, the project will maximize productivity of the local and regional transportation systems.

RTP/SCS Goal 6: Protect the environment and health of our residents by improving air quality and encouraging active transportation (e.g., bicycling and walking).

Consistent. The project includes sidewalks and on-site bicycle parking that would promote opportunities for pedestrian and bicycle travel. The specific goal of the land use designation is to reduce vehicle trips and related air pollutant emissions while encouraging active alternative modes of transportation.

RTP/SCS Goal 7: Actively encourage and create incentives for energy efficiency, where possible.

Consistent. The project would replace existing older industrial buildings. This transition to modern energy-efficient structures will result in substantial energy savings.

RTP/SCS Goal 8: Encourage land use and growth patterns that facilitate transit and active transportation.

Consistent. The project design includes sidewalks, bike trails and connections to mass transit that will facilitate use of transit and active transportation modes throughout the project area. The project is anticipated to foster a substantial reduction in average vehicle trip length, per capita vehicle miles traveled, and the percent of drive-alone vehicle trips.

RTP/SCS Goal 9: Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.

Consistent. The project would have no direct impact on system monitoring, rapid recovery planning, or coordination with other security agencies. However, the project would generate on-

going demand and funds that are indirectly designed to make the new Metrolink Station and other mass transit and alternative modes of transportation successful.

The project would, therefore, be consistent with SCAG regional programs to promote the use of alternative modes of transportation. As such, the proposed project would not conflict with the 2016 AQMP and no impact would occur.

b. Violate any air quality standard or contribute to an existing or projected air quality violation?

Less Than Significant Impact. Air quality is defined by ambient air concentrations of six specific pollutants identified by the USEPA to be of concern with respect to health and welfare of the general public. These pollutants include ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter smaller than 10 microns in diameter (PM_{10}), particulate matter with a diameter of 2.5 microns or less ($PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). The primary source of air pollutants generated by the proposed project would be emissions associated with construction and grading activities.

Construction of the proposed project, including demolition of the existing buildings and export of an estimated 5,024 cubic yards (386 truckloads) of material off-site, would result in temporary increases in air pollutant and dust emissions generated primarily from construction equipment exhaust, earth disturbance/excavation, construction worker vehicle trips, and heavy-duty truck trips. Compliance with Rule 403 would be required during active operations capable of generating fugitive dust emissions. Rule 403 would require best available control measures (BACMs) such as the following:

- Water or a stabilizing agent shall be applied to exposed surfaces to prevent generation of dust plumes.
- The construction contractor shall utilize at least one of the following measures at each vehicle egress from the project site to a paved public road:
  - Install a pad consisting of washed gravel maintained in clean condition to a depth of at least 6 inches and extending at least 30 feet wide and at least 50 feet long;
  - Pave the surface extending at least 100 feet and at least 20 feet wide;
  - Utilize a wheel shaker/wheel spreading device consisting of raised dividers at least 24 feet long and 10 feet wide to remove bulk material from tires and vehicle undercarriages; and/or
  - Install and utilize a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the site.
- All trucks hauling soil, sand, and other loose materials shall be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions).

- Construction activity on unpaved surfaces shall be suspended when wind speed exceeds 25 miles per hour (mph; such as instantaneous gusts).

- Heavy-duty equipment operations shall be suspended during first and second stage smog alerts.

- Ground cover in disturbed areas shall be replaced as quickly as possible

Mandatory compliance with Rule 403 would ensure that potential air quality impacts related to fugitive dust would be less than significant. These measures associated with required conformance with existing regulations will be incorporated into the Mitigation Monitoring and Reporting Program (MMRP) for monitoring purposes.

Regional Construction Impacts

Maximum daily emissions for the peak work day are shown in Table 1, *Daily Construction Emissions*. As shown, emissions of all criteria pollutants are below the SCAQMD daily thresholds. Thus, regional construction impacts would be less than significant and no mitigation is required.

Table 1
DAILY CONSTRUCTION EMISSIONS

Construction Phase	Pollutant Emissions (pounds per day)					
	VOC	NO_X[1]	CO	SO_X	PM_{10}	$PM_{2.5}$
Demolition	3	26	16	<0.1	3	2
Site Preparation	2	24	13	<0.1	3	1
Grading	3	49	17	<0.1	9	5
Building Construction	4	28	26	<0.1	4	2
Paving	1	13	12	<0.1	1	1
Architectural Coating	60	2	3	<0.1	1	<0.5
Maximum Daily Emissions	**61**[2]	**49**	**26**	**<0.1**	**9**	**5**
Significance Thresholds	75	100	550	150	150	55
Significant Impact?	***No***	***No***	***No***	***No***	***No***	***No***

Source: HELIX 2017
[1] NOx is the total combined concentration of NO and NO_2. In the presence of excess oxygen, NO reacts to form NO_2.
[2] Maximum volatile organic compound (VOC) emissions occur when paving and architectural coatings overlap.

Localized Construction Impacts

The localized effects from the on-site portion of daily emissions were evaluated at sensitive receptor locations potentially impacted by the project according to the SCAQMD's localized significance threshold (LST) methodology, which utilizes on-site mass emissions rate look up tables and project-specific modeling, where appropriate. LSTs are applicable to the following criteria pollutants: NO_2, CO, PM_{10}, and $PM_{2.5}$. LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard for each pollutant, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance

to the nearest sensitive receptor. For PM_{10} and $PM_{2.5}$, LSTs were derived based on requirements in SCAQMD Rule 403, Fugitive Dust. The mass rate look-up tables were developed for each source receptor area and can be used to determine whether or not a project may generate significant adverse localized air quality impacts. The SCAQMD provides LST mass rate look-up tables for projects that are less than or equal to five acres.

When quantifying mass emissions for localized analysis, only emissions that occur on-site are considered. Consistent with the SCAQMD's LST methodology guidelines, emissions related to off-site delivery/haul truck activity and employee trips are not considered in the evaluation of localized impacts. The LST thresholds for a 2-acre site located in Source Receptor Area 16, North Orange County, with receptors at a distance of 50 meters were used (the nearest sensitive receptor [residential] is approximately 76 meters from the property). The results of the LST analysis are provided in Table 2, *Localized Construction Emissions*. As shown in Table 2, localized emissions for all criteria pollutants would be less than their respective SCAQMD LST significance thresholds. Thus, impacts would be less than significant and no mitigation is required.

Table 2
LOCALIZED CONSTRUCTION EMISSIONS

Construction Phase	Pollutant Emissions (pounds per day)			
	NO_X[1]	CO	PM_{10}	$PM_{2.5}$
Demolition	24	15	3	2
Site Preparation	24	13	3	1
Grading	24	10	8	4
Building Construction	21	16	1	1
Paving	13	12	1	1
Architectural Coating	2	2	<0.5	<0.5
Maximum Daily On-site Emissions	**24**	**16**	**8**	**4**
SCAQMD LSTs	143	1,010	17	6
Significant Impact?	***No***	***No***	***No***	***No***

Source: SCAQMD 2009 (Thresholds)
CalEEMod output data provided in Attachment A.
[1] NO_X is the total concentration of NO and NO_2. In the presence of excess oxygen, NO reacts to form NO_2.

Once construction activity is complete, there would be long-term emissions associated with area, energy, and mobile sources; however, as shown in Table 3, *Daily Operation Emissions*, these emissions would be below the SCAQMD thresholds. Therefore, the proposed project would not violate air quality standards or contribute substantially to an existing or projected air quality violation. Impacts from project construction and operation would be less than significant.

Table 3
DAILY OPERATION EMISSIONS

Source	Pollutant Emissions (pounds per day)					
	ROG	NO_X[1]	CO	SO_X	PM_{10}	$PM_{2.5}$
Area	6	<0.5	18	<0.1	<0.1	<0.1
Energy	<0.1	1	<0.5	<0.1	<0.1	<0.1
Mobile	2	7	21	<0.1	7	2
Maximum Daily Emissions	**8**	**8**	**39**	**<0.1**	**7**	**2**
Significance Thresholds	55	55	550	150	150	55
Significant Impact?	***No***	***No***	***No***	***No***	***No***	***No***

Source: SCAQMD 2015 (Thresholds)
CalEEMod output data provided in Attachment A.
[1] NO_X is the total concentration of NO and NO_2. In the presence of excess oxygen, NO reacts to form NO_2.

c. *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under the applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?*

Less Than Significant Impact. SCAQMD's approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and state Clean Air Acts. As discussed above, the proposed project would be consistent with the AQMP, which is intended to bring the SCAB into attainment for all criteria pollutants. In addition, and as discussed above, daily emissions during project construction would not exceed the SCAQMD significance thresholds. Accordingly, cumulative impacts would be less than significant.

d. *Expose sensitive receptors to substantial pollutant concentrations?*

Less Than Significant Impact. Sensitive populations (i.e., children, senior citizens, and acutely or chronically ill people) are more susceptible to the effects of air pollution than are the general population. Land uses considered sensitive receptors typically include residences, schools, playgrounds, childcare centers, hospitals, convalescent homes, and retirement homes. During the project construction period, which would occur over approximately 18 months, diesel exhaust particulate matter would be generated from heavy construction equipment. Diesel exhaust particulate matter is known to the State of California as a carcinogenic compound. The risks associated with exposure to substances with carcinogenic effects are typically evaluated based on a lifetime of chronic exposure, which is defined in the California Air Pollution Control Officers' Association (CAPCOA) Air Toxics "Hot Spots" Program Risk Assessment Guidelines as 24 hours per day, 7 days per week, 365 days per year, for 70 years. Because diesel exhaust particulate matter is considered to be carcinogenic, long-term exposure to diesel exhaust emissions have the potential to result in adverse health impacts. Due to the short-term nature of project construction, however, exposure to diesel exhaust emissions during construction would be less than significant.

e. Create objectionable odors affecting a substantial number of people?

Less Than Significant Impact. The project proposes to replace the existing industrial uses with a residential development and associated on-site improvements. The project would not create objectionable odors affecting a substantial number of people, and no operational odor-related impacts would occur.

Project-related odor emissions would be limited to the construction period, where emissions from the construction equipment may be temporarily evident in the immediately surrounding area. On- and off-road construction equipment could intermittently emit diesel exhaust perceptible by nearby receptors along roadways and near the project site during construction. These odors would not affect a substantial number of people, since construction would be temporary and odors would dissipate rapidly from the source with an increase in distance. The nearest sensitive receptor (residential) is approximately 250 feet north of the project site. The diesel engines used in the construction equipment would be required to comply with the State's Airborne Toxics Control Measure (ATCM) standards for diesel particulate matter emissions in the exhaust (including a five-minute idling limit). Compliance with these standards would minimize exposure to diesel exhaust emissions and odors. Therefore, construction-related odor impacts would be less than significant.

4.4. BIOLOGICAL RESOURCES

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	□	□	□	■
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	□	□	□	■
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	□	□	□	■
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?	□	□	□	■

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

No Impact. The project site and adjacent areas are completely developed for urban uses, with no associated native habitats or vegetation present that are suitable for use by candidate, sensitive, or special status species. As a result, no associated direct or indirect impacts would result from project implementation.

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

No Impact. As previously noted, the project site and adjacent areas do not contain or support native habitat, including riparian habitat or sensitive natural communities identified in local/regional plans or by applicable resource agencies. Accordingly, no related impacts would result from development of the proposed project.

c. *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

No Impact. As noted above in Responses 4.4a and 4.4.b, no wetlands or related resources are present within or adjacent to the project site. As a result, no associated impacts would result from project implementation.

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?*

No Impact. Pursuant to the information described above in Responses 4.4.a through 4.4.c, there are no areas of native habitat or associated wildlife corridors/nursery sites within or adjacent to the project site. The project site and areas surrounding the site have been extensively developed, including high volume arterials, which serves as an existing deterrent to wildlife. Based on the described conditions, implementation of the proposed project would not result in any impacts related to wildlife species movement or breeding/nesting activities.

e. *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

No Impact. As previously noted, project construction and operation would be restricted to areas that are completely disturbed and/or developed, with no sensitive biological resources present within or adjacent to the site. Accordingly, no impacts related to policies or ordinances protecting biological resources, such as tree preservation, would result from project

implementation. The City's Municipal Code does not contain a tree preservation policy. While the City does have requirements related to tree and shrub removal, (pursuant to Title 14, Section 14.12.040, of the City Municipal Code), these standards are limited to permit requirements related to removing "...any tree or shrub growing in any public street of the City." There are three non-native trees along Crowther Avenue and some shrubs within the project site that would be removed for project development, but these would be replaced by trees and plants included in the landscaping plan for the proposed project. Should any of the proposed removals of ornamental landscaping be located within City right-of-way, City permission would be required for the removal. Because vegetation removal associated with the proposed development is limited to non-native, ornamental landscaping, and any removals would be replaced with proposed landscape improvements, no adverse impacts would occur with respect to local policies or ordinances associated with the protection of biological resources or trees.

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?

No Impact. The project site is not located within the boundaries of any adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan. Accordingly, no associated impacts would result from implementation of the proposed project.

4.5 CULTURAL RESOURCES

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of CEQA?	□	□	□	■
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of CEQA?	□	■	□	□
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	□	□	■	□
d. Disturb any human remains, including those interred outside of formal cemeteries?	□	□	■	□

A survey of the historic value of existing buildings on the project site was conducted pursuant to CEQA Guidelines Section 15064.5. The Historic Resource Evaluation Report (HRER) is provided in Attachment B to this IS/MND (ASM 2017).

CEQA Checklist Analysis

a. Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of CEQA?

No Impact. Mitigation identified in the TOD District IS/MND (Dodson 2017) requires a comprehensive historical resource evaluation of any structure greater than 50 years of age prior

to demolition. Such evaluations are also typically performed as part of the CEQA evaluation of impacts to historic structures. As described in Response 4.1b, the HRER determined that the existing buildings on the project site were built between 1964 and the late 1970s, and do not have historical value pursuant to CEQA Guidelines Section 15064.5 (ASM 2017). Therefore, no substantial adverse change in the significance of historical resources is anticipated to occur as a result of project implementation.

b. *Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of CEQA?*

Potentially Significant Unless Mitigated. The project site and adjacent areas have been previously disturbed through existing/historical development and associated grading, excavation, and construction. Specifically, as noted in the Project Description and described below in Response 4.5.c, the site includes a 4- to 6-foot cap of artificial fill with no potential for the occurrence of archaeological resources. The Geotechnical Engineering Report for the project (Attachment C) notes that there may be accumulations of artificial fill greater than six feet in some areas of the site (Leighton and Associates, Inc. [Leighton] 2017a). The artificial fill is underlain by very old alluvial fan deposits. The potential for encountering archaeological resources/sites within the alluvium that have integrity or contextual value is considered low. Nevertheless, excavation during construction would extend into the alluvial layer in some areas of the project site and the potential exists to encounter archaeological resources. Associated impacts would be potentially significant.

During consultation and CEQA review for the Packinghouse District IS/MND and ~~the TOD District~~this IS/MND, the Gabrieleño Band of Mission Indians indicated that both the District and the project site have sensitivity for tribal cultural resources. The Band has requested monitoring for all ground-disturbing activities within the District. Additional information/discussion is included in the Section 4.17, Tribal Cultural Resources, of this IS/MND. Related correspondence is provided in Attachment I. Mitigation Measure **Cul-1**, described below, would be consistent with this request, and would reduce impacts related to cultural/archaeological resources to below a level of significance.

Cul-1 Construction monitoring and reporting shall be conducted by a qualified Archaeologist and a Native American monitor in all areas proposed for excavation/disturbance. At the monitors' discretion, monitoring may be reduced or eliminated if there is no indication that cultural resources are present. In the event that an unanticipated discovery of cultural material is made during project construction, all earth-disturbing work within the vicinity of the find must be temporarily suspended or redirected until the monitor has evaluated the nature and significance of the find. If the discovery proves to be significant, additional work, such as data recovery excavation, may be warranted. The treatment and disposition of archaeological materials that might be discovered during site development shall be in accordance with all applicable laws and regulations.

c. *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

Less Than Significant Impact. As previously noted, the project site is capped with approximately 4 to 6 feet of artificial fill deposits, which are underlain by a thick sequence of alluvial/fluvial materials (Leighton 2017a). Fill deposits exhibit no potential for sensitive paleontological resources, due to their artificial and mechanically-generated nature, while alluvial/fluvial materials typically exhibit low paleontological resource potential based on their relatively young age and high-energy depositional history. Based on the described conditions, associated potential impacts from proposed project development would be less than significant.

Unique geological features are generally defined to include geologic structures, formations, or other features that exhibit unusual or important characteristics in the context of scientific information (e.g., rare geologic/mineral assemblages or structural features), economic considerations (e.g., economically valuable mineral deposits), or cultural perception (e.g., prominent, unusual, and/or aesthetically pleasing rock outcrops or exposures). Based on the geotechnical and mineral resource assessments of the site (refer to Sections 4.6, *Geology and Soils*, and 4.11, *Mineral Resources*), no geologic resources or related conditions that would comprise unique geological features are present within or adjacent to the project site. Accordingly, no associated impacts would result from project implementation.

d. *Disturb any human remains, including those interred outside of formal cemeteries?*

Less Than Significant Impact. Because the project site and adjacent areas have been previously disturbed as described above in Responses 4.5.b and 4.5.c, the potential for encountering human remains is considered extremely low. In the unlikely event that human remains are encountered during site development, Section 7050.5 of the California Health and Safety Code would require that the project contractor(s) immediately stop work in the vicinity of the discovery and notify the County Coroner. Pursuant to Public Resources Code Section 5097.98, the Coroner must then determine whether the remains are human, and if so, whether the remains are or appear to be Native American. If the remains are deemed to potentially be Native American, the Coroner would contact the Native American Heritage Commission to identify the most likely affected tribe and to initiate proper recovery of such remains. Because the described process is mandatory, no mitigation is required to ensure that potential impacts to human remains will be less than significant.

4.6 GEOLOGY AND SOILS

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial	☐	☐	■	☐

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
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?	☐	☐	■	☐
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-site or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	■	☐
d. Be located on expansive soil, as defined in Chapter 1803.5.3 of the California Building Code, creating 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?	☐	☐	☐	■

Mitigation specified in the TOD District IS/MND states that an application for any proposed residential structures in the District must include a professionally prepared geotechnical report with geotechnical design specifications. A Geotechnical Engineering Report (Leighton 2017a) was prepared for the proposed project and is provided in Attachment C, along with the preliminary Due-Diligence Level Geotechnical Report (Leighton 2016) and the Project Memorandum for percolation testing results (Leighton 2017b). The Geotechnical Engineering Report provides an evaluation of the site geotechnical conditions and related recommendations for project development, including review of project plans and on-site monitoring by the project geotechnical engineer, with associated information summarized herein as appropriate.

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a. *Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:*

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

Less Than Significant Impact. While the project is located within the seismically active Southern California region, there are no known active faults, potentially active faults, or California Geological Survey (CGS) Earthquake Fault Zone designations located within or adjacent to the site (Leighton 2017a). Active faults are defined as those exhibiting historic seismicity or displacement of Holocene (less than approximately 11,000 years old) materials, while potentially active faults have no historic seismicity and displace Pleistocene (between approximately 11,000 and 2 million years old) but not Holocene strata. The closest known active/potentially active faults include the active Puente Hills Blind Thrust Fault located

approximately 1.7 miles northeast of the site, and the potentially active El Modeno Fault approximately 2.1 miles to the southeast. Based on the described conditions, the probability of local fault rupture is considered low and associated impacts from project implementation would be less than significant.

ii. *Strong seismic ground shaking?*

Less Than Significant Impact. As noted above, Southern California is a seismically active region subject to potential ground acceleration (ground shaking) effects from earthquake events along a number of active and potentially active regional fault structures. There are several active and potentially active faults that could affect the project site, including the Puente Hills Blind Thrust Fault and the El Modeno Fault (as previously described), the Whittier-Elsinore Fault Zone (approximately 4.3 miles to the north), the Newport-Inglewood Fault Zone (approximately 14.9 miles to the southwest), and the San Andreas Fault Zone (approximately 36 miles to the northeast). Seismic ground shaking represents the principal seismic hazard to the project site, with an estimated on-site peak ground acceleration level of 0.648g (where g equals the acceleration due to gravity). While this level of ground shaking could potentially impact proposed facilities such as structures and utilities, the project would be designed and constructed in conformance with associated regulatory and industry standards, including applicable elements of the California Building Code (CBC), related City standards, and recommendations identified in the Geotechnical Engineering Report and/or by the project civil, structural, and geotechnical engineers. Specifically, these standards typically involve incorporating applicable seismic factors into facility design, through efforts such as remedial grading (e.g., removal and/or reconditioning unsuitable soils), appropriate slope design and drainage, use of properly engineered fill (i.e., fill exhibiting characteristics such as proper composition, moisture content, application methodology and compaction), and pertinent structural design elements (e.g., CBC seismic loading parameters). Mandatory conformance with applicable regulatory/industry standards and engineering recommendations in the project Geotechnical Engineering Report would ensure that the potential effects of seismic ground shaking on proposed facilities would be less than significant.

iii. *Seismic-related ground failure, including liquefaction?*

Less Than Significant Impact. Liquefaction is a seismic phenomenon in which loose (cohesionless), saturated, and granular (low clay/silt content) soils behave like a fluid when subjected to high-intensity ground shaking. Surface and subsurface manifestations from these events can include loss of support for structures and foundations, seismic (dynamic) settlement, the occurrence of sand boils (i.e., sand and water ejected at the surface), and other effects such as lateral spreading (horizontal displacement on sloped surfaces as a result of underlying liquefaction). The project Geotechnical Engineering Report notes that the site and adjacent areas are not within identified CGS liquefaction hazard zones, and concludes that: (1) the potential for on-site liquefaction and lateral spreading is considered low; and (2) potential dynamic settlement within the site would be limited to less than one inch. As previously noted, the proposed project would be designed and constructed in conformance with associated regulatory and industry standards, including applicable elements of the CBC, City standards, and recommendations from the Geotechnical Engineering Report. Based on the described considerations, potential impacts

associated with liquefaction and related hazards from implementation of the proposed project would be less than significant.

iv. *Landslides?*

Less Than Significant Impact. The Geotechnical Engineering Report notes that the site and adjacent areas are not within identified CGS landslide hazard zones, and exhibit generally level topography. Based on these conditions and the fact that proposed development does not include substantial manufactured slopes, the potential for on-site landslide hazards is identified as "negligible" and associated potential impacts would be less than significant.

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

Less Than Significant Impact. Implementation of the proposed project would increase the potential for erosion and transport of eroded material (sedimentation) both within and from the site. Specifically, proposed activities would involve: (1) removal of surface stabilizing features (e.g., structures and pavement); (2) excavation of compacted materials; and (3) redeposition of backfill material in proposed development areas. While these areas would be stabilized through efforts such as installation of structures, pavement and landscaping, erosion potential would be higher in the short-term than during pre-construction conditions. Potential erosion and sedimentation effects are primarily associated with the project construction period and are not considered to be significant long-term concerns, as all developed areas would be stabilized as noted. The off-site transport of sediment during construction could also potentially result in effects to downstream receiving waters, such as increased turbidity and the provision of a transport mechanism for other contaminants that tend to adhere to sediment particles (e.g., hydrocarbons). Additional discussion of potential water quality effects associated with project-related erosion and sedimentation is provided below and in Response 4.9.a.

Short-term erosion and sedimentation impacts would be addressed through conformance with applicable elements of the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (NPDES No. CAS000002, State Water Resources Control Board [SWRCB] Order 2009-0009-DWQ, as amended by Order Nos. 2010-0014-DWQ and 2012-0006-DWQ), and related City requirements. Specifically, this would entail implementing appropriate measures such as an approved Storm Water Pollution Prevention Plan (SWPPP), an associated Construction Site Monitoring Program (CSMP), employee training, and minimum best management practices (BMPs), as well as a Rain Event Action Plan (REAP) if applicable (i.e., if the project is determined to be in Risk Categories 2 or 3 as outlined below).

Under the Construction General Permit, project sites are designated as Risk Level 1 through 3 based on site-specific criteria (e.g., erosion potential and receiving water risk), with Risk Level 3 sites requiring the most stringent controls. While specific BMPs would be determined during the SWPPP process based on site-specific characteristics (soils, slopes, grading, etc.), typical erosion and sediment control measures that may be required in the project SWPPP include: (1) grading restrictions for applicable areas during wet weather; (2) preparation and implementation of a CSMP and, if applicable, a REAP to provide enhanced erosion and sediment control measures prior to predicted storm events; (3) use of erosion control/stabilizing measures such as geotextiles, mats, fiber rolls, or soil binders; (4) use of sediment controls to protect the site

perimeter and prevent off-site sediment transport, including measures such as silt fencing, fiber rolls, gravel bags, temporary sediment basins, street sweeping, stabilized construction access points and sediment stockpiles, and use of properly fitted covers for sediment transport vehicles; (5) compliance with local dust control measures; and (6) implementation of additional BMPs as necessary to ensure adequate erosion/sediment control and regulatory conformance.

Mitigation in the TOD District IS/MND requires the submittal of comprehensive documentation to the City that demonstrates how erosion control and water quality BMPs will be implemented for proposed projects (Dodson 2017). Conformance with the construction-related elements of this mitigation measure would be provided through the required implementation of a SWPPP and related BMPs per applicable NPDES and City standards, as outlined above. Site-specific BMPs would be determined after generation of detailed site grading and development plans. Post-development storm water runoff and water quality measures related to the project would be addressed under applicable requirements associated with the NPDES Municipal Permit, as discussed below in Response 4.9a.

Based on implementation of appropriate erosion and sediment control BMPs as part of, and in conformance with, the project SWPPP and related NPDES/City requirements, associated potential erosion and sedimentation impacts from implementation of the proposed project would be less than significant.

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

Less Than Significant Impact. Refer to Response 4.6.a above for discussions on potential impacts related to landslides, lateral spreading, and liquefaction. Potential impacts related to phenomena such as subsidence and collapse are not considered significant with respect to the proposed project, based on the following considerations: (1) subsidence and collapse are most typically associated with groundwater (or other fluid) withdrawal, with such activities not proposed as part of the project; (2) shallow regional groundwater aquifers were not encountered during subsurface testing (cone penetrometer soundings) conducted to depths of approximately 38 to 45 feet during the project Geotechnical Investigation, and are not expected to occur on site; and (3) potentially less stable materials underlying the project area (e.g., undocumented fill and alluvium) would be addressed through conformance with applicable regulatory/industry standards and recommendations from project engineers (as described under Response 4.6.a). As a result, associated potential impacts related to geologic and soil stability would be less than significant.

An additional potential geologic and soil instability issue discussed in the project Geotechnical Investigation involves safety hazards related to the stability of temporary (construction) excavations. Specifically, excavations can exhibit instability and the potential for collapse related to loose or unstable soil and geologic materials. These potential hazards would be adequately addressed through required conformance with applicable U.S. Occupational Safety and Health Administration (OSHA) and California Occupational Safety and Health Administration (Cal-OSHA) standards. These standards include criteria related to factors such as excavation slope limitations and dimensions; use of appropriate shoring, shielding, and benching to provide

excavation stability; and restrictions on adjacent uses (e.g., heavy equipment operation). Required conformance with these regulatory standards would ensure that potential impacts related to excavation stability would be less than significant.

d. Be located on expansive soil, as defined in Chapter 1803.5.3 of the California Building Code, creating substantial risks to life or property?

Less Than Significant Impact. Expansive (or shrink-swell) behavior in surface or near-surface materials is attributable to the water-holding capacity of clay materials. Such behavior can adversely affect the structural integrity of features such as foundations and subsurface utilities, through shifting of support materials during the shrink-swell process. The Geotechnical Engineering Report notes that expansive subsurface clay layers are present within the site. The report also identifies a number of remedial measures to address potential expansive soil hazards. Specifically, these include the following standard efforts, with additional detail provided in Attachment C: (1) replacement or (if applicable) mixing of unsuitable materials with engineered fill; (2) capping expansive materials with engineered fill in applicable areas (per site-specific geotechnical recommendations); and (3) use of appropriate foundation and/or footing design, per site-specific geotechnical recommendations. Mandatory conformance with applicable regulatory/industry standards and recommendations from the Geotechnical Engineering Report would reduce any potential ensure that impacts related to expansive soils would be less than significant.

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?

No Impact. The proposed project would utilize municipal sewer service, and does not include the implementation of septic tanks or alternative wastewater disposal systems. As a result, no associated impacts to result from project implementation.

4.7 GREENHOUSE GAS EMISSIONS

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
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?	□	□	□	■

Pursuant to CEQA, and as specified in the mitigation measures identified in the TOD District IS/MND (Dodson 2017), an Air Quality/GHG study was completed for the project (HELIX 2017) and is provided as Attachment A.

CEQA Checklist Analysis

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

Less Than Significant Impact. Global climate change refers to changes in average climatic conditions on Earth as a whole, including temperature, wind patterns, precipitation, and storms. Global temperatures are moderated by naturally occurring atmospheric gases, including water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), O_3, and certain hydrofluorocarbons (HFCs). These gases, known as greenhouse gases (GHGs), allow solar radiation (sunlight) into the Earth's atmosphere, but prevent radiative heat from escaping, thus warming the Earth's atmosphere. GHGs are emitted by both natural processes and human activities. The accumulation of GHGs in the atmosphere regulates the Earth's temperature. Emissions of GHGs in excess of natural ambient concentrations are thought to be responsible for the enhancement of the greenhouse effect, contributing to what is termed "global warming," or the trend of warming of the Earth's climate from anthropogenic activities. Global climate change impacts are by nature cumulative; direct impacts cannot be evaluated because the impacts themselves are global rather than localized impacts.

California Health and Safety Code Section 38505(g) defines GHGs to include the following compounds: CO_2, CH_4, N_2O, O_3, chlorofluorocarbons (CFCs), HFCs, perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). As individual GHGs have varying heat-trapping properties and atmospheric lifetimes, GHG emissions are converted to carbon dioxide equivalent (CO_2e) units for comparison. The CO_2e is a consistent methodology for comparing GHG emissions because it normalizes various GHG emissions to a consistent measure.[1] The most common GHGs related to the project are those primarily related to energy usage: CO_2, CH_4, and N_2O.

There are no established federal, state, or local quantitative thresholds applicable to the project to determine the quantity of GHG emissions that may have a significant effect on the environment. CARB, the SCAQMD, and various cities and agencies have proposed, or adopted on an interim basis, thresholds of significance or threshold levels that require the implementation of GHG emission reduction measures. Because the project is a residential development project, the SCAQMD-adopted interim screening threshold of 3,000 metric tons of CO_2 equivalent (MT CO_2e) is being used for project consistency with CEQA (SCAQMD 2008a).

Construction of the project would result in temporary emissions of GHG from the operation of construction equipment and from worker and building supply vendor vehicles. Construction GHG emissions were calculated by using CalEEMod. The model and construction assumptions are described above, in the Section 4.3, Air Quality, and are attached to this IS/MND. The estimated construction GHG emissions for the project are shown in Table 4, *Construction GHG Emissions*.

[1] The effect each GHG has on climate change is measured as a combination of the volume of its emissions, and its global warming potential. The global warming potential is the potential of a gas or aerosol to trap heat in the atmosphere, and is expressed as a function of how much warming would be caused by the same mass of CO_2. For instance, CH_4 has a global warming potential of 21, meaning that 1 gram of CH_4 traps the same amount of heat as 21 grams of CO_2. N_2O has a global warming potential of 310.

Table 4 CONSTRUCTION GHG EMISSIONS (MT/yr)	
Construction Activity	**CO_2e**
Demolition	39
Site Preparation	5
Grading	33
Building Construction	885
Paving	12
Architectural Coating	10
TOTAL	**983**
Amortized Construction Emissions[1]	33

Source: CalEEMod emissions modeling by HELIX 2017 (output data is provided in Attachment A).

[1] Construction emissions are amortized over 30 years

GHG emissions generated from construction activities are finite and for a relatively short-term period of time. Unlike the numerous opportunities available to reduce a project's long-term GHG emissions through design features, operational restrictions, use of green-building materials, etc., GHG emissions-reduction measures for construction equipment are relatively limited. As such and in accordance with the SCAQMD's recommendations, construction emissions are amortized over a 30-year project lifetime. As shown in Table 4, *Construction GHG Emissions*, the 30-year amortized construction emissions would be 33 MT CO_2e per year.

Once construction activity is complete, the project would result in operational emissions from mobile sources and indirect emissions resulting from increased use of electricity, natural gas, water, and solid waste disposal services. As shown in Table 5, *Estimated Annual GHG Emissions*, the estimated increase in annual GHG emissions, including amortized construction emissions, would be 2,037 MT CO_2e per year. This value may be compared with and is less than the SCAQMD threshold of 3,000 MT CO_2e per year.

Table 5 ESTIMATED ANNUAL GHG EMISSIONS (MT/yr)				
Emission Sources	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Area	4	<0.1	0	4
Energy	615	<0.1	<0.1	617
Mobile	1,270	<0.1	0	1,271
Waste	10	1	0	25
Water	75	<0.5	<0.1	87
Operational Subtotal	**1,973**	**1**	<0.1	**2,004**
Construction Emissions[1]	-	-	-	33
TOTAL PROJECT	-	-	-	**2,037**
Screening Threshold[2]				**3,000**
Significant Impact?				***No***

Source: HELIX 2017

[1] Construction emissions are amortized over 30 years.

[2] SCAQMD 2008.

It is accepted as very unlikely that any individual development project would have GHG emissions of a magnitude to directly impact global climate change; therefore, any impact would be considered on a cumulative basis. Because the proposed project's GHG emissions would be less than the SCAQMD threshold, the emissions would not be cumulatively considerable. Therefore, impacts would be less than significant and no mitigation is required.

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

No Impact. Applicable plans, policies, and regulations either adopted or supported by the SCAQMD include Assembly Bill (AB) 32, Senate Bill (SB) 32, and the 2016 California Green Building Standards, among others. As discussed in Response 4.7.a, the proposed project would result in less than significant GHG emissions. The proposed project would not result in emissions that would adversely affect state-wide attainment of GHG emission reduction goals as described in AB 32. The project would be consistent with the intent of the TOD District, to provide higher density residential development across Crowther Avenue from an approved Metrolink Station, thereby facilitating and encouraging more people to utilize transit instead of automobiles. Based on the analysis in above Response 4.7.a, the technical study analysis in Attachment A, and the cumulative analysis in the IS/MND for the TOD District as a whole (Dodson, 2017), project-related construction and operational emissions would have a less than cumulatively considerable contribution to global climate change impacts, and the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing GHG emissions. No impact would occur.

4.8 HAZARDS AND HAZARDOUS MATERIALS

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
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 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?	□	□	□	■
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 for people residing or working in the project area?	□	□	□	■

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	□	□	□	■
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	□	□	■	□
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	□	□	□	■

CEQA Checklist Analysis

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

Less Than Significant Impact. The proposed project entails development of a residential site, and would generally not involve the routine transport, use, release, or disposal of hazardous materials. Project construction and demolition would involve the on-site use and storage of related hazardous materials such as vehicle/equipment fuels, as well as potentially requiring the removal/disposal of hazardous materials including asbestos insulation and lead-based paint (LBP). Applicable regulatory requirements associated with construction-related hazardous material concerns would be met through implementation of a SWPPP and related BMPs, as described in Responses 4.6.b and 4.9.a. Potential hazards related to encountering asbestos-containing material (ACM) and LBP during site demolition are addressed below in Response 4.8.b. Once project construction is complete, regular cleaning and maintenance activities on the subject property may require the storage and use of small quantities of potentially hazardous materials such as paint, solvents, fuel, pesticides, herbicides, and/or cleaning products. Additionally, small quantities of hazardous materials associated with residential uses may be used and stored on the project site, such as household batteries and household cleaners. Federal, state, and local regulations, such as the Hazardous Materials Transportation Act, Title 22 of the California Code of Regulations, and Occupational Safety and Health Act, which govern the use and disposal of hazardous materials, would apply to all employees and residents involved with the proposed project.

Based on the described conditions and required conformance with regulatory requirements, project-related impacts associated with the routine transport, use, release, or disposal of hazardous materials would be less than significant.

b. *Create a significant hazard to the public or the environment through reasonably foreseeable conditions involving the release of hazardous materials into the environment?*

Potentially Significant Unless Mitigated. Mitigation measures identified in the TOD District IS/MND require the preparation of a Phase I and/or Phase II Environmental Site Assessment (ESA) to document any potential residual contamination. Such studies are also typically required for CEQA analysis of former industrial properties. Identified residual contamination above

acceptable levels for residential land uses must be remediated prior to residential development. Advanced Environmental Concepts, Inc. (AEC) conducted a Phase I Environmental Site Assessment (ESA) for the project site (AEC 2016), and this study is included as Attachment D of this IS/MND. The investigation identified one historical recognized environmental condition (REC) within the site. Specifically, this included nine underground fuel storage tanks that were removed under an Orange County Health Care Agency (OCHCA) permit in 1992. Soil samples collected beneath the tanks upon removal revealed elevated concentrations of a chlorinated solvent (1,1,1-trichloroethane); however, subsequent soil samples showed concentrations were non-detectable and the cleanup site was closed on November 13, 1992.

A Phase II investigation was conducted across the project site by Optimal Technology in March 2016 to determine if subsurface soil vapor contamination is currently present. A total of 28 samples were collected at 13 locations across the site, at depths ranging from 5 to 15 feet below ground surface. The multi-depth soil gas investigation identified 17 samples with tetrachloroethene (PCE) levels from 0.14 to 0.64 micrograms per liter (µg/L). The identified PCE levels are above the listed reporting limit of 0.10 µg/L; however, the majority of the samples are below the OCHCA's residential risk threshold (pers. comm. Tamara Escobedo, 5/4/2017, results from J&E model [1991]). Two samples had PCE levels slightly within OCHCA's residential risk threshold, however the site average for all the samples was below the threshold by a magnitude of 10 (J&E model results), and the OCHCA is not planning any further action for this site. Samples were also analyzed by Optimal Technology for 29 additional compounds (including the chlorinated solvent that was found in elevated concentrations in 1992), and none of these 29 additional compounds were detected above listed reporting limits. While currently identified soil vapor contamination is not at a level that would automatically trigger mandatory remediation, not all areas of the site could be tested. Additionally, due to the project site's historical industrial land use, there is the potential for soil contamination to be encountered during project construction, which would result in a potentially significant impact.

The Phase I ESA (AEC 2016) notes that the existing buildings on the project site were constructed prior to 1978, and therefore could potentially contain LBP. Additionally, a previous asbestos survey indicated asbestos-containing material in one of the existing structures on the project site (ECOS 1992). Demolition of the existing structures associated with the proposed project could result in the release of lead and asbestos into the environment. Exposure to these substances is associated with a number of adverse health effects, and impacts would be potentially significant.

Due to the potential presence of contaminants in the soil and the potential for release of ACM and LBP into the environment, the following mitigation measures shall be incorporated:

Haz-1 If hazardous substances are encountered during project grading, work shall cease and an immediate evaluation shall be conducted and appropriate remediation actions undertaken. The associated assessment and remediation/removal activities shall be conducted by trained, licensed/certified personnel, and in accordance with pertinent local, state, and federal regulatory guidelines, under the oversight of the OCHCA. If additional contamination is identified, an application would be submitted to OCHCA for review and comment under the OCHCA's Voluntary Industrial Cleanup Program (VICP). A mitigation plan would be prepared detailing the mitigation of on-site soils impacted by

PCE and/or other contaminants, as applicable. The plan would be submitted to the OCHCA with the VICP application. Once approved, the mitigation plan would be implemented to the satisfaction of the OCHCA. Potential feasible measures could include, but are not limited to, on-site treatment or stabilization or removal of contaminated soil and disposal at an approved off-site location.

Haz-2 Prior to renovating and/or demolishing the on-site structures, the developer shall conduct a survey at the site to evaluate the extent of LBP and ACM within those structures. All associated remediation and removal activities shall be conducted by trained, licensed/certified personnel, and in accordance with pertinent local, state, and federal regulatory guidelines, under the oversight of the appropriate regulatory agency.

Impacts associated with the potential to uncover and release hazardous materials during construction activities would be less than significant with implementation of Mitigation Measures **Haz-1** and **Haz-2**.

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

No Impact. There are no existing or proposed schools within one-quarter mile of the project site. The closest school property, Valencia High School, is located approximately 0.4 mile to the north. The potential on-site use/handling of hazardous materials associated with the proposed project would be limited to pesticide/herbicide applications related to landscape maintenance and small quantities of other materials as outlined above in Response 4.8a. Such chemical uses would be minor in extent and infrequent, and would be subject to mandatory compliance with applicable regulatory standards and manufacture's recommendations. No impacts related to hazardous material/waste use or emissions within one-quarter mile of a school would result from project implementation.

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?*

Potentially Significant Unless Mitigated. As described above under response 4.8.b., the project site previously contained nine underground fuel storage tanks. The project site is listed on the SWRCB Geotracker website as a leaking underground storage tank cleanup site with a cleanup status of "completed – case closed" (SWRCB 2017). While no other environmental conditions of concern were identified by the Phase I ESA (AEC 2016), and there are currently no additional listings of hazardous materials on the project site pursuant to Government Code Section 65962.5, the soil vapor investigation conducted in March 2016 identified some areas on the site with concentrations of PCE above the listed reporting limit. The average concentrations for the site are below the OCHCA's residential risk threshold, however, and the OCHCA is not requiring further cleanup action related to this site. Based on the history of contamination and industrial uses on the site, there is the potential that previously unidentified contamination could be encountered during construction. Potential impacts related to any residual soil contamination on the project site would be less than significant with implementation of Mitigation Measure **Haz-1**, as described above under response 4.8.b.

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 for people residing or working in the project area?*

No Impact. The closest airport, Fullerton Municipal Airport, is located approximately 6 miles west of the project site. Pursuant to the associated Airport Environs Land Use Plan, the project site is not within any related mapped Safety (impact) Zones, Noise Contours, Height Restriction/Notification Areas, or Imaginary Surface Obstruction Zones (Orange County Airport Land Use Commission [ALUC] 2004). Based on the described conditions, no impacts associated with airport-related safety hazards would result from implementation of the proposed project.

f. *For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?*

No Impact. The project site is not located within the vicinity of a private airstrip, and no associated safety hazards or impacts would result from project implementation.

g. *Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?*

Less Than Significant Impact. The project site is not located near a primary evacuation route; therefore, implementation of the proposed project would not interfere with an adopted emergency response plan or emergency evacuation plan. Impacts would be less than significant.

h. *Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?*

No Impact. The project site and vicinity are predominantly developed for urban uses, and do not encompass any areas of designated wildland fire hazards in the City (with such designations limited to the northernmost City boundaries). As a result, no impacts related to wildland fire hazards would occur from project implementation.

4.9 HYDROLOGY AND WATER QUALITY

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Violate any water quality standards or waste discharge requirements?	☐	☐	■	☐
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	☐	☐	■	☐

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	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, in a manner which would result in substantial erosion or siltation on site or off site?	□	□	■	□
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on site or off site?	□	□	■	□
e. 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?	□	□	■	□
f. Otherwise substantially degrade water quality?	□	□	■	□
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	□	□	□	■
h. Place within a 100-year flood hazard area, structures which would impede or redirect flood flows?	□	□	□	■
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	□	□	■	□
j. Inundation by seiche, tsunami, or mudflow?	□	□	□	■

CEQA Checklist Analysis

a. Violate any water quality standards or waste discharge requirements?

Less Than Significant Impact. As outlined in the following analysis, potential project-related water quality impacts are associated with both short-term construction activities and long-term operation and maintenance. Because the proposed project does not include activities or facilities that could directly affect groundwater quality (e.g., septic systems or underground fuel tanks) associated potential project-related impacts are limited to the percolation of surface runoff and associated pollutants. As a result, the following assessment of potential water quality impacts is applicable to both surface and groundwater resources.

Short-term Construction Impacts

Potential water quality impacts related to project construction include erosion/sedimentation, the use and storage of construction-related hazardous materials (e.g., fuels, etc.), generation of debris from demolition activities, and disposal of extracted groundwater (if required), as outlined below.

Erosion and Sedimentation. As described above in Response 4.6.b, potential construction-related erosion/sedimentation impacts would be avoided or reduced below a level of significance through conformance with existing NPDES and related City Storm Water requirements.

Specifically, this would entail implementing a SWPPP and related BMPs in conformance with applicable regulatory requirements.

Construction-related Hazardous Materials. Project construction would involve the use and/or storage of hazardous materials such as fuels, lubricants, solvents, concrete, paint, and portable septic system wastes. The accidental discharge of such materials during project construction could potentially result in significant impacts if these pollutants reach downstream receiving waters, particularly materials such as petroleum compounds that are potentially toxic to aquatic species in low concentrations. As previously noted, implementation of a SWPPP would be required under NPDES and related City guidelines, and would include detailed measures to avoid or mitigate potential impacts related to the use and potential discharge of construction-related hazardous materials.

While detailed BMPs associated with construction-related hazardous materials would be determined as part of the noted SWPPP process based on project-specific parameters, they are likely to include the following typical measures: (1) minimizing on-site hazardous material storage, and restricting storage locations to areas at least 50 feet from storm drains and surface waters; (2) maintaining written inventories, labels and warning signs for stored hazardous materials; (3) using berms, ditches, and/or impervious liners (or other applicable methods) in material storage and vehicle/equipment maintenance and fueling areas to provide an appropriate containment volume and prevent discharge in the event of a spill; (4) properly maintaining construction equipment and vehicles; (5) using appropriate sediment control devices/methods downstream of paving activities, and properly containing and disposing of wastes and/or slurry from sources including concrete, dry wall and paint, by using properly designed and contained washout areas; (6) providing training for applicable employees in the proper use, handling and disposal of hazardous materials, as well as appropriate action to take in the event of a spill; (7) storing absorbent and clean-up materials in readily accessible on-site locations; (8) properly locating, maintaining and containing portable wastewater facilities; (9) regularly (at least weekly) monitoring and maintaining hazardous material use/storage facilities and operations to ensure proper working order; and (10) implementing solid waste management efforts such as proper containment and disposal of construction debris.

Based on the implementation of appropriate BMPs as part of (and in conformance with) the project SWPPP and related regulatory requirements, impacts from construction-related hazardous materials would be less than significant.

Demolition-related Debris Generation. The proposed project would involve the demolition of existing on-site facilities including structures and pavement. These activities would generate variable amounts of construction debris, potentially including concrete, asphalt, glass, metal, drywall, paint, insulation, fabric, and wood. Demolition activities could also potentially generate particulates, as well as pollutants related to hazardous materials including LBP and asbestos insulation (refer to Response 4.8.b). The introduction of demolition-related particulates or hazardous material pollutants into local drainages or storm drain systems could potentially result in significant downstream water quality impacts.

Project construction would be subject to a number of regulatory controls related to demolition, including NPDES/City SWPPP requirements as previously noted. The project SWPPP would

include measures to address potential effects associated with pollutant generation from demolition activities as appropriate, with detailed requirements to be determined as part of the SWPPP process. Typical measures for control of demolition-related hazardous materials that may be required in the project SWPPP include: (1) recycling appropriate (i.e., non-hazardous) construction debris for on- or off-site use whenever feasible, and proper off-site disposal of materials that cannot be recycled; (2) using dust-control measures such as watering to reduce particulate generation for pertinent locations/activities (e.g., concrete removal); (3) using appropriate erosion prevention and sediment control measures downstream of all demolition activities; and (4) providing conformance with applicable requirements related to the removal, handling, transport and disposal of hazardous materials generated during demolition (refer to Mitigation Measure **Haz-2** in Response 4.8.b).

Based on implementation of appropriate BMPs as part of (and in conformance with) the project SWPPP, as well as conformance with applicable hazardous material regulations, potential water quality impacts from project-related generation of demolition debris would be less than significant.

Disposal of Extracted Groundwater. Disposal of groundwater extracted during construction activities into local drainages and/or storm drain facilities could potentially result in significant water quality impacts through erosion/sedimentation, or the possible occurrence of pollutants in local groundwater aquifers. While shallow groundwater was not observed during geotechnical investigations and is not anticipated to be encountered during project-related excavation and construction (Leighton 2016), if dewatering is required the applicant and/or contractor would be required to comply with pertinent NPDES criteria related to groundwater extraction/disposal. While specific requirements would be determined based on site-specific parameters, they would likely include the following types of standard measures: (1) submittal of appropriate application materials and fees; (2) implementation of pertinent (depending on site-specific conditions) monitoring/testing, disposal alternative, and treatment programs; (3) provision of applicable notification to the associated local agency prior to discharging to a municipal storm drain system; (4) conformance with appropriate effluent standards; and (5) submittal of applicable documentation (e.g., monitoring reports). Based on the implementation of these and/or other appropriate BMPs as part of (and in conformance with) NPDES requirements, potential impacts from construction-related dewatering (if required) would be less than significant.

Long-term Operation and Maintenance Impacts

Long-term operation and maintenance of the proposed project would potentially generate a number of associated pollutants from sources including vehicle use (particulates, metals, and oil and grease), landscaping (pesticides/nutrients and oxygen demanding substances), pet waste (bacteria and viruses), and trash/debris generation. Urban pollutants accumulate in areas such as streets, parking areas, and drainage facilities, and are picked up in runoff during storm events. While runoff within and from the project site would decrease as noted below in Response 4.9.d, project operation would still potentially result in the on- and off-site transport of urban pollutants and associated significant effects such as increased turbidity, oxygen depletion, and toxicity to attendant species in downstream receiving waters. The project would be subject to applicable requirements under the associated NPDES Municipal Permit (NPDES Permit No. CAS618030, Regional Water Quality Control Board [RWQCB] Order No. R8-2009-0030 as amended by

Order No. R8-2010-0062) and related City standards (with the City listed as a co-permittee on the noted Municipal Permit). Pursuant to NPDES and City storm water standards, a Conceptual Water Quality Management Plan (WQMP) has been prepared for the project to assess potential concerns and identify appropriate BMPs to ensure regulatory conformance (KHR 2017b). This document is provided as Attachment E to this IS/MND. Specifically, this includes a combination of structural and non-structural source control and low impact development (LID)[2] treatment control BMPs. Source control BMPs are intended to avoid or minimize the introduction of pollutants into storm drains and natural drainages to the maximum extent practicable (MEP) by reducing on-site pollutant generation and off-site pollutant transport. Specific source control BMPs identified in the project WQMP include efforts such as: (1) locating trash enclosures within covered structures; (2) locating the majority of on-site parking within a covered structure; (3) using signs and educational materials to inform residents on proper use/disposal of substances such as pesticides, household cleaners, and pet waste; (4) providing appropriate employee training for the use and disposal of potential pollutants, as well as appropriate action to take in the event of a spill; and (5) restriction on applicable activities such as on-site vehicle maintenance. Proposed LID treatment control BMPs include storm water infiltration using methods such as subsurface perforated metal pipes or drywells, with the design capture volume of these facilities to accommodate the 85th percentile 24-hour storm event, pursuant to NPDES/City standards (KHR 2017a). LID infiltration BMPs provide a high efficiency level for removal of all pollutant categories, and their use is typically encouraged or required by regulatory authorities where appropriate conditions are present (e.g., adequate soil percolation rates and groundwater depths).

Implementation of the WQMP and related BMPs as described would ensure project conformance with applicable NPDES and City storm water standards, and would reduce associated potential long-term project water quality impacts below a level of significance.

b. *Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?*

Less Than Significant Impact. The proposed project would not result in the long-term use or extraction of local groundwater, with no associated impacts to groundwater supplies, aquifer volumes, or groundwater tables. In the unlikely event that shallow groundwater is encountered during project construction, small-scale and temporary dewatering efforts would be implemented in conformance with applicable NPDES requirements as noted above in Response 4.9.a.

The majority of the project site is currently developed with buildings, pavement, and other impermeable surfaces; therefore, existing groundwater recharge at the project site is assumed to be minimal. While project implementation would also include the installation of impervious surfaces such as structures and pavement, the project would result in larger landscaped areas and the overall area of on-site impervious surfaces would be reduced compared to the existing

[2] The LID process is intended to mimic predevelopment hydrologic conditions by using design practices and techniques to effectively capture, filter, store, evaporate, detain, and infiltrate runoff close to its source.

condition. This would result in an overall reduction in storm water leaving the site and a greater potential for rainfall to percolate into the ground and potentially reach the water table (refer to Response 4.9.e). The resulting contribution to the groundwater basin as a whole would be negligible. Based on the described conditions, potential impacts from the proposed project related to groundwater supplies and recharge capacity would be less than significant.

c. *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site?*

Less Than Significant Impact. While implementation of the proposed project would not alter the course of any stream or river, it would result in minor changes to the existing on-site drainage patterns through grading, development, etc. The overall existing drainage patterns would remain unchanged, however, with on-site flows moving generally north, discharging to East Crowther Avenue, and continuing along the curb before entering downstream City drainage facilities and ultimately flowing south to the Santa Ana River. Based on the described conditions, potential impacts associated with drainage alteration, including related erosion/sedimentation effects and hydromodification (as outlined below in Response 4.9.d), would be less than significant (with additional discussion of potential erosion hazards provided above in Responses 4.6.b and 4.9.a).

d. *Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?*

Less Than Significant Impact. As noted above in Response 4.9.c, project implementation would not alter the course of any stream or river, although it would result in minor changes to the existing on-site drainage patterns. The proposed project would also result in a net reduction of surface flows within and from the site, however, due to the proposed reduction in on-site impervious surface area (e.g., from extensive landscaping), as well as the proposed used of infiltration for water quality treatment (refer to Response 4.9.a). An analysis of potential project-related hydromodification[3] impacts was conducted as part of the WQMP, which concluded that while downstream drainages may be susceptible to such effects, the proposed reduction in on-site impervious area and use of infiltration would eliminate this potential impact (KHR 2017b). As a result, potential impacts from project implementation from drainage alteration, including related effects to runoff rates/amounts, hydromodification and flooding hazards, would be less than significant.

e. *Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?*

Less Than Significant Impact. Based on the discussions provided above in Responses 4.9.a, 4.9.c, and 4.9.d, the proposed project would result in a net reduction of surface runoff, with no associated adverse effects to the capacity of existing or planned storm water drainage systems. Additionally, as outlined in Responses 4.6.b and 4.9.a, potential project-related water quality

[3] Hydromodification is generally defined as the change in natural watershed hydrologic processes and runoff characteristics (infiltration and overland flow) caused by urbanization or other land use changes that result in increased stream flows, sediment transport, and morphological changes in the channels receiving the runoff.

impacts would be avoided or reduced below a level of significance through required conformance with applicable NPDES and City regulatory standards. As a result, potential impacts related to drainage system capacity and the generation of polluted runoff from project implementation would be less than significant.

f. Otherwise substantially degrade water quality?

Less Than Significant Impact. As described above in Responses 4.6.b and 4.9.a, the proposed project would be subject to applicable requirements under NPDES/City storm water standards and other pertinent regulations (e.g., hazardous material) to address potential short-and long-term water quality impacts. As a result, these potential impacts would be reduced below a level of significance and the proposed project would not otherwise result in the degradation of water quality.

g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

No Impact. The project Geotechnical Investigation notes that the project site is not within a mapped 100-year flood hazard area (Leighton 2016) and no associated impacts would result from project implementation.

h. Place within a 100-year flood hazard area, structures which would impede or redirect flood flows?

No Impact. As noted in Response 4.9.g, the project site is not located within a 100-year floodplain. No impacts related to impeding or redirecting flood flows would result from project development.

i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

Less Than Significant Impact. As described in Response 4.9.g, the project is not located within a 100-year floodplain. The project Geotechnical Investigation notes that the site is located within the mapped inundation area associated with catastrophic failure of the Prado Dam (Leighton 2016). Such a catastrophic scenario is considered a very unlikely event, however, due to the fact that dam structures are subject to rigorous safety regulations under the direction of the California Division of Safety of Dams, the U.S. Army Corps of Engineers, and California Department of Water Resources. These requirements involve efforts related to the siting, construction, operation, and maintenance of dam structures, including regular monitoring and reporting. Based on the described conditions, potential risks of loss, injury, or death related to dam inundation caused by a failure of the Prado Dam at the project site would be less than significant.

j. Inundation by seiche, tsunami, or mudflow?

No Impact. Seiches are defined as wave-like oscillatory movements in enclosed or semi-enclosed bodies of water such as lakes or reservoirs, and are most typically associated with seismic activity. Seiches can result in flooding damage and related effects (e.g., erosion) in surrounding areas from spilling or sloshing water, as well as increasing pressure on containment

structures. Because there are no large water bodies in the project vicinity, seiche-related hazards are considered negligible (Leighton 2016) and no associated impacts would result from project implementation.

Tsunamis (commonly referred to as tidal waves) are sea waves generated by sources such as underwater earthquakes or volcanic eruptions, and can generate impacts related to inundation in coastal zones. Because the project site is located approximately 15 miles inland and at elevations of between approximately 230 and 240 feet AMSL, tsunami hazards are negligible (Leighton 2016), and no impacts resulting from tsunamis would occur as a result of project implementation.

The project site is generally not susceptible to inundation by mudflow, due to the relatively level nature of the site and vicinity (with the closest area of substantial topography located approximately 4.3 miles to the northeast). Accordingly, no mudflow-related impacts are anticipated in association with project implementation.

4.10 LAND USE AND PLANNING

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Physically divide an established community?	□	□	□	■
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the General Plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	□	□	□	■
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	□	□	□	■

CEQA Checklist Analysis

a. Physically divide an established community?

No Impact. The project is proposed to be constructed on two parcels that currently contain vacant industrial buildings and associated facilities and would represent one of the first developments within the newly established TOD District. The existing industrial packinghouse "community" is planned to evolve into a new mixed-use TOD community. The project is consistent with the TOD policies and guidance, and will have easy access to the planned Metrolink station. It is separated from the community associated with the Old Town Placentia Planning Area by Crowther Avenue and the existing rail corridor, including the site of the future Metrolink Station, and would not adversely affect that community. It would not have an adverse impact on the physical arrangement of an established community. Therefore, no impacts are anticipated to occur.

b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the General Plan, specific plan,

local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. The proposed project would be consistent with the newly adopted TOD zoning designation and General Plan designation, and associated development standards and policies, as well as other applicable City development regulations and standards as reflected in the Final IS/MND prepared for the TOD District (Dodson 2017). No adverse impacts related to conflicts with applicable land use plans, policies, or regulations would occur.

c. *Conflict with any applicable habitat conservation plan or natural community conservation plan?*

No Impact. The project site is fully developed, and there are no habitat conservation plans or natural community conservation plans within or near the project area. No related impacts would occur.

4.11 MINERAL RESOURCES

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	□	□	■	□
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?	□	□	■	□

CEQA Checklist Analysis

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

Less Than Significant Impact. As described above in Response 4.5.c, the project site encompasses approximately 8 to 10 feet of artificial fill deposits that are underlain by a thick sequence of alluvial/fluvial materials. Accordingly, associated mineral resource potential would be limited primarily to aggregate (sand and gravel) and petroleum resources, with a number of identified historic oil and gas fields mapped to the north, east, and west of the City (CGS 1981, 1973). Based on the referenced historic CGS sources, as well as related data provided in the City of Placentia General Plan Update (2017b) and the Orange County General Plan (2005), there are no identified mineral resources within the City, as defined by the CGS. In addition, the project site and vicinity are fully developed with urban and related uses, and the City land and zoning designations within and adjacent to the site do not include mineral extraction as an allowable use. Based on the described conditions, it is considered unlikely that economic mineral resources are present in the project site vicinity and, even if such resources were subsequently determined to be present, it is unlikely that associated extraction operations would be authorized by the City

due to the approval of the TOD District and desired long-range planning that does not accommodate such use (i.e., mineral resource extraction) of the project site. As a result, potential impacts to mineral resources from implementation of the proposed project would be less than significant.

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?*

Less Than Significant Impact. Refer to Response 4.11.a, above.

4.12 NOISE

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project result in:				
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	□	■	□	□
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	□	□	■	□
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	□	□	■	□
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	□	■	□	□
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 expose people residing or working in the project area to excessive noise levels?	□	□	□	■
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	□	□	□	■

Mitigation measures in the TOD District IS/MND specify that a noise and vibration study shall be prepared for any proposed project in the District. The study must identify whether noise attenuation features would be required to meet City noise standards and/or to meet the 72 vibration decibel (VdB) threshold recommended for the volume of train traffic. Such studies are also typically completed as part of the CEQA compliance process. The following analysis is based on a Noise and Vibration Analysis Report prepared for the proposed project by HELIX Environmental Planning, Inc. (HELIX; May 2017).

CEQA Checklist Analysis

Fundamentals of Sound and Environmental Noise

Noise can be defined as unwanted sound. Sound (and therefore noise) consists of energy waves that people receive and interpret, while noise consists of any sound that may produce physiological or psychological damage and/or interfere with communication, work, rest,

recreation, or sleep. Sound intensity or acoustic energy is measured in decibels (dB) that are A-weighted to correct for the relative frequency response of the human ear (dBA). Decibels are measured on a logarithmic scale, with a 3-dBA change in sound generally considered the minimum level that is "barely perceptible" to humans, and a 5-dBA change generally considered "readily perceptible." Time-averaged noise levels are expressed by the symbol LEQ, with a specified duration, typically of one hour.

The predominant rating scales for communities are the Noise Equivalent (LEQ), and the Community Noise Equivalent Level (CNEL), both of which are based on dBA. The LEQ is the total sound energy of time-varying noise over a sample period. The CNEL is the average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and after addition of 10 decibels to sound levels at night from 10:00 p.m. to 7:00 a.m. CNEL is utilized for describing ambient noise levels because they account for all noise sources over an extended period of time and account for the heightened sensitivity of people to noise during nighttime hours.

The thresholds of significance within the City of Placentia and as developed by the U.S. Department of Housing and Urban Development and State of California Guidelines are utilized in this document as the applicable Noise Standards applied to the project in determining whether a significant impact will occur, with 60 CNEL as the acceptable ambient noise base level for multiple-family residences. The General Plan and Chapter 23.76 of the Placentia Municipal Code regulate construction noise. The Municipal Code regulates noise-producing operations to standards of 55 dBA during the daytime and 50 dBA at night when measured at the property line. California's Title 24 noise standards regulate interior noise levels to at least 45 CNEL, and the Federal Transportation Administration (FTA) regulates residential ground-borne vibration to 72 VdB, and ground-borne noise to 35 dBA. The following analysis is derived from the noise and vibration report by HELIX Environmental Planning (2017).

a. *Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

Potentially Significant Unless Mitigated. The proposed project would be located adjacent to East Crowther Avenue and approximately 212 feet south of the Burlington Northern Santa Fe (BNSF) railway line. Daily railway operations include nine Metrolink trains, two Amtrak trains, and up to 125 daily freight trains by 2025 (Orange County Transportation Authority [OCTA] 2017). HELIX conducted noise modeling for the combined railway and roadway noise. The project's rooftop exterior use area on the parking structure building measured approximately 53.0 CNEL. This is below the U.S. Department of Housing and Urban Development and State of California Guidelines recommendation of 60 CNEL for multi-family residential.

The project building's northern façade would be exposed to noise levels up to 68.9 CNEL. Because standard construction materials reduce exterior noise levels by approximately 15 CNEL, interior noise levels in the project may be above the 45 CNEL Title 24 requirements. An exterior-to-interior analysis was conducted to calculate the project's residential unit interior noise levels. Mitigation Measure **Noi-1** below specifies the noise attenuation features required to reduce interior noise levels to acceptable levels.

Noi-1 Interior noise levels shall not exceed the Title 24 interior noise standard of 45 CNEL for residences. The following building materials shall be used in the construction of all units facing East Crowther Avenue and the railway to reduce interior noise to acceptable levels:

- Exterior walls shall have a Sound Transmission Class (STC) 46 rating
- Windows shall have an STC 31 rating
- Exterior doors shall have an STC 28 rating
- Glass doors shall be at least 0.5 inch thick

Operational noise attributed to the proposed project includes the use of heating, ventilation, and air conditioning (HVAC) units on the project's rooftop. Modeling assumed the use of a Carrier 38HDR060 split system for each residential unit. The continuous use of 215 rooftop condenser units would generate noise levels of 39.9 dBA at ground level and 41.5 dBA at 25 feet. These levels would not exceed the City's nighttime allowable hourly limit of 50 dBA for residential zones.

b. *Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?*

Less Than Significant Impact. The construction and demolition activities required for the proposed facility are not anticipated to generate excessive ground-borne vibrations or noise levels. No pile driving is anticipated to be necessary as part of project construction; the loudest source of potential vibration from project construction would be the use of a vibratory roller, which may be used to achieve soil compaction as part of the foundation construction.

No vibration-sensitive land uses (i.e., land uses where equipment or operations would be disrupted by excessive vibration) are located within 200 feet of project site. The nearest residences are located approximately 450 feet north of the project across East Crowther Avenue and the BNSF railway line. Therefore, construction vibration would not adversely affect vibration-sensitive land uses.

According to the noise and vibration report, the project site is approximately 212 feet south of the railway tracks, and under the most conservative operating assumption trains are expected to pass the project site vicinity at approximately 45 miles per hour. At this distance and speed, vibration levels from passenger and freight trains are assumed to be approximately 70.1 VdB, and associated ground-borne noise levels would be below 35 dBA. These levels are below the 72 VdB residential use impact criteria threshold for vibration and 35 dBA threshold for groundborne noise as established by the FTA's Transit Noise and Vibration Impact Assessment. Therefore, vibration impacts would be less than significant.

c. *A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?*

Less than Significant Impact. The project's traffic study found that the project would result in a net increase of approximately 275 average daily trips (ADT). The Traffic Impact Study for the TOD District (Albert Grover & Associates [AGA] 2017) provided existing traffic volumes for

nearby roadways. Modeling used the posted speed limits and observed vehicular mix for nearby East and West Crowther Avenue and Melrose Street. Existing noise levels were calculated to be between 62.2 CNEL and 66.1 CNEL at a distance of 50 feet on the ground. (Note that while these noise levels are above the recommendation of 60 CNEL for multi-family residential, the project's exterior use areas would be located on the parking garage roof where existing noise levels were calculated at 53.0 CNEL [see Response 4.12.a].) Adding the project's 28 peak hour trips resulted in a maximum increase of 0.3 CNEL along West Crowther Avenue. As the project does not increase existing noise levels above 3 CNEL, no substantial permanent increase in ambient noise levels in the project vicinity would occur. Impacts would be less than significant.

d. *A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

Potentially Significant Unless Mitigated. The project would involve demolition of existing structures, minor grading, paving of the site, and construction of new buildings. Demolition and construction would generate elevated noise levels that may be audible at nearby residences. Residences are located approximately 450 feet north of the project across East Crowther Avenue and the BNSF railway line. Construction would rely on the use of standard equipment including an excavator, front-end loader, grader, scraper, and bulldozer. Construction equipment would not all operate at the same time or location. A dozer and an excavator may be working on the site simultaneously, but would not be working in close proximity to one another at a given time due to the nature of their respective operations. A scraper and dozer were analyzed together for construction noise impacts due to their likelihood of being used in conjunction with one another. During a given hour, the highest impact level for a scraper and dozer at the nearest residence is 60.5 dBA L_{EQ}. The impact level for a grader in isolation at the nearest residence is 61.9 dBA L_{EQ}. Construction noise from this equipment was modeled below the significance threshold defined in the General Plan Noise Element of 75 dBA L_{EQ}. Furthermore, construction would not occur between the hours of 7:00 p.m. and 7:00 a.m. on Monday through Saturday, or at any time on Sundays or federal holidays, as stated in the City's Noise Ordinance. Thus, the project-related construction impacts alone would not result in a significant impact.

There is the potential, however, for construction of the proposed project to occur simultaneously with construction of the Metrolink Station and other development projects within the recently established TOD District. The IS/MND for the TOD District identified a potentially significant impact and indicated that the following measures shall be implemented during construction within the TOD District:

Noi-2 The following measures shall be implemented during construction:

- Contractor shall establish a noise complaint response program and shall respond to any noise complaints received for future specific project by measuring noise levels at the affected receptor site. If the noise level exceeds an CNEL of 60 dBA exterior or an CNEL of 45 dBA interior at the sensitive receptor, the applicant will implement adequate measures (which may include portable sound attenuation walls, use of quieter equipment, shift of construction schedule to avoid the presence of sensitive receptors, etc.) to reduce noise levels to the greatest extent feasible.

- All construction equipment shall be operated with mandated noise control equipment (mufflers or silencers). Enforcement will be accomplished by random field inspections by applicant personnel during construction activities. Equipment not in use for five minutes shall be shut off.

- Equipment shall be maintained and operated such that loads are secured from rattling or banging.

- Where available, electric-powered equipment shall be used rather than diesel equipment and hydraulic-powered equipment shall be used instead of pneumatic power.

- Construction employees shall be trained in the proper operation and use of equipment consistent with these mitigation measures, including no unnecessary revving of equipment.

- No radios or other sound equipment shall be used at this site unless required for emergency response by the contractor.

- Public notice shall be given 10 days prior to initiating construction. This notice shall be provided to all property owners and residents within 300 feet of the project site and shall be provided to property owners/residents at least one week prior to initiating construction. The notice shall identify the dates of construction and the name and phone number of a construction supervisor (contact person) in case of complaints. One contact person shall be assigned to the project. The public notice shall encourage the adjacent residents to contact the supervisor in the case of a complaint. Residents would be informed if there is a change in the construction schedule. The supervisor shall be available 24/7 throughout construction by mobile phone. If a complaint is received, the contact person shall take all feasible steps to remove or attenuate the sound source causing the complaint.

With implementation of the above mitigation measures, construction noise impacts would be less than significant.

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 expose people residing or working in the project area to excessive noise levels?*

No Impact. The project is subject to some distant aircraft noise, though the site is not located near any active airports. The nearest airport is Fullerton Municipal Airport, located six miles to the west. No effects related to airport noise would occur at the project site, and impacts would be less than significant.

f. *For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?*

No Impact. The proposed project site is not located within the vicinity of a private airstrip and would not expose people residing or working in the project area to excessive noise levels. No impact would occur.

4.13 POPULATION AND HOUSING

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	□	□	■	□
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	□	□	□	■
c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	□	□	□	■

CEQA Checklist Analysis

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

Less Than Significant Impact. The City had a total population of 52,094 in 2014, with an overall average household size of 3.1 persons per unit (SCAG 2015). The proposed project would provide 100 one-bedroom units and 115 two-bedroom units; therefore, a more likely average household size for the project would be 2.3 persons per unit, with a total added population of approximately 495 project residents. This population increase would represent approximately 0.1 percent of the total population of the City, which has been anticipated by the City based on adopted long-range plans and programs. Therefore, the estimated population increase would not be a substantial increase overall.

The City has planned for population growth associated with the District, and the proposed project would be within the assumptions made to designate the project area as a TOD. For example, the District development standards for density are a minimum of 65 DU per acre and a maximum of 95 DU per acre. The proposed project would provide 72.9 DU per acre, which is within the range of the planned residential growth for the area.

Due to the small percentage of total population increase relative to the total population of the City and conformance with the adopted long-range plans, including the TOD District development standards, impacts related to population growth would be less than significant.

b. *Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*

No Impact. The proposed project would involve the demolition of vacant industrial/warehouse facilities and would not require the removal existing housing. The proposed project would provide new housing and would not necessitate the construction of replacement housing elsewhere. No impacts related to the displacement of housing would occur.

c. *Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?*

No Impact. Refer to Responses 4.13.a and 4.13.b, above.

4.14 PUBLIC SERVICES

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the 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?	☐	☐	■	☐
b. Police protection?	☐	☐	■	☐
c. Schools?	☐	☐	■	☐
d. Parks?	☐	☐	■	☐
e. Other public facilities?	☐	☐	☐	■

The proposed project is in an area currently served by urban levels of all public services. Public services provided by the City in the project area include fire, police, schools, and park services.

CEQA Checklist Analysis

a. *Fire Protection?*

Less Than Significant Impact. The Orange County Fire Authority (OCFA) provides service to the City through a Joint Powers Agreement. There are two fire stations in the City. The nearest station to the project site is Station 35, located approximately 0.3 mile north at 120 South Bradford Avenue.

The project site is currently fully developed with industrial land uses. The transition to residential land uses would not be expected to require additional fire protection than what is already present in the area. In fact, new construction would be required to conform to current building codes, which would include modern fire protection measures that may not be present in

the existing structures on the site. The project would be required to comply with building code requirements related to fire safety and it is standard practice for the OCFA to review and require adjustments to the project plans for fire safety purposes, prior to approval of final building plans. As determined in the TOD District IS/MND, compliance with current standards along with the increased value of the developed land, which will generate additional property tax, would be sufficient to control impacts on the fire protection and emergency response system to a less than significant impact level. The impact of the proposed project on fire protection services would be less than significant.

b. Police Protection?

Less Than Significant Impact. The project area is served by the City Police Department which operates from a station located at 401 East Chapman Avenue. Mitigation measures identified in the TOD District IS/MND (Dodson 2017) indicates that each development within the TOD District shall pay fees to support City services related to law enforcement and recreation as deemed necessary by the City. The City is therefore in the process of completing a facilities benefit assessment to determine the fair share in lieu fees for developments within the TOD District. Based on mandatory participation in the facilities benefit assessment, the project applicant would be required to pay the fair share fee as determined by the City, to support police services and offset any increased demand resulting from implementation of the proposed project. Impacts related to police protection services would therefore be less than significant.

c. Schools?

Less Than Significant Impact. The project site is served by the Placentia-Yorba Linda Unified School District (PYLUSD). Using the methodology in the PYLUSD Residential Development School Fee Justification Study (see Table 3 in Dolinka Group 2016), the proposed project would add approximately 100 students to the school district. This is considered a conservative number, however, because the proposed unit sizes (1- and 2-bedroom units) would typically be expected to accommodate singles, couples, and small families.

The PYLUSD includes a total of 34 school sites with a combined enrollment of approximately 25,455 students (PYLUSD 2017). The current capacity of the PYLUSD is 28,752 students, which leaves over 3,000 spaces available for new students (Dolinka Group 2016). The PYLUSD Residential Development School Fee Justification Study concluded that while there would be adequate capacity to accommodate future elementary school students, the middle schools and high schools in the district may not be able to meet future demand. Senate Bill (SB) 50 addresses potential impacts to schools from new development by mandating the payment of fees per residential unit to offset costs related to school facilities. Based on the relatively small number of anticipated new students, the available capacity in local elementary schools, and the required payment of fees pursuant to SB 50, potential impacts to schools from the proposed development would be less than significant.

d. Parks?

Less than significant. There are a number of public parks near the project site, with a total of seven parks and approximately 28 acres of public parkland within a 1-mile radius. Additionally,

a 40-acre subregional park, the Tri-City Park, is located approximately 2.5 miles north of the project site. The City currently has a total of 82.5 acres of parks (City 2017b). Despite the amount of existing parkland, the City has not achieved its adopted park development standard of 4 acres per 1,000 residents (City 2017b). Using the total park acreage of 82.5 and the 2014 population of 52,094 (SCAG 2015), there are approximately 1.6 acres of parkland per 1,000 residents.

While the proposed project would include recreational amenities for residents, there would also be an increased demand on local parks and recreational facilities. As described above in Response 4.14.b, the TOD District IS/MND indicates that each development within the TOD District shall pay fees to support City services related to law enforcement and recreation as deemed necessary by the City, and the City is in the process of completing a facilities benefit assessment to determine the fair share in lieu fees for developments within the TOD District. The project applicant would be required to either pay a fair share in-lieu fee to support parks or to provide dedicated parkland, or some combination of the two, as determined by the City. Such payments would be mandatory. As a result, project-related impacts to parks would be less than significant.

e. Other Public Facilities?

No Impact. No significant impacts to other public facilities are anticipated to occur with project implementation.

4.15 RECREATION

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
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?	☐	☐	■	☐

CEQA Checklist Analysis

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. Development standards for the TOD District require a minimum of 50 SF of common open space per DU and a minimum of 65 SF of private open space per DU. The proposed project would meet these requirements by providing a total of 21,015 SF of common open space and 15,132 SF of private open space. Each DU would have a private balcony, and common open space would include recreational amenities such as a swimming

pool, dog run, community areas, and an exercise facility. While new residents would also use local parks and off-site recreational facilities, it is anticipated that on-site amenities would offer convenient access to open space and recreation and that the increased demand on off-site facilities would not cause substantial physical deterioration. Furthermore, as indicated in response to 4.14.d, the project would be required to pay a "fair share" or "in-lieu" fee, which would be used by the City to maintain or provide new parks facilities in the City. Implementation of the proposed project would therefore result in less than significant impacts related to substantial deterioration of existing parks and recreational facilities.

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. The proposed project would include common open space recreational facilities (i.e., swimming pool, dog run, community areas, and an exercise facility), as well as private open space (i.e., balconies), as described above in 4.15.a. Impacts related to the construction of these on-site recreational elements as part of the proposed project have been analyzed throughout this document. In all instances where potentially significant impacts were identified, mitigation measures have been included that would reduce impacts to less than significant. No specific off-site recreational improvements have been identified, but the project would pay fair share in lieu fees that the City may use to develop public recreational amenities. If the City does plan and implement future park development, this would constitute a future project subject to separate CEQA review. Impacts related to recreational facilities would therefore be less than significant.

4.16 TRANSPORTATION/TRAFFIC

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	□	■	□	□
b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standard established by the county congestion management agency for designated roads or highways?	□	□	■	□
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	□	□	□	■
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	□	□	■	□
e. Result in inadequate emergency access?	□	□	□	■

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	☐	☐	☐	■

A traffic study has been completed for the proposed Placentia Crowther project (Fehr & Peers, 2017). This study is provided as Attachment G to this IS/MND. The below analyses also rely upon the traffic study and analysis for the TOD District IS/MND (Albert Grover & Associates [AGA], 2017).

CEQA Checklist Analysis

a. *Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?*

Potentially Significant Unless Mitigated. Project construction activities would temporarily contribute additional vehicle trips to the local circulation system. Short-term construction traffic impacts would result from hauling demolition material away from the project site, importing/exporting materials to/from the site, and transporting construction personnel to and from the site. It is assumed that primary access to the site for construction traffic would be from SR 91 and SR 57, utilizing surface streets that are permitted for truck use. Construction would occur over an estimated 18-month period. During peak hauling periods associated with transporting demolition waste off site and bringing building materials to the site, there is the potential for significant impacts to roadway segments and intersections along the truck route from the project site to SR 57 or SR 91, if substantial truck trips occur during the AM and PM peak hours. These impacts would be reduced to less than significant through implementation of the following mitigation measures, as specified in the TOD District MND:

Tra-1 The project contractor would be required to prepare and implement a construction traffic control plan to the satisfaction of the City Traffic Engineer and in compliance with Manual of Uniform Traffic Control Devices (MUTCD) guidelines. The traffic control plan should include ingress and egress to and from the project site, as well as designated haul routes and construction staging areas, and must address the applicable construction traffic control measures listed in the adopted IS/MND for the approved TOD District, as listed below:

- Construction hours will be in accordance with the City Municipal Code.
- Construction traffic will utilize designated driveways along Crowther Avenue and will yield to public traffic when entering and exiting the project site.

- Parking for construction equipment and vehicles will be on the project site or within an approved nearby temporary use site. Such equipment and vehicles will utilize approved driveways to enter the site(s). Construction staging will also be on the site or another approved property, and not within the public streets.

- Trucks transporting equipment and materials to and from the site will use the designated truck routes along Placentia Avenue, Crowther Avenue, Melrose Street, and Orangethorpe Avenue, and will yield to public traffic at all times.

- All construction work within the public right-of-way, will be conducted in compliance with City standards and the construction site shall be posted with the name, company, and a phone number of a person to call for complaints.

- The developer will be responsible for repair of damages to public facilities caused by the hauling or transporting of construction related materials.

With implementation of the above measures from the TOD District IS/MND, as embodied and expanded upon within the required construction traffic control plan, impacts associated with construction traffic would be less than significant. These mandatory measures will be included within the project MMRP, for monitoring purposes.

Level of service (LOS) analyzes roadway operations and the relationship between capacity, traffic volumes, and delay resulting in LOS grades A through F (F being the lowest). The Traffic Impact Study for the TOD District (AGA 2017) assumed that a significant portion of the trips generated from redevelopment of the TOD project area would be internal once buildout is achieved due to the mixed-use development approach within the area; many of these internal trips would be via bicycle or pedestrian modes. Based on the proximity of the planned Placentia Metrolink Station the study also assumed that 35% of trips would utilize transit instead of motor vehicles. This calculation yielded an expected maximum of 5,000 net daily vehicle trips to be generated as a result of redevelopment of the entire TOD District.

The project traffic study used the same traffic generation and distribution assumptions as were used for the TOD District traffic study (see Attachment G). Applying the same assumptions to the proposed 215-unit development yields an estimated 1,430 vehicle trips that would be generated by the proposed project (See Table 6). This is approximately 821 fewer daily vehicle trips than were projected by the TOD District traffic study for the redevelopment of the "southeast area" of the District, which corresponds to the project site. AM and PM peak hour trips would also be less than previously projected, because the project would result in fewer residential units than were previously assumed for the TOD District. As shown in Table 6, after applying the 35% reduction in trip generation based on the transit-oriented nature of the development, the net trip generation for the project is estimated at 929 daily trips, with 71 AM peak hour trips and 86 PM peak hour trips.

Table 6
PROJECT TRIP GENERATION ESTIMATES

Land Use	Units	ITE Code	Quantity	Daily	AM Peak Hour			PM Peak Hour		
					In	Out	Total	In	Out	Total
Apartments	Dwelling Units	220[1]	215	1,430	22	88	110	86	47	133
Transit Reduction (35%)[2]				-501	-8	-31	-39	-30	-16	-47
Net New Project Trips				929	14	57	71	56	31	86

Sources: ITE Trip Generation Manual, 9th Edition; Fehr and Peers, 2017

[1] ITE Trip Generation land use category 220 = Apartments with Peak Hours of Adjacent Streets at 7-9AM and 4-6PM
- Daily: T = 6.65(X)
- AM Peak Hour: T = 0.51(X) (20% in, 80% out)
- PM Peak Hour: T = 0.62(X) (65% in, 35% out)

[2] From the TOD District Traffic Study; reflects mode share to transit due to the TOD nature of the site.

The peak hour trip generation after transit reduction indicates that the driveway approach will not exceed 100 peak hour trips, the minimum volume identified in the MUTCD warrant for traffic signal installation. As such, side street stop control should be adequate.

The TOD District Traffic Study analyzed the LOS of 15 intersections under six scenarios for both morning and afternoon peak hours and determined that the full redevelopment of the District, assumed to occur by 2035, would cause the following intersections to operate at a deficient LOS E or F or worsen intersections that would operate at E or F even without the TOD District: Placentia Avenue/Crowther Avenue, Orangethorpe Avenue/Placentia Avenue, Orangethorpe Avenue/SR 57 Northbound Ramps, Orangethorpe Avenue/Melrose Street, and Kraemer Boulevard/Orangethorpe Avenue. To address this significant cumulative traffic impact, the MND for the District mandated that each future development within the TOD District must pay its fair share of the costs for the necessary transportation system improvements needed to address the District-wide traffic increases and identified the following transportation system improvements, toward which each developer must pay a fair share:

- Placentia/Crowther Avenue: Upgrade left turn signal phasing for all movements from permissive left turns to protected/permissive left turn phasing.

- Orangethorpe Avenue /Placentia Avenue: Provide eastbound/westbound dual left-turn Lanes at Orangethorpe Avenue/Placentia Avenue.

- Orangethorpe Avenue/SR 57 Northbound Ramps: Restripe Northbound Off-Ramp middle lane as shared Left-Turn/Thru/Right-Turn Lane.

- Orangethorpe Avenue/SR 57 Northbound Ramps: The westbound right turn movement is expected to increase from 550 vehicles per hour (vph) to 800 vph during the PM period for year 2035. This movement should be closely monitored and may require additional improvements to reduce congestion and queuing. An additional improvement would be to modify the existing median on Orangethorpe Avenue to add an exclusive Westbound Right-Turn Lane.

- Orangethorpe Avenue/Melrose Street: Provide an exclusive southbound right-turn lane without overlap signal phasing and northbound dual left-turn lanes at Orangethorpe Avenue/Melrose Street.

- Kraemer Boulevard/Orangethorpe Avenue: Restripe Orangethorpe Avenue to provide eastbound dual left-turn lanes. Add additional north/south thru lane (three lanes each) by restriping the northbound and southbound right turn lanes to thru lanes. Consider modifying the north/south left-turn movements from protected-only left-turn phasing to protected- permissive left-turn phasing. Restripe the southbound left-turn approach to provide a positive offset for better sight distance between the north/south left turn movements.

Mandatory payment of the required fair share fees by the project developer, as specified in the TOD District MND and associated traffic study, ensures that project-related traffic impacts would be less than significant.

b. *Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standard established by the county congestion management agency for designated roads or highways?*

Less than Significant Impact. Refer to Response 4.16.a, above. Mandatory payment of fair share fees will ensure that the required transportation system improvements are funded and that impacts will be less than significant.

c. *Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?*

No Impact. The project is not located close enough to any airports to influence air traffic patterns. Fullerton Municipal Airport is located approximately 6 miles to the west of the project site and John Wayne Airport is located approximately 15 miles to the south of the project site. No impacts are anticipated and no mitigation measures are required.

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

Less Than Significant Impact. The project would not include the construction of hazards (e.g., sharp curves or dangerous intersections). Although residential development is proposed within an area that is characterized by industrial development, this area is in transition and the existing land uses will be replaced with a variety of residential and non-residential uses that will comprise the TOD District. Therefore, because the project is consistent with the long-term plan for the project area and, furthermore, has been designed in accordance with the TOD District development standards, implementation of the proposed project would not result in incompatible uses with the surrounding developed area. Access to the project site must conform with all City design standards. The project would intensify residential development across the street from the planned Metrolink Station, consistent with the intent of the Packing House TOD District. It is expected that these residents would utilize the station. Currently there is no safe pedestrian access to the Metrolink Station site; however, the Metrolink preliminary plans do reference

pedestrian-friendly bridges. It is expected that pedestrian movement between the project site and Metrolink Station will be accommodated, but this will be a matter to be addressed by the City and OCTA as the Metrolink designs are refined. Overall, impacts regarding design features or incompatible uses would be less than significant.

e. Result in inadequate emergency access?

No Impact. Adequate emergency access would be provided during both short-term construction and long-term operation of the proposed project. No associated impact would occur. Refer also to Response 4.8.g.

f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

No Impact. The project is located within an approved TOD District and would be required to conform with the adopted design standards for that District. The project would intensify development adjacent to a planned Metrolink station, consistent with the intent of the TOD District to promote use of transit. Sidewalks would be constructed or maintained in conformance with City standards and the project would not adversely affect or preclude future improvements to any existing or planned public transit, bicycle, or pedestrian facilities. Therefore, project implementation would not conflict with adopted policies, plans, or programs supporting alternative transportation. No associated impacts would occur.

4.17 TRIBAL CULTURAL RESOURCES

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

CEQA Checklist Analysis

a. *Cause a substantial adverse change in the significance of a tribal cultural resource that is 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)?*

No Impact. The project site has been previously developed with industrial buildings and related facilities that were constructed between 1964 and the late 1970s. Pursuant to the HRER conducted for the project (ASM 2017) and Response 4.5.a above, no cultural resources listed (or eligible for listing in) the California Register of Historical Resources, or in a local register of historical resources, were documented on the project site, or observed during the field survey of the site by the project architectural historian. In addition, the project site is underlain by fill and no significant buried resources are anticipated to occur within the anticipated area and depth of disturbance for project grading and construction. Accordingly, no adverse changes in the significance of a tribal cultural resource that is eligible for listing would result from project implementation.

b. *Cause a substantial adverse change in the significance of a tribal cultural resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in Subdivision (c) of the Public Resources Code Section 5024.1?*

Potentially Significant Unless Mitigated. Pursuant to requirements under AB 52, ~~consultation~~ letters were sent by the City of Placentia to the following groups who have requested project notifications~~was conducted for the TOD District Project (which includes the proposed project site) with the following groups~~: ~~Gabrieleno~~Gabrieleño Band of Mission Indians, Kizh Nation; and Juaneño Band of Mission Indians, Acjachemen Nation. The ~~Gabrieleno~~Gabrieleño Band of Mission Indians has ~~since responded~~indicated that development within the ~~project area~~ TOD District and at the subject Crowther project site within that District ~~has~~ have sensitivity for tribal resources and requested consultation. ~~that~~ The City has committed that a Native American Monitor will be present during all ground-disturbing activities for the proposed project ~~within the District~~. The Juaneño Band of Mission Indians responded in an email that they did not have any comments with respect to the proposed project. ~~Additionally,~~The associated ~~letters~~ communications regarding the proposed project ~~have been sent to Native American tribes who have requested notification and~~ are included in Attachment I *Tribal Consultation*. ~~To date, no additional tribes have provided comments or requested monitoring. Responses to these recent letters will be included in the Final MND.~~

The project site is underlain by fill and ~~only minor~~ disturbance to native ground is anticipated to be minor during project grading and construction. The potential exists, however, to encounter tribal resources, and related impacts would be potentially significant. Implementation of Mitigation Measure **Cul-1** would reduce impacts related to tribal resources to less than significant.

4.18 UTILITIES AND SERVICE SYSTEMS

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
Would the project:				
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	□	□	□	■
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	□	■	□	□
c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	□	□	■	□
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	□	□	■	□
e. 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?	□	□	■	□
f. Be served by a landfill(s) with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	□	□	■	□
g. Comply with federal, state, and local statutes and regulations related to solid waste?	□	□	□	■

CEQA Checklist Analysis

a. *Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?*

No Impact. The project area is served by the Orange County Sanitation District (OCSD), which operates wastewater collection, treatment, and disposal of treated wastewater for a population of 2.6 million people in a 479-square mile service area across central and northwest Orange County. OCSD discharges treated wastewater under a NPDES permit issued by the California RWQCB Santa Ana Region (RWQCB 2012). Implementation of the proposed project would not exceed the existing treatment requirements imposed on the OCSD by the RWQCB. Wastewater generated by the proposed project would be residential in nature and would not contain constituents that would affect the waste discharge requirements imposed on OCSD's two treatment plants (Reclamation Plant No. 1 and Treatment Plant No. 2). The additional wastewater flows generated by the project would be treated in accordance with the current treatment requirements outlined in OCSD's NPDES permit, and no related impacts would occur.

b. *Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

Potentially Significant Unless Mitigated. The TOD District IS/MND states that projects in the TOD District must conduct a review of existing water consumption compared to the estimated water consumption by the proposed project. The existing industrial structures on the property are currently vacant and do not have a water demand, but when operational these uses would have had an estimated water demand of at least 2,950 gallons per day (gpd), based on a factor of 1,000 gpd per acre, and any new use occupying these buildings would be expected to have a similar demand. Based on the multi-family nature of the proposed development, the estimated water consumption rate for the proposed project is approximately 357 gpd per unit. With the proposed project design of 215 units, average daily water demand for the development would be approximately 76,775 gpd (i.e., 26,025 gpd per acre). Implementation of the proposed project would result in increased potable water demand.

Mitigation in the TOD District IS/MND further states that if a proposed project in the District would increase water consumption by 25 percent over the current water demand or 5,000 gpd per acre, the project applicant would be required to offset the increase by funding sufficient water conservation measures within the project area (including the proposed project). The projected water demand would be greater than that associated with the prior use of the site and would also exceed the threshold of 5,000 gpd per acre. The project shall therefore implement the following mitigation measure:

Uti-1 The project shall incorporate relatively small areas of low water use landscaping, as well as water-conserving features/measures to meet or exceed the current building code requirements. The project applicant shall also consult with the City and local water purveyor to determine project design measures that would provide an adequate level of water conservation. Specifically, these may include the following types of standard industry efforts: (1) use of low-flow/water efficient fixtures and appliances; (2) use of native/drought-tolerant landscaping varieties and/or artificial turf, wherever feasible, and using mulch in landscaped areas; (3) use of drip, micro-spray and/or other water-efficient irrigation systems, as well as capture/reuse systems and devices such as rain barrels; (4) use of "smart irrigation" technology where appropriate, such as pertinent watering schedules to reflect local plant/soil/climate conditions, moisture/precipitation and leak/pressure sensors, and automatic shut-off valves for applicable associated events/conditions such as precipitation and leaks; (5) use of recycling/closed water systems for features such as fountains and pools, and regular inspection/maintenance for all water-related features such as irrigation systems and water lines; and (6) provision of educational materials to residents/employees regarding reduction of water use for household and other applications (e.g., limiting washing machine use to full loads, reducing shower time, turning off water while brushing teeth, and using dry methods [sweeping] rather than a hose to clean paved areas).

Implementation of Mitigation Measure **Uti-1** would reduce impacts related to increased water demand associated with the proposed project to less than significant.

Water service in the City is provided by the Golden State Water Company (GSWC). Based on the GSWC Urban Water Management Plan (2016), projected water supply will be sufficient to meet water demands in the region under normal conditions, a single dry year, and multiple dry years through the year 2040. A Can and Will Serve Letter from the GSWC was issued for the proposed project in June 2017 (Attachment H) stating that water service is available and service would be provided from existing facilities within Crowther Avenue. Implementation of the proposed project would not be expected to require construction or expansion of water facilities.

Implementation of the proposed project would result in an increase of residential wastewater flows. Flows to the two OCSD wastewater treatment plants currently average 184 million gallons per day (mgd) (OCSD 2017). OCSD's treatment plants are designed to treat up to 372 mgd of primary treated wastewater and 332 mgd of secondary treated wastewater (RWQCB 2012). Based on the proposed fixtures that would be installed, the estimated sewer generation rate for the proposed project is 92 gpd per capita. With an estimated 667 new residents associated with the proposed project, wastewater flows from the development would total 61,364 gpd. Wastewater treatment facilities currently have sufficient capacity to treat wastewater flows from the proposed project. Implementation of the proposed project would not be expected to require construction or expansion of wastewater treatment facilities, and related impacts would be less than significant.

c. *Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

Less Than Significant Impact. Mitigation in the TOD District IS/MND requires an evaluation of proposed changes to storm water drainage associated with new projects in the District. Stormwater detention is required for proposed projects that would generate stormwater runoff that exceeds the existing volume or time of accumulation. As previously discussed in Section 4.9, the proposed project would result in a net reduction of runoff from the site due to a decrease in impervious surface area. Project runoff that is generated would be treated with a combination of structural and non-structural source control and LID treatment control BMPs. With these measures, project-related storm water drainage improvements would not result in significant environmental impacts.

d. *Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?*

Less Than Significant Impact. Refer to Response 4.18.b, above.

e. *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. Refer to Responses 4.18.a and 4.18.b, above.

f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?

Less Than Significant Impact. Construction activities, including the demolition and removal of the existing structures, would generate solid waste. The City Municipal Code (Title 8, Chapter 8.04.390) requires the diversion of at least 50 percent of all construction/deconstruction waste generated within the City. Additionally, compliance with the Orange County Waste and Recycling (OCWR) Construction & Demolition Program requires 65 percent diversion of solid waste associated with applicable construction and demolition projects. Applicants can achieve diversion through reuse, recycling, and/or composting of construction and demolition materials at County-approved facilities or use of a County Franchised Waste Hauler (OCWR 2017a). The project would comply with all applicable state and local requirements, and construction-related impacts would be less than significant.

Operational activities would result in generation of municipal solid waste resulting from residential activities. Municipal solid waste generated within the City is transported to the Olinda Landfill site in Orange County, which currently receives approximately 5,000 tons per day (tpd) of solid waste (County of Orange 2017c, OCWR 2017b). The landfill is permitted to receive 8,000 tpd, and is expected to reach capacity by 2030. Orange County has two additional landfill sites in unincorporated areas of the county, with a total permitted disposal allowance of 23,500 tpd and projected capacity to serve residents and businesses through 2067 (County of Orange 2017b and 2017d).

The Regional Landfill Options for Orange County (RELOOC) Strategic Plan identifies a number of strategies for expanding and/or preserving landfill capacity as population in the region grows (RELOOC 2001 and 2007). Strategies include the expansion of existing landfills, promotion of diversion and recycling, identification of alternative technologies or approaches, and an annual review of the RELOOC Strategic Plan to respond to disposal industry trends and advances in technology.

Sufficient landfill capacity exists or is planned in the region to serve the project; therefore, impacts would be less than significant.

g. Comply with federal, state, and local statutes and regulations related to solid waste?

No Impact. Refer to Response 4.17.f, above. The City Municipal Code, Chapter 8.04, regulates waste disposal in the City. Accordingly, the proposed project would comply with applicable, federal, State, and local statutes and regulations related to solid waste. No impact would occur.

4.19 MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant	Potentially Significant Unless Mit.	Less Than Significant	No Impact
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number, or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	□	■	□	□
b. Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?	□	□	■	□
c. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, and the effects of probable future projects.)	□	■	□	□
d. Does the project have environmental effects which will have substantial adverse effects on human beings, directly or indirectly?	□	□	□	■

CEQA Checklist Analysis

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

Potentially Significant Unless Mitigated. As described in Section 4.8, *Hazards and Hazardous Materials*, the potential occurrence of contaminated soil, LBP, and asbestos-containing materials could result in associated significant environmental impacts that could degrade the quality of the environment. Implementation of Mitigation Measures **Haz-1** and **Haz-2** would reduce these impacts to less than significant levels. The project would redevelop existing developed industrial parcels in an urban area devoid of native habitat and would not reduce the habitat of a fish or wildlife species, as no natural habitat would be removed, nor would the project cause a wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal. Refer to Section 4.4 for further discussion of these issue areas.

As described in Section 4.5, *Cultural Resources*, no substantial adverse change in the significance of historical resources is anticipated to occur as a result of project implementation; thus, the project would not eliminate important examples of the major periods of California history. While the potential to encounter cultural/archaeological resources during excavation is considered low, implementation of Mitigation Measure **Cul-1** would reduce potential impacts related to cultural/archaeological resources to less than significant levels.

b. *Does the project have the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals?*

Less Than Significant Impact. As outlined in the previous checklist responses, the project has the potential for short-term impacts during construction including ~~potentially significant impacts related to the proposed project would be limited to~~ the potential ~~occurrence of~~to encounter underground cultural resources, generate noise and traffic impacts, and remove hazardous materials ~~within~~ during demolition of the existing ~~site~~on-site facilities.~~,~~ There is also the potential for long-term traffic, light/glare, and utilities impacts. All of the identified~~these~~ potential impacts ~~to~~ would be reduced below a level of significance through implementation of identified mitigation. The project also has the potential for long-term environmental benefits including improvements in water quality and serving as the catalyst site for implementation of transit-oriented development within the Packing House District to revitalize this area of the City. ~~Based on this consideration and the fact that potential impacts for all other issue areas were determined to be absent or less than significant~~On balance, it is concluded that the project would not achieve short-term environmental goals to the disadvantage of long-term environmental goals, and associated potential impacts would be less than significant.

c. *Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means the project's incremental effects are considerable when compared to the past, present, and future effects of other projects.)*

~~Less Than~~Potentially Significant ~~Impact~~Unless Mitigated. Cumulative impacts are defined as two or more individual project effects that, when considered together or in concert with other projects, combine to result in a significant impact (CEQA Guidelines Section 15355). The proposed project consists of constructing a residential development on a site previously used for industrial/institutional activities. Based on the proposed site plan and the fact that the areas surrounding the project site are primarily developed, the potential for additional future development and construction within the site and vicinity is considered generally low. Because some potential for such future development or redevelopment activities exists, however, cumulative impacts are assessed for applicable topics. Specifically, in order for a project to contribute to cumulative impacts, it must result in some level of impact on a project-specific level. Accordingly, the following discussion addresses project-related effects for which some level of potential impact was identified. Based on this criterion, all categories included in the Environmental Checklist are addressed below except agriculture & forestry resources, biological resources, land use, and mineral resources.

Aesthetics: A number of sites within the District are likely to be redeveloped, consistent with the allowable uses adopted for the TOD zoning designation. If many of these parcels are simultaneously under construction, the appearance of the District would be that of a large construction zone. This cumulative aesthetic impact would last only for the duration of construction and the primary sensitive viewers who would be affected by both the proposed project and other construction within the District would be travelers along Crowther Avenue and new residents of the District. Due to the temporary nature of the construction impacts, the lack of scenic resources, and the lack of existing sensitive viewers who could be adversely impacted, the short-term, construction-related aesthetics impact would be less than significant. While the new buildings are expected to typically be taller than the existing structures in the District, each

development would be required to comply with the development standards for the District, which include preservation of historic structures/elements, enhanced pedestrian amenities, reduced on-street parking, various open space amenities and standards for lighting, signage and other elements that are intended to minimize adverse visual effects. Overall, the cumulative aesthetic impact of implementation of the proposed project and other developments within the District would be positive.

Air Quality/Greenhouse Gases: With regard to project-specific impacts that are not localized to the immediate project area, including air quality and greenhouse gas emissions, the baseline analysis often addresses the cumulative condition—it is the contribution to the larger picture that is assessed in analyses of consistency with regional air quality strategies and pollutant dispersal. This includes the effects of air pollutants, which disperse from their original source and affect entire air basins (or with global warming, potentially the entire world). As noted in Sections 4.3 and 4.7, this project's contribution to criteria pollutant and GHG emissions would be negligible and not cumulatively considerable and the project is in conformance with the AQMP. Project (and cumulative project) trip generation from the proposed project and other projects within the District would be minimized due to the TOD and pedestrian-oriented nature of these developments. Therefore, the project would not contribute to a cumulatively considerable decrease in air quality or increase in GHG emissions.

Cultural Resources/Tribal Resources: The existing buildings on the project site were determined not to be of significant historic value, and the potential for encountering buried cultural or paleontological resources during project grading would be low because the project site is underlain by four to six feet or more of artificial fill, and ground-disturbing activities during construction would not excavate substantially deeper into the underlying alluvium. The potential exists, however, for cultural/tribal resources to be buried in areas immediately below the artificial fill, and encountering such materials could result in potential impacts. Based on consultation with local tribes pursuant to AB 52, the Gabrieleño Band of Mission Indians has requested the presence of a Native American Monitor during project grading and for grading of all other related projects within the District. ~~The City has sent consultation letters to all local tribes that have requested such consultation, regarding the proposed project as well and has not received any comments or requests for additional monitoring to date. Any additional requests will also be addressed within the Final IS/MND for the proposed project.~~ Implementation of Mitigation Measure **Cul-1** and conformance by other future developments with AB 52 and the TOD District mitigation measures would reduce potentially significant cumulative tribal resources impacts to less than significant.

Geology and Soils: Because impacts related to geology and soils impacts are inherently restricted to the project site, the project would not contribute to associated cumulative impacts from other planned or proposed development.

Hazards/Hazardous Materials: The potentially significant hazardous materials impacts associated with the proposed project (i.e., potential lead and ACMs within on-site building materials to be demolished) also have the potential to occur for other potential cumulative redevelopment projects within the TOD District. The contribution of the proposed Crowther project to these cumulative impacts would be reduced to less than significant through implementation of Mitigation Measures **Haz-1** and **Haz-2**. Future related projects within the TOD District would be

subject to similar requirements pursuant to the TOD District IS/MND mitigation measures and mandatory regulatory compliance (e.g., construction-related hazardous material use and proper removal and disposal of hazardous building materials). As a result, associated impacts from the project and related cumulative projects would be reduced to less than significant.

Hydrology and Water Quality: The project and all related projects within the same watershed would be required to comply with applicable regulatory standards, which address these issues on a regional/watershed basis and therefore include cumulative considerations. The gradual redevelopment of the District would replace older industrial developments with newer mixed-use development that would be required to implement more effective water quality BMPs. The resulting cumulative effect with respect to water quality within the watershed would be less than significant and potentially a net positive effect.

Noise: A number of sites within the District are likely to be redeveloped, consistent with the allowable uses for the TOD. If many of these parcels are simultaneously under construction, the cumulative construction noise impact could be greater than that of the proposed project alone. This potentially significant impact would be temporary in nature and all of these future developments would be required to comply with the City's Noise Ordinance, as would the proposed project. Conformance by the proposed project and future development projects in the TOD District with the specified TOD construction noise mitigation measures would reduce the project contribution to cumulative construction noise impacts, and the overall cumulative construction noise impacts in the TOD District to less than significant levels.

As discussed in Section 4.16, project (and cumulative) trip generation within the District would be minimized due to the TOD and pedestrian-oriented nature of the development and therefore cumulative noise impacts would be less than significant.

Population: The project would not displace existing residents and would not contribute to such displacement within the TOD District. The City estimates that the approved TOD District GPA and zone change will lead to the overall development of 752 residential units in the City and increase the City's population by 1,550 people or approximately 4.5%. The project would contribute 215 residential units and approximately 495 new residents to this planned growth. Given that this area of the City is expected to have sufficient public service/utility infrastructure to accommodate this growth, the TOD and pedestrian-oriented nature of the District which is expected to translate into reduced traffic and demand upon local streets, and the plans for mixed-use development within the TOD District thereby adding both homes and jobs, the overall cumulative impact upon population within the District would be less than significant.

Public Services/Recreation: All projects within the District will be required to pay fair share in lieu fees as appropriate, and will generate property taxes, sales taxes and other local revenues that will benefit public services. In additional all residential developments are required to provide recreational amenities and both common and private open spaces. The resulting cumulative impact would therefore be less than significant.

Transportation: The cumulative impacts of full redevelopment of the TOD District have been addressed within the transportation study for the TOD District IS/MND (AGA 2016). Several intersections were identified as needing improvement based on the projected cumulative

Districtwide traffic impacts, as described above for Response 4.16.a. The City is currently developing a facilities benefit assessment that will determine the required fair share contribution toward the necessary transportation system improvements. The proposed project's contribution toward the cumulative impacts within the transportation system will be addressed via this required contribution and no significant cumulative impacts would occur. Pursuant to the TOD District IS/MND, all future redevelopment projects within the District will be required to implement a Construction Traffic Control Plan, which would also reduce potentially significant cumulative construction traffic impacts to less than significant. The project-related and Metrolink Station project pedestrian improvements would ensure that cumulative pedestrian safety impacts would be less than significant. As described in Section 4.16, the project would not contribute to any other transportation safety or airport-related impacts.

Utilities: The project would have a less than significant impact with respect to water and wastewater treatment, water supply/infrastructure, drainage and solid waste infrastructure/ services and would not substantially contribute to cumulative impacts with respect to these utilities. The infrastructure for these utilities is adequate to accommodate the anticipated cumulative development within the District. All developments must meet regulatory requirements associated with the incorporation of water-conserving features, storm water management, and recycling of demolition waste and long-term project waste materials. A sewer study is currently underway to verify that the main sewer line that serves the immediate project area has sufficient capacity to serve the potential cumulative demand that would occur as a result of development of the TOD District with the anticipated development densities. The results of the study will be available for the Final IS/MND. In the absence of this information at this time, a potentially significant impact is assessed with respect to wastewater infrastructure. Should improvements to the main sewer line be required, this work would occur entirely within public street rights of way and the impacts would be consistent with the construction-related impacts addressed throughout this IS/MND. The project contribution to these impacts would be mitigated by the water conservation mitigation that is provided by Measure **Uti-1**, and construction related effects would be mitigated by Measures **Aes-1**, **Cul-1**, and **Noi-2**, as well as other mandatory compliance with other regulatory requirements regarding water quality, hazardous materials handling, construction traffic control, etc., which would also apply to other cumulative developments within the TOD District. With implementation of these mitigation measures, cumulative impacts to sewer service would be less than significant.

In conclusion, cumulative impacts to public utilities associated with cumulative effects would be less than significant, with the exception of cumulative impacts to the sewer line serving the immediate project area, which could require improvements. If it is necessary to replace the sewer line, these potential impacts to sewer infrastructure would be reduced to less than significant with implementation of Mitigation Measures **Uti-1**, **Aes-1**, **Cul-1** and **Noi-2**.

d. *Does the project have environmental effects which will have substantial adverse effects on human beings, directly or indirectly?*

No Impact. With required adherence to regulatory codes, ordinances, regulations, standards, and guidelines, in conjunction with the discussed mitigation measures, construction and operation of the proposed project would not present a substantial adverse effect on human beings either directly or indirectly. In addition, all resource topics associated with the project have been analyzed in accordance with State CEQA Guidelines and found to pose no impact, less than significant impact, or less than significant impact with mitigation. Further environmental analysis is not required and no related impacts would occur.

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5.0 SUMMARY OF MITIGATION MEASURES

Aesthetics

Aes-1 Nighttime construction or security lighting, if required, shall be shielded, selectively placed, and directed toward the project site, so that light will not spill beyond the boundary of the project site onto off-site sensitive receptors, such as drivers, residents, or train operators.

Aes-2 Building design and/or lighting features shall be incorporated into the final project design to minimize glare, in conformance with the TOD District, such as: (1) overhangs and recessed windows to reduce potential glare from reflective windows; (2) landscaping near the buildings, such as trees along the street frontage, which would shade the building and reduce the potential for drivers to be affected by glare from reflective windows; and/or (3) non-reflective building materials.

Aes-3 Permanent lighting associated with the proposed development shall conform to the TOD District development standards and applicable City Municipal Code requirements. Examples of standard requirements include: (1) lighting along walkways, on exterior signage, within landscaped areas and in parking areas must be appropriately directed and shielded to reflect light away from the public right-of-way and from any adjoining residential premises; (2) lighting is not to blink, flash, flutter, or change light intensity, brightness, or color; and (3) neither direct nor reflected light from primary light sources shall create hazards for pedestrians or operators of motor vehicles. The developer shall submit a detailed lighting plan to the City for approval, prior to issuance of a building permit.

Cultural Resources

Cul-1 Construction monitoring and reporting shall be conducted by a qualified Archaeologist and a Native American monitor in all areas proposed for excavation/disturbance. At the monitors' discretion, monitoring may be reduced or eliminated if there is no indication that cultural resources are present. In the event that an unanticipated discovery of cultural material is made during project construction, all earth-disturbing work within the vicinity of the find must be temporarily suspended or redirected until the monitor has evaluated the nature and significance of the find. If the discovery proves to be significant, additional work, such as data recovery excavation, may be warranted. The treatment and disposition of archaeological materials that might be discovered during site development shall be in accordance with all applicable laws and regulations.

Hazards and Hazardous Materials

Haz-1 If hazardous substances are encountered during project grading, work shall cease and an immediate evaluation shall be conducted and appropriate remediation actions undertaken. The associated assessment and remediation/removal activities shall be conducted by trained, licensed/certified personnel, and in accordance with pertinent local, state, and federal regulatory guidelines, under the oversight of OCHCA. If additional contamination

is identified, an application would be submitted to OCHCA for review and comment under OCHCA's VICP. A mitigation plan would be prepared detailing the mitigation of on-site soils impacted by PCE and/or other contaminants, as applicable. The plan would be submitted to the OCHCA with the VICP application. Once approved, the mitigation plan would be implemented to the satisfaction of the OCHCA. Potential feasible measures could include, but are not limited to, on-site treatment or stabilization or removal of contaminated soil and disposal at an approved off-site location.

Haz-2 Prior to renovating and/or demolishing the on-site structures, the developer shall conduct a survey at the site to evaluate the extent of lead-based paint (LBP) and asbestos-containing materials (ACM) within those structures. All associated remediation and removal activities shall be conducted by trained, licensed/certified personnel, and in accordance with pertinent local, state, and federal regulatory guidelines, under the oversight of the appropriate regulatory agency.

Noise

Noi-1 Interior noise levels shall not exceed the Title 24 interior noise standard of 45 Community Noise Equivalent Level (CNEL) for residences. The following building materials shall be used in the construction of all units facing East Crowther Avenue and the railway to reduce interior noise to acceptable levels:

- Exterior walls shall have an STC 46 rating
- Windows shall have an STC 31 rating
- Exterior doors shall have an STC 28 rating
- Glass doors shall be at least 0.5 inch thick

Noi-2 The following measures shall be implemented during construction:

- Contractor shall establish a noise complaint response program and shall respond to any noise complaints received for future specific project by measuring noise levels at the affected receptor site. If the noise level exceeds an CNEL of 60 dBA exterior or an CNEL of 45 dBA interior at the sensitive receptor, the applicant will implement adequate measures (which may include portable sound attenuation walls, use of quieter equipment, shift of construction schedule to avoid the presence of sensitive receptors, etc.) to reduce noise levels to the greatest extent feasible.

- All construction equipment shall be operated with mandated noise control equipment (mufflers or silencers). Enforcement will be accomplished by random field inspections by applicant personnel during construction activities. Equipment not in use for five minutes shall be shut off.

- Equipment shall be maintained and operated such that loads are secured from rattling or banging.

- Where available, electric-powered equipment shall be used rather than diesel equipment and hydraulic-powered equipment shall be used instead of pneumatic power.

- Construction employees shall be trained in the proper operation and use of equipment consistent with these mitigation measures, including no unnecessary revving of equipment.

- No radios or other sound equipment shall be used at this site unless required for emergency response by the contractor.

- Public notice shall be given 10 days prior to initiating construction. This notice shall be provided to all property owners and residents within 300 feet of the project site and shall be provided to property owners/residents at least one week prior to initiating construction. The notice shall identify the dates of construction and the name and phone number of a construction supervisor (contact person) in case of complaints. One contact person shall be assigned to the project. The public notice shall encourage the adjacent residents to contact the supervisor in the case of a complaint. Residents would be informed if there is a change in the construction schedule. The supervisor shall be available 24/7 throughout construction by mobile phone. If a complaint is received, the contact person shall take all feasible steps to remove or attenuate the sound source causing the complaint.

Traffic

Tra-1 The project contractor would be required to prepare and implement a construction traffic control plan to the satisfaction of the City Traffic Engineer and in compliance with Manual of Uniform Traffic Control Devices (MUTCD) guidelines. The traffic control plan should include ingress and egress to and from the project site, as well as designated haul routes and construction staging areas, and must address the applicable construction traffic control measures listed in the adopted IS/MND for the approved TOD District, as listed below:

- Construction hours will be in accordance with the City Municipal Code.

- Construction traffic will utilize designated driveways along Crowther Avenue and will yield to public traffic when entering and exiting the project site.

- Parking for construction equipment and vehicles will be on the project site or within an approved nearby temporary use site. Such equipment and vehicles will utilize approved driveways to enter the site(s). Construction staging will also be on the site or another approved property, and not within the public streets.

- Trucks transporting equipment and materials to and from the site will use the designated truck routes along Placentia Avenue, Crowther Avenue, Melrose Street, and Orangethorpe Avenue, and will yield to public traffic at all times.

- All construction work within the public right-of-way, will be conducted in compliance with City standards and the construction site shall be posted with the name, company, and a phone number of a person to call for complaints.

- The developer will be responsible for repair of damages to public facilities caused by the hauling or transporting of construction related materials.

Utilities and Service Systems

Uti-1 The project shall incorporate relatively small areas of low water use landscaping, as well as water-conserving features/measures to meet or exceed the current building code requirements. The project applicant shall consult with the City and local water purveyor to determine project design measures that would provide an adequate offset of increased water consumption. Specifically, these may include the following types of standard industry efforts: (1) use of low-flow/water efficient fixtures and appliances; (2) use of native/drought-tolerant landscaping varieties and/or artificial turf, wherever feasible, and using mulch in landscaped areas; (3) use of drip, micro-spray and/or other water-efficient irrigation systems, as well as capture/reuse systems and devices such as rain barrels; (4) use of "smart irrigation" technology where appropriate, such as pertinent watering schedules to reflect local plant/soil/climate conditions, moisture/precipitation and leak/pressure sensors, and automatic shut-off valves for applicable associated events/conditions such as precipitation and leaks; (5) use of recycling/closed water systems for features such as fountains and pools, and regular inspection/maintenance for all water-related features such as irrigation systems and water lines; and (6) provision of educational materials to residents/employees regarding reduction of water use for household and other applications (e.g., limiting washing machine use to full loads, reducing shower time, turning off water while brushing teeth, and using dry methods [sweeping] rather than a hose to clean paved areas).

6.0 DETERMINATION AND PREPARERS

6.1 Determination. Based on 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 the mitigation measures described herein have been included in this project. 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.

6.2 De Minimis Fee Determination. (Chapter 1706, Statutes of 1990-AB 3158)

■ It is hereby found that this project involves no potential for any adverse effect, either individually or cumulatively, on wildlife resources and that a "Certificate of Fee Exemption" shall be prepared for this project.

☐ It is hereby found that this project could potentially impact wildlife, individually or cumulatively, and therefore fees shall be paid to the County Clerk in accordance with Section 711.4(d) of the Fish and Game Code.

6.3 Environmental Determination. The initial study for this project has been reviewed and the environmental determination, contained in Section V. preceding, is hereby approved:

Joe Lambert, Director of Development Services

6.4 Report Preparers

HELIX Environmental Planning, Inc

Tammy Ching, Principal
Dennis Marcin, Senior Environmental Specialist
Joanne Dramko, Principal Planner
Lara Barrett, Environmental Planner
Jason Runyan, Environmental Planner
Charles Terry, Principal Noise Specialist
Victor Ortiz, Principal Air Quality and GHG Specialist
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8.0 ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ADT	average daily trips
AEC	Advanced Environmental Concepts, Inc.
AGA	Albert Grover & Associates
ALUC	Airport Land Use Commission
AMSL	above mean sea level
AQMP	Air Quality Management Plan
ASM	ASM Affiliates, Inc.
ATCM	Airborne Toxics Control Measure
BACMs	best available control measures
BMPs	best management practices
BNSF	Burlington Northern Santa Fe
CAAQS	California Ambient Air Quality Standards
Cal-OSHA	California Occupational Safety and Health Administration
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers' Association
CARB	California Air Resources Board
CBC	California Building Code
CDC	California Department of Conservation
CEQA	California Environmental Quality Act
CFCs	chlorofluorocarbons
CGS	California Geological Survey
CH_4	methane
City	City of Placentia
CNEL	Community noise equivalent level
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalent
CSMP	Construction Site Monitoring Program
CY	cubic yards
dB	decibel
dBA	A-weighted decibel
District	Packing House District
Dodson	Tom Dodson & Associates
DU	Dwelling units
ECOS	ECOS, Inc.
ESA	Environmental Site Assessment
FTA	Federal Transportation Administration

g	Acceleration due to gravity
GHG	greenhouse gas
GPA	General Plan Amendment
gpd	gallons per day
GSWC	Golden State Water Company
HFCs	hydrofluorocarbons
HRER	Historic Resource Evaluation Report
HVAC	Heating, ventilation, and air conditioning
IS/MND	Initial Study/Mitigated Negative Declaration
J&E	Johnson, P. and Ettinger, R.
KHR	KHR Associates
LBP	lead-based paint
Leighton	Leighton and Associates, Inc.
L_{EQ}	noise equivalent
LID	Low Impact development
LOS	level of service
LST	localized significance threshold
M	Manufacturing
MEP	Maximum extent practicable
mgd	million gallons per day
MMRP	Mitigation Monitoring and Reporting Program
mph	miles per hour
MT	metric ton
MUTCD	Manual of Uniform Traffic Control Devices
N_2O	Nitrous oxide
NAAQS	National Ambient Air Quality Standards
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
O_3	ozone
OCHCA	Orange County Health Care Agency
OCSD	Orange County Sanitation District
OCWR	Orange County Waste and Recycling
OSHA	Occupational Safety and Health Administration
Pb	lead
PCE	tetrachloroethene
PM_{10}	Particulate matter (less than 10 microns in diameter)

$PM_{2.5}$	Particulate matter (less than 2.5 microns in diameter)
PYLUSD	Placentia-Yorba Linda Unified School District
REAP	Rain Event Action Plan
REC	Recognized environmental condition
RELOOC	Regional Landfill Options for Orange County
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SF	square foot or square feet
SF_6	sulfur hexafluoride
SO_2	sulfur dioxide
SO_X	sulfur oxides
SR	State Route
STC	Sound Transmission Class
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TOD	Transit-Oriented Development
TOD District	Packing House District TOD Project
tpd	tons per day
USEPA	U.S. Environmental Protection Agency
VdB	vibration decibel
VICP	Voluntary Industrial Cleanup Program
VOC	volatile organic compound
WQMP	Water Quality Management Plan
µg/L	micrograms per liter

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Attachment A

Air Quality/GHG Analysis

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HELIX Environmental Planning

July 5, 2017 IPQ-23

Mr. Edward A. Galigher
Integral Communities
888 San Clemente, Suite 100
Newport Beach, CA 92660

Subject: Air Quality and Greenhouse Gas Emissions Impact Assessment for the Placentia Crowther Project

Dear Mr. Galigher:

This letter summarizes the air quality and greenhouse gas (GHG) emissions analysis for the proposed Placentia Crowther Project (Project). The Project, located along the south side of East Crowther Avenue, approximately 0.12 mile east of South Melrose Street and 100 feet west of Cameron Street in the City of Placentia (City), California, proposes the demolition/removal of existing vacant industrial/warehouse buildings and associated facilities, and the construction of a multi-family residential development and related amenities. The proposed development would include approximately 256,482 square feet of residential area and 179,800 square feet of a parking structure.

Methodology

Emissions were quantified using the California Emission Estimator Model (CalEEMod), Version 2016.3.1. CalEEMod is a computer model developed by South Coast Air Quality Management District (SCAQMD) with the input of several air quality management and pollution control districts to estimate criteria air pollutant emissions and greenhouse gas emissions from various urban land uses. CalEEMod has the ability to calculate both mobile (i.e., vehicular) and area or stationary source emissions (SCAQMD 2016a). CalEEMod contains OFFROAD2011 emission factors and EMFAC2014 emission factors from the California Air Resources Board's (CARB's) models for off-road equipment and on-road vehicles, respectively. For modeling purposes, construction of the Project is assumed to occur over the course of approximately 18 months, starting in June 2018. If construction is delayed or occurs over a longer time period, emissions could be reduced because of (1) a more modern and cleaner burning construction equipment fleet mix, and/or (2) a less intensive buildout schedule (i.e., fewer daily emissions occurring over a longer time interval). A complete listing of the assumptions used in the analysis and model output is provided as Attachment A of this letter.

Air Quality

Consistency with Air Quality Plans

The Project is located in the Orange County portion of the South Coast Air Basin (SCAB), where the SCAQMD is the agency principally responsible for comprehensive air pollution control. The SCAQMD, a regional agency, works directly with the Southern California Association of Governments (SCAG), County transportation commissions, and local governments, and cooperates actively with all federal and State government agencies. The SCAQMD develops rules and regulations; establishes permitting requirements for stationary sources; inspects emissions sources; and enforces such measures through educational programs or fines, when necessary.

The SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources. It has responded to this requirement by preparing a sequence of Air Quality Management Plans (AQMPs). An AQMP establishes a program of rules and regulations directed at attaining the National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS). The regional plan applicable to the proposed Project is the SCAQMD's AQMP.

On March 3, 2017, the SCAQMD adopted the 2016 AQMP, which is a regional and multi-agency effort (SCAQMD, CARB, SCAG, and U.S. Environmental Protection Agency). The 2016 AQMP incorporates the latest scientific and technical information and planning assumptions, including the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS); updated emission inventory methodologies for various source categories; and SCAG's latest growth forecasts (SCAQMD 2016b).

The main purpose of an AQMP is to bring an area into compliance with the requirements of federal and state air quality standards. For a project to be consistent with the AQMP, the project should not (1) result in emissions that exceed the SCAQMD California Environmental Quality Act (CEQA) air quality significance thresholds or (2) conflict with or exceed the assumptions in the AQMP. With respect to the first criterion, as shown below, pollutant emissions from the proposed Project would be less than the SCAQMD thresholds. With respect to the second criterion, although the project would be consistent with the existing TOD District, it should be noted that the development intensities for the TOD District were adopted following certification of the 2016 AQMP and are, therefore, not included in the 2016 AQMP. Even though the project's land use is not consistent with the land uses analyzed in the 2016 AQMP, the project is clearly consistent with SCAG regional programs.

SCAG's 2016 RTP/SCS Plan identifies coordinated transportation and land use planning strategies intended to reduce GHG emissions in accordance with SB 375 and to benefit regional quality of life. The RTP/SCS Plan emphasizes placing high intensity housing and jobs in locations with existing high-quality transit infrastructure that make daily travel via transit or active transportation (biking, walking, etc.) feasible and attractive alternatives to single occupancy vehicle travel. The project is designed to achieve this specific goal with the inclusion of sidewalks, on-site bicycle parking, and most importantly, close proximity to mass transit,

including the new Placentia Metrolink Station. The site is located within a high quality transit area and future TOD development will be within reasonable walking distance of mass transit.

The project would be consistent with SCAG 2016 RTP/SCS Goals as summarized below.

RTP/SCS Goal 1: Align the plan investments and policies with improving regional economic development and competitiveness.

Consistent. The project would replace existing vacant industrial buildings with a transit oriented development to take advantage of a new Metrolink Station adjacent to the site.

RTP/SCS Goal 2: Maximize mobility and accessibility for all people and goods in the region.

Consistent. Through a combination of higher density development; connections to mass transit systems; and incorporation of new mass transit features, the project fulfills this goal.

RTP/SCS Goal 3: Ensure travel safety and reliability for all people and goods in the region.

Consistent. The project will project will re-construct roadways within and surrounding the project site to their ultimate or half-width paved sections. Through fair share contributions improvements to the connecting circulation system will be enhanced. Both routine and emergency response will be enhanced to the project area.

RTP/SCS Goal 4: Preserve and ensure a sustainable regional transportation system.

Consistent. The project will contribute to a sustainable regional transportation system through creation of high density residential development combined with high quality connections to both the local and regional transportation systems. The project is designed specifically to sustain alternative transportation systems to the automobile.

RTP/SCS Goal 5: Maximize the productivity of our transportation system.

Consistent. By creating high density residential adjacent to the new Metrolink Station, the project will maximize productivity of the local and regional transportation systems.

RTP/SCS Goal 6: Protect the environment and health of our residents by improving air quality and encouraging active transportation (e.g., bicycling and walking).

Consistent. The project includes sidewalks and on-site bicycle parking that would promote opportunities for pedestrian and bicycle travel. The specific goal of the land use designation is to reduce vehicle trips and related air pollutant emissions while encouraging active alternative modes of transportation.

RTP/SCS Goal 7: Actively encourage and create incentives for energy efficiency, where possible.

Consistent. The project would replace existing older industrial buildings. This transition to modern energy efficient structures will result in substantial energy savings.

RTP/SCS Goal 8: Encourage land use and growth patterns that facilitate transit and active transportation.

Consistent. The project design includes sidewalks and bike trails and connections to mass transit that will facilitate use of transit and active transportation modes throughout the project area. The project is anticipated to foster a substantial reduction in average vehicle trip length, per capita vehicle miles traveled, and the percent of drive-alone vehicle trips.

RTP/SCS Goal 9: Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies.

Consistent. The project would have no direct impact on system monitoring, rapid recovery planning, or coordination with other security agencies. However, the project would generate on-going demand and funds that are indirectly designed to make the new Metrolink Station and other mass transit and alternative modes of transportation successful.

The project would, therefore, be consistent with SCAG regional programs to promote the use of alternative modes of transportation. As such, the proposed Project would not conflict with the 2016 AQMP and would not result in a significant impact.

Conformance to Federal and State Air Quality Standards

The SCAQMD establishes significance thresholds to assess the regional impact of Project-related air pollutant emissions in the SCAQMD. Table 1, *SCAQMD Criteria Pollutant Mass Emissions Significance Thresholds*, summarizes the SCAQMD's mass emissions thresholds, which are presented for both long-term operational and short-term construction emissions. A Project with emission rates below these thresholds is considered to have a less than significant effect on air quality.

Table 1
SCAQMD CRITERIA POLLUTANT MASS EMISSIONS SIGNIFICANCE THRESHOLDS
(pounds per day)

Criteria Pollutant	Construction	Operation
Volatile Organic Compounds (VOCs)	75	55
Oxides of Nitrogen (NO_X)	100	55
Carbon Monoxide (CO)	550	550
Oxides of Sulfur (SO_X)	150	150
Particulate Matter (PM_{10})	150	150
Particulate Matter ($PM_{2.5}$)	55	55

Source: SCAQMD 2015

Regional Construction Impacts

The proposed Project would result in emissions during construction activities. These emissions would be limited and short term. Construction emissions include those associated with the transport of construction materials and equipment to the site, and emissions associated with equipment operation and soil movement at the site. Other construction-related emissions would occur as a result of workers' vehicles traveling to and from the Project site for construction activities. Table 2, *Construction Equipment Assumptions*, includes the assumed amount of equipment to be used during each activity of Project construction. See Attachment A for additional model assumptions.

Table 2
CONSTRUCTION EQUIPMENT ASSUMPTIONS

Equipment Type per Construction Activity	Number of Pieces[1]	Horsepower[2]
Demolition		
Concrete/Industrial Saws	1	81
Rubber Tired Dozers	1	247
Tractors/Loaders/Backhoes	3	97
Site Preparation		
Graders	1	187
Scrapers	1	367
Tractors/Loaders/Backhoes	1	97
Grading		
Graders	1	187
Rubber Tired Dozers	1	247
Tractors/Loaders/Backhoes	2	97

Table 2 (cont.)
CONSTRUCTION EQUIPMENT ASSUMPTIONS

Equipment Type per Construction Activity	Number of Pieces[1]	Horsepower[2]
Building Construction		
Cranes	1	231
Forklifts	2	89
Generator Sets	1	84
Tractors/Loaders/Backhoes	1	97
Welders	3	46
Paving		
Cement and Mortar Mixers	1	9
Pavers	1	130
Paving Equipment	1	132
Rollers	2	80
Tractors/Loaders/Backhoes	1	97
Architectural Coating		
Air Compressors	1	78

Notes:
[1] CalEEMod default list of off-road equipment. 2016.
[2] Equipment horsepower contained in CalEEMod.

Maximum daily emissions for the peak work day are shown in Table 3, *Daily Construction Emissions*. As shown, emissions of all criteria pollutants are below the SCAQMD daily thresholds. Thus, regional construction impacts would be less than significant and no mitigation is required.

Table 3
DAILY CONSTRUCTION EMISSIONS

Construction Phase	Pollutant Emissions (pounds per day)					
	VOC	NO_X	CO	SOx	PM_{10}	$PM_{2.5}$
Demolition	3	26	16	<0.1	3	2
Site Preparation	2	24	13	<0.1	3	1
Grading	3	49	17	<0.1	9	5
Building Construction	4	28	26	<0.1	4	2
Paving	1	13	12	<0.1	1	1
Architectural Coating	60	2	3	<0.1	1	<0.5
Maximum Daily Emissions	**61[1]**	**49**	**26**	**<0.1**	**9**	**5**
Significance Thresholds	75	100	550	150	150	55
Significant Impact?	***No***	***No***	***No***	***No***	***No***	***No***

Source: SCAQMD 2015 (Thresholds)
CalEEMod output data provided in Attachment A.
[1] Maximum VOC emissions occur when paving and architectural coatings overlap.

Localized Construction Impacts

The localized effects from the on-site portion of daily emissions were evaluated at sensitive receptor locations potentially impacted by the Project according to the SCAQMD's localized significance threshold (LST) methodology, which utilizes on-site mass emissions rate look up tables and project-specific modeling, where appropriate. LSTs are applicable to the following criteria pollutants: nitrogen oxides (NO_X), carbon monoxide (CO), particulate matter smaller than 10 microns in diameter (PM_{10}), and particulate matter with a diameter of 2.5 microns or less ($PM_{2.5}$). LSTs represent the maximum emissions from a project that are not expected to cause or contribute to an exceedance of the most stringent applicable federal or State ambient air quality standard, and are developed based on the ambient concentrations of that pollutant for each source receptor area and distance to the nearest sensitive receptor. For PM_{10} and $PM_{2.5}$, LSTs were derived based on requirements in SCAQMD Rule 403, Fugitive Dust. The mass rate look-up tables were developed for each source receptor area and can be used to determine whether or not a project may generate significant adverse localized air quality impacts. The SCAQMD provides LST mass rate look-up tables for projects that are less than or equal to five acres.

When quantifying mass emissions for localized analysis, only emissions that occur on-site are considered. Consistent with the SCAQMD's LST methodology guidelines, emissions related to off-site delivery/haul truck activity and employee trips are not considered in the evaluation of localized impacts. The LST thresholds for a 2-acre site located in Source Receptor Area 16, North Orange County, with receptors at a distance of 50 meters were used (the nearest sensitive receptor [residential] is approximately 76 meters from the property). The results of the LST analysis are provided in Table 4, *Localized Construction Emissions*. As shown in Table 4, localized emissions for all criteria pollutants would be less than their respective SCAQMD LST significance thresholds. Thus, impacts would be less than significant and no mitigation is required.

Table 4
LOCALIZED CONSTRUCTION EMISSIONS

Construction Phase	Pollutant Emissions (pounds per day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Demolition	24	15	3	2
Site Preparation	24	13	3	1
Grading	24	10	8	4
Building Construction	21	16	1	1
Paving	13	12	1	1
Architectural Coating	2	2	<0.5	<0.5
Maximum Daily On-site Emissions	**24**	**16**	**8**	**4**
SCAQMD LSTs	143	1,010	17	6
Significant Impact?	***No***	***No***	***No***	***No***

Source: SCAQMD 2009 (Thresholds)
CalEEMod output data provided in Attachment A.

As required by Rule 403 (SCAQMD 1976) and the approved Packing House TOD District in which the Project is located, the following Best Available Control Measures would be applicable to the proposed project during active operations capable of generating fugitive dust emissions from on-site earth-moving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads:

- Water or a stabilizing agent will be applied to exposed surfaces to prevent generation of dust plumes.
- The construction contractor will utilize at least one of the following measures at each vehicle egress from the project site to a paved public road:
  - Install a pad consisting of washed gravel maintained in clean condition to a depth of at least 6 inches and extending at least 30 feet wide and at least 50 feet long;
  - Pave the surface extending at least 100 feet and at least 20 feet wide;
  - Utilize a wheel shaker/wheel spreading device consisting of raised dividers at least 24 feet long and 10 feet wide to remove bulk material from tires and vehicle undercarriages; and/or
  - Install and utilize a wheel washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the site.
- All haul trucks hauling soil, sand, and other loose materials will be covered (e.g., with tarps or other enclosures that would reduce fugitive dust emissions).
- Construction activity on unpaved surfaces will be suspended when wind speed exceeds 25 miles per hour (mph; such as instantaneous gusts).
- Heavy-duty equipment operations shall be suspended during first and second stage smog alerts.
- Ground cover in disturbed areas shall be replaced as quickly as possible.

Toxic Air Contaminants

The greatest potential for toxic air contaminant (TAC) emissions during construction would be related to diesel particulate emissions associated with heavy equipment operations during construction activities. The assessment of cancer risk is typically based on a 70-year exposure period. The SCAQMD does not consider diesel-related cancer risks from construction equipment to be an issue due to the short-term nature of construction activities. Construction activities associated with the proposed Project would be short term (approximately 18 months), especially when compared to the 70-year exposure period. As such, construction of the proposed Project is not anticipated to result in an elevated cancer risk.

As a residential project, the proposed Project would not result in toxic air contaminants during operation. As such, Project-related toxic emission impacts during construction and operation would be less than significant and no mitigation is required.

Regional and Local Operational Impacts

Once construction activity is complete, there would be long-term emissions associated with area, energy, and mobile sources; however, as shown in Table 5, *Daily Operation Emissions*, these emissions would be below the SCAQMD thresholds. Therefore, the proposed Project would not violate air quality standards or contribute substantially to an existing or projected air quality violation. Impacts would be less than significant.

Table 5
DAILY OPERATION EMISSIONS

Source	Pollutant Emissions (pounds per day)					
	ROG	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
Area	6	<0.5	18	<0.1	<0.1	<0.1
Energy	<0.1	1	<0.5	<0.1	<0.1	<0.1
Mobile	2	7	21	<0.1	7	2
Maximum Daily Emissions	**8**	**8**	**39**	**<0.1**	**7**	**2**
Significance Thresholds	55	55	550	150	150	55
Significant Impact?	***No***	***No***	***No***	***No***	***No***	***No***

Source: SCAQMD 2015 (Thresholds)
CalEEMod output data provided in Attachment A.

Cumulatively Considerable Net Increase

SCAQMD's approach for assessing cumulative impacts is based on the AQMP forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and state Clean Air Acts. As discussed above, the proposed Project would be consistent with the AQMP, which is intended to bring the SCAB into attainment for all criteria pollutants. In addition, and as discussed above, daily emissions during Project construction would not exceed the SCAQMD significance thresholds. Accordingly, cumulative impacts would be less than significant.

Sensitive Receptors

As described above, the proposed Project would not result in any substantial TAC impacts. Construction criteria pollutant emissions would be less than the LST emissions thresholds. Therefore, Project construction would not expose any nearby sensitive receptors to substantial pollutant concentrations. As such, the proposed Project would have a less than significant impact and no mitigation is required.

Odors

According to the SCAQMD's CEQA Air Quality Handbook, land uses associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding (SCAQMD 1993). The proposed Project does not include any uses identified by the SCAQMD as being associated with odors and therefore would not produce objectionable long-term operational odors.

Short-term Project construction equipment and activities would generate odors from diesel exhaust emissions. There may be situations where construction activity odors would be noticeable by nearby residents and/or persons working at or visiting the nearby industrial buildings, but these odors would not be unfamiliar or necessarily objectionable. The odors would be temporary and would dissipate rapidly from the source with an increase in distance. Therefore, the impacts would be short-term; would not be objectionable to a substantial number of people; and would be less than significant. In addition, operation of the Project would not generate objectionable odors. As such, the proposed Project would have a less than significant impact in regard to objectionable odors.

Greenhouse Gases

Global climate change refers to changes in average climatic conditions on Earth, as a whole, including temperature, wind patterns, precipitation, and storms. Global temperatures are moderated by naturally occurring atmospheric gases, including water vapor, carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O), as well as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). These "greenhouse" gases (GHGs) allow solar radiation (sunlight) into the Earth's atmosphere, but prevent radiative heat from escaping, thus warming the Earth's atmosphere. GHGs are emitted by both natural processes and human activities. Concentrations of GHGs have increased in the atmosphere since the industrial revolution. Human activities that generate GHG emissions include combustion of fossil fuels (CO_2 and N_2O); natural gas generated from landfills, fermentation of manure and cattle farming (CH_4); and industrial processes such as nylon and nitric acid production (N_2O).

Regulations

Assembly Bill (AB) 32, the California Global Warming Solutions Act, established a stated goal of reducing GHG emissions to 1990 levels by the year 2020. As a follow-up to AB 32 and in response to EO B-30-15, Senate Bill (SB) 32 was passed by the California legislature in August 2016 and signed by Governor Brown in September 2016 to codify the EO's California GHG reduction target of 40 percent below 1990 levels by 2030.

There are no established federal, state, or local quantitative thresholds applicable to the Project to determine the quantity of GHG emissions that may have a significant effect on the environment. CARB, the SCAQMD, and various cities and agencies have proposed, or adopted on an interim basis, thresholds of significance or threshold levels that require the implementation of GHG emission reduction measures. Because the Project is a residential development project, the

SCAQMD adopted interim screening threshold of 3,000 metric tons of CO_2 equivalent (MT CO_2e) is being used for Project consistency with CEQA (SCAQMD 2008).

Emissions

Construction GHG emissions are generated by vehicle engine exhaust from construction equipment, on-road truck trips, and worker commuting trips. Construction GHG emissions were calculated by using CalEEMod. The model and construction assumptions are described above, in the Air Quality section, and are provided in Attachment A. The results are output in MT CO_2e. The estimated construction GHG emissions for the Project are shown in Table 6, *Construction GHG Emissions*.

Table 6
CONSTRUCTION GHG EMISSIONS (MT/yr)

Construction Activity	CO_2e[1]
Demolition	39
Site Preparation	5
Grading	33
Building Construction	885
Paving	12
Architectural Coating	10
TOTAL	**983**
Amortized Construction Emissions[2]	33

Source: CalEEMod emissions modeling by HELIX 2017 (output data is provided in Attachment A).
[1] Totals reflect rounding.
[2] Construction emissions are amortized over 30 years.

GHG emissions generated from construction activities are finite and for a relatively short-term period of time. Unlike the numerous opportunities available to reduce a project's long-term GHG emissions through design features, operational restrictions, use of green-building materials, etc., GHG emissions-reduction measures for construction equipment are relatively limited. As such and in accordance with the SCAQMD's recommendations, construction emissions are amortized over a 30-year project lifetime. As shown in Table 6, *Construction GHG Emissions*, the 30-year amortized construction emissions would be 33 MT CO_2e per year.

Once construction activity is complete, the Project would result in operational emissions. As shown in Table 7, *Estimated Annual GHG Emissions*, the estimated increase in annual GHG emissions, including amortized construction emissions, would be 2,037 MT CO_2e per year. This value may be compared with and is less than the SCAQMD threshold of 3,000 MT CO_2e per year. It is accepted as very unlikely that any individual development project would have GHG emissions of a magnitude to directly impact global climate change; therefore, any impact would be considered on a cumulative basis. Because the proposed Project's GHG emissions would be less than the SCAQMD threshold, the emissions would not be cumulatively considerable. The impact would be less than significant; no mitigation is required.

Table 7
ESTIMATED ANNUAL GHG EMISSIONS (MT/yr)

Emission Sources	CO_2	CH_4	N_2O	CO_2e
Area	4	<0.1	0	4
Energy	615	<0.1	<0.1	617
Mobile	1,270	<0.1	0	1,271
Waste	10	1	0	25
Water	75	<0.5	<0.1	87
Operational Subtotal	**1,973**	**1**	<0.1	**2,004**
Construction Emissions[1]	-	-	-	33
TOTAL PROJECT	-	-	-	**2,037**
Screening Threshold[2]				**3,000**
Significant Impact?				***No***

Source: CalEEMod emissions modeling by HELIX 2017 (output data is provided in Attachment A).
[1] Construction emissions are amortized over 30 years.
[2] SCAQMD 2008.

Consistency with Applicable Plans

The proposed Project would not constitute a significant source of GHG emissions, and would not result in emissions that would adversely affect state-wide attainment of GHG emission reduction goals as described in AB 32 or SB 32. Project emissions would, therefore, have a less than cumulatively considerable contribution to global climate change impacts. Impacts would be less than significant.

The Project is also subject to the development standards and requirements associated with the approved Packing House TOD District. For air quality/GHG purposes, the following actions are required:

Summary

The Project would result in construction and operational emissions of criteria pollutants and GHGs; however, emissions would not exceed applicable SCAQMD thresholds. No mitigation measures are recommended.

Sincerely,

Amy Mila de la Roca
Air Quality Specialist

Victor Ortiz
Senior Air Quality Specialist

Attachments:

A – California Emission Estimator Model (CalEEMod)™ Results

References

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Attachment B

Historic Resource Evaluation Report

ASM affiliates
Archaeology • History • Ethnography • Architectural History

May 19, 2017

Tammy Ching
Vice President
HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, California 91942

Historic Resource Evaluation for 110 and 132 East Crowther Avenue, Placentia, Orange County, California

Dear Ms. Ching,

This letter report provides the results of the analysis of the historical significance of buildings at 110 and 132 East Crowther Avenue, Placentia, Orange County, California conducted by ASM Affiliates, Inc. (ASM). ASM evaluated the buildings for eligibility for listing in the National Register of Historic Places (NRHP), California Register of Historical Resources (CRHR), City of Placentia local register, and as a California Environmental Quality Act (CEQA) historical resource. The results of this analysis will assist Integral Communities in determining whether or not the properties need to be considered historically significant for future planning purposes in compliance with CEQA. This letter report is divided into the following sections: Introduction, Methodology, Brief Historic Context, Architectural Description, Eligibility Criteria, Evaluation of Eligibility, and Conclusion. References are included as Attachment A; Attachment B contains the Department of Parks and Recreation (DPR) 523 site record forms.

INTRODUCTION

ASM prepared this historical evaluation to determine the historical and architectural significance of buildings located at 110 and 132 East Crowther Avenue, Placentia, Orange County, California. The Assessor's parcel number is 339-091-09 for 110 and 339-091-08 for 132. The properties are located in an industrial section of a manufacturing and transportation corridor (Crowther Boulevard).

Neither 110 nor 132 East Crowther Avenue has been listed previously in the NRHP, CRHR, or the City of Placentia local register, nor are they listed as California Points of Historical Interest or California Historical Landmarks. In this letter report, ASM evaluates 110 and 132 East Crowther Avenue for their eligibility for designation on the national, state, and local levels as individual resources and as potential contributors to a historic district.

METHODOLOGY

In evaluating 110 and 132 East Crowther Avenue, ASM considered several factors relevant to making a recommendation of eligibility, including:

- the history of Placentia;
- the history of the buildings' construction, use, and associations with Placentia;
- the history of the surrounding community and the buildings' relationship to that community;
- the buildings' association with important people or events;
- whether or not the buildings are the works of a master architect, craftsman, artist, or landscaper;
- whether the buildings are representative of a particular style or method of construction; and
- whether the buildings have undergone structural alterations over the years, the extent to which such alterations have compromised their historical integrity, and the current condition of the property.

ASM conducted an intensive-level field survey on May 2, 2017, to document 110 and 132 East Crowther Avenue. The intensive-level field survey was conducted by ASM Architectural Historian Laura Taylor Kung. During the survey, multiple photographs were taken of the buildings (interior and exterior) to document the resources and their setting. The buildings' plans, architectural features, condition, and historical integrity were noted. In order to determine whether the buildings might be associated with a potential historic district, particular attention was paid to the surrounding neighborhood, including a brief windshield survey. DPR 523 site record forms were prepared to document this field survey and are provided in Attachment B.

To develop the appropriate historic context from which to evaluate the property, Ms. Kung also conducted archival research at the Local History Room at the Placentia Public Library. To determine the site-specific history and confirm construction dates, Ms. Kung was also able to view the original building plans for 110 East Crowther as they were retained by the owner on site. ASM also consulted historic maps and aerial photos to further understand the development of the neighborhood (Historicaerials.com 1963, 1966, 1972, 2012). Sources consulted to develop the appropriate historic context and building-specific information included population data from the United States Census Bureau, zoning maps, the City's general plans, city directories, building permits, historical aerials and topographic maps, and other similar sources.

ASM also requested a records search of a ¼ mile radius surrounding the project area from the South Central Coastal Information Center (SCCIC). As of May 19th, the results of that search are still pending.

BRIEF HISTORIC CONTEXT

Spanish and Mexican Periods

Spanish explorer Juan Rodríguez Cabrillo first encountered California in 1542, claiming it for the King of Spain. More than two centuries later, in 1769, Spain sent Catholic missionaries and Spanish soldiers to colonize California. Don Gaspar de Portolá led the first overland expedition through Orange County that summer. In 1771, Father Junípero Serra founded Mission San Gabriel in what is now Los Angeles County. Five years later, on November 1, 1776, Mission San Juan Capistrano was founded. The two missions laid claim to much of what would become Orange County.

In 1837, Juan Pacifico Ontiveros was granted title to the Rancho San Juan Cajon de Santa Ana by Governor Juan Alvarado. This land grant included the area that today comprises Placentia, Anaheim, Fullerton, and Brea. Ontiveros lived in an adobe house he built near the intersection of today's Crowther Avenue and Kraemer Boulevard. The adobe, which had been the oldest continuously occupied residence in Orange County, was destroyed in the late 1970s to make way for development.

After Mexican independence from Spain in 1821, the process of dismantling of the mission system began to unfold. The 1833 Secularization Act passed by the Mexican Congress ordered half of all mission lands to be transferred to the Native Americans, with the other half to remain in trust and managed by an appointed administrator. These orders were never implemented due to several factors that conspired to prevent the Native Americans from regaining their patrimony. The missions, including the San Gabriel Mission, were secularized by 1835. The Mexican War of the late 1840s ended with the Treaty of Guadalupe Hidalgo, and in 1850, California became a state.

American Period

Ontiveros raised cattle on the rancho until 1857, when he sold part of the land that would become Anaheim to German settlers. Ontiveros moved to Santa Maria, sold all but 3,900 acres of the rancho to Abel Stearns, and gave the remainder of the rancho to his sons. Stearns continued cattle ranching until he went bankrupt during a severe drought and his land was subdivided. The sons sold their 3,900 acres to their brother-in-law. In 1865, 3,900 acres were sold to Daniel Kraemer. Three years later, William McFadden and his wife, Sarah Jane, acquired 100 additional acres in the area. Many other settlers arrived in the following years. Residents built churches and schools as the community slowly developed. The new settlers created a school and irrigation district in 1873 and 1874. In 1876, the settlement was named Placentia, which is Latin for "pleasant place" (Crawford 2007).

The first crops grown in the area included walnuts, vegetables, and lower quality oranges. This changed when the founder of Orange, Alfred B. Chapman, imported the first Valencia orange trees. In 1880, Richard Gilman established the first commercial Valencia orange grove on the eastern edge of Placentia. These oranges proved to be very popular, and orange groves were soon planted throughout the area. Before the founding of Fullerton, citrus growers had to ship their oranges to

the Atchison, Topeka, and Santa Fe Railroad (ATSF) station in Anaheim. By 1894, so many oranges were being produced that a packinghouse was built in the area.

In 1910, the Santa Fe Railroad built tracks into the area and built a depot on land donated by Samuel Kraemer. Richard Melrose and A. S. Bradford then laid out land they owned near the tracks into several blocks, which quickly became residential and commercial buildings. Placentia did not expand much beyond this fraction of a square mile in the next 50 years, but it became a major center for processing oranges as local growers' associations built packinghouses along the railroad tracks (Gardner 2007).

The boundaries of the original town site were Chapman Avenue on the north, Crowther Avenue on the south, Bradford Avenue on the east, and Melrose Street on the west. In 1911, the land that would later become Walnut, Murray and Baker streets was added to the town. Brick and concrete business buildings were constructed along the 100 block of West Santa Fe Avenue, and packinghouses and industrial plants were erected along Crowther Avenue.

Twentieth-Century Placentia

In March of 1919, an oil well on land owned by Charles C. Chapman exploded into a gusher that lasted for several days. By the mid-1920s, derricks dotted the landscape of northern and eastern Placentia. The town of Richfield, later named Atwood, was built to house the oil workers (Carpenter 1977:21). The oil and rich land attracted more residents interested in farming walnuts, avocados, and grapes, but citrus remained the biggest agricultural attraction. Placentia became the center of the Valencia orange growing and packing industry, and in 1926 the city's 800 residents decided to incorporate (City of Placentia 1989). The original town contained 115 acres, 60 of which were subdivided into residential, commercial, and industrial lots north and south of the Santa Fe Railroad line. From 1926 to 1950, Placentia remained a primarily rural town focused on citrus farming. Its population doubled to 1,600 and its acreage expanded from 116 to 160 (City of Placentia 1989).

A virus known as "quick decline" began infecting orange groves throughout the area in the 1940s. At the same time, the population of Orange County was growing exponentially. By 1960, Placentia's population had reached only 5,000, but by 1972, it had grown to 27,450 (City of Placentia 1989). The size of the city increased from 1,086 acres in 1960 to 4,165 acres in 1972, primarily through annexations (City of Placentia 1989). In 1973, 300 acres of citrus land and 150 acres of row crops remained in the city. This accounted for just 10 percent of the city's land use (City of Placentia 1973). Ten percent of the land was also used for extraction of oil, and 12 percent of the land was in commercial or industrial use. By 1988, agricultural open space had dropped to five percent, commercial space to six percent, and industrial to nine percent of the total land use in Placentia. Single-family housing accounted for 43 percent of the community (City of Placentia 1989).

This time of rapid development meant that lands that had been dedicated to orange groves were sold off for housing and industrial developments. As packinghouses closed, new industries moved in. Like other towns in Orange County, Placentia has transformed from a primarily agricultural area to a suburban community where most residents commute to other cities to work. In 2000, its

population had reached 40,000, and today, 53,000 people call Placentia home (City of Placentia 2017).

Site-Specific History: 110 East Crowther Avenue

The plans for 110 East Crowther Avenue indicate that there were several houses and outbuildings located on the site at the time of construction. Aerial photographs suggest that most of Crowther Avenue consisted of orchards and dwellings through the 1940s, but due to the proximity of the railroad, industries not related to citrus began to move into the area in the 1950s and 1960s. The original plans were prepared by Everett Lynn Child (1916-2008), an architect based in Fullerton. A graduate of the University of Oregon, Child worked primarily on industrial, school, and church structures. His most recognized extant building may be The Church of the Blessed Sacrament, also in Placentia. Child was commissioned to build the offices and factory space by Organocerams, a company led by Henry M. Deutsch (1924-1985). Deutsch holds many patents related to chemical milling and plating, and it appears that Organocerams specialized in a coating that aided the chemical etching process. Evidence of the chemical nature of the operations can still be seen in the building today in remnants of venting and plug systems. In 1967, Organocerams was acquired by Hitco Steel, a company based in Gardena, California (Los Angeles Times 1967). The company added a building to the rear of the original industrial spaces at the time of the acquisition. Plans located at 110 East Crowther Avenue indicate that at one time Hitco planned to build five additional buildings at this site, extending west all the way to Melrose Avenue. Instead, they decided to relocate, and the building was purchased by Excalibur Extrusions in 1973 (Los Angeles Times 1973). The owner of Excalibur, Glenn Baldwin, made minimal alterations to the buildings during the company's 43-year occupancy. As they specialize in extruded PVC and other plastic piping, extruding equipment was added to one of the buildings. A wall was removed from one of the front "labs" to add an employee breakroom, and carport structures were added to the north and west façades.

Site-Specific History: 132 East Crowther Avenue

The property at 132 East Crowther Avenue is located to the south of Crowther Avenue and opposite the railroad. The land was purchased by the Charles C. Chapman Memorial Foundation and leased to the new Boys Club of Placentia in July of 1970 for the token amount of one dollar per year (Placentia News-Times 1970). The Boys Club started in the Placentia area in 1961 by buying a bus and transporting children to local parks for recreation. In 1962, they chartered with the Boys and Girls Club of America, and in 1963 they moved into an old school building on Santa Fe Avenue. Many people donated their time and materials for the construction of the new Boys Club, including the architect, Oscar W. Louderback, Jr. (1926-1999) (Placentia News-Times 1971). A graduate of University of California Berkeley, Louderback was an A.I.A member from 1959 to 1976 and lived and worked primarily in Fullerton. Some of his other works include Shadow Lane Apartments and the Fullerton Chamber of Commerce. The builder, Ralph Crosswhite (1916-2014), also donated his time to the cause. Crosswhite lived and worked as a contractor in the Placentia area for most of his life. Plumbers, electricians, and other workers donated their time along with 14,000 concrete blocks and other materials, amounting to a donation estimated at $250,000 (Placentia News-Times 1971). During the construction of the new facility, the Boys Club operated out of Chapman Hall and served about 200 members. The Boys Club of Placentia received their accreditation in 1971, and the new building on Crowther Avenue was

opened in 1972. The 15,000-square-foot facility was built to accommodate up to 1,500 members. The Boys Club facility served the city for many years, and in the 2000s began to expand into Yorba Linda. In 2006, the Chapman Foundation deeded the land to the Club, enabling it to plan for a future expansion, and in 2007 the Placentia-Yorba Linda club merged with the Boys Club of Brea. That same year, plans were made for a new 23,000-square-foot facility in the city of Brea. Two years later, the Boys Club facility at 132 East Crowther Avenue was sold to the City of Placentia with plans to be used as a storage facility for the police department (Orange County Register 2010). It has been vacant since 2010.

ARCHITECTURAL DESCRIPTIONS

110 East Crowther Avenue

The industrial building at 110 East Crowther Avenue was initially constructed in 1964. The original building consisted of several front offices and two large adjoining industrial spaces. When the company expanded in 1968, they added an additional building at the back of the property. The front offices retain much of their mid-century modern character, with regularly spaced tall vertical windows across the primary façade. The front office is located in a one-story concrete block wing with a rectangular plan. It has a flat roof with a thick fascia and overhanging eaves. The north wall, facing Crowther, is punctuated by flanking aluminum-framed vertical windows and a pair of windows slightly off center. A carport was added on this façade sometime in the 1980s. The office entrance is located on the west side of the building and consists of a glazed steel-framed door with a glazed transom and flanking vertical windows. All the windows and doors appear to be original in this part of the building. The wing housing the main entrance contains a reception area, two offices, and a kitchen. Many of the fixtures and surface treatments are original. Connected to the entrance wing is a slightly taller one-story building that once contained additional offices, a break room, and a quality control area. This portion of the building was originally referred to as "The Lab." It is clad in concrete with two bands of five vertical windows punctuating the north façade. The steel frame windows appear to be replacements, possibly during a remodel to convert one of the labs into a break room. The building has a flat roof with no overhang and no separate entrance. The original industrial building consists of adjoining open spaces, two stories in height. The utilitarian structure has a wood and steel frame, rectangular plan, and concrete foundation and floors. There are several openings to the building, which include two roll-up garage doors on the south façade and one roll-up door on the north end of the west façade. Standard entrances consisting of steel doors with a glazed upper panel are located on the north and south façades. The windows of the building consist of three multi-light metal windows on the upper third of the west façade. The south façade is a loading dock shaded by a metal awning supported by three steel posts. The building has a flat roof with no overhanging eaves.

Connected by a rectangular opening in the east wall, the adjoining room has a similar construction with one large open space, two stories in height. When Excalibur Extrusions took over the building in 1973, they added the extrusion equipment suspended from the ceiling. This section has two roll-up doors; one that extends to the ceiling on the south façade, and a smaller one on the west façade that accesses the loading dock. A standard steel entrance door with a glazed upper panel is located just to the east of the garage door on the south wall. The fenestration in this section consists of three large and one small multi-light metal windows on the upper third of the east façade, and a single large multi-light window on the south façade. The rear building is not connected to the

original two, and accessed via an open area covered with a flat aluminum roof. It is the largest of all the buildings, with a wood and steel frame, concrete walls and floors and a rectangular plan. The flat roof has an overhang on the west façade to shelter the three roll-up doors used for loading. These doors are flanked by pairs of multi-pane metal windows on both ends. Two additional roll-up doors and a standard entrance door with glazed upper panel are located on the south façade. There is no fenestration on the east façade. The front of the rear building contains a wash station area with a single divided multi-light window on the north façade and a steel entrance door with a glazed upper panel just to the west of it.

There have been minimal modifications to the buildings with the exception of the removal of a wall, additions of carport structures, and the removal of a wall in the front offices. Landscape features are limited to the front and consist of hedges and topiary. Parking is located along the north façade of the building, and an additional asphalt lot was added to the west of the property in the 1990s.

132 East Crowther Avenue

The Boys Club of Placentia building at 132 East Crowther was constructed in 1972 and has no major additions. The building consists of a series of connected rooms, although because the building has been gutted, it is difficult to determine the original use or interior configuration of the Boys Club space. As the building was constructed with many donated materials, there is some variation between the sections of the building despite being constructed at the same time. The front sections are constructed of concrete blocks, and the gymnasium at the rear of the property is a wood frame structure clad in concrete. The front section is one story with a flat roof and minimal architectural detail. A pent roof covered with red clay tiles wraps around the northwest corner and provides the only ornamental detail on the building. Below the roof the structure is all concrete block, but above it is covered with smooth concrete. There is one entrance located on the east end of the north façade, and one centered on the west. Both entrances are simple steel doors. There are currently no windows in this room, or throughout the entire structure. The front room has a wood ceiling supported by large wood beams. The second space in the building is also one story and contains an open courtyard that was probably used as basketball court. There are indications that the areas flanking the court were divided into several smaller spaces. The third room is a two-story open space constructed of wood frame and concrete block, with a wood ceiling supported by steel beam. The rear space is a large two-story gymnasium space that was probably not divided into smaller rooms. It has double steel door entrances at the north and south ends of the west façade. The two-story portion of the building has a flat roof with no overhanging eaves.

There may have been an outdoor court or play area at the south (rear) of the building, but it is currently overgrown. There is a paved parking area at the north and driveway that extends along the west side, but no additional landscape features. The building has been vacant for several years and in addition to the gutting, has been vandalized and is in poor condition.

ELIGIBILITY CRITERIA

National Register of Historic Places Significance Criteria

Authorized by the National Historic Preservation Act of 1966, the National Park Service's NRHP is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America's historic and archeological resources. The NRHP is the official list of the nation's historic places worthy of preservation.

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity and:

A. are associated with events that have made a significant contribution to the broad patterns of our history; or

B. are associated with the lives of persons significant in our past; or

C. embody distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. have yielded, or may be likely to yield, information important in prehistory or history.

Ordinarily cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years are not considered eligible for the NRHP. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:

a) a religious property deriving primary significance from architectural or artistic distinction or historical importance; or

b) a building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or

c) a birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life; or

d) a cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or

e) a reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or

f) a property primarily commemorative in intent, if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or

g) a property achieving significance within the past 50 years if it is of exceptional importance.

Integrity

In order to be eligible for listing in the NRHP and CRHR, a property must retain sufficient integrity to convey its significance. The NRHP publication *How to Apply the National Register Criteria for Evaluation*, National Register Bulletin 15, establishes how to evaluate the integrity of a property: "Integrity is the ability of a property to convey its significance" (National Park Service, National Register of Historic Places 1991). The evaluation of integrity must be grounded in an understanding of a property's physical features, and how they relate to the concept of integrity. Determining which of these aspects are most important to a property requires knowing why, where, and when a property is significant. To retain historic integrity, a property must possess several, and usually most, aspects of integrity:

1. **Location** is the place where the historic property was constructed or the place where the historic event occurred.
2. **Design** is the combination of elements that create the form, plan, space, structure, and style of a property.
3. **Setting** is the physical environment of a historic property, and refers to the character of the site and the relationship to surrounding features and open space. Setting often refers to the basic physical conditions under which a property was built and the functions it was intended to serve. These features can be either natural or manmade, including vegetation, paths, fences, and relationships between other features or open space.
4. **Materials** are the physical elements that were combined or deposited during a particular period or time, and in a particular pattern or configuration to form a historic property.
5. **Workmanship** is the physical evidence of crafts of a particular culture or people during any given period of history or prehistory, and can be applied to the property as a whole, or to individual components.
6. **Feeling** is a property's expression of the aesthetic or historic sense of a particular period of time. It results from the presence of physical features that, when taken together, convey the property's historic character.
7. **Association** is the direct link between the important historic event or person and a historic property.

California Register of Historical Resources Significance Criteria

The CRHR program encourages public recognition and protection of resources of architectural, historical, archaeological, and cultural significance; identifies historical resources for state and local planning purposes; determines eligibility for state historic preservation grant funding; and affords certain protections under CEQA. The criteria established for eligibility for the CRHR are directly comparable to the national criteria established for the NRHP.

In order to be eligible for listing in the CRHR, a building must satisfy at least one of the following four criteria:

1) It is associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States.
2) It is associated with the lives of persons important to local, California, or national history.
3) It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values.
4) It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Historical resources eligible for listing in the CRHR must meet one of the criteria of significance described above and retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. For the purposes of eligibility for CRHR, integrity is defined as "the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance" (Office of Historic Preservation 2001). This general definition is generally strengthened by the more specific definition offered by the NRHP—the criteria and guidelines upon which the CRHR criteria and guidelines are based.

City of Placentia Historic Designation Criteria

Chapter 23.06.030 D of the City of Placentia's Municipal Code defines a "Historic Structure" as a resource listed in, or determined to be eligible by the State Historical Resources Commission for listing in, the California Register of Historical Resources (California Public Resources Code [PRC] §5024.1, Title 14 California Code of Regulations [CCR] §4850 *et seq.*) (Ord. 0-2015-01, 2015).

According to the City of Placentia's Municipal Code, therefore, the standards for local designation are the same as those stated above for the CRHR.

California Environmental Quality Act Significance Criteria

CEQA Section 15064.5 *Determining the Significance of Impacts to Archeological and Historical Resources* requires that all private and public activities not specifically exempted be evaluated against the potential for environmental damage, including effects to historical resources. Historical resources are recognized as part of the environment under CEQA. It defines historical resources as "any object, building, structure, site, area, place, record, or manuscript which a lead agency determines to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California."

Lead agencies have a responsibility to evaluate historical resources against the CRHR criteria prior to making a finding as to a proposed Project's impacts to historical resources. Mitigation of adverse impacts is required if the proposed Project will cause substantial adverse change to a historical resource. Substantial adverse change includes demolition, destruction, relocation, or alteration such that the significance of an historical resource would be impaired. While demolition and destruction are fairly obvious significant impacts, it is more difficult to assess when change, alteration, or relocation crosses the threshold of substantial adverse change. The CEQA Guidelines provide that a Project that demolishes or alters those physical characteristics of an historical resource that convey its historical significance (i.e., its character-defining features) can be

considered to materially impair the resource's significance. The CRHR is used in the consideration of historical resources relative to significance for purposes of CEQA. The CRHR includes resources listed in, or formally determined eligible for listing in, the NRHP, as well as some California State Landmarks and Points of Historical Interest. Properties of local significance that have been designated under a local preservation ordinance (local landmarks or landmark districts), or that have been identified in a local historical resources inventory, may be eligible for listing in the CRHR and are presumed to be significant resources for purposes of CEQA unless a preponderance of evidence indicates otherwise.

Generally, a resource shall be considered by the lead agency to be a "historical resource" if it:

1) Is listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (PRC §5024.1, Title 14 CCR §4850 *et seq.*).
2) Is included in a local register of historical resources, or is identified as significant in an historical resource survey meeting the requirements of §5024.1(g) of the PRC.
3) Is a building or structure determined to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.

EVALUTION OF ELIGIBILITY

National Register of Historic Places Evaluation

110 East Crowther Avenue

To determine potential eligibility under Criterion A, ASM considered whether or not 110 East Crowther Avenue adequately represents the historic context of *Industry* (from the framework of the NRHP areas of significance). After conducting research on industry and the general economy of Placentia from the 1950s through the 1970s, ASM carefully considered whether 110 East Crowther Avenue is representative of local industrial buildings from that time period. While the buildings here are typical of the types of manufacturing structures built during this time, neither Organocerams or Excalibur Extrusions is recognized as an important local company. Neither company relates to historically significant industries in Placentia, specifically agriculture or oil, and even these industries were declining in importance to the local economy by the mid-twentieth century. These buildings do not reflect this history of Placentia's important industries in any significant way. As the buildings at 110 East Crowther Avenue are not associated with themes or events that have made a significant contribution to the broad patterns of our history, the buildings are recommended not eligible under NRHP Criterion A.

No significant individuals were identified that were closely associated with Organocerams or Excalibur Extrusions. As such, the buildings at 110 East Crowther Avenue are recommended not eligible under NRHP Criterion B.

The buildings at 110 East Crowther Avenue do not sufficiently represent a particular property type, period, or method of construction to qualify under Criterion C, nor do they represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose

components may lack individual distinction. Although 110 East Crowther Avenue does exhibit some characteristics of the mid-century modern style, it is not an outstanding example of this property type. Additionally, the architect, Everett Lynn Child, while prolific in Orange County, is not considered a master. Therefore, this property is not a good, representative example of a style, period, method of construction, or industrial property type. As such, 110 East Crowther Avenue is recommended not eligible under NRHP Criterion C.

The buildings are recommended not eligible under NRHP Criterion D. It is a common property type that does not have the potential to provide information about history or prehistory that is not available through historic research.

Lastly, the property is recommended not eligible as a contributor to a historic district. There are two historic districts located near the property. The packing house district includes the Placentia Orange Growers Association Building located at 209 West Crowther Avenue. The Placentia Santa Fe Commercial District is also located to the north of the railroad tracks. As the building is not associated with the citrus industry or commercial activities, it does not appear to be a potential contributor to these districts. In conducting a windshield survey of the immediate neighborhood, no other potential historic districts were identified with which 110 East Crowther Avenue could be associated. Although other manufacturing and industrial businesses are located nearby, no cohesive area was identified that reflects important aspects of the city's economy nor industry.

In conclusion, the buildings at 110 East Crowther Avenue are recommended not eligible under all four NRHP criteria.

132 East Crowther Avenue

To determine potential eligibility under Criterion A, ASM considered whether or not 132 East Crowther Avenue adequately represents the historic context of *Social History* (from the framework of the NRHP areas of significance). Thorough research was conducted on the history of the Boys Club and other organizations contributing to the social history of Placentia in the late 1960s and early 1970s. Although the club operated out of this location for nearly 40 years, there are other buildings, such as the Edwin T. Powell building (143 South Bradford Avenue), formerly the public library, that are better examples of buildings built to serve the community under the theme of Social History. As most communities in Orange County developed Boys Clubs during the 1950s and 1960s, this activity is not specific or unique to Placentia. As the building at 132 East Crowther Avenue is not associated with themes or events that have made a significant contribution to the broad patterns of our history, the building is recommended not eligible under NRHP Criterion A.

No significant individuals were identified that were closely associated with the Boys Club of Placentia. As such, the building at 132 East Crowther Avenue is recommended not eligible under NRHP Criterion B.

132 East Crowther Avenue does not sufficiently represent a particular property type, period, or method of construction to qualify under Criterion C, nor does it represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction. The Boys Club building at 132 East Crowther Avenue displays no distinguishing architectural features and is primarily a utilitarian structure. While Oscar W.

Louderback, Jr. designed many buildings throughout his career, he is not considered a master architect. Therefore, this building is not a good, representative example of a style, period, method of construction, or industrial property type. As such, 132 East Crowther Avenue is recommended not eligible under NRHP Criterion C.

The building is recommended not eligible under NRHP Criterion D. It is a common property type that does not have the potential to provide information about history or prehistory that is not available through historic research.

Lastly, 132 East Crowther Avenue is recommended not eligible as a contributor to a historic district. There are two historic districts located near the property. The packing house district includes the Placentia Orange Growers Association Building located at 209 West Crowther Avenue. The Placentia Santa Fe Commercial District is also located to the north of the railroad tracks. As 132 East Crowther is not associated with the citrus industry or commercial activities, it does not appear to be a potential contributor to these districts. In conducting a windshield survey of the immediate neighborhood, no other potential historic districts were identified with which 132 East Crowther Avenue could be associated.

In conclusion, the building at 132 East Crowther Avenue is recommended not eligible under all four NRHP criteria.

California Register of Historical Resources Evaluation

The buildings at 110 and 132 East Crowther Avenue are recommended not eligible for CRHR listing under criteria 1, 2 3, and 4, following the reasons outlined in the preceding sections regarding eligibility under the comparable NRHP criteria.

City of Placentia Criteria Evaluation

The standards for local designation are the same as those stated above for the CRHR. Therefore, the buildings at 110 and 132 East Crowther Avenue are recommended not eligible for local register listing under criteria 1, 2 3, and 4, following the reasons outlined in the preceding sections regarding eligibility under the comparable NRHP criteria.

California Environmental Quality Act Evaluation

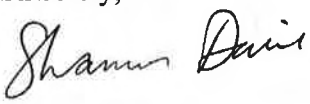
The buildings at 110 and 132 East Crowther Avenue do not qualify as historical resources under the terms of CEQA, as they do not meet any of the definitions set forth by CEQA. The buildings are not listed in, or determined to be eligible for listing, in the CRHR; are not included in a local register, or identified as significant in an historical resource; nor are they determined to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.

CONCLUSION

After documentation and evaluation of the history of buildings at 110 and 132 East Crowther Avenue, and careful consideration of their ability to reflect the historic context with which they are associated, the buildings on Crowther Avenue are recommended not eligible as individual resources nor as contributors to a potential historic district under NRHP/CRHR Criteria A/1, B/2, C/3, or D/4, and subsequently the City of Placentia's criteria that defer to the state. As such, 110 and 132 East Crowther Avenue are found to not contain any CEQA historical resources pursuant to Section 15064.5 and the properties need not to be considered as historically significant for future planning purposes.

Please contact me as needed, if you have questions or concerns.

Sincerely,



Shannon Davis
Director, Architectural History
ASM Affiliates, Inc.
20 N. Raymond Avenue, Suite 220
Pasadena, California 91103
(626) 793-7395
sdavis@asmaffiliates.com

Attachment A: References
Attachment B: Department of Parks and Recreation (DPR) 523 site record forms

ATTACHMENT A: REFERENCES

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"Boy's Club Will Host Mexican Fiesta Dinner," October 7.
"Boys Club Campaign Still Going Slowly," October 14.
"Boys Club to Begin Building in February," December 16.

1971 "Boys Club Receives Donation of Labor," January 20.
"Boys Club Holds Dinner Dance," March 31.
"Boy's Club Ticket Sales Begin," June 16.
"Plumbers and Electricians Donate Time to Boys Club," July 14,
"Placentia Boys Club Receives Accreditation," July 28.
"Alpha Zeta Donates Funds to Boy's Club," October 6.
"Placentia Boy's Club Board Holds Meeting," November 10.
1972 "Boys' Club August Program Expanded," August 2.

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1969 Placentia City Directory, 1968.
1971 Placentia City Directory, 1971.
1972 Placentia City Directory, 1972.
1973 Placentia City Directory, 1973.

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1972 7.5-Minute Quad. Orange, California.
1974 7.5-Minute Quad. Orange, California.
1981 7.5-Minute Quad. Orange, California.

ATTACHMENT B: DEPARTMENT OF PARKS AND RECREATION (DPR) 523 SITE RECORD FORMS

State of California The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6z

Other Listings
Review Code | Reviewer | Date 5/2/2017

Page 1 of 5 *Resource name or #: (Assigned by recorder) Excaliber Extrusion, Inc.

*P1. Other Identifier:

*P2. Location: ☐ Not for Publication ■ Unrestricted

*a. County Orange and (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad Orange Date 1981 T 3S ; R 9W ; ¼ of ¼ of Sec U ; SB B.M.

c. Address 110 East Crowther Avenue City Placentia Zip 92870

d. UTM: (Give more than one for large and/or linear resources.) Zone 11 , S419431 mE/ 3747833 mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate.)
APN# 339-091-09

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries.)

The industrial building at 110 East Crowther Avenue was initially constructed in 1964. The original building consisted of several front offices and two large adjoining industrial spaces. When the company expanded in 1968, they added an additional building at the back of the property . The front offices retain much of their mid-century modern character, with regularly spaced tall vertical windows across the primary façade. The front office is located in a one-story concrete block wing with a rectangular plan . It has a flat roof with a thick fascia and overhanging eaves. The north wall, facing Crowther, is punctuated by flanking aluminum-framed vertical windows and a pair of windows slightly off center. A carport was added on this façade sometime in the 1980s. The office entrance is located on the west side of the building and consists of a glazed steel-framed door with a glazed transom and flanking vertical windows. All the windows and doors appear to be original in this part of the building. The wing housing the main entrance contains a reception area, two offices, and a kitchen. Many of the fixtures and surface treatments are original. Connected to the entrance wing is a slightly taller one-story building that once contained additional offices, a break room, and a quality control area. This portion of the building was originally referred to as "The Lab." It is clad in concrete with two bands of five vertical windows punctuating the north façade. The steel frame windows appear to be replacements, possibly during a remodel to convert one of the labs into a break room. The building has a flat roof with no overhang and no separate entrance. (continued on p. 3)

*P3b. Resource Attributes: (List attributes and codes.) HP8

*P4. Resource Present: ■Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #.) Front facade looking southeast. Photo taken on 05/02/17

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)

*P6. Date Constructed/Age & Source:
■Historic ☐Pre-Historic ☐Both
1964, original building plans

*P7. Owner and Address:
Glenn Baldwin
same as property

*P8. Recorded by: (Name, affiliation, and address.)
Laura Taylor Kung, ASM Affiliates
20 N. Raymond Ave., Pasadena

*P9. Date Recorded:
5/02/17

*P10. Survey Type: (Describe.)
Intensive Pedestrian

*P11. Report Citation: (Cite survey report and other sources, or enter "none.")
Historic Resource Evaluation for 110 and 132 East Crowther Avenue, Placentia, Orange County, California

* Attachments: ☐ NONE ■ Location Map ■ Continuation Sheet ■ Building, Structure, and Object Record
☐Archaeological Record ☐ District Record ☐ Linear Feature Record ☐Milling Station Record ☐ Rock Art Record
☐Artifact Record ☐ Photograph Record ☐Other (List):

State of California The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary #
HRI #

BUILDING, STRUCTURE, AND OBJECT RECORD

Page 2 of 5 *Resource name or #: (Assigned by recorder) Excaliber Extrusion, Inc.

*NRHP Status Code 6z

B1. Historic Name:

B2. Common Name:

B3. Original Use: Manufacturing B4. Present Use: Vacant

*B5. Architectural Style: Mid-Century Modern

*B6. Construction History: (Construction date, alterations, and date of alterations.)
Constructed 1964. Additional building added 1968.

B7. Moved? ☐ No ☐ Yes ☐ Unknown Date: Original Location:

B8. Related Features: None

B9a. Architect: Everett Lynn Child b. Builder:

*B10 Significance: Theme Area

Period of Significance Property Type Applicable Criteria
(Discuss importance in terms of historical or architectural context as defined by theme, period, geographic scope. Also address integrity.)

The plans for 110 East Crowther Avenue indicate that there were several houses and outbuildings located on the site at the time of construction. Aerial photographs suggest that most of Crowther Avenue consisted of orchards and dwellings through the 1940s, but due to the proximity of the railroad, industries not related to citrus began to move into the area in the 1950s and 1960s. The original plans were prepared by Everett Lynn Child (1916-2008), an architect based in Fullerton. A graduate of the University of Oregon, Child worked primarily on industrial, school, and church structures. His most recognized extant building may be The Church of the Blessed Sacrament, also in Placentia. Child was commissioned to build the offices and factory space by Organocerams, a company led by Henry M. Deutsch (1924-1985). Deutsch holds many patents related to chemical milling and plating, and it appears that Organocerams specialized in a coating that aided the chemical etching process. Evidence of the chemical nature of the operations can still be seen in the building today in remnants of venting and plug systems. In 1967, Organocerams was acquired by Hitco Steel, a company based in Gardena, California (Los Angeles Times 1967). The company added a building to the rear of the original industrial spaces at the time of the acquisition. Plans located at 110 East Crowther Avenue indicate that at one time Hitco planned to build five additional buildings at this site, extending west all the way to Melrose Avenue. Instead, they decided to relocate, and the building was purchased by Excalibur Extrusions in 1973 (Los Angeles Times 1973). The owner of Excalibur, Glenn Baldwin, made minimal alterations to the buildings during the company's 43-year occupancy. As they specialize in extruded PVC and other plastic piping, extruding equipment was added to one of the buildings. A wall was removed from one of the front "labs" to add an employee breakroom, and carport structures were added to the north and west façades. (continued on p. 3)

B11. Additional Resource Attributes: (List attributes and codes.)

*B12. References:

B13. Remarks:

*B14. Evaluator:
Date of Evaluation:

(This space reserved for official comments.)

* Required information

(P3a continued) The original industrial building consists of adjoining open spaces, two stories in height. The utilitarian structure has a wood and steel frame, rectangular plan, and concrete foundation and floors. There are several openings to the building, which include two roll-up garage doors on the south façade and one roll-up door on the north end of the west façade. Standard entrances consisting of steel doors with a glazed upper panel are located on the north and south façades. The windows of the building consist of three multi-light metal windows on the upper third of the west façade. The south façade is a loading dock shaded by a metal awning supported by three steel posts. The building has a flat roof with no overhanging eaves.

Connected by a rectangular opening in the east wall, the adjoining room has a similar construction with one large open space, two stories in height. When Excalibur Extrusions took over the building in 1973, they added the extrusion equipment suspended from the ceiling. This section has two roll-up doors; one that extends to the ceiling on the south façade, and a smaller one on the west façade that accesses the loading dock. A standard steel entrance door with a glazed upper panel is located just to the east of the garage door on the south wall. The fenestration in this section consists of three large and one small multi-light metal windows on the upper third of the east façade, and a single large multi-light window on the south façade. The rear building is not connected to the original two, and accessed via an open area covered with a flat aluminum roof. It is the largest of all the buildings, with a wood and steel frame, concrete walls and floors and a rectangular plan. The flat roof has an overhang on the west façade to shelter the three roll-up doors used for loading. These doors are flanked by pairs of multi-pane metal windows on both ends. Two additional roll-up doors and a standard entrance door with glazed upper panel are located on the south façade. There is no fenestration on the east façade. The front of the rear building contains a wash station area with a single divided multi-light window on the north façade and a steel entrance door with a glazed upper panel just to the west of it.

There have been minimal modifications to the buildings with the exception of the removal of a wall, additions of carport structures, and the removal of a wall in the front offices. Landscape features are limited to the front and consist of hedges and topiary. Parking is located along the north façade of the building, and an additional asphalt lot was added to the west of the property in the 1990s.

(B10 continued) To determine potential eligibility under Criterion A, ASM considered whether or not 110 East Crowther Avenue adequately represents the historic context of Industry (from the framework of the NRHP areas of significance). After conducting research on industry and the general economy of Placentia from the 1950s through the 1970s, ASM carefully considered whether 110 East Crowther Avenue is representative of local industrial buildings from that time period. While the buildings here are typical of the types of manufacturing structures built during this time, neither Organocerams or Excalibur Extrusions is recognized as an important local company. Neither company relates to historically significant industries in Placentia, specifically agriculture or oil, and even these industries were declining in importance to the local economy by the mid-twentieth century. These buildings do not reflect this history of Placentia's important industries in any significant way. As the buildings at 110 East Crowther Avenue are not associated with themes or events that have made a significant contribution to the broad patterns of our history, the buildings are recommended not eligible under NRHP Criterion A.

No significant individuals were identified that were closely associated with Organocerams or Excalibur Extrusions. As such, the buildings at 110 East Crowther Avenue are recommended not eligible under NRHP Criterion B.

The buildings at 110 East Crowther Avenue do not sufficiently represent a particular property type, period, or method of construction to qualify under Criterion C, nor do they represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction. Although 110 East Crowther Avenue does exhibit some characteristics of the mid-century modern style, it is not an outstanding example of this property type. Additionally, the architect, Everett Lynn Child, while prolific in Orange County, is not considered a master. Therefore, this property is not a good, representative example of a style, period, method of construction, or industrial property type. As such, 110 East Crowther Avenue is recommended not eligible under NRHP Criterion C.

The buildings are recommended not eligible under NRHP Criterion D. It is a common property type that does not have the potential to provide information about history or prehistory that is not available through historic research. (continued on p. 4)

(B10 continued) Lastly, the property is recommended not eligible as a contributor to a historic district. There are two historic districts located near the property. The packing house district includes the Placentia Orange Growers Association Building located at 209 West Crowther Avenue. The Placentia Santa Fe Commercial District is also located to the north of the railroad tracks. As the building is not associated with the citrus industry or commercial activities, it does not appear to be a potential contributor to these districts. In conducting a windshield survey of the immediate neighborhood, no other potential historic districts were identified with which 110 East Crowther Avenue could be associated. Although other manufacturing and industrial businesses are located nearby, no cohesive area was identified that reflects important aspects of the city's economy nor industry.

In conclusion, the buildings at 110 East Crowther Avenue are recommended not eligible under all four NRHP criteria.

California Register of Historical Resources Evaluation

The buildings at 110 East Crowther Avenue are recommended not eligible for CRHR listing under criteria 1, 2 3, and 4, following the reasons outlined in the preceding sections regarding eligibility under the comparable NRHP criteria.

City of Placentia Criteria Evaluation

The standards for local designation are the same as those stated above for the CRHR. Therefore, the buildings at 110 East Crowther Avenue are recommended not eligible for local register listing under criteria 1, 2 3, and 4, following the reasons outlined in the preceding sections regarding eligibility under the comparable NRHP criteria.

California Environmental Quality Act Evaluation

The buildings at 110 East Crowther Avenue do not qualify as historical resources under the terms of CEQA, as they do not meet any of the definitions set forth by CEQA. The buildings are not listed in, or determined to be eligible for listing, in the CRHR; are not included in a local register, or identified as significant in an historical resource; nor are they determined to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.

CONCLUSION

After documentation and evaluation of the history of buildings at 110 East Crowther Avenue, and careful consideration of their ability to reflect the historic context with which they are associated, the buildings on Crowther Avenue are recommended not eligible as individual resources nor as contributors to a potential historic district under NRHP/CRHR Criteria A/1, B/2, C/3, or D/4, and subsequently the City of Placentia's criteria that defer to the state. As such, 110 East Crowther Avenue is found to not contain any CEQA historical resources pursuant to Section 15064.5 and the property need not to be considered as historically significant for future planning purposes.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PHOTOGRAPH SHEET

Primary # _____
HRI # _____
Trinomial _____

 ***Resource Name or # (Assigned by recorder)** Excalibur Extrusion, Inc.
Recorded by: Laura Taylor Kung **Date:** 5/2/2017
☒ Continuation ☐ Update

Image 1. View of front entrance looking southeast.

Image 2. View of setting looking south.

Image 3. View of west façade of rear addition looking southeast.

Image 4. View of east façade looking southwest.

Image 5. View of Building 1 interior looking southeast.

Image 6. View of Building 2 interior looking southeast.

State of California The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary #
HRI #
Trinomial
NRHP Status Code 6z

Other Listings
Review Code | Reviewer | Date 5/2/2017

Page 1 **of** 5 ***Resource name or #:** (Assigned by recorder) Excaliber Extrusion, Inc.

***P1. Other Identifier:**

***P2. Location:** ☐ Not for Publication ■ Unrestricted

*a. **County** Orange **and** (P2c, P2e, and P2b or P2d. Attach a Location Map as necessary.)

*b. **USGS 7.5' Quad** Orange **Date** 1981 **T** 3S ; **R** 9W ; ¼ of ¼ **of Sec** U ; SB **B.M.**

c. Address 110 East Crowther Avenue City Placentia Zip 92870

d. UTM: (Give more than one for large and/or linear resources.) Zone 11 , S419431 mE/ 3747833 mN

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, decimal degrees, etc., as appropriate.)
APN# 339-091-09

***P3a. Description:** (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries.)

The industrial building at 110 East Crowther Avenue was initially constructed in 1964. The original building consisted of several front offices and two large adjoining industrial spaces. When the company expanded in 1968, they added an additional building at the back of the property . The front offices retain much of their mid-century modern character, with regularly spaced tall vertical windows across the primary façade. The front office is located in a one-story concrete block wing with a rectangular plan . It has a flat roof with a thick fascia and overhanging eaves. The north wall, facing Crowther, is punctuated by flanking aluminum-framed vertical windows and a pair of windows slightly off center. A carport was added on this façade sometime in the 1980s. The office entrance is located on the west side of the building and consists of a glazed steel-framed door with a glazed transom and flanking vertical windows. All the windows and doors appear to be original in this part of the building. The wing housing the main entrance contains a reception area, two offices, and a kitchen. Many of the fixtures and surface treatments are original. Connected to the entrance wing is a slightly taller one-story building that once contained additional offices, a break room, and a quality control area. This portion of the building was originally referred to as "The Lab." It is clad in concrete with two bands of five vertical windows punctuating the north façade. The steel frame windows appear to be replacements, possibly during a remodel to convert one of the labs into a break room. The building has a flat roof with no overhang and no separate entrance. **(continued on p. 3)**

***P3b. Resource Attributes:** (List attributes and codes.) HP8

***P4. Resource Present:** ■Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5b. Description of Photo: (view, date, accession #.) **Front facade looking southeast. Photo taken on 05/02/17**

P5a. Photograph or Drawing (Photograph required for buildings, structures, and objects.)

***P6. Date Constructed/Age & Source:**
■Historic ☐Pre-Historic ☐Both
1964, original building plans

***P7. Owner and Address:**
Glenn Baldwin
same as property

***P8. Recorded by:** (Name, affiliation, and address.)
Laura Taylor Kung, ASM Affiliates
20 N. Raymond Ave., Pasadena

***P9. Date Recorded:**
5/02/17

***P10. Survey Type:** (Describe.)
Intensive Pedestrian

***P11. Report Citation:** (Cite survey report and other sources, or enter "none.")
Historic Resource Evaluation for 110 and 132 East Crowther Avenue, Placentia, Orange County, California

***Attachments:** ☐ NONE ■ Location Map ■ Continuation Sheet ■ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ☐ Other (List):

State of California The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary #
HRI #

BUILDING, STRUCTURE, AND OBJECT RECORD

Page 2 of 5 *Resource name or #: (Assigned by recorder) Excaliber Extrusion, Inc.

*NRHP Status Code 6z

B1. Historic Name:

B2. Common Name:

B3. Original Use: Manufacturing B4. Present Use: Vacant

*B5. Architectural Style: Mid-Century Modern

*B6. Construction History: (Construction date, alterations, and date of alterations.)
Constructed 1964. Additional building added 1968.

B7. Moved? ☐ No ☐ Yes ☐ Unknown Date: Original Location:

B8. Related Features: None

B9a. Architect: Everett Lynn Child b. Builder:

*B10 Significance: Theme Area

Period of Significance Property Type Applicable Criteria

(Discuss importance in terms of historical or architectural context as defined by theme, period, geographic scope. Also address integrity.)

The plans for 110 East Crowther Avenue indicate that there were several houses and outbuildings located on the site at the time of construction. Aerial photographs suggest that most of Crowther Avenue consisted of orchards and dwellings through the 1940s, but due to the proximity of the railroad, industries not related to citrus began to move into the area in the 1950s and 1960s. The original plans were prepared by Everett Lynn Child (1916-2008), an architect based in Fullerton. A graduate of the University of Oregon, Child worked primarily on industrial, school, and church structures. His most recognized extant building may be The Church of the Blessed Sacrament, also in Placentia. Child was commissioned to build the offices and factory space by Organocerams, a company led by Henry M. Deutsch (1924-1985). Deutsch holds many patents related to chemical milling and plating, and it appears that Organocerams specialized in a coating that aided the chemical etching process. Evidence of the chemical nature of the operations can still be seen in the building today in remnants of venting and plug systems. In 1967, Organocerams was acquired by Hitco Steel, a company based in Gardena, California (Los Angeles Times 1967). The company added a building to the rear of the original industrial spaces at the time of the acquisition. Plans located at 110 East Crowther Avenue indicate that at one time Hitco planned to build five additional buildings at this site, extending west all the way to Melrose Avenue. Instead, they decided to relocate, and the building was purchased by Excalibur Extrusions in 1973 (Los Angeles Times 1973). The owner of Excalibur, Glenn Baldwin, made minimal alterations to the buildings during the company's 43-year occupancy. As they specialize in extruded PVC and other plastic piping, extruding equipment was added to one of the buildings. A wall was removed from one of the front "labs" to add an employee breakroom, and carport structures were added to the north and west façades. (continued on p. 3)

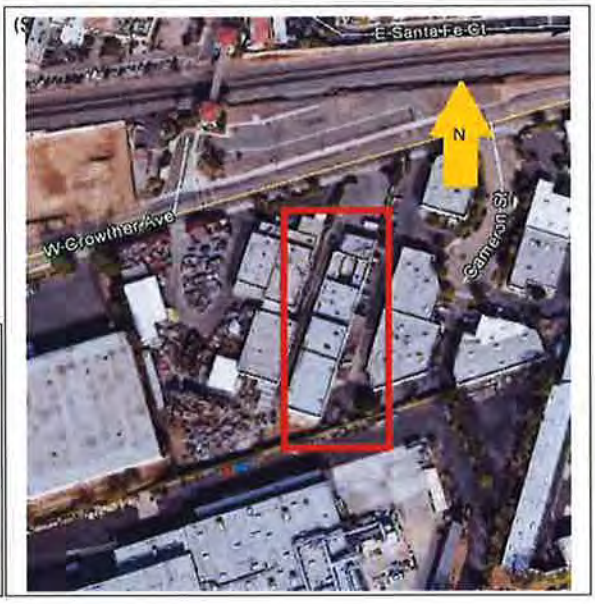
B11. Additional Resource Attributes: (List attributes and codes.)

*B12. References:

B13. Remarks:

*B14. Evaluator:
Date of Evaluation:

(This space reserved for official comments.)



(P3a continued) The original industrial building consists of adjoining open spaces, two stories in height. The utilitarian structure has a wood and steel frame, rectangular plan, and concrete foundation and floors. There are several openings to the building, which include two roll-up garage doors on the south façade and one roll-up door on the north end of the west façade. Standard entrances consisting of steel doors with a glazed upper panel are located on the north and south façades. The windows of the building consist of three multi-light metal windows on the upper third of the west façade. The south façade is a loading dock shaded by a metal awning supported by three steel posts. The building has a flat roof with no overhanging eaves.

Connected by a rectangular opening in the east wall, the adjoining room has a similar construction with one large open space, two stories in height. When Excalibur Extrusions took over the building in 1973, they added the extrusion equipment suspended from the ceiling. This section has two roll-up doors; one that extends to the ceiling on the south façade, and a smaller one on the west façade that accesses the loading dock. A standard steel entrance door with a glazed upper panel is located just to the east of the garage door on the south wall. The fenestration in this section consists of three large and one small multi-light metal windows on the upper third of the east façade, and a single large multi-light window on the south façade. The rear building is not connected to the original two, and accessed via an open area covered with a flat aluminum roof. It is the largest of all the buildings, with a wood and steel frame, concrete walls and floors and a rectangular plan. The flat roof has an overhang on the west façade to shelter the three roll-up doors used for loading. These doors are flanked by pairs of multi-pane metal windows on both ends. Two additional roll-up doors and a standard entrance door with glazed upper panel are located on the south façade. There is no fenestration on the east façade. The front of the rear building contains a wash station area with a single divided multi-light window on the north façade and a steel entrance door with a glazed upper panel just to the west of it.

There have been minimal modifications to the buildings with the exception of the removal of a wall, additions of carport structures, and the removal of a wall in the front offices. Landscape features are limited to the front and consist of hedges and topiary. Parking is located along the north façade of the building, and an additional asphalt lot was added to the west of the property in the 1990s.

(B10 continued) To determine potential eligibility under Criterion A, ASM considered whether or not 110 East Crowther Avenue adequately represents the historic context of Industry (from the framework of the NRHP areas of significance). After conducting research on industry and the general economy of Placentia from the 1950s through the 1970s, ASM carefully considered whether 110 East Crowther Avenue is representative of local industrial buildings from that time period. While the buildings here are typical of the types of manufacturing structures built during this time, neither Organocerams or Excalibur Extrusions is recognized as an important local company. Neither company relates to historically significant industries in Placentia, specifically agriculture or oil, and even these industries were declining in importance to the local economy by the mid-twentieth century. These buildings do not reflect this history of Placentia's important industries in any significant way. As the buildings at 110 East Crowther Avenue are not associated with themes or events that have made a significant contribution to the broad patterns of our history, the buildings are recommended not eligible under NRHP Criterion A.

No significant individuals were identified that were closely associated with Organocerams or Excalibur Extrusions. As such, the buildings at 110 East Crowther Avenue are recommended not eligible under NRHP Criterion B.

The buildings at 110 East Crowther Avenue do not sufficiently represent a particular property type, period, or method of construction to qualify under Criterion C, nor do they represent the work of a master, possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction. Although 110 East Crowther Avenue does exhibit some characteristics of the mid-century modern style, it is not an outstanding example of this property type. Additionally, the architect, Everett Lynn Child, while prolific in Orange County, is not considered a master. Therefore, this property is not a good, representative example of a style, period, method of construction, or industrial property type. As such, 110 East Crowther Avenue is recommended not eligible under NRHP Criterion C.

The buildings are recommended not eligible under NRHP Criterion D. It is a common property type that does not have the potential to provide information about history or prehistory that is not available through historic research. (continued on p. 4)

(B10 continued)

California Register of Historical Resources Evaluation

The building at 132 East Crowther Avenue is recommended not eligible for CRHR listing under criteria 1, 2 3, and 4, following the reasons outlined in the preceding sections regarding eligibility under the comparable NRHP criteria.

City of Placentia Criteria Evaluation

The standards for local designation are the same as those stated above for the CRHR. Therefore, the building at 132 East Crowther Avenue is recommended not eligible for local register listing under criteria 1, 2 3, and 4, following the reasons outlined in the preceding sections regarding eligibility under the comparable NRHP criteria.

California Environmental Quality Act Evaluation

The building at 132 East Crowther Avenue does not qualify as a historical resource under the terms of CEQA, as it does not meet any of the definitions set forth by CEQA. The building is not listed in, or determined to be eligible for listing, in the CRHR; is not included in a local register, or identified as significant in an historical resource; nor is it determined to be historically significant or significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California.

CONCLUSION

After documentation and evaluation of the history of 132 East Crowther Avenue, and careful consideration of its ability to reflect the historic context with which it is associated, the building is recommended not eligible as an individual resource nor as a contributor to a potential historic district under NRHP/CRHR Criteria A/1, B/2, C/3, or D/4, and subsequently the City of Placentia's criteria that defer to the state. As such, 132 East Crowther Avenue is found to not contain any CEQA historical resources pursuant to Section 15064.5 and the property need not to be considered as historically significant for future planning purposes.

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION
PHOTOGRAPH SHEET

Primary # _____
HRI # _____
Trinomial _____

Page 5 of 5 ***Resource Name or # (Assigned by recorder)** Boys & Girls Club of Placentia
Recorded by: Laura Taylor Kung **Date:** 5/2/2017
☒ Continuation ☐ Update

Image 1. View of north façade entrance looking south.

Image 2. View of west façade looking northeast.

Image 3. View of west façade looking southwest.

Image 4. View of front room looking northeast.

Image 5. View of courtyard looking north.

Image 6. View second room looking southeast.

Attachment C

Geotechnical Studies

C1

Geotechnical Engineering Report

GEOTECHNICAL ENGINEERING REPORT
THE HERALD MULTI-FAMILY RESIDENTIAL PROJECT
110 AND 132 EAST CROWTHER AVENUE
PLACENTIA, CALIFORNIA

Prepared for:

The Placentia TOD Project Owner, LLC

888 San Clemente, Suite 100
Newport Beach, California 92660

Project No. 11263.003

June 26, 2017

Leighton and Associates, Inc.
A LEIGHTON GROUP COMPANY

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A LEIGHTON GROUP COMPANY

June 26, 2017

Project No. 11263.003

The Placentia TOD Project Owner, LLC
888 San Clemente Drive, Suite 100
Newport Beach, California 92600

Attention: Mr. Ed Galigher, Vice President Acquisitions and Entitlements

Subject: Geotechnical Engineering Report
The Herald Multi-Family Residential Project
110 and 132 East Crowther Avenue
Placentia, California

Per your request and authorization dated May 25, 2017, Leighton and Associates, Inc. (Leighton) has prepared this geotechnical engineering report for the subject project. Review of site development drawings prepared by Humphreys & Partners Architects, L.P.; dated March 11, 2017; indicates development of the roughly 3-acre project site will consist of a 5-story residential apartment building constructed at grade with a partially subterranean, 6-story reinforced concrete parking garage and a rooftop terrace (seventh level), fitness/pool center, landscaped courtyards, turf block fire access road and turn around, paved entry drive aisle, decorative concrete pavers, subsurface stormwater detention and associated utility infrastructure. The purpose of our study was to evaluate the geotechnical conditions of the site and provide geotechnical recommendations for design and construction of the project as currently proposed.

Based on our subsurface explorations and a review of available data, the site is underlain by approximately 4 to 6 feet of undocumented artificial fill overlying very old alluvial fan deposits consisting of expansive clay and channelized, unconsolidated, silty sand to sand. The proposed development may be supported on shallow spread footings established in engineered fill or undisturbed natural soils.

No known active or potentially active faults are mapped as crossing the site and the site is not located within an Alquist-Priolo Earthquake Fault Zone. In addition, the site is <u>not</u> located within a liquefaction hazard zone as mapped by the California Geological

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Survey (CGS); however, significant ground shaking should be anticipated at the site during the expected life of the proposed structures.

We appreciate the opportunity to work with you on this project. If you have any questions or if we can be of further service, please contact us at ***(866) LEIGHTON***; specifically at the phone extensions or e-mail as listed below.

Respectfully submitted,

LEIGHTON AND ASSOCIATES, INC.

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Important Information About Your Geotechnical Engineering Report Rear of Text

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1.0 INTRODUCTION

1.1 Site Description

The project site is located at 110 and 132 East Crowther Avenue in Placentia, California. The site location (latitude 33.8676°, longitude -117.8711°) and immediate vicinity are shown on Figure 1, *Site Location Map.* The project site is a 2.95-acre$^{\pm}$ trapezoidal-shaped parcel of land consisting of two properties, a western roughly triangular shaped parcel and an eastern narrow rectangular parcel. The site is located within an industrial district and is currently occupied by existing commercial warehouse structures and a Boys and Girls Club facility. The site is bordered by East Crowther Avenue to the north and commercial developments to the west, south, and east.

Review of the United States Geological Survey (USGS) 7.5 Minute Series Orange Quadrangle topographic map of the site vicinity (USGS, 1981) indicates the ground surface at the project site is at approximate Elevation (El.) +235 to +240 feet above mean sea level (msl). Site topography is relatively flat and drainage is accomplished as sheet flow over paved surfaces to curbs and gutters.

Based on review of aerial photographs, the western parcel appears to have been utilized as an orchard prior to 1947 with three to four structures located near the west entrance to the parcel fronting East Crowther Avenue (NETR, 2017). The eastern parcel contained two structures and a large windrow of trees that separated the western and eastern parcels. By 1963 the orchards in the western parcel had been removed while the structures remained onsite, a large windrow of trees remain visible along the boundary between the western and eastern parcels. By 1966, the structures at the property appear to have been demolished. By 1972, construction for the existing commercial buildings in the western parcel and the existing Boys and Girls Club in the eastern parcel appears to have been completed (NETR, 2017).

1.2 Proposed Development

Based on review of the site development drawings prepared by Humphreys & Partners Architects, L.P., dated March,14 2017, we understand the 2.95-acre$^{\pm}$ site will consist of a 5-story residential Type III, wood framed apartment building constructed at grade with a partially subterranean, 6-story reinforced concrete

parking garage and a rooftop terrace (seventh level), fitness/pool center, landscaped courtyards, turf block fire access road and turn around, paved entry drive aisle, decorative concrete pavers, subsurface stormwater detention and associated utility infrastructure.

The current site layout indicates the parking structure will be rectangular in plan shape and generally oriented with its long dimension in an east-west (reference) direction in the southern portion of the site. The residential apartment buildings will be constructed adjacent to the north side of the parking structure and front East Crowther Avenue. Access (fire and occupant) roads are planned in the northwest and eastern portions of the site.

Structural loading information for the proposed parking structure was not available at the time of report preparation.

1.3 Previous Investigations

In 2010, Leighton prepared a Phase 1 Environmental Site Assessment (Leighton, 2010) for the eastern parcel located at 132 East Crowther Avenue, Placentia, California. At the time of our 2010 assessment, the site was occupied by *The Boys and Girls Club of Placentia*.

Leighton has performed a series of investigations at the subject site prior to preparation of this Geotechnical Engineering Report. In March 2016, Leighton performed a *Due-Diligence Level Geotechnical Exploration* (Leighton, 2016) that included a background review, evaluation of geologic hazards and potential geotechnical issues that may significantly impact the site, and field exploration. The field exploration consisted of three (3) cone penetrometer test (CPT) soundings advanced at the site to depths ranging from approximately 38 to 45 feet below ground surface (bgs). The results of our investigation were provided in our report dated March 11, 2016 (Leighton, 2016). The exploration logs are included in Appendix A, *Field Exploration Logs* of this report.

In February 2017, we returned to the subject site and performed additional subsurface exploration in accessible areas of the site (Figure 2) consisting of drilling, logging, and sampling of three (3) hollow-stem auger borings advanced to a depth of approximately 41½ feet bgs. The samples obtained from the borings were retained in our Irvine laboratory for future geotechnical testing. At each boring location, an additional step-out boring was drilled to depth ranging

from approximately 15 to 20 feet bgs and converted to temporary percolation test wells (P-1, P-2 and P-3) for percolation testing. Percolation testing was performed at the site to evaluate the infiltration characteristics of the site soils and to support design of the planned Water Quality Management Plan (WQMP) improvements. The results of our investigation and percolation testing were provided in a *Project Memorandum* dated February 7, 2017 (Leighton, 2017) and are included herein as Appendix C, *Percolation Test Results*. The revised hollow stem auger boring logs are included in Appendix A, *Field Exploration Logs.*

1.4 Purpose and Scope

The purpose of our geotechnical study was to evaluate the subsurface conditions at the site relative to the proposed development through review of available data and exploratory borings in order to provide geotechnical recommendations to aid in design and construction for the project as currently proposed. The scope of this evaluation included the following tasks:

- *Background Review* – A background review was performed of readily available, relevant geotechnical and geological literature pertinent to the project site. References reviewed in preparation of this report are listed in Section 6.0.

- *Field Exploration* – As indicated in Section 1.3, we performed two prior phases of field exploration at the site that included a total of three (3) CPT soundings (Leighton, 2016) and six (6) hollow-stem auger borings, B-1, B-2, B-3, P-1, P-2 and P-3 (Leighton, 2017). Prior to the field explorations, the boring and CPT locations were marked and Underground Service Alert (USA) was notified for utility clearance. In addition, a private utility locator was utilized to locate any unknown or unmarked utilities in the areas of the proposed boring locations prior to drilling.

  The CPTs (CPT-1, CPT-2 and CPT-3) were pushed with a 30-ton CPT rig in which a standard Cone equipped with a 15 cm^2 tip was advanced at a constant rate of approximately 1 inch per second to depths ranging from approximately 38 to 45 feet bgs where refusal was encountered. Shear wave velocities were recorded in CPT-2.

  During drilling of the hollow-stem auger borings (B-1 through B-3 and P-1 through P-3), both bulk and drive samples were obtained for future geotechnical laboratory testing. Drive samples were collected from the

borings using a Modified California Ring sampler conducted in accordance with ASTM Test Method D3550. Standard Penetration Tests (SPTs) were also performed within the hollow-stem auger borings in accordance with ASTM Test Method D1586. The samplers were driven for a total penetration of 18 inches, unless practical refusal was encountered, using a 140-pound automatic hammer falling freely for 30 inches. The number of blows per 6 inches of penetration was recorded on the boring logs. The number of blows to drive the sampler the final 12 inches of the 18-inch drive interval is termed the "blowcount" or SPT N-value. The N-values provide a measure of relative density in granular (non-cohesive) soils and comparative consistency in cohesive soils

The borings were logged in the field by a member of our technical staff. Each soil sample collected was reviewed and described in accordance with the Unified Soil Classification System (USCS). The samples were sealed and packaged for transportation to our laboratory. After completion of drilling, three (3) of the borings (B-1 through B-3) were backfilled with soils generated during the exploration and three (3) of the borings (P-1 through P-3) were converted to temporary percolation test wells for subsequent percolation testing, and backfilled with excess soil cuttings after completion of the percolation test. In-situ percolation testing was performed in borings P-1 through P-3 in general accordance with the Orange County Public Works *Technical Guidance Document (TGD) for the Preparation of Conceptual/Preliminary and/or Project Water Quality Management Programs (WQMPs) (OCPW, 2013).* Refer to the discussion of infiltration rate presented in Section 2.4 *Infiltration Characteristics*.

The approximate locations of the borings, CPTs, and percolation test wells are shown on Figure 2, *Boring Location Map*. Copies of the exploration logs are included in Appendix A, *Field Exploration Logs* and copies of the percolation test results are included in Appendix C, *Percolation Test Results*.

- *Laboratory Testing* – Laboratory tests were recently performed on representative soil samples retained from our field exploration to evaluate geotechnical engineering properties of subsurface materials. The following laboratory tests were performed:

  - In-situ Moisture Content and Dry Density (ASTM D2216 and ASTM D2937);

- Expansion Index (ASTM D4829);
- Modified Proctor Compaction Test (ASTM D1557);
- Direct Shear (ASTM D 3080);
- Consolidation (ASTM D2435);
- R-value (DOT CA 301); and
- Corrosivity (Soluble Sulfate ASTM C1580, Soluble Chloride ASTM C1411-09, pH ASTM D4972, and Resistivity ASTM G187-12a).

All laboratory tests were performed in general conformance with American Society of the International Association for Testing and Materials (ASTM) or Caltrans procedures (DOT CA). The in-situ moisture and density of soil samples at depths are shown on the borings logs included in Appendix A. The results of the remaining laboratory tests are presented in Appendix B, *Laboratory Test Results*.

- *Engineering Analysis* – Geotechnical engineering analysis was performed on the collected data, including the results and findings of the previous investigations, to develop conclusions and recommendations for design and construction of the planned improvements.
- *Report Preparation* – This report presents our findings, conclusions, and recommendations for the proposed development.

It should be noted that the recommendations in this report are subject to the limitations presented in Section 5.0 of the report.

2.0 GEOTECHNICAL FINDINGS

2.1 Geologic Setting

The subject site is located in the northeastern portion of the Coastal Plain of Orange County within the southeastern margin of the Los Angeles Basin, a large structural depression within the Peninsular Ranges geomorphic province of California. In general, the Coastal Plain is bordered by the Puente and Chino Hills to the north; the Santa Ana Mountains to the east; the San Joaquin Hills to the south; the Pacific Ocean to the southwest; and Los Angeles County to the northwest.

As the Santa Ana Mountains and Puente Hills were uplifted along mountain frontal faults, a system of southwesterly draining canyons formed on the mountain flank that carried detritus out into the Coastal Plain. Geologic mapping of the project area (Dibblee, 2001) indicates near-surface native soils consist of Quaternary age very old alluvial fan deposits (map symbol: Qvof) that have coalesced along the range front forming the broad alluvial plain, which extends across the southern margin of the mountain front into the Coastal Plain. These alluvial materials are comprised of varying proportions of gravel, sand, silt, and expansive clay derived primarily from the Santa Ana Mountains and Puente Hills (Morton and Miller, 2006). These alluvial fan deposits are underlain by a thick (several thousands of feet) sequence of Tertiary and Quaternary age sediments of marine and continental origin. The geologic units mapped in the vicinity of the project site are shown on Figure 3, *Regional Geology Map*.

2.2 Subsurface Soil Conditions

Based on our subsurface explorations, the site is underlain by undocumented artificial fill materials overlying Quaternary-age very old alluvial fan deposits (Morton and Miller, 2006). The CPT explorations suggest fluvial and alluvial deposition has occurred at the site with massive thick sand channels grading laterally to thinly bedded sand, silty, and expansive clay. The stratigraphy of the subsurface soils encountered in each soil boring and CPT is presented in the boring and CPT logs (Appendix A), and a general description of the earth materials as encountered are described below:

Artificial Fill, undocumented: The existing near-surface artificial fill soils encountered in our exploratory borings are approximately 4 to 6 feet thick across the project site and consist primarily of light brown to dark brown, slightly moist, sandy silt, fat clay and clayey sand with man-made debris and some organic material. Localized thicker accumulations of fill materials should be anticipated during future earthwork construction between explored locations. No exploration was performed below existing structures. The existing artificial fill materials encountered at the site are likely associated with the existing improvements and initial development of the site. However, records documenting observation and testing during fill placement were not available for review. Deeper fill may be encountered between unexplored locations in association with abandonment of underground storage tanks as verbally reported to Leighton during our field exploration, or below the structures. No documentation of tank abandonment has been provided for our review.

Quaternary-Age Very Old Alluvial Fan Deposits: The Quaternary age very old alluvial fan deposits encountered beneath the artificial fill materials in our exploratory borings generally consist of orange brown to medium brown, slightly moist to moist, loose to dense silty sand to sand with gravel. Localized thin to thick interbeds of silt and fat, expansive clay exist below the fill materials primarily in the upper approximate 10 to 12 feet bgs. Below these depths the site material is generally characterized as silty sand and sand with fine gravel to maximum depth explored of 45 feet bgs, generally increasing in grainsize and density with depth. For a description of earth materials encountered at this site see Appendix A.

2.2.1 Expansive Soil Characteristics

Expansive soils contain significant amounts of clay particles that swell considerably when wetted and which shrink when dried. Foundations constructed on these soils are subject to uplifting forces caused by the swelling. Without proper mitigation measures, heaving and cracking of both building foundations and slabs-on-grade could result.

Variance in expansion potential of onsite soil is anticipated; therefore, additional testing is recommended upon completion of site grading to confirm the expansion potential presented in this report.

The results of expansion index (EI) testing of two near surface soils from borings **B-1** and **B-2** indicate expansive clay soils are present onsite with EI values of **68** and **106**, respectively. Expansive soils may impact the proposed construction. Implementation of standard engineering and earthwork construction practices, such as proper foundation design and proper moisture conditioning of earthen fills will reduce the impacts associated with expansive soils to tolerable levels.

2.2.2 Corrosivity

The chemical analysis test results for the onsite soils from a representative bulk sample performed at the site are included in Appendix B of this report. The test results are also summarized in the table below.

Table 1 – Summary of Corrosivity Test Results

Test Parameter	Test Results	General Classification of Hazard
Water-Soluble Sulfate in Soil (ppm)	126	Negligible sulfate exposure to buried concrete
Water-Soluble Chloride in Soil (ppm)	263	Non-corrosive to buried concrete (per Caltrans Specifications)
pH	7.51	Mildly Alkaline
Minimum Resistivity (saturated, ohm-cm)	1435	Corrosive to buried ferrous pipes

The results of the resistivity test indicate that the underlying soil is corrosive to buried ferrous metals per ASTM STP 1013. Based on the measured water-soluble sulfate content from the soil sample tested, concrete in contact with the soil is expected to have negligible exposure to sulfate attack per ACI 318-11. The samples tested for water-soluble chloride content indicate a low potential for corrosion of steel in concrete due to the chloride content of the soil.

2.2.3 Soil Compressibility

Several samples of the onsite soils recovered from the borings were subjected to consolidation testing to evaluate the compressibility of these

materials under loads representative of anticipated structural bearing stresses. The results of testing indicate these soils did not exhibit a significant compressibility potential. The results of testing are presented in Appendix B.

2.2.4 Excavation Characteristics

Based on the our subsurface explorations performed at the site (Leighton, 2016 and 2017) and our experience from grading jobs in the vicinity of the site, we anticipate that the onsite artificial fill and near surface alluvial materials can be readily excavated using conventional excavation equipment in good operating condition.

2.3 Groundwater Conditions

Groundwater was not encountered at the site to the maximum depth explored of 45 feet bgs where refusal was met during the CPT exploration. According to groundwater information obtained through the California Geological Survey (CGS) and presented in the Seismic Hazard Zone Report for the Orange Quadrangle (CGS, 1997), the historically shallowest groundwater depth in the vicinity of the project site is greater than 50 feet bgs.

According to data provided by GeoTracker, groundwater levels for a site less than a mile to the west of the project site are reported to be greater than 100 feet bgs between 2006 and 2016 (PES, 2016) and the direction of groundwater flow is to the west/southwest. Accordingly, groundwater is not expected to impact the proposed development

Although groundwater is not considered a constraint for the project, fluctuations of the groundwater level, localized zones of perched water, and an increase in soil moisture should be anticipated during and following the rainy seasons or periods of locally intense rainfall or storm water runoff.

2.4 Infiltration Characteristics

In-situ percolation testing was performed to evaluate the infiltration characteristics of the site soil in the vicinity of the proposed stormwater infiltration areas as indicated to us by the project design team (Leighton, 2017). The tests were performed in general accordance with the Orange County *Technical*

Guidance Document (TGD) for the Preparation of Conceptual/Preliminary and/or Project Water Quality Management Programs (WQMPs) (OCPW, 2013).

Borings P-1 through P-3 were converted to temporary percolation test wells upon completion of drilling and sampling (Figure 2, *Boring Location Map*). A 2-inch-diameter, perforated PVC pipe was placed in each borehole and the annulus was filled with clean sand (#3 Monterey Sand) to approximately 1 foot above the zone to be tested. The 2-inch-diameter PVC pipe within the zone to be tested contained 0.020-inch slots or perforations. After the conclusion of the percolation test, the PVC pipe was removed and the test hole was backfilled with excess soil cuttings.

The test was performed using a falling-head method which records the drop of water levels inside the well over the testing period. The measured infiltration rate for the percolation test was calculated by dividing the rate of discharge (i.e., volume of water discharged from the well during the test) by the infiltration surface area, or flow area. Taking into consideration of the drop in water level during the test, the flow area was determined based on the average water height within the test well at the end of each test period. Detailed results of the field testing data and measured infiltration rate for each test well are presented in Appendix C, *Percolation Test Results*. The test results are summarized in the table below:

Table 2 – Measured (Unfactored) Infiltration Rate

Boring-Percolation Test Well Designation and Location Onsite	Approximate Depth of Test Zone Below Ground Surface (feet bgs)	Measured Infiltration Rate (inches per hour)
P-1, northwest corner Fire Access Road	10 to 15	3.71
P-2, northeastern portion of drive access	10 to 15	0.27
P-3, southeastern portion of drive access	15 to 20	0.72

The percolation test performed at test well location P-1, yielded an infiltration rate of 3.71 inches per hour within the test zone of 10 to 15 feet bgs. The percolation tests performed at test well locations P-2 and P-3 yielded much lower infiltration rates of 0.27 inches per hour (test zone between 10 to 15 feet bgs) and 0.72

inches per hour (test zone between 15 to 20 feet bgs), respectively. Our subsurface exploration (Leighton, 2016) and current study indicate the site is generally capped by interbedded, thin to thick clay, silt and silty sand to a depth ranging from approximately 10 to 12 feet below grade. Below these depths the site material is generally characterized as silty sand and sand with fine gravel to maximum depth explored. The more granular materials encountered within the test zone at test well P-1 and below 10 to 12 feet in P-2 and P-3 are generally more permeable and provide higher infiltration potential.

The test results indicate variable infiltration rates at the tested locations and depths. It should be noted that the measured infiltration rate at test well locations P-2 does not meet the minimum requirement for stormwater infiltration feasibility (0.3 inches per hour) after accounting for soil amendments per the Orange County *Technical Guidance Document* (OCPW, 2013).

3.0 GEOLOGIC AND SEISMIC HAZARDS

Geologic and seismic hazards include surface fault rupture, seismic shaking, liquefaction, seismically-induced settlement, lateral spreading, seismically-induced landslides, seismically-induced flooding, flooding, seiches and tsunamis, and methane hazard. The following sections discuss these hazards and their potential impact at the project site.

3.1 Surface Fault Rupture

No active faults are mapped or known to cross the site, and the site is not currently located within an Alquist-Priolo Earthquake Fault Zone (Bryant and Hart, 2007). Based on the current geologic framework, the potential for surface fault rupture at the site is expected to be low. The locations of the nearest known active and potentially active faults with the potential for surface fault rupture in the region surrounding the project site are shown on Figure 4, *Regional Seismicity Map.*

Distances to the closest known active surface faults were calculated using the United States Geological Survey (USGS) Earthquake Hazards Program (USGS, 2008b). The closest active fault is the Puente Hills Blind Thrust Fault. This subsurface (blind-thrust) fault is mapped at a distance of approximately 1.7 miles to the northeast and is responsible for uplift of the Puente Hills. The closest active faults to the site with surface expression are the Whittier-Elsinore and Newport-Inglewood Fault Zone, located 4.3 miles to the north and 14.9 miles to the southwest, respectively. The San Andreas Fault, which is the largest active fault in California, is approximately 36 miles northeast of the site.

The closest mapped fault to the site, located 2.1 miles to the southeast, is the potentially active El Modeno fault (Figure 4). The El Modeno fault is a northwest trending, southwest dipping normal fault mapped for 10 to 18 km (6.2 to 11 miles) from Peter's Canyon Wash to Burrell Point. The El Modeno fault is poorly defined as it is covered by Quaternary alluvium for all of its length. A fault investigation study performed by Woodward-Clyde Consultants (1997a and 1997b) concluded that the El Modena fault is masked over large areas by Quaternary age sediments and that contradictory evidence exists as to its precise location and age of most recent activity. The State of California does not consider it an active fault.

3.2 Strong Ground Shaking

The principal seismic hazard to the site is ground shaking resulting from an earthquake occurring along any of several major active and potentially active faults in southern California. The intensity of ground shaking at a given location depends primarily upon the earthquake magnitude, the distance from the source, and the site response characteristics. Peak horizontal ground accelerations are generally used to evaluate the intensity of ground motion. Using the United States Geological Survey (USGS) Seismic Design Maps (USGS, 2013), the peak ground acceleration for the Maximum Considered Earthquake (MCE_G) adjusted for the Site Class effects (PGA_M) is 0.648g. Based on the USGS online interactive deaggregation program (USGS, 2008a), the modal seismic event has a moment magnitude (M_W) of 7.0 at a distance of 6.9 kilometers. The seismicity data are also included in Appendix D.

3.3 Historical Seismicity

Although Southern California has been seismically active during the past 200 years, written accounts of only the strongest shocks survive the early part of this period. Early descriptions of earthquakes are rarely specific enough to allow an association with any particular fault zone. It is also not possible to precisely locate epicenters of earthquakes that have occurred prior to the twentieth century.

A search of historical earthquakes was performed using the computer program EQ Search (Blake, 2015) for the time period between 1800 and 2016. Within that time frame, 555 earthquakes between magnitude 4.00 and 9.0 were found within a 62-mile (100-kilometer) radius of the site. Of these earthquakes, the closest was an earthquake located approximately 4.9 miles (8.0 kilometers) from the site, and occurred in 1902 (Appendix D, *Seismicity Data*). Although not precisely located, the epicenter for this earthquake event was located to the south of the project site and registered a magnitude 4.3 Mw and induced an estimated peak ground acceleration (PGA) of 0.117g at the project site. The largest PGA at the site is estimated to have been roughly 0.174g from a magnitude 5.1 Mw earthquake that occurred on March 29, 2014.

There are records of two earthquakes with a magnitude 7.0 or larger within the search performed, which were both magnitude 7.0 Mw earthquakes that occurred on December 8, 1812 and December 16, 1858. For a general view of recorded historical seismic activity see Figure 4, *Regional Seismicity Map*.

Review of additional data available from the Center for Engineering Strong Motion Data (CESMD) website (http://strongmotioncenter.org/) indicates that the highest recorded ground acceleration in the vicinity of the project site was 0.154g for a station located approximately 1.2 miles southeast from the site. The recorded ground acceleration was from the magnitude 5.4 Mw earthquake that occurred in Chino Hills on July 29, 2008.

3.4 Liquefaction Potential

Liquefaction is a seismic phenomenon in which loose, saturated, fine-grained granular soils behave similarly to a fluid when subjected to high-intensity ground shaking. Liquefaction occurs when three general conditions exist: 1) shallow groundwater; 2) low density, fine, clean sandy soils; and 3) high-intensity ground motion. Studies indicate that saturated, loose and medium dense, near-surface cohesionless soils exhibit the highest liquefaction potential, while dry, dense, cohesionless soils and cohesive soils exhibit low to negligible liquefaction potential.

As shown on Figure 5, *Seismic Hazard Map*, the site is not mapped within a liquefaction hazard zone as delineated by the State of California (CGS, 1998). Because the site is underlain predominantly by medium dense and stiff soils, and the historic high groundwater level is greater than 50 feet bgs, the potential for liquefaction is considered low and should not impact the planned development.

3.5 Seismically-Induced Settlement

Seismically-induced settlement consists of dynamic settlement of unsaturated soil (above groundwater) and liquefaction-induced settlement (below groundwater). These settlements occur primarily within low density sandy soil due to reduction in volume during and shortly after an earthquake event.

Based on our analysis of the subsurface soil profile as encountered in the hollow-stem auger borings and CPTs performed at the site, the total seismically-induced settlement was estimated to be less than 1 inch. Seismically-induced differential settlement can be taken as half the total settlement over a horizontal distance of 30 feet.

3.6 Seismically-Induced Lateral Ground Displacements

Liquefaction may also cause lateral spreading. For lateral spreading to occur, the liquefiable zone must be continuous, unconstrained laterally, and free to move along gently sloping ground toward an unconfined area. As the site has a low liquefaction potential and it is relatively constrained laterally, the potential for earthquake-induced lateral spreading at the site is low.

3.7 Seismically-Induced Landslides

As shown on Figure 5, *Seismic Hazard Map*, the site is not mapped within a seismically-induced landslide hazard zone identified by the State of California (CGS, 1998). In addition, due to project site being relatively flat, it is our opinion that the potential for seismically-induced landslide hazard at the site is negligible.

3.8 Flooding

Earthquake-induced flooding can be caused by failure of dams or other water-retaining structures as a result of earthquakes. Prado Dam is an earth-fill dam across the Santa Ana River in the Chino Hills near Corona, California in Riverside County with the resulting impounded water creating Prado Flood Control Basin reservoir. The U.S. Army Corps of Engineers (ACOE) completed the dam in the Lower Santa Ana River Canyon in 1941 for the primary purpose of downstream flood control. The area upstream from the dam contains 2,255 square miles (5,840 km^2) of the watershed's 2,650 square miles (6,900 km^2). The Prado Flood Control Basin also provides water storage for groundwater recharge operations. The height of Prado Dam was raised approximately 28 feet adding 140,000 acre-feet to the basin and increasing the dam's level of protection to 190-years. New outlet works and a new outlet channel increased Prado Dam's controlled discharge capacity from 9,500 cubic feet per second (cfs) to 30,000 cfs.

As shown on Figure 6, *Dam Inundation Map*, the project is located approximately 13.4 miles downstream from Prado Dam and is mapped within a Prado Dam inundation zone. Catastrophic failure of the dam is a very unlikely event as dam safety regulations are enforced by the Division of Dams, Army Corp of Engineers and Department of Water Resources. Inspectors may require dam owners to perform work, maintenance or implement controls if issues are found with the safety of the dam. Due to the new improvements, raising the height of Prado Dam and continuous monitoring by the ACOE and others, it is our opinion that the potential for earthquake-induced flooding to affect the site is low.

According to a Federal Emergency Management Agency (FEMA) flood insurance rate map (FEMA, 2008), the project site is not located within a flood hazard zone as indicated on Figure 7, *Flood Hazard Zone Map*. Regionally, storm runoff flow is generally directed to the southwest. The majority of this area is urbanized and storm water runoff is directed through streets and storm drain channels to the Pacific Ocean located approximately 15.5 miles from the site.

3.9 Seiches and Tsunamis

Seiches are large waves generated in enclosed bodies of water in response to ground shaking. Tsunamis are waves generated in large bodies of water by fault displacement or major ground movement. Based on the absence of an enclosed water body near the site and the inland location of the site, seiche and tsunami risks at the site are considered negligible.

3.10 Methane

The Subject Property is located in Township 3 South, Range 9 West, Section 31, San Bernardino Baseline and Meridian, within the City of Placentia, County of Orange, California. Leighton reviewed the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) online Regional Oilfield Map 108 (DOGGR, 2003). The Subject Property is located within the southwestern portion of the Richfield Oil Field. The Orange County Fire Authority (OCFA) requires that a methane survey be conducted prior to any new construction for any property located within their jurisdiction and within an oil field. There are three wells described as "plugged and abandoned - dry holes" or "idle" located within 1,000 feet of the Subject Property to the east; these wells were named "TEPI 'Bennett' 1", "Majestic Oil Co. 1," and "CalResources LLC 'Peter J. Allec' 1." Based on review of readily available data and maps, no known oil wells are depicted within the project site area.

4.0 DESIGN RECOMMENDATIONS

Geotechnical recommendations for the proposed development are presented in the following sections and are intended to provide sufficient geotechnical information to develop the project in general accordance with 2016 CBC requirements. The geotechnical consultant should review the grading plan, foundation plan and specifications as they become available to verify that the recommendations presented in this report have been incorporated into the plans prepared for the project.

4.1 Earthwork

All site grading should be performed in accordance with the applicable local codes and in accordance with the project specifications that are prepared by the appropriate design professional. Site grading recommendations are presented in the following paragraphs. The General Earthwork and Grading Recommendations are included in Appendix E. In case of conflict the following recommendations shall supersede those provided in Appendix E.

4.1.1 Site Preparation

Prior to construction, the site should be cleared of any vegetation, trash, and/or debris within the area of proposed grading. Foundation elements from previous structures and/or septic wells or underground storage tanks, if discovered during grading should be removed from the site. Any underground obstructions onsite should be removed. Efforts should be made to locate any existing utility lines to be removed or rerouted where interfering with the proposed construction. Any resulting cavities should be properly backfilled and compacted. After the site is cleared, the soils should be carefully observed for the removal of all unsuitable deposits. All unsuitable deposits should be excavated and removed from proposed building/structure footprint prior to fill placement.

4.1.2 Overexcavation

To provide a uniform support and reduce the potential for differential settlement, all undocumented fill should be removed under the proposed improvements to expose suitable bearing soils and replaced as engineered fill. The depth of undocumented fill soils encountered at the site that will require remedial removal ranged from approximately 4 to 6 feet bgs across the site. These recommended depths should be verified

during grading as local conditions may be encountered that may require variations in removal depths. The exact extent of removals can best be determined during grading when direct observation and evaluation of materials are possible. Any soft or unsuitable earth materials encountered at the bottom of the excavations should be removed and replaced with compacted fill.

4.1.3 Subgrade Preparation

After completion of the overexcavation and prior to fill placement, the exposed soils should be scarified to a minimum depth of 12 inches, moisture conditioned as necessary and compacted to at least 90 percent relative compaction based on ASTM Test Method D 1557. The moisture content of the soils should be determined, and the soils slowly and uniformly moistened (or dried) as necessary to bring the soils to a uniform moist condition.

To reduce the effects of expansive soils we recommend all concrete slabs-on-grade should be underlain by at least 2 feet of relatively non-expansive soil (EI<20). Based on the results of the exploration (Appendix A) there may be sufficient non-expansive, granular onsite soil for this purpose within excavation depths. However, verification Expansion Index testing will be required to confirm the adequacy of onsite soils for this use.

The moisture content of relatively non-expansive and predominantly granular soils should be brought to within 2 percent of optimum moisture content to a depth of 18 inches. The moisture content of any clayey soils should be brought to about 4 percent over optimum moisture content to a depth of 18 inches. The moisture content of the subgrade should be checked and approved by Leighton prior to placing the required fill.

It is essential that excavation not undermine adjacent building foundations or retaining walls that are to remain to the west and south of this site.

Excavations must not encroach within a 1:1 (horizontal:vertical) wedge extending down and out from existing shallow footings to remain. Shoring or underpinning of existing building foundations or retaining walls will likely be required if excavations will undermine adjacent existing structures.

In addition, ABC slot cutting techniques are recommended along the perimeter of the overexcavation area to the west and south should remedial grading removals encroach into these areas as described above.

In no instance should the slot-cut excavations be left open overnight and care must be used to coordinate excavation/backfilling with forecasted weather to ensure excavations will not be open during periods of rainfall. Furthermore, the slot-cut excavations are recommended to be backfilled the same day as excavated. The maximum widths of the slot-cuts are recommended to be no greater than 8 feet along the southern and western property lines; the widths of the slots may be increased but may be no greater than 12 feet pending field confirmation of actual excavation stability. In addition, the heights of the slot-cuts are recommended to be no greater than 10 feet.

4.1.4 Fill Materials

On-site soil that is free of construction debris, organics, cobbles, boulders, rubble, or rock larger than 4-inches in largest dimension is suitable to be used as fill for support of structures. Any imported fill soil should be approved by the geotechnical engineer prior to placement as fill.

4.1.5 Fill Placement and Compaction

Fill soils should be placed in loose lifts not exceeding 8 inches, moisture-conditioned to within 2 percent of optimum moisture content for sandy soils and at least 4 percent above optimum moisture content for clayey soils, and compacted to a minimum of 90 percent of the maximum dry density as determined by ASTM Test Method D 1557. Aggregate base should be compacted to a minimum of 95 percent relative compaction.

4.1.6 Construction Dewatering

Groundwater was not encountered in our explorations and the historic high groundwater is reported to be greater than 50 feet bgs (CGS, 1997) at the site. Therefore, groundwater is not expected to be encountered within the proposed overexcavation. Construction dewatering is not anticipated to be needed during development of the site.

4.2 Foundation Design

Conventional spread footings established in engineered fill or undisturbed natural soils may be used to support the proposed structures. Footings should be embedded a minimum 12 inches below the lowest adjacent grade. An allowable soil bearing pressure of 4,000 pounds per square foot (psf) may be used for footings with a minimum width of 12 inches for continuous footings and 18 inches for isolated footings.

A one-third increase in the bearing value for short duration loading, such as wind or seismic forces may be used. The ultimate bearing capacity can be taken as 12,000 psf, which does not incorporate a factor of safety. A resistance factor of 0.5 should be used for initial bearing capacity evaluation with factored loads.

The allowable bearing capacity for shallow footings is based on a total static settlement of ½ inch. Differential settlement can be taken as half the total settlement over a horizontal distance of 30 feet.

Since settlement is a function of footing size and contact bearing pressure, differential settlement can be expected between adjacent columns or walls where a large differential loading condition exists. Leighton should review the settlement estimates when final foundation plans and loads for the proposed structures become available. Additional recommendations may be warranted.

Resistance to lateral loads will be provided by a combination of friction between the soil and structure interface and passive pressure acting against the vertical portion of the footings structures. For calculating lateral resistance, a passive pressure of 300 psf per foot of depth to a maximum of 3,000 psf and a frictional coefficient of 0.30 may be used. Note that the passive and frictional coefficients do not include a factor of safety. The frictional resistance and the passive resistance of the soils can be combined without reduction in determining the total lateral resistance.

4.3 Retaining Wall Design

The following soil parameters may be used for the design of retaining walls with level backfill:

Table 3 – Conventional Retaining Wall Design Parameters

Condition	Equivalent Fluid Pressure (psf per foot)
Active	35
At-Rest	55
Passive	300
Seismic Increment (add to active pressure)	30

Care should be taken to provide appropriate drainage so as no water is allowed to remain behind retaining walls for any significant length of time. In addition to the recommended earth pressures, walls below grade adjacent to existing structures or streets and areas of traffic should be designed to accommodate surcharge loads. For traffic surcharge, a uniform lateral pressure of 100 pounds per square foot acting as a result of an assumed 300 pounds per square foot surcharge behind the wall due to normal traffic; the traffic surcharge load may be neglected provided a minimum of 10 foot clearance between the wall and the traffic is maintained. We will provide surcharge loading from adjacent foundations if applicable based on future design.

4.3.1 Retaining Wall Drainage

Adequate drainage may be provided by a subdrain system positioned behind the walls. Typically, this system consists of a 4-inch-diameter perforated pipe placed near the base of the wall (perforations placed downward). The pipe should be bedded and backfilled with pervious backfill material described in Section 300-3.5.2 of the *Standard Specifications for Public Works Construction* (Green Book), current edition. This pervious backfill should extend at least 2 feet out from the wall and to within 2 feet of the outside finished grade. This pervious backfill and pipe should be wrapped in filter fabric, such as Mirafi 140N or equivalent, placed as described in Section 300-8.1 of the *Standard Specifications for Public Works Construction* (Green Book), 2015 Edition. The subdrain outlet should be connected to a free-draining outlet or sump. See Figure 8, *Retaining Wall Subdrain Detail.*

Miradrain, Geotech Drainage Panels, or Enkadrain drainage geocomposites, or similar, may be used for wall drainage as an alternative

to the Class 2 Permeable Material or drain rock backfill, particularly where horizontal space is limited adjacent to shoring (where walls are cast against shoring) or property lines. These drainage panels should be connected to the perforated drainpipe at the base of the wall.

4.4 Slabs-on-Grade

All concrete slabs-on-grade should be underlain by at least 2 feet of relatively non-expansive soil. There may be sufficient non-expansive onsite soil for this purpose. Expansion Index testing of onsite soil should be performed during grading an excavation to ensure onsite material is non-expansive (EI<20).

Concrete slabs may be designed using a modulus of subgrade reaction of 100 pci provided the subgrade is prepared as described in Section 4.1.3. From a geotechnical standpoint, we recommend slab-on-grade be a minimum 5 inches thick with No. 3 rebar placed at the center of the slab at 24 inches on center in each direction. The structural engineer should design the actual thickness and reinforcement based on anticipated loading conditions. Where moisture-sensitive floor coverings or equipment is planned, the slabs should be protected by a minimum 10-mil-thick vapor barrier between the slab and subgrade. A coefficient of friction of 0.35 can be used between the floor slab and the vapor barrier.

Minor cracking of concrete after curing due to drying and shrinkage is normal and should be expected; however, concrete is often aggravated by a high water/cement ratio, high concrete temperature at the time of placement, small nominal aggregate size, and rapid moisture loss due to hot, dry, and/or windy weather conditions during placement and curing. Cracking due to temperature and moisture fluctuations can also be expected. The use of low-slump concrete or low water/cement ratios can reduce the potential for shrinkage cracking. Additionally, our experience indicates that the use of reinforcement in slabs and foundations can generally reduce the potential but not eliminate for concrete cracking.

To reduce the potential for excessive cracking, concrete slabs-on-grade should be provided with construction or weakened plane joints at frequent intervals. Joints should be laid out to form approximately square panels.

4.5 Seismic Design Considerations

To accommodate effects of ground shaking produced by regional seismic events, seismic design performed by the designing structural engineer, should be in accordance with the 2016 edition of the California Building Code (CBC). Table 4, *2016 CBC Code-Based Seismic Design Parameters*, below tabulates seismic design parameters based on the 2016 CBC methodology, which is based on ASCE/SEI 7-10.

Table 4 – 2016 CBC Code-Based Seismic Design Parameters

CBC Categorization/Coefficient	Design Value
Site Longitude (decimal degrees)	-117.8711
Site Latitude (decimal degrees)	33.8676
Site Class Definition	D
Seismic Design Category	D
Mapped Spectral Response Acceleration at 0.2 sec period, S_S	1.755 g
Mapped Spectral Response Acceleration at 1 sec period, S_1	0.634 g
Short Period (0.2 sec) Site Coefficient, F_a	1.0
Long Period (1.0 sec) Site Coefficient, F_v	1.5
Adjusted Spectral Response Acceleration at 0.2 sec period, S_{MS}	1.755 g
Adjusted Spectral Response Acceleration at 1 sec period, S_{M1}	0.952 g
Design Spectral Response Acceleration at 0.2 sec period, S_{DS}	1.170 g
Design Spectral Response Acceleration at 1 sec period, S_{D1}	0.634 g
Peak Ground Acceleration, PGA_M	0.648 g

1. All were derived from the USGS web page: http://earthquake.usgs.gov/designmaps/us/application.php
2. All coefficients in units of g (spectral acceleration)

4.6 Temporary Excavation and Shoring Design

All temporary excavations, including utility trenches, retaining wall excavations, and foundation excavations should be performed in accordance with project plans, specifications, and all OSHA requirements. Excavations 5 feet or deeper should be laid back or shored in accordance with OSHA requirements before personnel are allowed to enter.

No surcharge loads should be permitted within a horizontal distance equal to the height of cut or 5 feet, whichever is greater from the top of the cut, unless the cut is shored appropriately. Excavations that extend below an imaginary plane inclined

at 45 degrees below the edge of any adjacent existing site foundation should be properly shored to maintain support of the adjacent structure.

Typical cantilever shoring should be designed based on the active fluid pressure of 35 pcf. If excavations are braced at the top and at specific design intervals, the active pressure may then be approximated by a rectangular soil pressure distribution with the pressure per foot of width equal to 30H, where H is equal to the depth of the excavation being shored.

If any planned excavation will be adjacent to existing buildings, the shoring should be designed to accommodate the surcharge pressure from existing structures and vehicular loading within a 1:1 plane projected upward from the bottom of the excavation perimeter. A uniform horizontal pressure equal to ½ of the foundation bearing pressure may be assumed for preliminary design.

4.7 Trench Backfill

Utility trenches should be backfilled with compacted fill in accordance with Sections 306-1.2 and 306-1.3 of the Standard Specifications for Public Works Construction, ("Greenbook"), Latest Edition. Utility trenches can be backfilled with onsite material free of rubble, debris, organic and oversized material up to 3 inches in largest dimension. Prior to backfilling trenches, pipes should be bedded in and covered with either:

(1) **Granular Bedding:** 1) ½-inch open grade aggregate or 2) a uniform sand material with a Sand Equivalent (SE) greater-than-or-equal-to 30, passing the No. 4 U.S. Standard Sieve (or as specified by the pipe manufacturer), water densified in place, or

(2) **CLSM:** Controlled Low Strength Material (CLSM) conforming to Section 201-6 of the *Standard Specifications for Public Works Construction,* ("Greenbook"), latest Edition.

Pipe bedding should extend at least 4 inches below the pipeline invert and at least 12 inches over the top of the pipeline. Native and clean fill soils can be used as backfill over the pipe bedding zone, and should be placed in thin lifts, moisture conditioned above optimum, and mechanically compacted to at least 90 percent relative compaction, relative to the ASTM D1557 laboratory maximum density.

4.8 Corrosion Protection Measures

Based on the results of laboratory testing, concrete structures in contact with the onsite soil are expected to have negligible exposure to water-soluble sulfates in the soil. Common Type II cement may be used for concrete construction onsite and the concrete should be designed in accordance with CBC 2016 requirements. However, concrete exposed to recycled water should be designed using Type V cement.

Based on our laboratory testing, the onsite soil is considered corrosive to ferrous metals. Ferrous pipe should be avoided by using high-density polyethylene (HDPE) or other non-ferrous pipe when possible. Ferrous pipe, if used, should be protected by polyethylene bags, tap or coatings, di-electric fittings or other means to separate the pipe from onsite soils.

4.9 Pavement Design

Driveways and fire access road can be constructed using conventional asphalt concrete (AC) over aggregate base (AB). In preparation of design, we have collected representative soil samples and performed R-value testing of near surface soil. The test results are attached and indicate an R-value of 29. Confirmation R-value testing of representative near surface soils should be performed at the end of grading. We have designed the pavement sections using the R-value of 25 for different Traffic Indices (TI) and the minimum pavement section is presented Table 5 below. These pavement sections are preliminary and may change depending on confirmation R-value testing. The pavement design was performed using the method in the California *Highway Design Manual*.

Table 1 - Pavement Sections

Traffic Index	Flexible Pavement (inches)	
	AC	AB
5	3	8
6	3	10
7	4	12

All pavement construction should be performed in accordance with the Standard Specifications for Public Works Construction. Field inspection and periodic

testing, as needed during placement of the base course materials, should be undertaken to ensure that the requirements of the standard specifications are fulfilled. Prior to placement of aggregate base, the subgrade soil should be processed to a minimum depth of 8 inches, moisture-conditioned, as necessary, and recompacted to a minimum of 90 percent relative compaction.

If wet and pumping soils are encountered, a layer of geofabric (Mirafi HP570 or equivalent) may be placed to stabilize the subgrade and provide a firm working surface for placement of compacted fill and aggregate base. Localized areas of loose soils may be encountered that require deeper removal and recompaction. The actual extent of the removal depth will be best determined during construction when direct observation of the subgrade soils can be made.

Aggregate base should be moisture conditioned, as necessary, and compacted to a minimum of 95 percent relative compaction.

Aggregate base and asphalt materials should conform to Sections 200-2 and 203, respectively, of the *Standard Specifications for Public Works Construction*. PCC should conform to Section 201 of the *Standard Specifications for Public Works Construction*.

4.9.1 Portland Cement Concrete Paving

Portland cement concrete paving sections as well as all other concrete slabs and walks supported on grade should be underlain by at least 2 feet of properly compacted fill consisting of relatively non-expansive soils. We have assumed that such a subgrade will have an R-value of at least 40, which will need to be verified during grading.

A thicker layer of non-expansive fill is recommended if it is desired to provide even greater protection against heaving of slabs.

Portland cement concrete (PCC) paving sections were determined in accordance with procedures developed by the Portland Cement Association. PCC paving sections for a range of Traffic Indices are presented in the following table. We have assumed that the Portland Cement Concrete will have a compressive strength of at least 3,000 pounds per square inch.

Table 6 - PCC Paving Sections

Area	Traffic Index	PCC (inches)	Base Course (inches)
Car Parking	4	6½	4
Light Truck	5	7	4
Heavy Truck	6	8	4

The paving should be provided with expansion joints at regular intervals no more than 15 feet in each direction. Load transfer devices, such as dowels or keys, are recommended at joints in the paving to reduce possible offsets. The paving sections in the above table have been developed based on the strength of unreinforced concrete. Steel reinforcing may be added to the paving to reduce cracking and to prolong the life of the paving.

4.10 Infiltration BMP Design Considerations

The measured infiltration rates were the result of small-scale tests performed at specific locations. The actual infiltration rate over the area of the proposed infiltration device could vary significantly from the test location. Therefore, care must be used in the selection of infiltration rate for use in design and the potential for variances in soil conditions that could significantly affect field performance. The small-scale infiltration rates should be converted to a large-scale rate using a reduction factor. In addition, infiltration rates will degrade over time due to complete saturation of underlying soils, and fines build-up and plugging if pretreatment of the storm water is not performed. As such, in accordance with the TGD, a minimum factor of safety of 2 or more should be used to establish a more realistic infiltration rate for the service life of the system.

In general, a vast majority of geotechnical distress issues are related to improper drainage. Distress in the form of foundation movement could occur. Direct infiltration to the subsurface is not recommended adjacent to curb and gutter and public pavements as soil saturation could lead to a loss of soil support, settlement or collapse, and internal erosion (piping). Additionally, infiltration water can and will migrate along pipe backfill (typically sand or gravel bedding) affecting improvements far from the point of infiltration.

We understand that WQMP improvements are proposed in the central and southwestern portions of the project site; including a subsurface detention system, a proprietary filtration/biofiltration device, and an infiltration well with discharge zones from approximately 10 to 15 feet below the ground surface. The planned underground detention/infiltration devices and design saturation zone should be established at least 10 feet away from planned foundations. The design saturation zone may be assumed as a 1:1 plane projected downward from the top of an infiltration device's discharge zone.

Prior to construction of any infiltration device intended for the site, the WQMP and foundation/grading plans should be reviewed by the geotechnical consultant to verify that our geotechnical recommendations have been appropriately incorporated into the plans and not compromised by the addition of an infiltration system to the site. The designer of any infiltration system should contact the geotechnical consultant for geotechnical input during the design process as they feel necessary. Proper compaction oversight during construction is required to ensure the bottoms of infiltration facilities are not overly compacted. Facilities that do not have proper compaction oversight should have more restrictive safety factors applied (double the factor of safety, but may be higher at the discretion of the design engineer)

4.11 Drainage and Landscaping

Building walls below grade should be waterproofed or at least damp proofed, depending upon the degree of moisture protection desired. Surface drainage should be designed to direct water away from foundations and toward approved drainage devices. Irrigation of landscaping should be controlled to maintain, as much as possible, consistent moisture content sufficient to provide healthy plant growth without overwatering.

4.12 Additional Geotechnical Services

The geotechnical recommendations presented in this report are based on subsurface conditions as interpreted from limited subsurface explorations, limited laboratory testing and information available at the time the report is prepared. Additional geotechnical investigation and analysis may be required based on final improvement plans. Leighton should review the site and grading plans when available and comment further on the geotechnical aspects of the project. Geotechnical observation and testing should be conducted during excavation

and all phases of grading operations. Our conclusions and recommendations should be reviewed and verified by Leighton during construction and revised accordingly if geotechnical conditions encountered vary from our preliminary findings and interpretations.

Geotechnical observation and testing should be provided during the following activities:

- Grading and excavation of the site;
- During overexcavation and removal of unsuitable soil;
- Subgrade preparation;
- Compaction of all fill materials;
- Utility trench backfilling and compaction;
- Footing excavation and slab-on-grade preparation;
- Pavement subgrade and base preparation;
- Placement of asphalt concrete and/or concrete; and
- When any unusual conditions are encountered.

5.0 LIMITATIONS

This report does not address the potential for encountering hazardous materials in site soils.

This report was necessarily based in part upon data obtained from a limited number of observances, site visits, soil samples, tests, analyses, histories of occurrences, spaced subsurface explorations and limited information on historical events and observations. Such information is necessarily incomplete. The nature of many sites is such that differing characteristics can be experienced within small distances and under various climatic conditions. Changes in subsurface conditions can and do occur over time.

This report was prepared for *The Placentia TOD Project Owner, LLC* based on their needs, directions and requirements at the time of our exploration, in accordance with generally accepted geotechnical engineering practices at this time in California for similar projects. This report is not authorized for use by, and is not to be relied upon by, any party except *The Placentia TOD Project Owner, LLC* and their design and construction management team, with whom Leighton and Associates, Inc. has contracted for this work. Use of or reliance on this report by any other party is at that party's risk. Unauthorized use of or reliance on this report constitutes an agreement to defend and indemnify Leighton and Associates, Inc. from and against any liability which may arise as a result of such use or reliance, regardless of any fault, negligence, and/or strict liability of Leighton and Associates, Inc.

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Project: 11263.003	Eng/Geol:CCK/JAR
Scale:1 " = 2,000 '	Date: June 2017

Base Map: ESRI ArcGIS Online 2017
Thematic Information: Leighton
Author: Leighton Geomatics (btran)

SITE LOCATION MAP

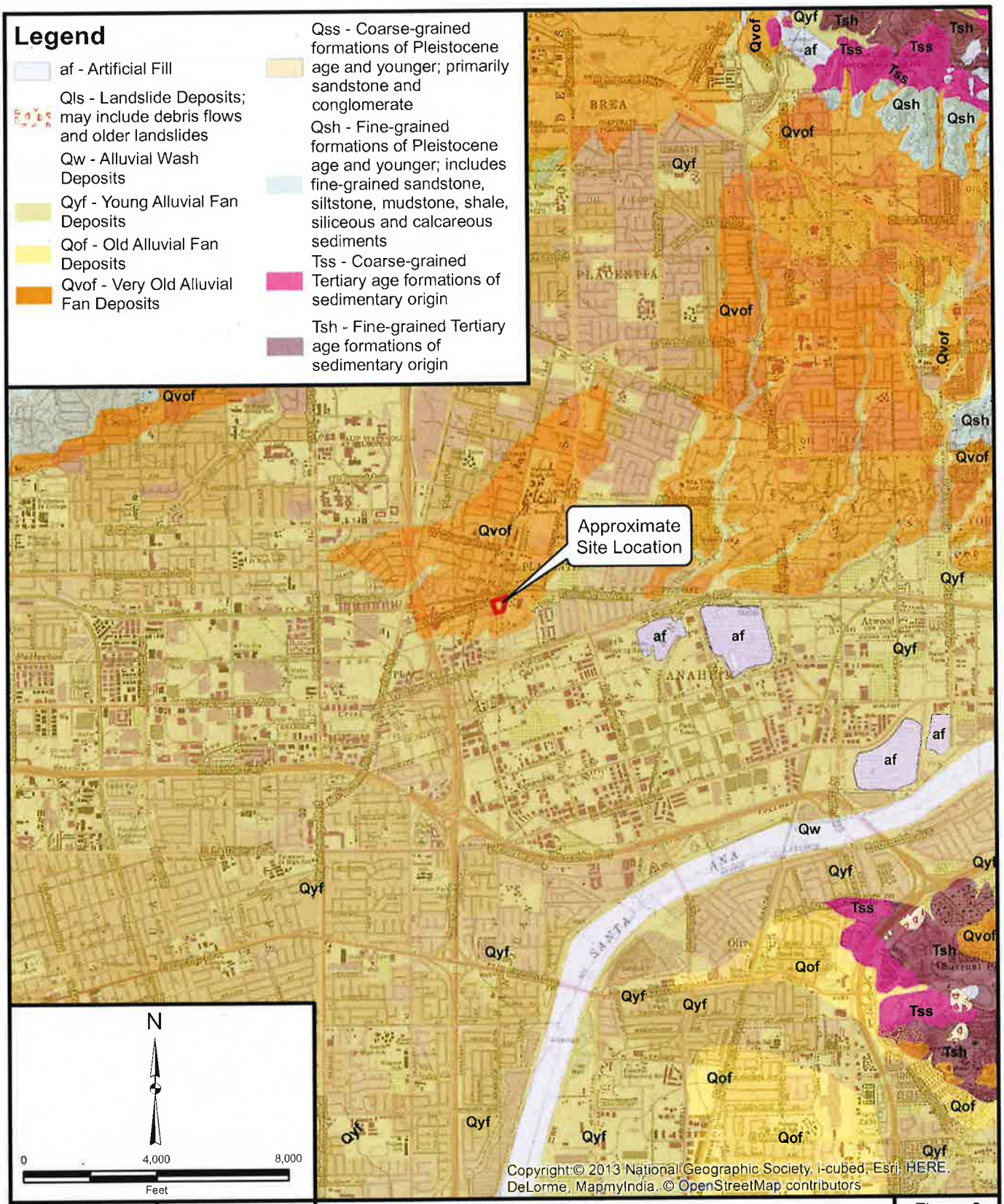
The Herald Multi Family Residential Project
110 and 132 East Crowther Avenue
Placentia, California

Figure 1

Leighton

Map Saved as V:\Drafting\11263\003\Maps\11263.003_F01_SLM_2017-06-09.mxd on 6/1/2017 9:16:39 AM

E. CROWTHER AVE.
SITE ENTRY
A
B
BORING LOCATION MAP
The Herald Multi Family Residential Project
110 and 132 East Crowther Avenue
Placentia, California
Figure 2
Eng/Geol CCK/JAR
Scale: As Shown
Date: June 2017
LEGEND
Afu Artificial Fill; Undocumented
Qvof Quaternary Very Old Alluvial Fan Deposits
B-3
Approximate boring location shown with total depth (T.D.) and thickness of earth units in feet below grand surface
P-3
T.D. 15-20
Approximate location of percolation well shown with test zone in feet below grand surface
CPT-3
T.D. 45
Approximate cone penetration test location showing total depth (T.D.) in feet below grand surface
B-1
P-1
P-2
T.D. 10-15
B-2
P-3
T.D. 15-20
B-3
CPT-1
CPT-2
T.D. 40.9'
CPT-3
T.D. 45'
FIRE ACCESS
LEASING
CAVE
CAVE
LANDSCAPED COURTYARD
LANDSCAPED COURTYARD
MAIL ROOM
GATE
FIRE TURN AROUND
TRASH ROOM
LOADING
ELEC.
GARAGE ENTRY
DOG RUN
UP
12.5%
UP
6%
5%
DN
MAINT SHOP
UP
5%
PARKING PROVIDED
GARAGE
SURFACE
TOTAL
384 SPACES
AREA BREAK DOWN
NET RESIDENTIAL
BALCONIES
CORRIDORS/STOR
STAIRS & ELEV:
LEASING
2,400 S.F
GROSS RES. AREA
256,482 S.F
GROSS GARAGE
182,400 S.F
(INCLUDING ROOF TOP CLUB)
SITE PLAN GROUND LEVEL
NORTH
0'
20'
40'
BASEMENT LEVEL
A-1
E. CROWTHER AVE. SITE
PLACENTIA, CA
PLANS
INTEGRAL COMMUNITIES
HUMPHREYS & PARTNERS ARCHITECTS, L.P.



Project: 11263.003	Eng/Geol:CCK/JAR
Scale:1 " = 4,000 '	Date: June 2017

Base Map: ESRI ArcGIS Online 2017
Thematic Information: Leighton, USGS
Author: Leighton Geomatics (btran)

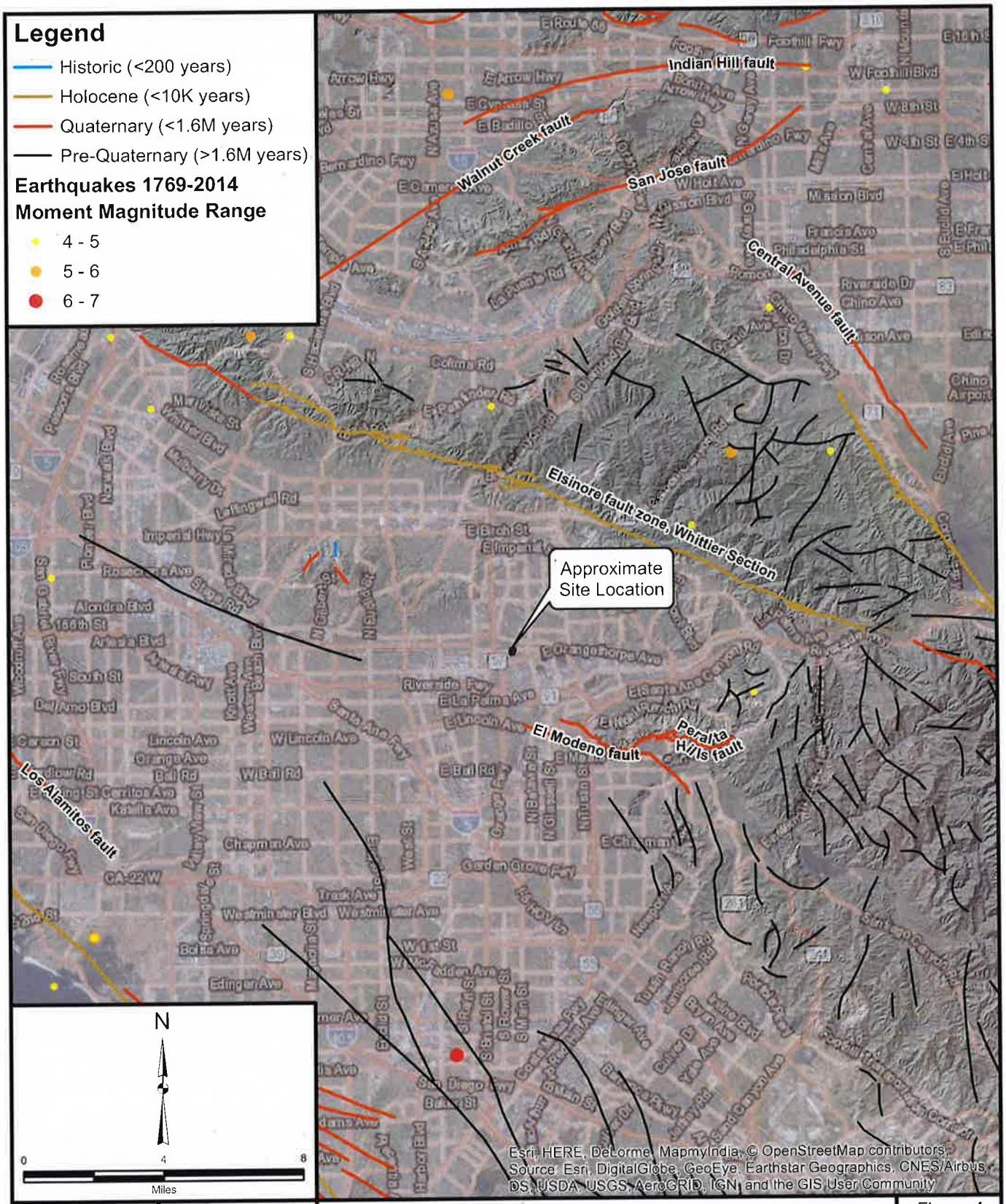
REGIONAL GEOLOGY MAP

The Herald Multi Family Residential Project
110 and 132 East Crowther Avenue
Placentia, California

Figure 3

Leighton

Map Saved as V:\Drafting\11263\003\Maps\11263.003_F03_RGM_2017-06-09.mxd on 6/1/2017 9:18:34 AM



Project: 11263.003	Eng/Geol:CCK/JAR
Scale:1 " = 4 miles	Date: June 2017

Base Map: ESRI ArcGIS Online 2017
Thematic Information: Leighton, CGS, Bryant 2010
Author: Leighton Geomatics (blran)

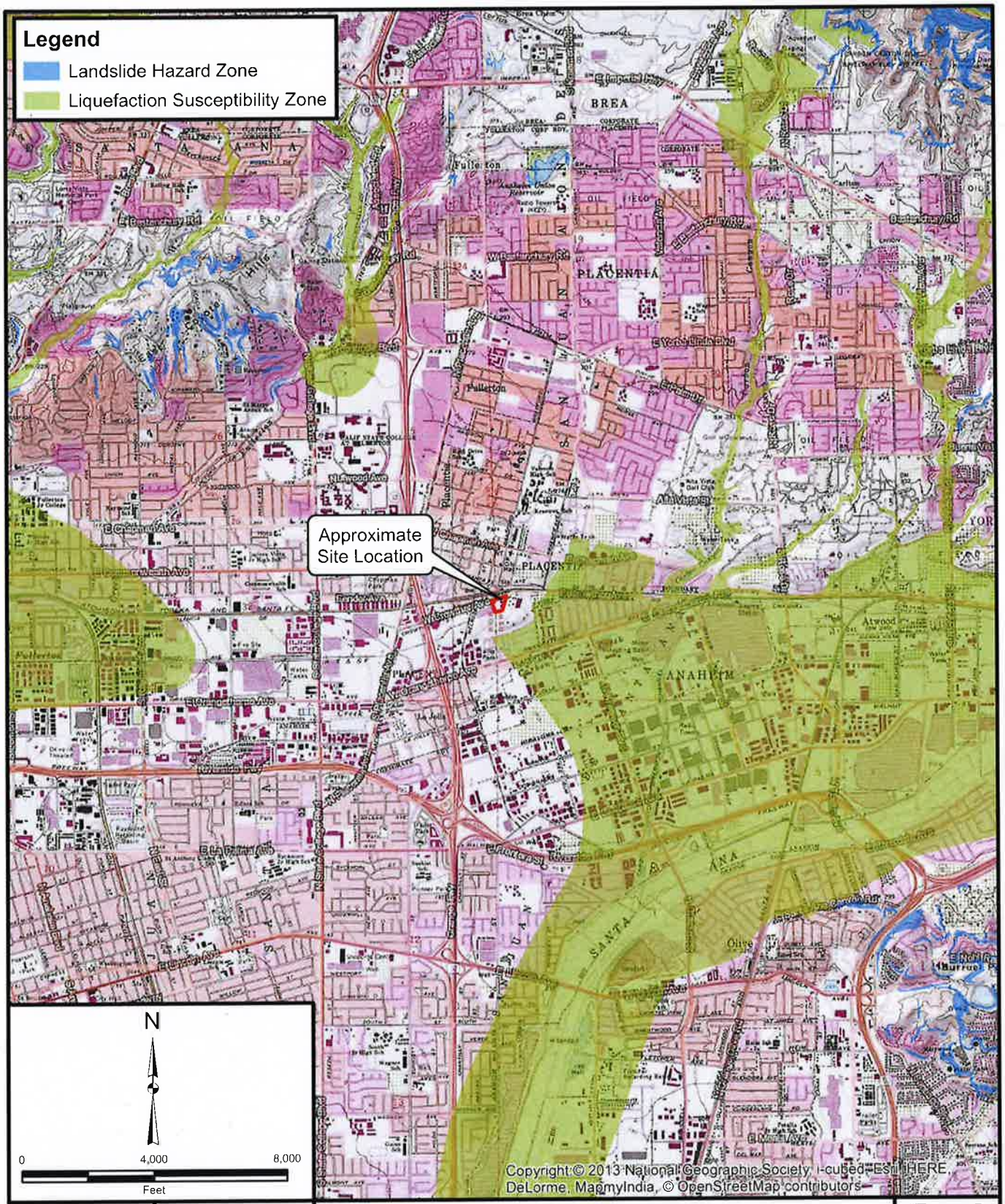
REGIONAL SEISMICITY MAP

The Herald Multi Family Residential Project
110 and 132 East Crowther Avenue
Placentia, California

Figure 4

Leighton

Map Saved as V:\Drafting\11263\003\Maps\11263.003_F04_RSM_2017-06-09.mxd on 6/1/2017 9:19:31 AM



Project: 11263.003	Eng/Geol:CCK/JAR
Scale:1 " = 4,000 '	Date: June 2017

Base Map: ESRI ArcGIS Online 2017
Thematic Information: Leighton, CGS
Author: Leighton Geomatics (btran)

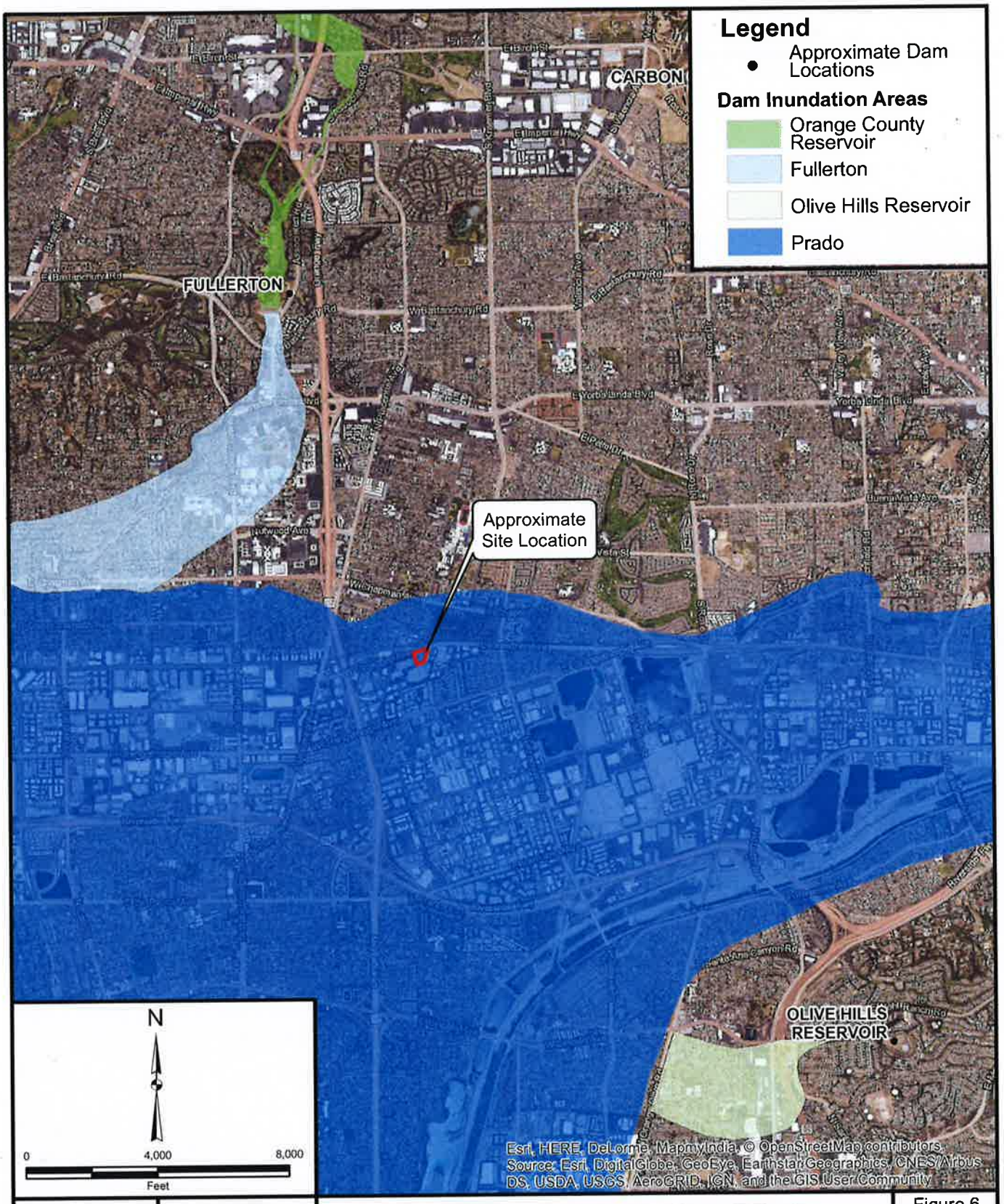
SEISMIC HAZARD MAP

The Herald Multi Family Residential Project
110 and 132 East Crowther Avenue
Placentia, California

Figure 5

Leighton

Map Saved as V:\Drafting\11263\003\Maps\11263.003_F05_SHM_2017-06-09.mxd on 6/1/2017 9:20:18 AM



Project: 11263.003	Eng/Geol:CCK/JAR
Scale:1 " = 4,000 '	Date: June 2017

Base Map: ESRI ArcGIS Online 2017
Thematic Information: Leighton, CA DWR, FEMA
Author: Leighton Geomatics (btran)

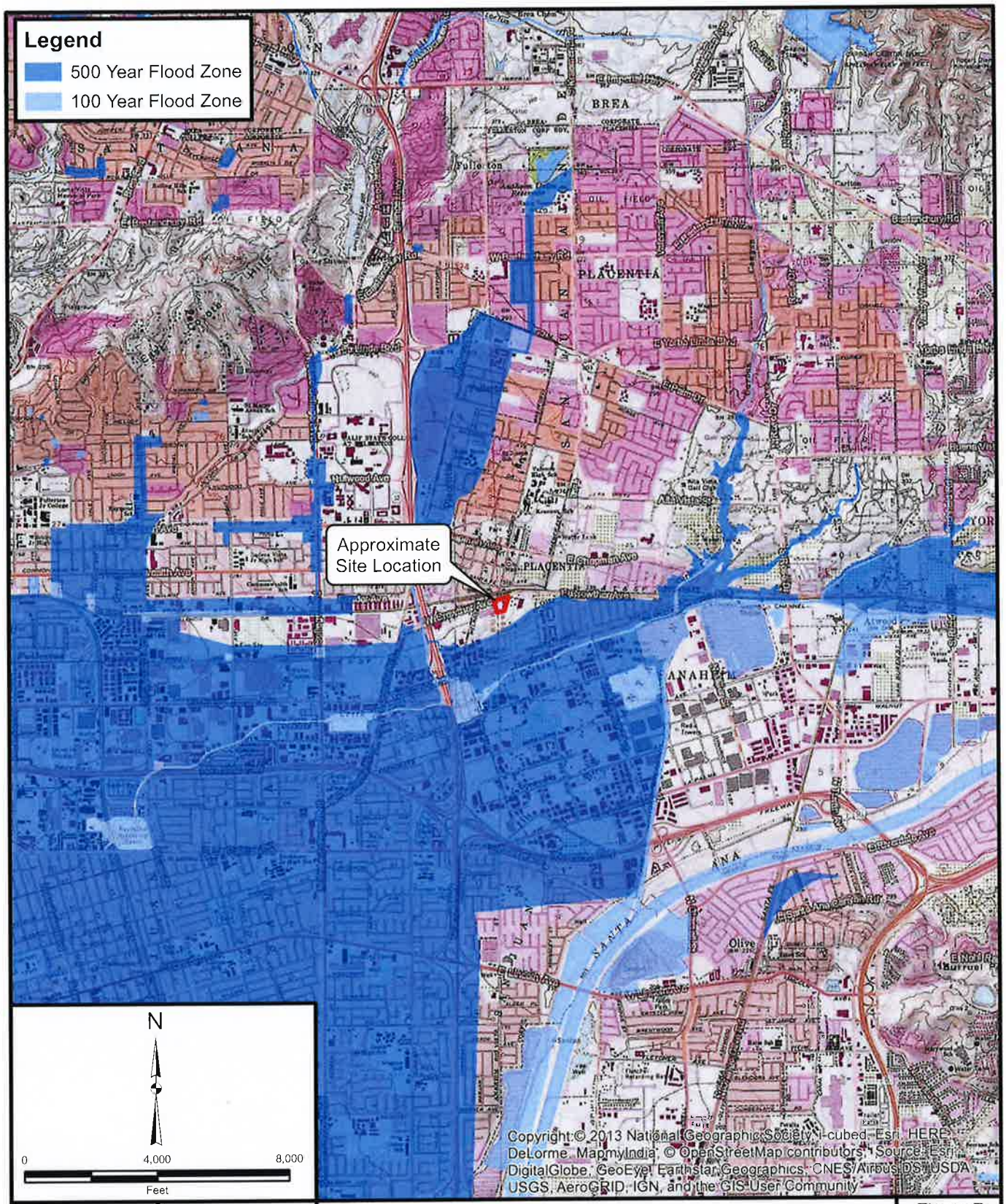
DAM INUNDATION MAP

The Herald Multi Family Residential Project
110 and 132 East Crowther Avenue
Placentia, California

Figure 6

Leighton

Map Saved as V:\Drafting\11263\003\Maps\11263 003_F06_DAM_2017-06-09.mxd on 6/1/2017 9:21:11 AM



Project: 11263.003	Eng/Geol:CCK/JAR
Scale:1 " = 4,000 '	Date: June 2017

Base Map: ESRI ArcGIS Online 2017
Thematic Information: Leighton, CA DWR, FEMA
Author: Leighton Geomatics (btran)

FLOOD HAZARD ZONE MAP

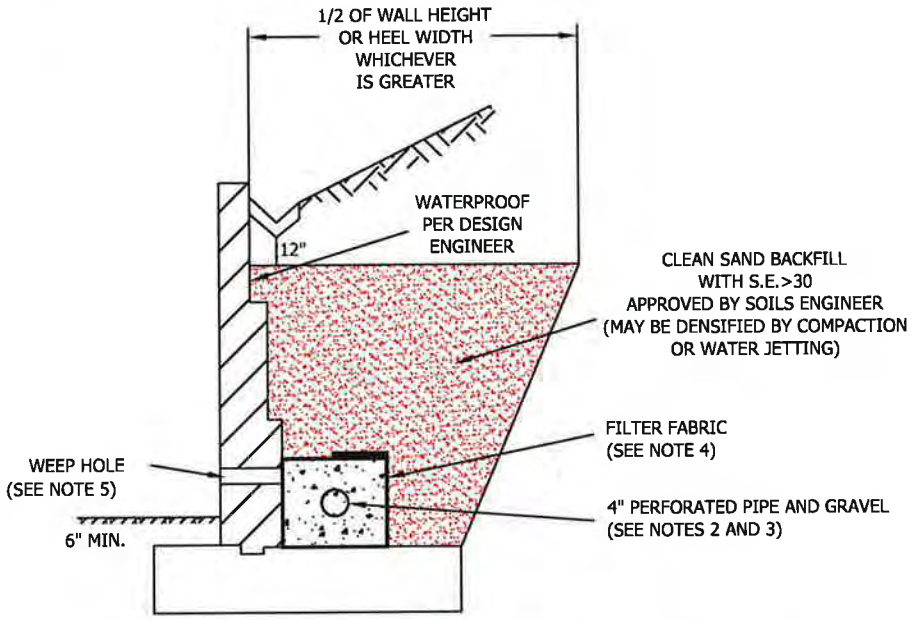
The Herald Multi Family Residential Project
110 and 132 East Crowther Avenue
Placentia, California

Figure 7

Leighton

Map Saved as V:\Drafting\11263\003\Maps\11263_003_F07_FHM_2017-06-09.mxd on 6/1/2017 9:22:33 AM

SUBDRAIN OPTIONS AND BACKFILL WHEN NATIVE MATERIAL HAS EXPANSION INDEX OF >50



NOTE: AS AN ALTERNATE TO CLEAN SAND BACKFILL, CLEAN GRAVEL MAY BE UTILIZED WITH APPROVED FILTER FABRIC. A SECOND ALTERNATE IS TO UTILIZE AN AGGREGATE BASE MATERIAL COMPACTED TO 90% RELATIVE COMPACTION. A SAMPLE OF THE PROPOSED BASE MUST BE APPROVED BY THE GEOTECHNICAL CONSULTANT PRIOR TO BACKFILL FOR SUITABILITY. COMPACTION SHOULD BE ACHIEVED WITHOUT DAMAGING THE WALL.

GENERAL NOTES:

* Waterproofing should be provided where moisture nuisance problem through the wall is undesirable.
* Water proofing of the walls is not under purview of the geotechnical engineer
* All drains should have a gradient of 1 percent minimum
*Outlet portion of the subdrain should have a 4-inch diameter solid pipe discharged into a suitable disposal area designed by the project engineer. The subdrain pipe should be accessible for maintenance (rodding)
*Other subdrain backfill options are subject to the review by the geotechnical engineer and modification of design parameters.

Notes:
1) Sand should have a sand equivalent of 30 or greater and may be densified by water jetting.
2) 1 Cu. ft. per ft. of 1/4- to 1 1/2-inch size gravel wrapped in filter fabric
3) Pipe type should be ASTM D1527 Acrylonitrile Butadiene Styrene (ABS) SDR35 or ASTM D1785 Polyvinyl Chloride plastic (PVC), Schedule 40, Armco A2000 PVC, or approved equivalent. Pipe should be installed with perforations down. Perforations should be 3/8 inch in diameter placed at the ends of a 120-degree arc in two rows at 3-inch on center (staggered)
4) Filter fabric should be Mirafi 140NC or approved equivalent.
5) Weephole should be 3-inch minimum diameter and provided at 10-foot maximum intervals. If exposure is permitted, weepholes should be located 12 inches above finished grade. If exposure is not permitted such as for a wall adjacent to a sidewalk/curb, a pipe under the sidewalk to be discharged through the curb face or equivalent should be provided. For a basement-type wall, a proper subdrain outlet system should be provided.
6) Retaining wall plans should be reviewed and approved by the geotechnical engineer.
7) Walls over six feet in height are subject to a special review by the geotechnical engineer and modifications to the above requirements.

RETAINING WALL BACKFILL AND SUBDRAIN DETAIL

WHEN NATIVE MATERIAL HAS EXPANSION INDEX OF >50

Leighton

APPENDIX A

FIELD EXPLORATION LOGS

Leighton

GEOTECHNICAL BORING LOG B-1

Project No.	11263.002	**Date Drilled**	2-1-17
Project	Crowther Avenue	**Logged By**	SAM
Drilling Co.	Martini Drilling Co	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	235'
Location	See Figure 2 Boring Location Map	**Sampled By**	SAM

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
									This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.	
235	0			BB-1				SC	@Surface: 3 inches of Asphalt Concrete over 6 inches of Aggregate Base **Artificial Fill: undocumented (Afu)** @0.75': Clayey Sand, medium brown to orange brown, slightly moist, fine to coarse sand, few subangular gravels >1-inch diameter, few organics, moderately plastic, EI=68 @3': Sandy SILT, medium brown, very stiff, moist, fine to coarse sand, trace fine angular gravels	EI
230	5			R1	8 15 19			ML	**Quaternary Very Old Alluvial Fan Deposits (Qvof)**	
				S1	3 5 4			SMg	@6': Silty SAND with Gravel, reddish brown, loose, slightly moist, fine to coarse grained sand, fine angular gravels	
225	10			R2	7 23 44			SM	@10': Silty SAND, orange brown, dense, slightly moist, fine to coarse sand, trace subrounded to subangular gravels	
				S2	10 12 15				@12': Medium brown/orange to tan, medium dense, dry, fine to medium sand	
220	15			R3	11 22 31				@15': Fine to coarse sand, trace gravel approximately 1-inch diameter, dense	
215	20			S3	8 16 21				@20': Silty SAND, grades medium brown to tan, medium dense, slightly moist, fine to coarse sand	
210	25			R4	15 21 33				@25': Tan, dense, trace subrounded gravel	
205	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG B-1

Project No.	11263.002	**Date Drilled**	2-1-17
Project	Crowther Avenue	**Logged By**	SAM
Drilling Co.	Martini Drilling Co	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	235'
Location	See Figure 2 Boring Location Map	**Sampled By**	SAM

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
									This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.	
205	30			S4	6 16 18			SM/ML	@30': Interbedded Silty SAND and SILT, tan, medium dense/very stiff, slightly moist to moist, fine to coarse sand, 3-inch thick silt bed at top of sample	
200	35			R5	28 50/4"			SPg	@35': SAND, tan, very dense, slightly moist, fine to coarse sand, trace silt and subrounded gravels approximately 1 inch diameter	
195	40			S5	10 22 27				@40': No recovery	
									Total Depth of Boring: 41.5 feet bgs No groundwater encountered during drilling Boring backfilled with soil cuttings and patched with cold-patch asphalt on 2/1/2017	
190	45									
185	50									
180	55									
175	60									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG B-2

Project No.	11263.002	**Date Drilled**	2-1-17
Project	Crowther Avenue	**Logged By**	SAM
Drilling Co.	Martini Drilling Co	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	238'
Location	See Figure 2 Boring Location Map	**Sampled By**	SAM

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
									This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.	
238	0			BB-1				CH	@Surface: 3 inches of Asphalt Concrete over 2 inches of Aggregate Base	
									Artificial Fill; undocumented (Afu)	
235									@0.42': Fat CLAY, very dark brown to light brown, slightly moist, trace asphalt debris and fine sand, EI=106	EI
								SC	**Quaternary Very Old Alluvial Fan Deposits (Qvof)**	
	5			S1	2 3 5			ML	@4': becomes Clayey SAND, dark brown, moist, fine sand @5': Sandy SILT, reddish brown, medium stiff, moist, fine to medium sand, carbonate stringers	
230				R1	8 10 13				@7': stiff	CN, DS
	10			S2	2 3 5			SM	@10': Silty SAND with clay, orange brown, loose, moist, fine to coarse sand	
225				R2	7 11 12					
	15			S3	7 11 15			SM/ML	@15': Interbedded Silty SAND and Clayey SILT, orange brown, very stiff/medium dense, moist, 4-inch thick beds	
220										
	20			R3	8 36 45			SM	@20': Silty SAND, tan, very dense, slightly moist, fine to coarse sand, some subrounded gravel up to 1-inch diameter	
215										
	25			S4	7 14 25				@25': medium dense, trace subrounded gravel less than 1/2-inch diameter	
210										
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG B-2

Project No.	11263.002	**Date Drilled**	2-1-17
Project	Crowther Avenue	**Logged By**	SAM
Drilling Co.	Martini Drilling Co	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	238'
Location	See Figure 2 Boring Location Map	**Sampled By**	SAM

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	30			R4	13 25 42			SM	@20': Silty SAND, tan, very dense, slightly moist, fine to coarse sand, some subrounded gravel up to 1-inch diameter @30': Silty SAND, tan, dense, slightly moist, fine to coarse sand, trace angular gravel	
205										
	35			S5	12 18 29				@35': same as above	
200										
	40			R5	21 50/5" 27				@40': No recovery	
									Total Depth of Boring: 41.5 feet bgs No groundwater encountered during drilling Boring backfilled with soil cuttings and patched with cold-patch asphalt on 2/1/2017	
195	45									
190										
	50									
185										
	55									
180										
	60									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG B-3

Project No.	11263.002	**Date Drilled**	2-1-17
Project	Crowther Avenue	**Logged By**	SAM
Drilling Co.	Martini Drilling Co	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	240'
Location	See Figure 2 Boring Location Map	**Sampled By**	SAM

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
									This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.	
240	0			BB-1				SC	@Surface: Grass Artificial Fill: undocumented (Afu) @0': Clayey SAND, dark brown, slighlty moist, fine to coarse sand, trace organics	CN,CR, DS,MD, RV
									Quaternary Very Old Alluvial Fan Deposits (Qvof)	
235	5			R1	5 13 22			SC	@5': Clayey SAND, dark brown, medium dense, slightly moist, carbonate stringers	DS
230	10			S1	1 2 2			CL ML	@10': Silty CLAY, dark brown, soft, slightly moist, some organics @10.5': Clayey SILT, medium brown, soft, moist, trace fine to medium sand	
				R2	4 8 12			SM	@12': Silty SAND, dark brown, medium dense, slightly moist, fine to coarse sand, trace subrounded gravel	CN
225	15			S2	6 7 7				@15': Silty SAND, orange brown, medium dense, slightly moist, fine to coarse sand, trace subrounded gravel	
				R3	6 18 41				@17': Silty SAND, orange brown, dense, slightly moist, subangular gravel	
220	20			S3	9 17 23			SP	@20': SAND, tan, dense, slighlty moist, fine to coarse sand	
215	25			R4	16 29 40			SPg	@25': SAND, tan, dense, slighlty moist, fine to coarse sand, some subrounded gravel	
210	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG B-3

Project No.	11263.002	**Date Drilled**	2-1-17
Project	Crowther Avenue	**Logged By**	SAM
Drilling Co.	Martini Drilling Co	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	240'
Location	See Figure 2 Boring Location Map	**Sampled By**	SAM

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
210	30			S4	13 20 24			SP	@20': SAND, tan, dense, slighlty moist, fine to coarse sand @30': SAND, tan, dense, slightly moist, fine to coarse sand	
205	35			R5	29 37 50/4"			SW	@35': Gravelly SAND, tan, very dense, slightlymoist, fine to coarse sand, subangular gravels, trace silt	
200	40			S5	20 50/5"				@40': SAND with Gravel, tan, very dense, slightly moist, broken cobble in bottom of sample, poor recovery	
									Total Depth of Boring: 41.5 feet bgs No groundwater encountered during drilling Boring backfilled with soil cuttings and patched with cold-patch asphalt on 2/1/2017	
195	45									
190	50									
185	55									
180	60									

Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG P-1

Project No.	11263.002	**Date Drilled**	2-1-17
Project	Crowther Avenue	**Logged By**	SAM
Drilling Co.	Martini Drilling Co	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	235'
Location	See Figure 2 Boring Location Map	**Sampled By**	SAM

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
235	0							SC	@Surface: 3 inches of Asphalt Concrete over 6 inches of Aggregate Base **Artificial Fill; undocumented (Afu)** @0.75': Clayey Sand, medium brown to orange brown, slightly moist, fine to coarse sand, few subangular gravels >1-inch diameter, few organics, moderately plastic, EI=68	
								ML	@3': Sandy SILT, medium brown, very stiff, moist, fine to coarse sand, trace fine angular gravels	
230	5							SMg	**Quaternary Very Old Alluvial Fan Deposits (Qvof)** @5': Silty SAND with Gravel, reddish brown, loose, slightly moist, fine to coarse grained sand, fine angular gravels	
225	10									
220	15								Total Depth of Boring: 15 feet bgs No groundwater encountered during drilling Boring converted to percolation test well (See Section 2.4 of this report) **Test Zone 10-15 feet bgs - Infiltration Rate=3.71 in/hr** Boring backfilled with soil cuttings and patched with cold-patch asphalt on 2/2/2017 upon completion of testing	
215	20									
210	25									
205	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG P-2

Project No.	11263.002	**Date Drilled**	2-1-17
Project	Crowther Avenue	**Logged By**	SAM
Drilling Co.	Martini Drilling Co	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	238'
Location	See Figure 2 Boring Location Map	**Sampled By**	SAM

Elevation Feet	Depth Feet	Graphic Log	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
		N S							*This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	
	0								@Surface: 3 inches of Asphalt Concrete over 2 inches of Aggregate Base	
									Artificial Fill: undocumented (Afu)	
235								CH	@0.42': Fat CLAY, very dark brown to light brown, slightly moist, trace asphalt debris and fine sand, EI=106	
	5								**Quaternary Very Old Alluvial Fan Deposits (Qvof)**	
									@4': becomes Clayey SAND, dark reddish brown, moist, fine sand, moderately plastic	
230								SC		
	10									
225										
	15								Total Depth of Boring: 15 feet bgs No groundwater encountered during drilling Boring converted to percolation test well (See Section 2.4 of this report) **Test Zone 10-15 feet bgs - Infiltration Rate= 0.27 in/hr (Not feasible at this depth)** Boring backfilled with soil cuttings and patched with cold-patch asphalt on 2/2/2017 upon completion of testing	
220										
	20									
215										
	25									
210										
	30									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

GEOTECHNICAL BORING LOG P-3

Project No.	11263.002	**Date Drilled**	2-1-17
Project	Crowther Avenue	**Logged By**	SAM
Drilling Co.	Martini Drilling Co	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	240'
Location	See Figure 2 Boring Location Map	**Sampled By**	SAM

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
240	0							SC	@Surface: Grass Artificial Fill: undocumented (Afu) @0': Clayey SAND, dark brown, slighlty moist, fine to coarse sand, trace organics, becomes Sandy SILT at 2'	
								ML		
235	5							SC	Quaternary Very Old Alluvial Fan Deposits (Qvof) Clayey SAND, very dark reddish brown, moist, fine to medium sand	
230	10							ML	@10': Sandy SILT, medium brown to reddish brown, moderate carbonate development (stringers), slightly moist	
225	15							ML	@15': Sandy SILT with some clay in matrix, reddish brown, carbonate stringers, slightly moist	
220	20								Total Depth of Boring: 20 feet bgs No groundwater encountered during drilling Boring converted to percolation test well (See Section 2.4 of this report) **Test Zone 15-20 feet bgs - Infiltration Rate= 0.72 in/hr** Boring backfilled with soil cuttings on 2/2/2017 upon completion of testing	
215	25									
210	30									

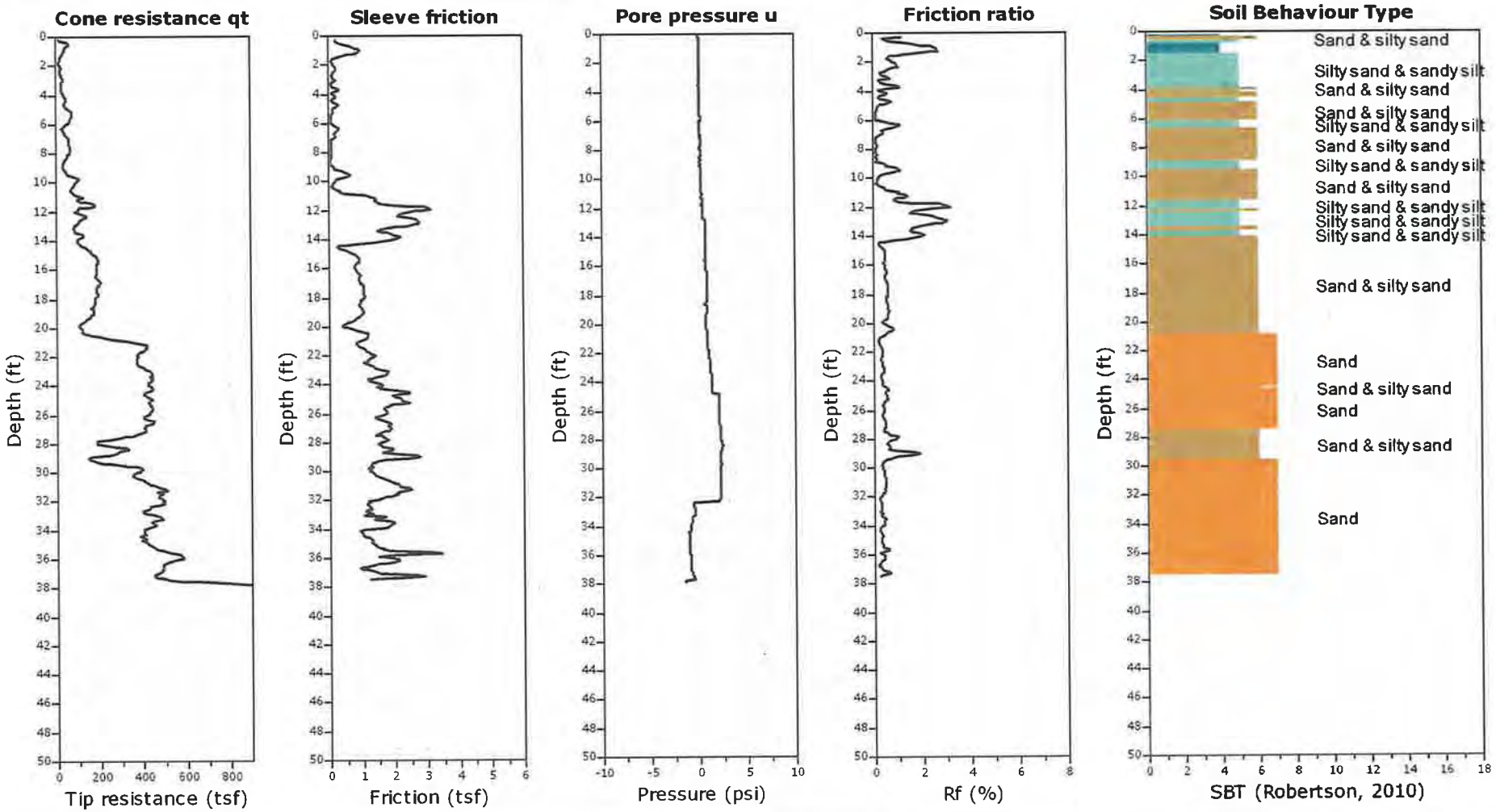
SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

Kehoe Testing and Engineering
714-901-7270
rich@kehoetesting.com
www.kehoetesting.com

Project: **Leighton & Associates/Integral/Crowther Avenue**
Location: **110 & 132 E. Crowther Ave Placentia, CA**

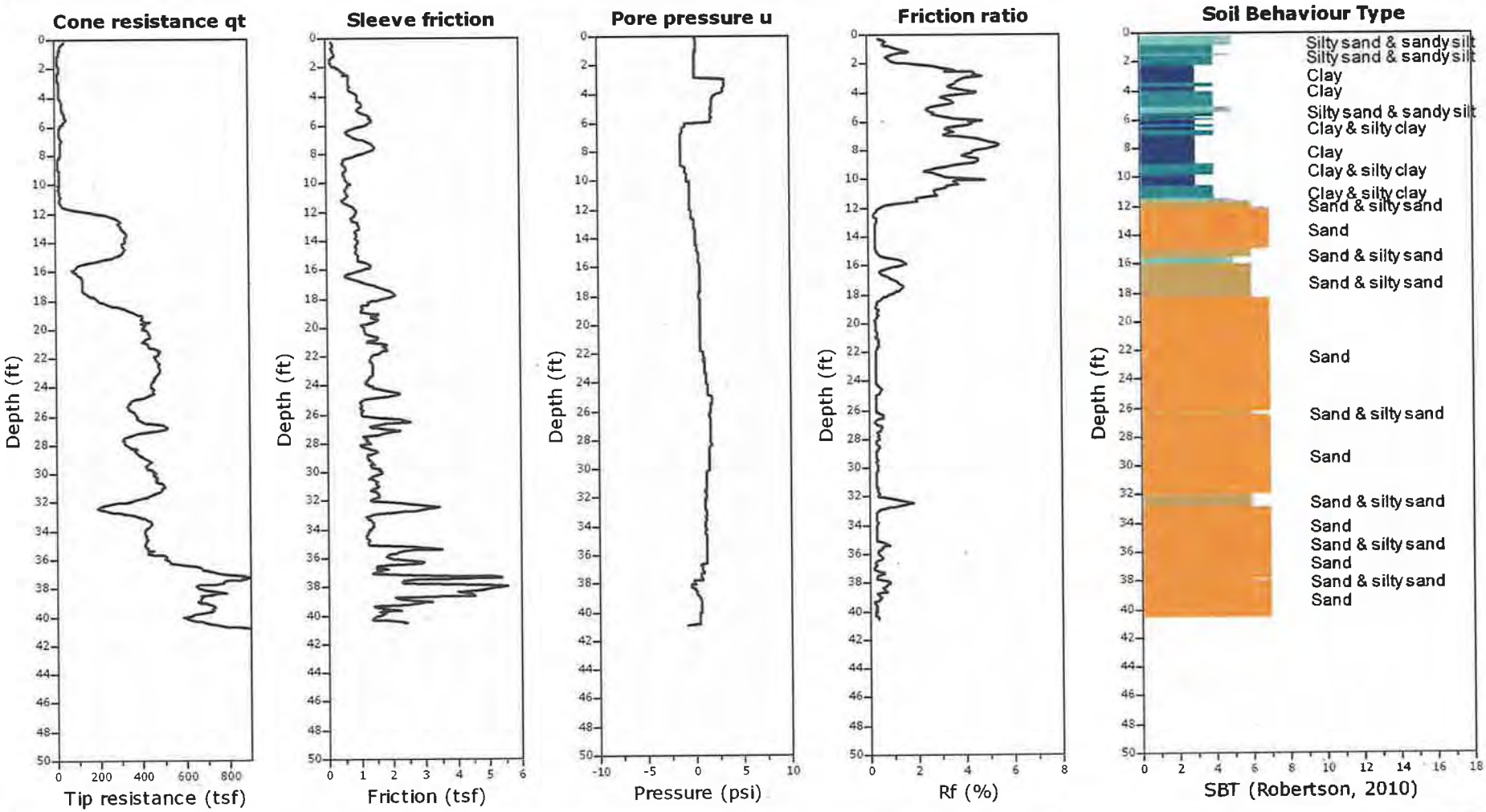
CPT: CPT-1
Total depth: 37.84 ft, Date: 3/8/2016
Cone Type: Vertek



Kehoe Testing and Engineering
714-901-7270
rich@kehoetesting.com
www.kehoetesting.com

Project: **Leighton & Associates/Integral/Crowther Avenue**
Location: **110 & 132 E. Crowther Ave Placentia, CA**

CPT: CPT-2
Total depth: 40.89 ft, Date: 3/8/2016
Cone Type: Vertek



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Project: **Leighton & Associates/Integral/Crowther Avenue**
Location: **110 & 132 E. Crowther Ave Placentia, CA**

CPT: CPT-3
Total depth: 45.02 ft, Date: 3/8/2016
Cone Type: Vertek