Planning Commission Agenda

Tuesday, July 23, 2024, 6:00 PM
COUNCIL CHAMBERS
1 Civic Center Circle
Brea, California 92821

Also via teleconference: 350 W Central Ave #455, Brea, CA 92821 and 625 E Dogwood Dr, Kuttawa, KY 42055

Joseph Covey, Chair **Melanie Schlotterbeck,** Vice Chair

Tom Donini, Commissioner **Bill Madden,** Commissioner **Blake Perez,** Commissioner

This agenda contains a brief general description of each item the Commission will consider. The Planning Division has on file copies of written documentation relating to each item of business on this Agenda available for public inspection. Contact the Planning Division at (714) 990-7674 or view the Agenda and related materials on the City's website at www.cityofbrea.net. Materials related to an item on this agenda submitted after distribution of the agenda packet are available for public inspection in the Planning Division at 1 Civic Center Circle, Brea, CA during normal business hours. Such documents may also be available on the City's website subject to staff's ability to post documents before the meeting.

Procedures for Addressing the Commission

The Commission encourages interested people to address this legislative body by making a brief presentation on a public hearing item when the Chair calls the item or addresses other items under Matters from the Audience. State Law prohibits the Commission from responding to or acting upon matters not listed on this agenda.

The Commission encourages free expression of all points of view. To allow all persons the opportunity to speak, please keep your remarks to 3 minutes. If others have already expressed your position, you may simply indicate that you agree with a previous speaker. If appropriate, a spokesperson may present the views of your entire group. Commission rules prohibit clapping, booing, or shouts of approval or disagreement from the audience. Please silence all cell phones and other electronic equipment while the Commission is in session. Thank you.

Written comments may be submitted in advance of the meeting by emailing planner@cityofbrea.net. Written comments received by 3 p.m. on the day of the meeting will be provided to the Commission, will be made available to the public at the meeting, and will be included in the official record of the meeting.

Special Accommodations

In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting, please contact Planning at (714) 990-7674. Notification 48 hours before the meeting will enable City staff to make reasonable arrangements to ensure accessibility. (28 CFR 35.102.35.104 ADA Title II)

Important Notice

The City of Brea shows a live broadcast of the Planning Commission meeting over the internet at https://cityofbrea-net.zoom.us/j/89166452644. (for viewing only). Your attendance at the public meeting may result in the recording and broadcast of your image and/or voice as previously described.

ALL PLANNING COMMISSION DECISIONS MAY BE APPEALED TO THE CITY COUNCIL WITHIN TEN (10) CALENDAR DAYS OF THE MEETING. PLEASE CONTACT THE CITY CLERK AT (714) 990-7756

FOR FURTHER INFORMATION ABOUT FILING AN APPEAL OR OBTAINING AN APPEAL APPLICATION.

1: CALL TO ORDER/ROLL CALL - COMMISSION

2: INVOCATION

Ernie Benavides - The Cause Church

3: PLEDGE OF ALLEGIANCE

4: MATTERS FROM THE AUDIENCE

5: CONSENT CALENDAR

5A. June 25, 2024 Planning Commission Minutes

— 1. Approve.

5B. Quarterly Monitoring Report

— 1. Receive and file.

6: PUBLIC HEARINGS

6A. South Brea Townhomes- Tentative Tract Map No. 19315, Density Bonus No. 2023-01, and Precise Development No. 2023-03

A request to allow demolition of an existing commercial building and construction of a housing development consisting of 29 single-family attached units and three live/work units, for a total of 32 units, located at 685 South Brea Boulevard.

— 1. Find the Project exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15332; and,

— 2. Adopt resolutions approving the following entitlements, based on findings and conclusions in the corresponding resolutions, and subject to the recommended conditions of approval:

— a. TTM No. 19315, to subdivide the Project Site for condominium purposes to construct a total of 32 residential units, including three live/work units;

— b. DB No. 2023-01, to utilize the following Density Bonus provisions: 1) Density Bonus parking standards; and 2) waivers of five development standards, which includes reductions of the front setback to between 6” and 1’-6”, the street side setbacks to between 3’-4” and 5’, the landscaping setbacks to between 1’-11” and 5’-11”, the common open space requirement to 23 square feet per dwelling unit, and the private open space requirement to 50 square feet per dwelling unit.

— c. PD No. 2023-03, to demolish the existing commercial building and construct a new housing development that would include 29 residential single-family attached units and three live/work units, for a total of 32 units, dispersed in four buildings.

7: ADMINISTRATIVE ITEMS

7A. Committee Reports

7B. Informational/Project Updates

— 1. Receive and file.

8: ADJOURNMENT

Date Posted: July 16, 2024

City of Brea

Planning Commission Communication

June 25, 2024 Planning Commission Minutes

Meeting	Agenda Group
Tuesday, July 23, 2024, 6:00 PM	CONSENT CALENDAR Item: 5A

TO	FROM
Chair and Members of the Planning Commission	Joanne Hwang, City Planner

RECOMMENDATION

Staff recommends that the Planning Commission approve the Planning Commission minutes of June 25, 2024 meeting.

RESPECTFULLY SUBMITTED:

Joanne Hwang, AICP, City Planner

Attachments

June 25, 2024 Draft Minutes.pdf

** **The following document is a draft of the minutes and the not the official approved minutes** **

Minutes for the Planning Commission

1 Civic Center Circle, Brea, California 92821

June 25, 2024, 6:00 PM

1. CALL TO ORDER/ROLL CALL - COMMISSION

Chair Covey called the meeting to order at 6:00 pm. All members were present, with Commissioner Donini absent.

2. INVOCATION - Pastor Eddy Vera with Friends Community Church

Pastor Eddy Vera with Friends Community Church provided the Invocation.

3. PLEDGE OF ALLEGIANCE

Commissioner Perez led the Pledge of Allegiance.

4. MATTERS FROM THE AUDIENCE

None.

5. CONSENT CALENDAR

5A. Approval of June 11, 2024 Planning Commission Meeting Minutes

Vice Chair Schlotterbeck made the motion to approve the consent calendar. Commissioner Madden seconded the motion and the motion carried 4-0.

6. PUBLIC HEARINGS

6A. Tentative Parcel Map No. 2022-179

Chair Covey disclosed he visited the site.

Senior Planner Rebecca Pennington presented the item.

Chair Covey Opened the Public Hearing.

The Applicant, James McGrade, President of Healthcare Property Advisors, introduced himself and thanked staff for their hard work and effort on this project.

Seeing no members of the public wishing to address the Commission, Chair Covey closed the Public Hearing.

Commissioner Perez made the motion to approve Tentative Parcel Map No. 2022-179. Vice Chair Schlotterbeck seconded the motion and the motion carried 4-0.

7. ADMINISTRATIVE ITEMS

7A. Committee Reports

Commissioner Perez reported on the Brea 2050 Community Steering Committee and encouraged everyone to take the General Plan Update survey.

Chair Covey reported on the recent Art in Public Places Committee meeting and reminded everyone of the Fourth of July Country Fair.

7B. Informational/Project Updates

None.

8. ADJOURNMENT

Chair Covey adjourned the meeting at 6:18 pm.

City of Brea

Planning Commission Communication

Quarterly Monitoring Report

Meeting	Agenda Group
Tuesday, July 23, 2024, 6:00 PM	CONSENT CALENDAR Item: 5B

FROM
Joanne Hwang, City Planner

RECOMMENDATION

Staff recommends that the Planning Commission receive and file the Final Quarterly Traffic Monitoring Report identified as a Condition of Approval for Tentative Parcel Map No. 2016-178.

BACKGROUND/DISCUSSION

Pursuant to the adopted Resolution No. PC 2017-05 and Resolution No. PC 2017-07 for Parcel Map No. 2016-178 and Precise Development No. 16-04 respectively, located at the northwest corner of Birch Street and State College Boulevard, the Project was issued Conditions of Approval on June 27, 2017. As part of Condition of Approval “o” for Tentative Parcel Map No. 2016-178, the applicant was required to monitor and report on the traffic signal synchronization operation with adaptive traffic control systems for the Project every quarter for pre-construction, during the construction, and occupancy of the project up to 100% occupancy and for two (2) years after 100% occupancy. The Project Developer has retained a traffic engineering consultant to perform the monitoring, and a Quarterly Traffic Monitoring Report has been prepared for reporting to the Planning Commission. Please see the attached Quarterly Traffic Monitoring Report that has been prepared on behalf of the Project applicant.

This report is the final monitoring report that would be provided for the Project. With this report, the Project Developer has satisfied the requirements of the subject condition.

RESPECTFULLY SUBMITTED:

Joanne Hwang, AICP, City Planner

Prepared by: Ryan Chapman, PE, Acting City Engineer

Concurrence: Michael Ho, P.E., Public Works Director

Attachments

Quarterly Monitoring Report.pdf

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Santa Ana, CA 92705

TECHNICAL MEMORANDUM

To:	Ryan Chapman, PE Albert Espinoza, MPA, PE, TE David Roseman, PE City of Brea 1 Civic Center Circle Brea, CA 92821	From:	Jason Xu, PE, PTOE, PMP Richard Luo, EIT Iteris, Inc. 1700 Carnegie Avenue, Suite 100 Santa Ana, CA 92705
Date:	July 5, 2024		
RE:	**Final Monitoring Report for Brea Place SynchroGreen Adaptive Signal Operation**		

As part of the Brea Place Project, Adaptive Signal Control Technologies (ASCT) system has been deployed along the corridors of State College Boulevard from Brea Mall South to Lambert Road and Birch Street from State College Boulevard to Poplar Avenue. Based on the Conditions of Approval, Iteris should assist the City and Avalon Bay in monitoring adaptive system operation until the building's occupancy rate stabilizes (95% or above) and for a period of two (2) years after 100% occupancy. On June 24, 2022, Avalon Bay received the final Certificate of Occupancy for the Brea Place Project, projecting the 2-year monitoring period to conclude on June 24, 2024.

This technical memorandum serves as the final submittal of a series of quarterly reports prepared to facilitate the monitoring and reporting of the system performance along the two corridors. Performance measures discussed in this report have been monitored to track the performance status from April through June 2024. This memorandum provides a comparison of signal performance between the current study period and the previous quarter to track changes and identify potential finetuning of timing parameters along the corridors.

Communication along Birch Street and State College Boulevard corridors was restored in April 2024. The report for this quarter resumes documenting the performance of the SynchroGreen Adaptive system using the Bluetooth data, consistent with the methodology used prior to the signal communication outage.

Based on the continual monitoring studies, the ASCT system performs per system design and deploys optimal traffic signal coordination strategies in accordance with the project specifications. In the past four years, the ASCT system has recommended and deployed dynamic coordination cycles to address pandemic's unpredictable traffic patterns. The green times assigned to each signal phase have also been optimized to accommodate real-time traffic patterns.

1. PROJECT OVERVIEW

State College Boulevard is a major north-south arterial running parallel to State Route 57 between Brea Boulevard and the southern city limit. There are seven (7) signalized intersections on this mile-long segment with a posted speed of 40 mph. Birch Street is a major east-west arterial running parallel to Imperial Highway and is bounded by Brea Boulevard to the west and Valencia Avenue to the east. This project includes five (5) signalized intersections along this half-mile stretch of Birch Street with a posted speed of 35 mph. SynchroGreen ASCT system has been deployed at the following signalized intersections:

1. State College Boulevard at Brea Mall South

2. State College Boulevard at Brea Mall Center
3. State College Boulevard at Brea Mall North
4. State College Boulevard at Birch Street
5. State College Boulevard at Brea Place
6. State College Boulevard at Avocado Street
7. State College Boulevard at Lambert Road
8. Birch Street at Brea Mall
9. Birch Street at Civic Center
10. Birch Street at Randolph Avenue
11. Birch Street at Poplar Avenue

2. METHODOLOGY

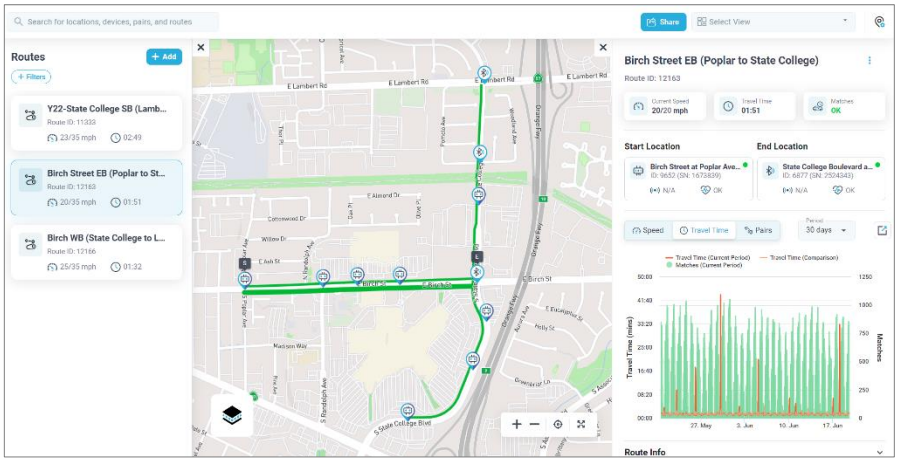
The project's continual monitoring is typically conducted using the travel time data generated from a Bluetooth system on a quarterly basis with supplementary floating car surveys for each 12 months.

In order to evaluate the ASCT system operational performance, Bluetooth roadside units (RSU) were installed at each of project intersections to collect real-time traffic data. The system detects anonymous Bluetooth/Wi-Fi signal broadcast from mobile devices to determine travel times and speeds on a continuous basis. This project utilizes the travel time pair/route report in 5-minute intervals with the option of individual speeds and number of matches. The valid pair/route data are then processed to produce travel time reports for each direction of the study corridors. The pair/route data include the following information:

- **Average Travel Time** – Time taken to travel between paired locations. The average of travel times for a specific set of matches or trips (seconds)
- **Historical Average Travel Time** – Historical average travel time for the entire period since the inception of the system (seconds)
- **Average Travel Speed** – Calculated average speed based on the time taken to travel between paired locations (mph)

3. CONTINUAL MONITORING

3.1 BlueTOAD Data Analysis



Iteris has recently conducted an upgrade to BlueTOAD system, migrating Bluetooth data into the new VantageARGUS CV system with an enhance user interface (UI) as shown in the graphic to the left. The upgraded VantageARGUS maintains the use of the existing BlueTOAD roadside units and continues to report travel time and speed data, ensuring consistency with historical data and the previous monitoring reports.

Tables 1 and **2** below summarize the results of the travel time and average speed analysis. The measures of effectiveness (MOE) were also compared with the "after" study that was collected in September 2020 following the implementation and finetuning of the SynchroGreen system. The detailed reports are included in **Attachment A**. As shown in **Table 1**, the overall performance of Birch Street has remained relatively consistent with the after-study condition; increases in average travel time have been less than 10 seconds for all 3 months in the eastbound direction. Additionally, the westbound direction continues to have shorter average travel times than the after study.

It should be noted that the entire Birch corridor was synchronized by a separate project prior to the deployment of the SynchroGreen adaptive system. The signals outside of the study segment are coordinated at fixed cycles that may differ from the cycle lengths that the adaptive system optimized and implemented for the real-time traffic patterns.

Table 1 – MOE Comparison for Birch Street

Direction	Performance Measure	After Study	April 2024			May 2024			June 2024		
		MOE	MOE	Diff.	% Diff.	MOE	Diff.	% Diff.	MOE	Diff.	% Diff.
AM Peak											
EB	Travel Time (sec)	60	64	4	7%	60	0	0%	62	2	3%
	Speed (mph)	23	24	1	4%	25	2	9%	24	1	4%
WB	Travel Time (sec)	67	57	-10	-15%	56	-12	-18%	62	-5	-7%
	Speed (mph)	22	26	4	18%	26	4	18%	26	4	18%
Corridor Average	**Travel Time (sec)**	**64**	**61**	**-3**	**-5%**	**58**	**-6**	**-9%**	**62**	**-2**	**-3%**
	Speed (mph)	**23**	**25**	**2**	**9%**	**26**	**3**	**13%**	**25**	**2**	**9%**
PM Peak											
EB	Travel Time (sec)	66	73	7	11%	71	5	8%	72	6	9%
	Speed (mph)	22	20	-2	-9%	20	-2	-9%	20	-2	-9%
WB	Travel Time (sec)	75	67	-8	-11%	69	-6	-8%	66	-9	-12%
	Speed (mph)	19	21	2	11%	21	2	11%	21	2	11%
Corridor Average	**Travel Time (sec)**	**71**	**70**	**-1**	**-1%**	**70**	**-1**	**-1%**	**69**	**-2**	**-3%**
	Speed (mph)	**21**	**20**	**-1**	**-5%**	**21**	**0**	**0%**	**21**	0	0%

Note: XX – MOE improvement with decreased travel time or increased average speed
XX – MOE deterioration with increased travel time or decreased average speed
XX – No MOE change

Table 2 on the next page presents an average travel time and speed comparison for State College Boulevard. Performance along State College Boulevard has also been relatively consistent this quarter. The travel time slightly increased in the northbound direction compared to the after-study period. This is primarily attributed to the post-pandemic traffic surge and the lengthened cycle lengths at the isolated State College and Lambert intersection. In addition, the SR-57 construction project and controller clock drifting issue at ramp signals (causing inconsistent signal coordination) further impacted the NB traffic progression on State College, resulting in longer travel time. To address these challenges, Iteris has been implementing manual adjustments to the timing at State College and Lambert, aligning with the recent lane closure and controller clock drifting.

Table 2 – MOE Comparison for State College Boulevard

Direction	Performance Measure	After Study	April 2024			May 2024			June 2024		
		MOE	MOE	Diff.	% Diff.	MOE	Diff.	% Diff.	MOE	Diff.	% Diff.
AM Peak											
NB	Travel Time (sec)	129	131	2	2%	129	0	0%	125	-4	-3%
	Speed (mph)	26	29	3	12%	29	3	12%	29	3	12%
SB	Travel Time (sec)	142	147	5	4%	136	-6	-4%	132	-10	-7%
	Speed (mph)	24	27	3	13%	29	5	21%	29	5	21%
Corridor Average	**Travel Time (sec)**	**136**	**139**	3	2%	**133**	-3	-2%	**129**	-7	-5%
	Speed (mph)	**25**	**28**	3	12%	**29**	4	16%	**29**	4	16%
PM Peak											
NB	Travel Time (sec)	154	167	13	8%	159	5	3%	162	8	5%
	Speed (mph)	22	23	1	5%	24	2	9%	23	1	5%
SB	Travel Time (sec)	176	167	-9	-5%	161	-15	-9%	168	-8	-5%
	Speed (mph)	19	23	4	21%	23	4	21%	22	3	16%
Corridor Average	**Travel Time (sec)**	**165**	**167**	2	1%	**160**	-5	-3%	**165**	0	0%
	Speed (mph)	**21**	**23**	2	10%	**24**	3	14%	**23**	2	10%

Note: XX – MOE improvement with decreased travel time or increased average speed
XX – MOE deterioration with increased travel time or decreased average speed
XX – No MOE change

To further illustrate the travel time pattern along study corridors, **Figures 1** through **4** present the average travel time comparison between April, May, and June 2024 for typical weekdays (Tuesday through Thursday). The previous quarter's average travel time is not shown in this report due to lack of Bluetooth data when the signals went offline along the two corridors. The monthly average travel times from the figures are consistent with the data analysis presented in the tables above. Overall, travel times along both Birch Street and State College Boulevard have remained relatively consistent within this study period.

Figure 1 – Average Travel Time for Birch Street EB

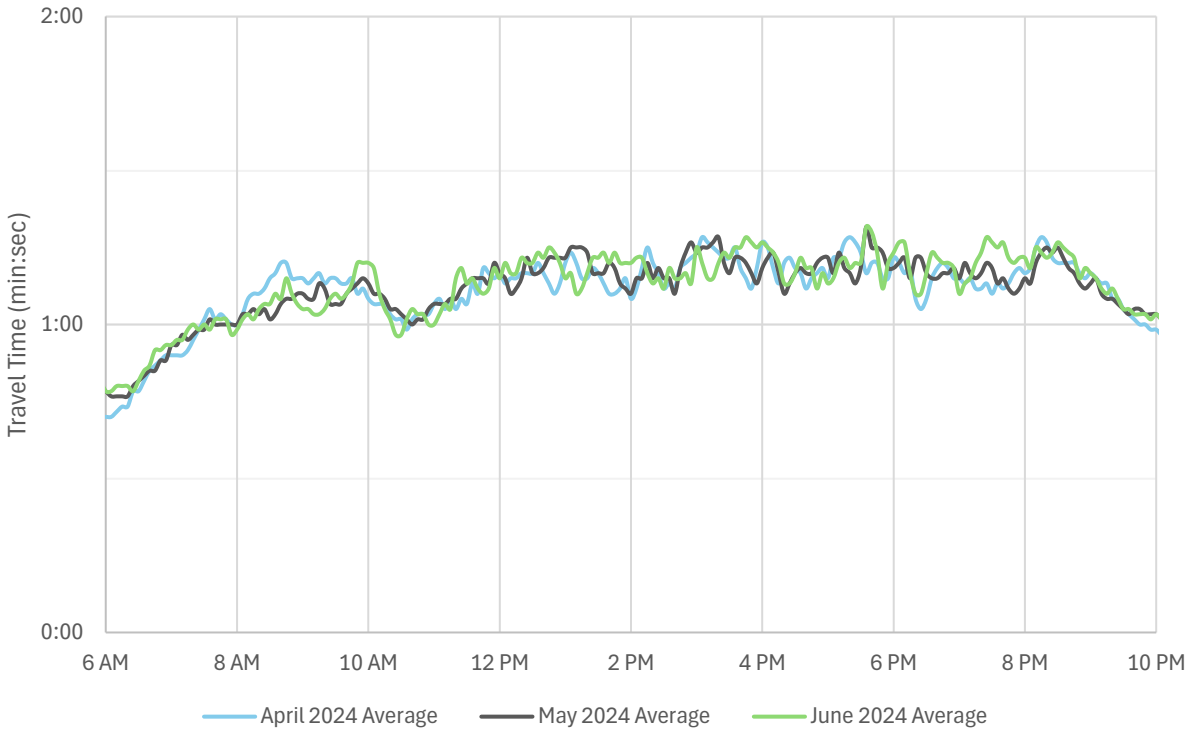


Figure 2 – Average Travel Time for Birch Street WB

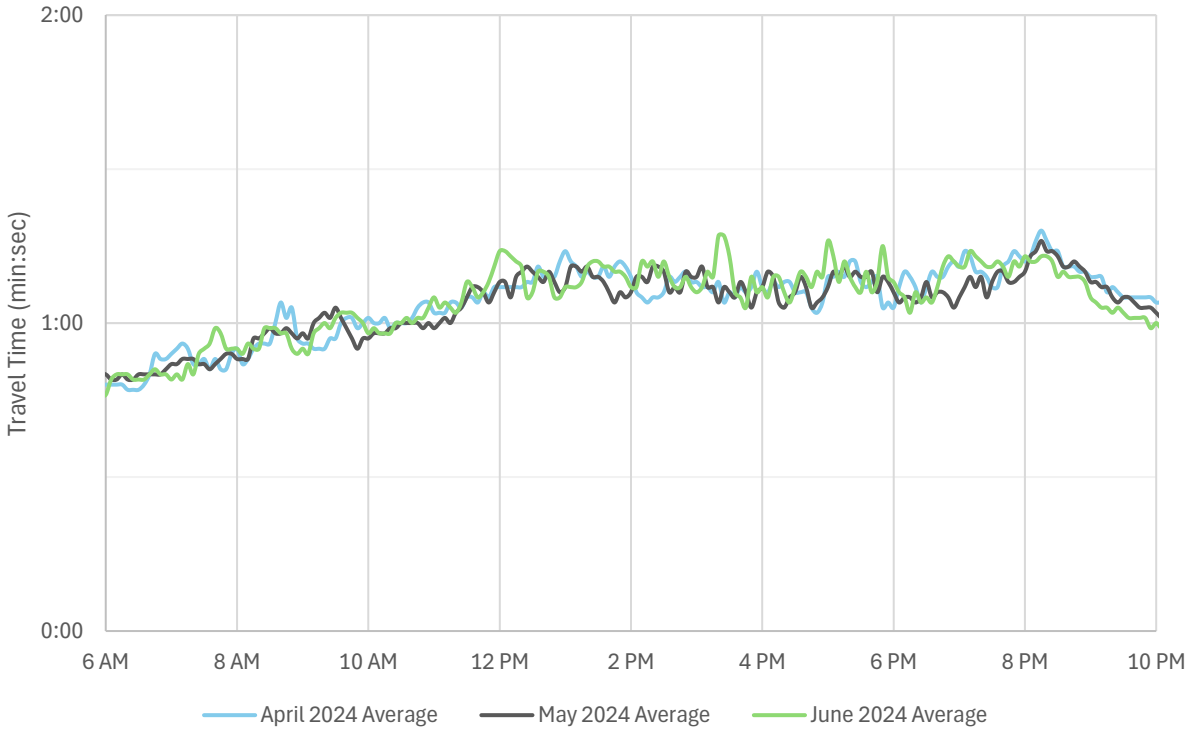


Figure 3 – Average Travel Time for State College Boulevard NB

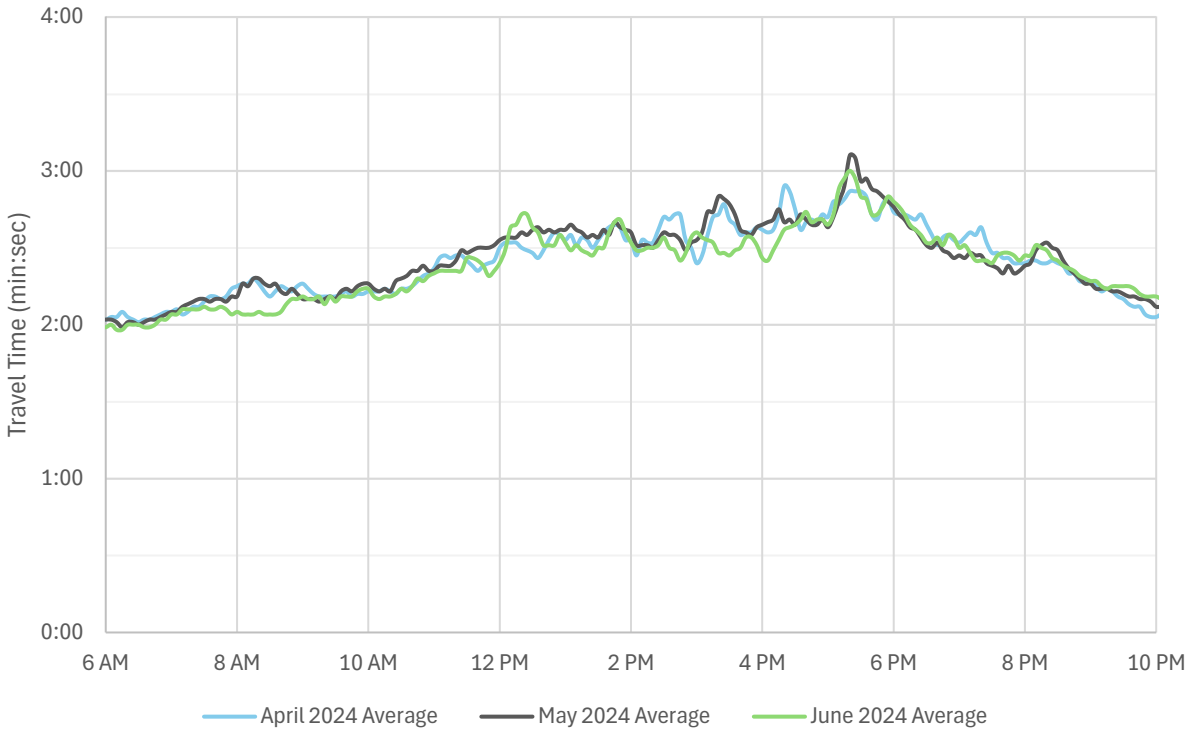
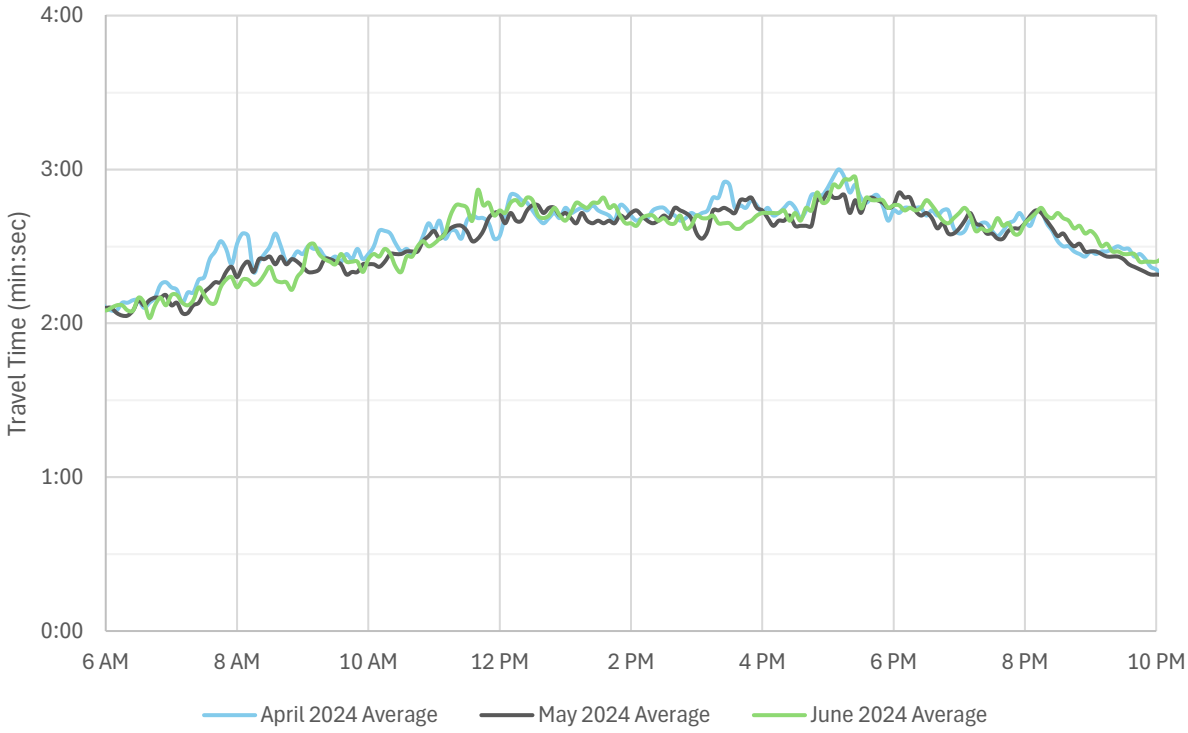


Figure 4 – Average Travel Time for State College Boulevard SB



3.2 SynchroGreen Monitoring

The SynchroGreen adaptive control module responds to traffic fluctuation and deploys timing optimization strategies for the following peak periods:

- Weekday - 6:30 AM to 8:00 PM
- Weekend - 7:00 AM to 7:00 PM (State College Boulevard and Lambert Road operates in "Free" mode during the weekend)

The SynchroGreen reports have been routinely reviewed during continual monitoring phase, including Controller Error Report, System Master Error Report, Split Termination Report, Green Time Utilization/Cycle Report, and Alarm Dashboard. To present a high-level summary of signal operation, the typical weekday coordination cycle lengths were extracted from SynchroGreen reports and are presented in **Figures 5**, **6**, and **7** for each month of this study period. They illustrate cycle lengths that the adaptive control system optimized and deployed at project signals (excluding State College and Lambert). Compared to the daily average cycles reported in previous reports, the weekday cycle length charts provide a more detailed and visual illustration of the variability of implemented cycles throughout a weekday.

Overall, the cycle lengths implemented by Signal Adaptive Control are more flexible and lower than the traditional time-of-day coordination plans. A major jump in cycle length was typically observed around 10:00 AM and 2:45 PM when the system transitions from one base plan to another. The system then quickly returns to normal coordination operation with a short transition period. Additionally, increases in cycle length are common around 12:00 PM for the lunch rush and throughout the PM period as people return home.

Figure 5 – Weekday Cycle Lengths for April 2024

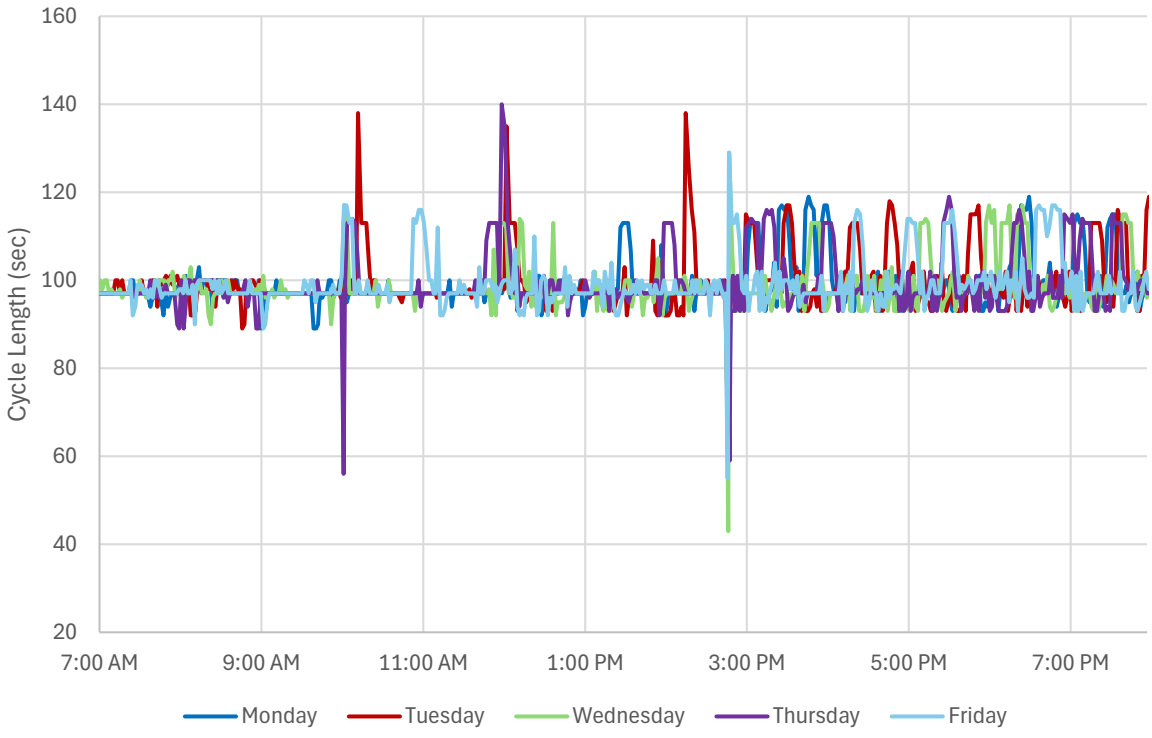


Figure 6 – Weekday Cycle Lengths for May 2024

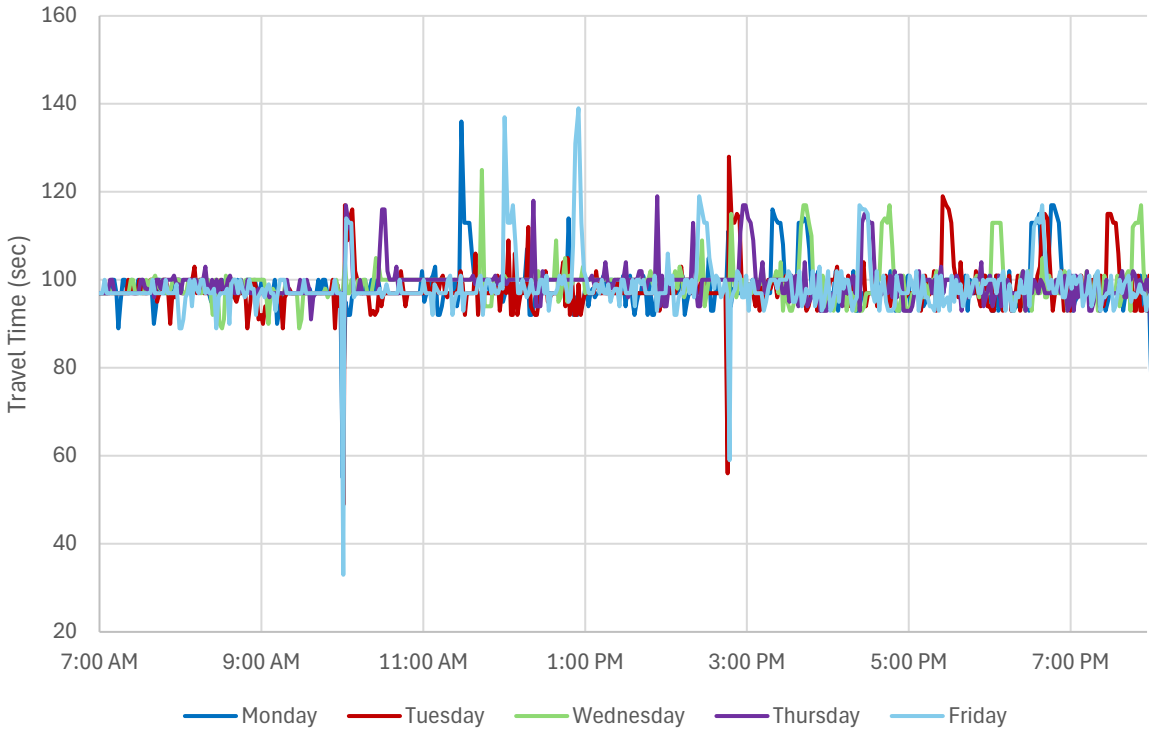
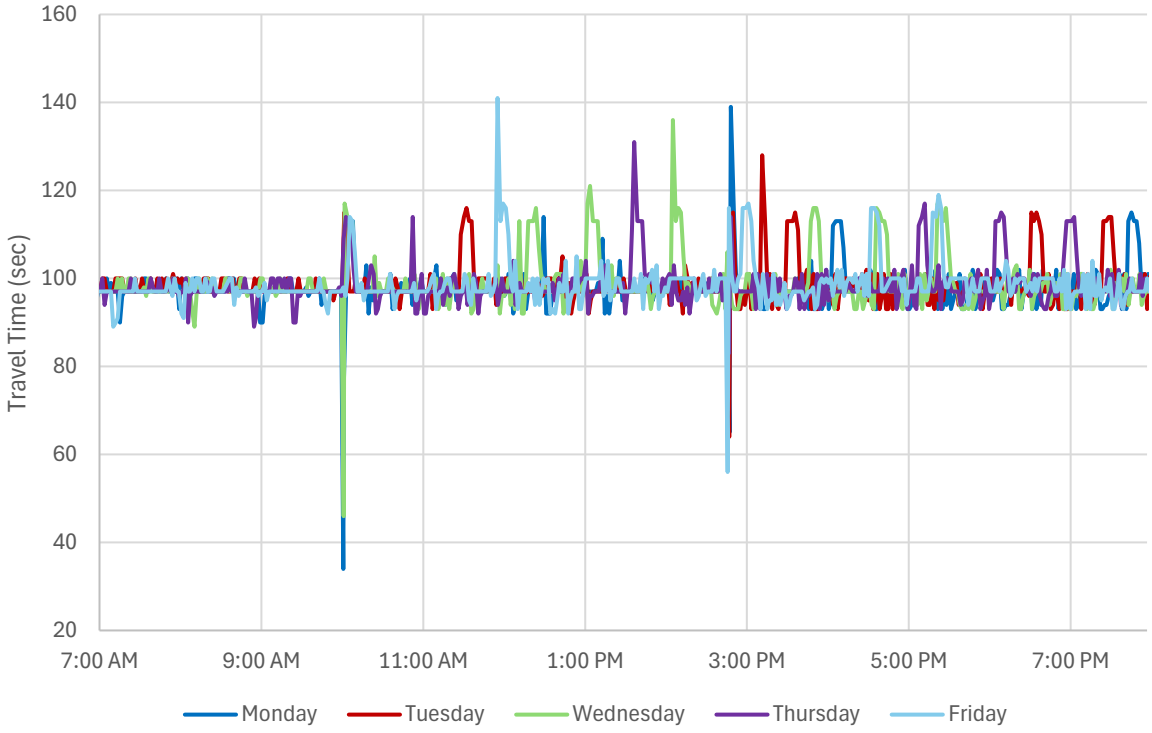


Figure 7 – Weekday Cycle Lengths for June 2024

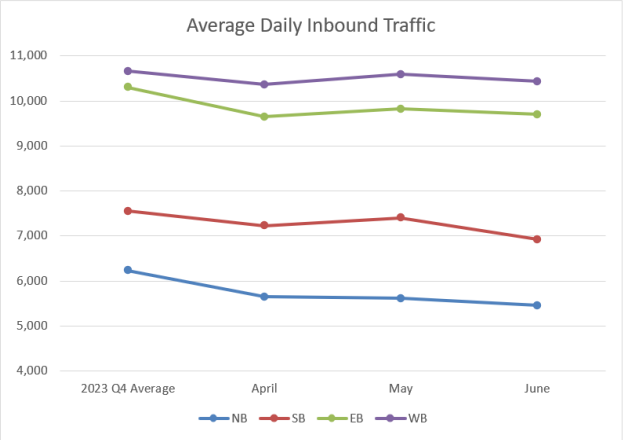


3.3 Other Finetuning and Observations

To illustrate the trend of traffic changes during this monitoring period, daily inbound/outbound traffic were extracted from ATMS.now System Reports for the intersection of State College Boulevard and Birch Street for five consecutive weekdays. **Figure 8**, presenting on the following page, presents the inbound traffic at this location for April, May, and June of 2024, and compares it to Q4 2023, the previous quarter with available data. Traffic volumes have decreased overall this quarter compared to half a year ago for all movements. The highest traffic volumes have been reported in May, but the volumes are still lower than Q4 2023.

Figure 8 – Traffic Comparison at State College Boulevard and Birch Street

	NB	SB	EB	WB	Total
2023 Q4 Average	**6,231**	**7,552**	**10,301**	**10,665**	**34,749**
April	5,650	7,229	9,651	10,367	32,896
May	5,613	7,402	9,824	10,589	33,428
June	5,458	6,923	9,705	10,433	32,518
2024 Q2 Average	**5,554**	**7,076**	**9,678**	**10,400**	**32,707**
Inbound Traffic % Difference between 2023 Q4 and 2024 Q2	**-11%**	**-6%**	**-6%**	**-2%**	**-6%**



The following monitoring activities have also been conducted by Iteris as part of monitoring efforts:

- **Ongoing SynchroGreen System Monitoring**: Ensuring effective communication and adaptive control are maintained.
- **Operation Monitoring and Video Detection Troubleshooting**: Continuously overseeing system operations and resolving issues with video detection.
- **Peak Hour Timing Adjustments at State College Boulevard and Lambert Road**: Addressing resident feedback and accommodating controller clock drift at the SR-57 SB ramp. The adjustments aim to maintain traffic progression on Lambert Road and minimize backups resulting from the SR-57 construction project.

4. CONCLUSION

The continual monitoring and adjustment of the adaptive signal control along State College Boulevard and Birch Street have been essential in maintaining optimal traffic flow. By leveraging the SynchroGreen system, we have been assisting the City staff in ensuring robust communication and adaptive control, effectively addressing resident feedbacks and minimizing disruptions caused by the SR-57 construction project.

The efforts in operation monitoring and video detection troubleshooting have proven successful in maintaining the system's reliability and performance. The specific adjustments made during peak hours have maintained the signal performance at and above the system buildout condition, keeping Lambert Road's traffic progression smooth and responsive to real-time conditions.

Moving forward, Iteris will be pleased to continue assisting the City in monitoring and adjusting signal adaptive strategies to address any emerging issues and enhance overall traffic flows along both corridors. This proactive approach will help maintain efficient traffic flow and improve the driving experience for all residents and commuters.

ATTACHMENT A - BLUETOAD TRAVEL TIME REPORTS

Report Details	
Report Type	Trends
Name	Birch State College Travel Time Report Q2 2024
Report ID	2927
Account	CA_Brea
Timezone	America/Los_Angeles

Report Parameters	
Routes	11333 - Y22-State College SB (Lambert to Brea Mall S)
	11334 - Y22-State College NB (Brea Mall S to Lambert)
	12167 - Birch EB (Randolph to State College)
	12168 - Birch WB (State College to Randolph)
Output Type	Aggregated
Aggregation Window	15 Minutes

Time Slice 1	
Start Date	April 16, 2024
End Date	April 18, 2024
Start Time	00:00
End Time	23:59
Days of Week	Tue, Wed, Thu
Time Slice 2	
Start Date	May 14, 2024
End Date	May 16, 2024
Start Time	00:00
End Time	23:59
Days of Week	Tue, Wed, Thu
Time Slice 3	
Start Date	June 11, 2024
End Date	June 13, 2024
Start Time	00:00
End Time	23:59
Days of Week	Tue, Wed, Thu

VantageARGUS Trends
Birch EB, Averages

Time	April 16 - April 18 Tues, Wed, Thurs		May 14 - May 16 Tues, Wed, Thurs		June 11 - June 13 Tues, Wed, Thurs	
	Speed (mpd)	Travel Time (s)	Speed (mpd)	Travel Time (s)	Speed (mpd)	Travel Time (s)
6:00	31.5	43	32.5	43	27.6	51
6:15	29.6	46	31.9	43	27.4	50
6:30	28.4	48	29.3	47	26.4	52
6:45	27	51	28.5	49	26.3	53
7:00	27.2	52	27.3	52	25.8	56
7:15	26.4	57	25.3	57	24.9	59
7:30	24.3	65	24.3	61	24.3	61
7:45	25.1	60	24.3	63	24	61
8:00	24.1	61	25.2	62	23.4	63
8:15	22.4	69	24.2	66	22	65
8:30	21	76	26	57	22.2	64
8:45	20.9	74	23.7	61	21.8	67
9:00	20.6	73	21.9	66	22.4	64
9:15	20.3	72	21.7	70	23.3	61
9:30	21	71	22.1	67	22.5	63
9:45	21.5	70	21.1	67	20.3	71
10:00	20.9	67	21.5	65	20.7	69
10:15	21.3	64	22	62	22.5	62
10:30	22.1	62	23.6	58	21.8	63
10:45	21.7	63	21.9	63	23.8	57
11:00	21.6	63	20	69	23.1	60
11:15	21.9	63	21.3	65	20.6	67
11:30	22	64	21	67	21.6	63
11:45	19	74	20.8	68	19.8	70
12:00	18.9	73	20.4	71	20	71
12:15	19.1	73	21.3	66	20	70
12:30	18.8	74	19.6	71	19.6	72
12:45	20.2	68	18.8	75	18.7	76
13:00	20	70	18.6	78	20.2	69
13:15	20.4	68	19.7	71	19.7	70
13:30	20.3	69	19	73	18.6	77
13:45	22.6	63	19.7	72	18.5	75
14:00	21.6	65	19.4	71	19.7	71
14:15	19.7	71	19.5	73	21.4	64
14:30	22.2	62	19.8	71	20.7	66
14:45	20.9	70	18.2	79	19.6	71
15:00	19.8	74	19.6	76	20.7	70
15:15	20.7	72	19.8	76	20.6	71
15:30	19.8	72	20.8	69	18.5	78
15:45	20.5	67	22.1	66	20.1	72
16:00	21.1	71	20.3	73	18.9	75
16:15	21.8	67	21.5	68	21.6	67
16:30	20.8	68	20.9	70	20.6	70
16:45	21.1	70	20.4	71	21.8	66
17:00	19.2	77	19.2	76	20.1	72
17:15	18.6	79	21.4	69	19.1	75
17:30	19.3	73	19.6	73	18.5	77
17:45	18.8	75	20.1	70	20	72
18:00	20.8	67	19.2	74	18.5	79

18:15	19.9	71	20.8	69	19.8	72
18:30	20.3	73	19.9	71	18.9	76
18:45	19.7	72	19.7	71	19.2	74
19:00	20.4	71	21	65	20.7	68
19:15	21.4	70	22.2	63	19.3	73
19:30	21.5	67	21.6	67	17.6	80
19:45	20.9	69	20.8	69	19.1	72
20:00	19.7	71	19	75	18.8	73
20:15	18.4	74	18.7	75	18.6	73
20:30	18.5	74	19.2	71	19	73
20:45	19.2	71	21.1	65	19.5	71
21:00	19.5	71	20.7	66	19.4	72
21:15	21.3	65	21.5	64	20.8	66
21:30	22.7	61	22.9	60	21.8	62
21:45	23.3	59	23.1	59	22.5	61
22:00	23.5	59	23.7	58	23.1	60

VantageARGUS Trends
Birch WB, Averages

Time	April 16 - April 18 Tues, Wed, Thurs		May 14 - May 16 Tues, Wed, Thurs		June 11 - June 13 Tues, Wed, Thurs	
	Speed (mpd)	Travel Time (s)	Speed (mpd)	Travel Time (s)	Speed (mpd)	Travel Time (s)
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6:15	30.3	45	26.4	53	27.8	50
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6:45	28.8	50	27.4	52	28.2	50
7:00	26.1	56	26.5	55	29.4	48
7:15	26.2	56	26.8	54	27.7	54
7:30	26.9	55	27.6	54	24.7	64
7:45	28	52	27.3	54	26.3	58
8:00	26.3	55	26.5	55	25.8	56
8:15	24.7	58	24.8	59	25.7	55
8:30	24.4	59	24.7	57	24.4	60
8:45	22.7	64	24.8	56	25.4	56
9:00	23.5	62	25.5	54	25.8	55
9:15	24.6	58	25.2	55	24.3	58
9:30	24.1	59	23.7	60	24.7	56
9:45	22.9	61	25	56	23.5	59
10:00	23.4	60	24.9	56	24.8	56
10:15	23.9	59	22.3	62	24	57
10:30	23.1	60	22.7	60	23	60
10:45	23.3	59	24.4	56	21.9	63
11:00	23.3	59	22.9	59	22	62
11:15	22.2	62	23.8	58	22.5	61
11:30	21.2	65	22.5	61	20.4	67
11:45	21.9	63	22.3	61	18.6	73
12:00	22.1	62	21.8	63	18.3	75
12:15	21.3	65	20.3	67	19.6	70
12:30	19	73	20.7	66	19.5	70
12:45	20.1	68	21.2	64	20.3	67
13:00	19.5	70	21	65	20.7	66
13:15	19.8	69	21.2	64	19.1	72
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14:45	19.4	70	19.5	71	19.7	69
15:00	21.4	67	20.4	69	20.9	68
15:15	21.8	64	21.1	66	20.4	69
15:30	22	63	22	64	20.7	67
15:45	20.5	69	22.7	61	22.1	62
16:00	20.8	65	19.5	72	21.9	62
16:15	20.8	66	22.1	65	22.1	64
16:30	20.6	67	19.3	73	22.5	62
16:45	23.4	59	21	65	20.5	68
17:00	19.8	71	21.2	68	18.7	73
17:15	19.3	72	19.3	73	20.4	69
17:30	19.8	71	21.4	69	22	62
17:45	21.1	65	21.4	65	19.7	70
18:00	20.9	66	20.5	68	21.1	65

18:15	20.5	67	21.4	65	21.5	64
18:30	20.3	68	20.6	68	20	69
18:45	21.3	66	21.3	65	18.1	78
19:00	18.4	75	22.3	62	19.2	72
19:15	19.3	72	21.4	64	20.6	66
19:30	19.9	70	20.5	68	20.1	70
19:45	19.1	74	19.9	73	18.9	74
20:00	18.7	74	18.8	74	19.4	70
20:15	18.1	76	18.5	74	18.9	72
20:30	19.1	71	18.9	72	19.8	69
20:45	19.3	71	19.4	70	20	68
21:00	20.1	68	19.8	69	21.8	63
21:15	20.9	65	20.1	68	21.1	65
21:30	21.2	64	20.2	68	22	62
21:45	20.6	66	20.4	68	22.6	61
22:00	21.8	62	21.1	66	23.3	59

VantageARGUS Trends
State College NB, Averages

Time	April 16 - April 18 Tues, Wed, Thurs		May 14 - May 16 Tues, Wed, Thurs		June 11 - June 13 Tues, Wed, Thurs	
	Speed (mpd)	Travel Time (s)	Speed (mpd)	Travel Time (s)	Speed (mpd)	Travel Time (s)
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6:45	30.6	118	30.1	122	29.7	122
7:00	30.8	118	29.7	124	29.4	124
7:15	30	124	30	123	28.8	127
7:30	28.7	132	29.1	128	29	128
7:45	28.1	136	29	130	29.3	126
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11:30	25.7	141	24.5	150	24.3	148
11:45	25.7	142	24.5	149	25.4	142
12:00	24.5	149	24.3	149	24.7	149
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13:45	23.5	157	22.2	167	23.1	160
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15:45	23	163	23.8	160	24.1	153
16:00	23	164	22.8	167	25.1	150
16:15	23.1	164	23.4	162	24.1	155
16:30	23	164	23.5	158	22.8	162
16:45	23.6	165	25.3	147	22.3	165
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17:30	21.8	171	22.7	166	22.3	165
17:45	22.7	165	23.9	158	23.1	159
18:00	22.9	166	23.2	162	22.8	160

18:15	22.9	166	24.6	150	23.4	156
18:30	23.3	161	25.6	143	23.7	155
18:45	23.7	158	24.6	150	23.3	159
19:00	23.4	158	25.2	148	23.5	157
19:15	23.2	161	25.9	142	25.2	145
19:30	24.7	148	26	141	26	141
19:45	25.7	142	25.8	144	25.7	144
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20:15	25.4	145	24.1	150	24.7	147
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21:15	27.8	131	26.7	136	27	136
21:30	28.6	128	27.5	131	26.9	136
21:45	29	126	28.3	128	27.8	130
22:00	29.9	122	28.4	128	28.1	128

VantageARGUS Trends
State College SB, Averages

Time	April 16 - April 18 Tues, Wed, Thurs		May 14 - May 16 Tues, Wed, Thurs		June 11 - June 13 Tues, Wed, Thurs	
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6:30	28.8	133	31.6	128	31.4	125
6:45	27.7	142	30.5	129	31	126
7:00	27.4	142	30.6	126	30.1	132
7:15	28.8	133	30	128	30.6	128
7:30	26.4	149	29.4	135	30.8	123
7:45	26.4	152	29.6	129	29.5	134
8:00	27	147	27.8	144	28.9	136
8:15	27.2	147	27.5	145	28	137
8:30	25.4	155	28.1	143	29	134
8:45	26.4	147	27.4	141	29	131
9:00	25.6	145	28.3	134	27.8	145
9:15	27.1	138	27.1	143	27.6	143
9:30	27.4	141	26.6	144	27.2	145
9:45	28.3	138	26.2	150	26.3	144
10:00	26.8	146	26.5	145	26.4	143
10:15	25.7	155	26	148	28.1	131
10:30	25.8	150	24.9	153	27.3	138
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11:00	25.6	152	25	155	25.4	148
11:15	24.8	152	23.6	164	24	157
11:30	24.2	158	23.2	165	22.7	166
11:45	24	154	23.7	159	23.1	165
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12:30	24.1	152	23.3	160	22.8	165
12:45	22.9	161	22.7	164	22.8	166
13:00	23.1	164	23.3	161	23.1	164
13:15	23.5	165	23.5	157	22.7	163
13:30	23.2	163	23.3	166	23	163
13:45	22.3	167	24.1	158	22.5	167
14:00	21.9	169	23.9	153	22.3	166
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15:45	23.5	163	23.5	164	23.4	162
16:00	24	155	22.7	164	23.3	164
16:15	23	163	23.2	161	23.2	159
16:30	23.8	159	24.5	155	22.4	164
16:45	22.4	166	24.9	152	21.6	174
17:00	21.1	179	23.2	166	21.3	174
17:15	21.4	179	22.9	163	20.6	181
17:30	21.6	172	22.9	163	21.8	167
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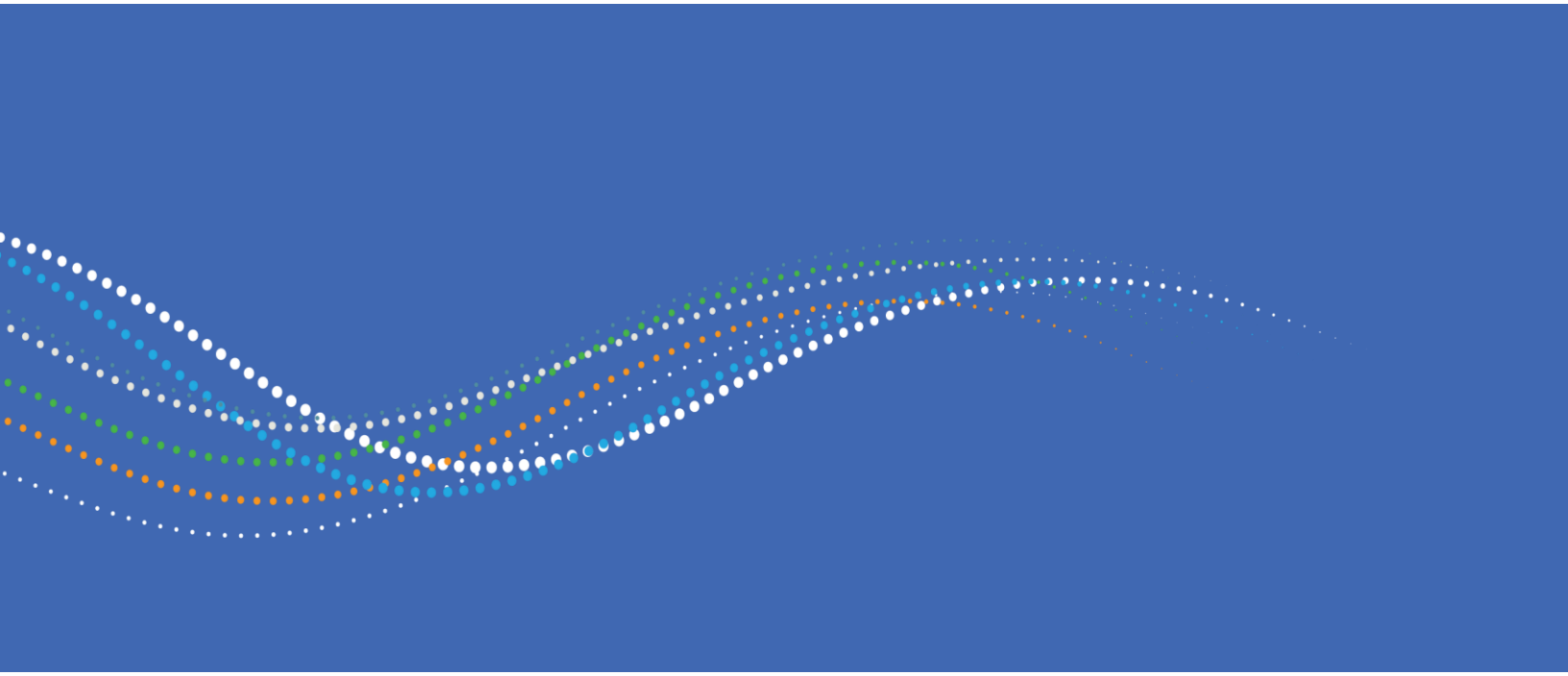
18:00	23.3	162	23.4	162	23.8	152

18:15	23.8	156	24.5	152	22.9	159
18:30	22.8	162	23.5	158	21.4	173
18:45	22.5	168	23.8	156	23	158
19:00	23.8	158	23.5	159	23.7	157
19:15	23.9	159	23.6	160	24.3	151
19:30	24.2	159	24.4	158	24	153
19:45	24.1	160	24.9	155	23.6	156
20:00	23.4	161	24.1	155	23.4	159
20:15	24.1	158	23.9	154	23.1	161
20:30	25.4	151	24	155	22.9	165
20:45	25.7	150	25.5	147	23.8	159
21:00	26.2	150	26.9	141	24.7	155
21:15	26	152	27.2	140	25.6	151
21:30	25.8	153	27	144	26.3	150
21:45	25.8	151	27.6	142	26.4	150
22:00	26.9	143	28	140	26.7	150



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City of Brea

Planning Commission Communication

South Brea Townhomes- Tentative Tract Map No. 19315, Density Bonus No. 2023-01, and Precise Development No. 2023-03

A request to allow demolition of an existing commercial building and construction of a housing development consisting of 29 single-family attached units and three live/work units, for a total of 32 units, located at 685 South Brea Boulevard.

Meeting	Agenda Group
Tuesday, July 23, 2024, 6:00 PM	PUBLIC HEARINGS Item: 6A

TO	FROM
Chair and Members of the Planning Commission	Joanne Hwang, City Planner

EXECUTIVE SUMMARY

The Applicant, Brea 1 Inc, LLC, is requesting approvals of Tentative Tract Map (TTM) No. 19315, Density Bonus (DB) No. 2023-01, and Precise Development (PD) No. 2023-03 for the South Brea Townhomes Project, which includes the demolition of an approximately 6,592-square-foot commercial building and construction of a new housing development that would include 29 single-family attached units and three live/work units, for a total of 32 for-sale units, dispersed in four buildings. The proposed project includes four affordable units for moderate income households (10 percent of the total units). In addition, pursuant to the State Density Bonus Law, the proposed project proposes to utilize the Density Bonus parking standards and waivers to reduce standards associated with front, street side, and landscape setbacks, and common and private open space requirements. The proposed project is located at 685 South Brea Boulevard (Project Site), in the Mixed-Use I (MU-I) Zone.

The above-mentioned entitlement herein is referred to as the “Project.”

RECOMMENDATION

Staff recommends that the Planning Commission take the following actions:

1. Find the Project exempt from the California Environmental Quality Act (CEQA) pursuant to CEQA Guidelines Section 15332; and,
2. Adopt resolutions (Attachments A through C) approving the following entitlements, based on findings and conclusions in the corresponding resolutions, and subject to the recommended conditions of approval (Attachment D):
    a. TTM No. 19315, to subdivide the Project Site for condominium purposes to construct a total of 32 residential units, including three live/work units;
    b. DB No. 2023-01, to utilize the following Density Bonus provisions: 1) Density Bonus parking standards; and 2) waivers of five development standards, which includes reductions of the front setback to between 6” and 1’-6”, the street side setbacks to between 3’-4” and 5’, the landscaping setbacks to between 1’-11” and 5’-11”, the common open space requirement to 23 square feet per dwelling unit, and the private open space requirement to 50 square feet per dwelling unit.
    c. PD No. 2023-03, to demolish the existing commercial building and construct a new housing development that would include 29 residential single-family attached units and three live/work units, for a total of 32 units, dispersed in four buildings.

BACKGROUND

The Project Site is located on the north side of Fir Street between Brea Boulevard and Walnut Avenue, at 685 South Brea Boulevard. The existing property is approximately 1.11 acres in size, with three street frontages along Brea Boulevard, Fir Street, and Walnut Avenue. The Project Site has a General Plan Land Use designation of Mixed Use I and a Zoning designation of Mixed-Use I (MU-I). The surrounding land uses and zoning designation are shown in Table 1 and 2 below.

TABLE 1 – SURROUNDING LAND USES

North	Multi-family and single-family dwellings, veterinary hospital, and commercial uses
East	A shopping center, an office, and single-family dwellings *(Across Brea Boulevard)*
South	A restaurant, offices, motels, and single-family dwellings *(Across Fir Street)*
West	Saint Angela Merici Catholic Church and School (*Across Walnut Avenue)*

TABLE 2 – SURROUNDING ZONING DESIGNATIONS

North	Multiple Family Residential (R-3) and Mixed-Use III (MU-III)
East	MU-III and Single Family Residential (R-1) *(Across Brea Boulevard)*
South	MU-III *(Across Fir Street)*
West	R-1 (*Across Walnut Avenue)*

The Project Site is currently developed with an approximately 6,592-square-foot vacant commercial building, which was previously occupied by McCulloch's Wide Shoes for Men & Women retail business, and associated surface parking lot. Ingress and egress to the site is provided by two driveway approaches on Brea Boulevard, one approach on Fir Street, and one approach on Walnut Avenue. The aerial view of the Project Site is Figure 1 below.

FIGURE 1 – AERIAL VIEW OF THE PROJECT SITE

The Technical Background Summary and the Vicinity Map are provided as Attachment E and F, respectively.

Construction and Entitlement History

- On August 27, 1960, building permit number 3595 was finaled for a 6,592-square-foot, single-story commercial building.
- On August 16, 2022, the City Council adopted Resolution No. 2022-061 for re-adoption of the City's Sixth Cycle Housing Element. As part of the Housing Element, the Project Site was identified in the Housing Element Sites Inventory as Focused Development Site #10 with capacity to provide 32 lower income units to accommodate the City's Regional Housing Needs Allocation (RHNA).
- On November 15, 2022, the City Council adopted Ordinance No. 1234 approving Zone Change No. 2021-01 for implementation of the Sixth Cycle Housing Element, rezoning the Project Site (Focused Development Site #10) from MU-III to MU-I.

SB 330

On October 9, 2019, Governor Newsom signed Senate Bill (SB) 330 into law, known as "The Housing Crisis Act of 2019", which is intended to further increase housing production in California by placing restrictions on the ability for jurisdictions to deny housing development projects that are otherwise consistent with the applicable Zoning Ordinance and General Plan land use designation. Generally, cities cannot deny or impose conditions that would have the effect of precluding an applicant's ability to achieve the proposed density, unless a finding is made that the housing development would have a specific, adverse impact upon public health or safety. Also, projects submitted under SB 330 are required to be subject to the ordinances, policies, and standards adopted and in effect when a SB 330 preliminary application is submitted to the City pursuant to subdivision (a) of California Government Code (Government Code) Section 65941.1.

On July 28, 2023, the Applicant submitted a SB 330 preliminary application for the Project, utilizing the provisions of Government Section 65589.5 and 65941.1. Therefore, the City must adhere to the processing requirements, timelines, and public hearing limitations outlined in SB 330.

PROJECT DESCRIPTION

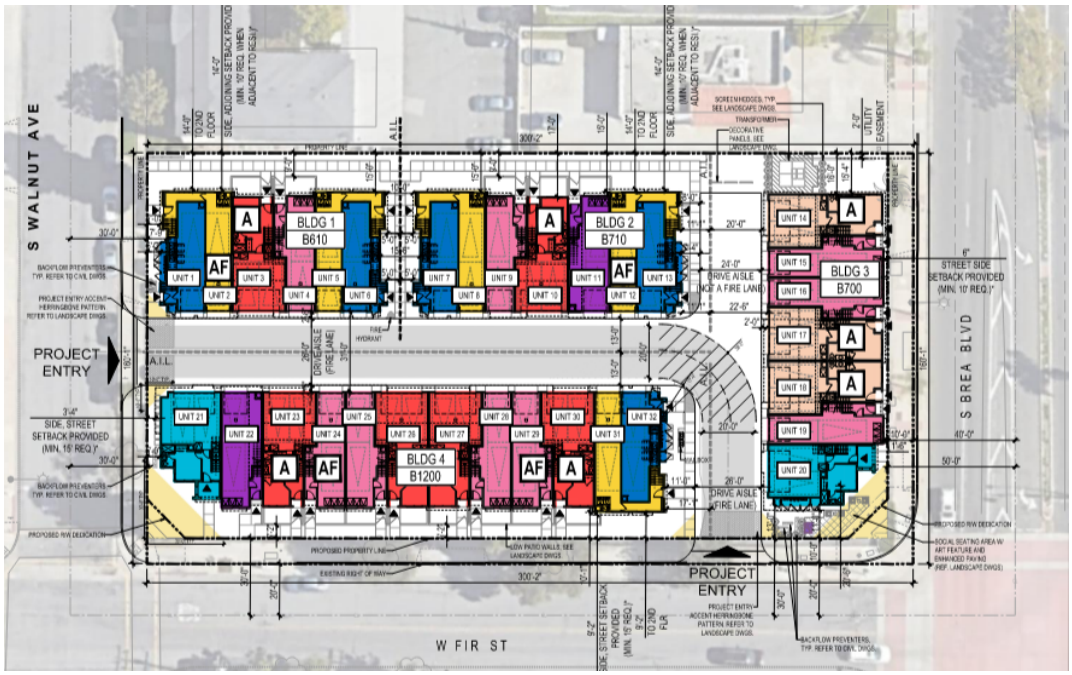
The Applicant proposes to redevelop the Project Site by demolishing the 6,592-square-foot vacant commercial building and the associated surface parking lot, and construct a new housing development that would include 29 residential single-family attached units and three live/work units, for a total of 32 for-sale units, dispersed in four, three-story buildings, as summarized in the table below:

TABLE 3 – PROPOSED BUILDING SUMMARY

Building	Type	Unit Breakdown			Gross Square Footage (including Garages + Private Balconies)
		2-bed	3-bed		
			Regular	Live/Work	
Building 1	6-Plex	4	2		11,643 sq. ft.
Building 2	7-Plex	4	3		13,812 sq. ft.
Building 3	7-Plex		4	3	15,456 sq. ft.
Building 4	12-Plex	2	10		25,646 sq. ft.
Subtotal		10	19	3	**66,557 sq. ft.**
Total		**32**			

The 32 units would consist of a total of 10 two-bedroom units and 22 three-bedroom units (inclusive of three live/work units). The buildings would feature varying heights, ranging from 37 feet to 40 feet. Each unit would have an attached two-vehicle garage, of which 21 of the 32 are designed with a tandem parking configuration. Ingress and egress to the Project Site would be provided via two new drive approaches, on Fir Street and Walnut Avenue. The four existing drive approaches, two on Brea Boulevard, one on Fir Street, and one on Walnut Avenue, would be removed as part of the Project. The Project Site Plan, Figure 2 below, shows the overall site plan of the Project.

FIGURE 2 – PROPOSED SITE PLAN



Architecture

The Project would be designed in a Spanish-inspired architectural style and utilize an array of materials and details. Wall materials primarily consist of stucco painted with warm white color and wood-simulated panels and trim, with complementary metal and tile accents (Figure 3). The Project would feature two color schemes with natural palettes and tiling (Figure 4). Modulated concrete s-tile roof forms feature a combination of gables and sheds, and the windows are proposed to be recessed. Architectural details common to the Spanish-style are incorporated into the design, including exposed rafter tails, decorative corbels and pipe vents, and wrought iron details.

FIGURE 3 – BUILDING RENDERINGS

Building 3 – Brea Boulevard Frontage

Building 4 – Fir Street Frontage

FIGURE 4 – COLOR SCHEMES AND MATERIAL SPECIFICATIONS

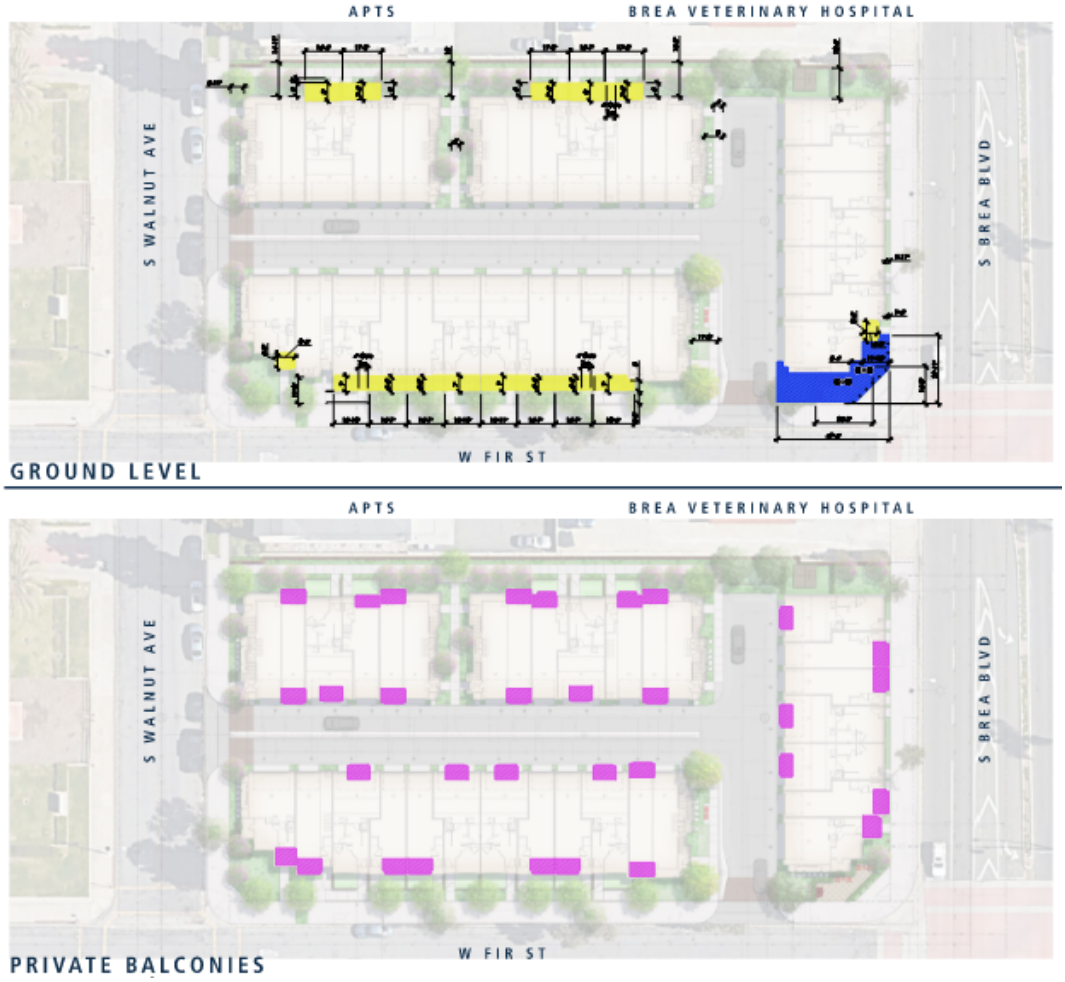
Live/Work Units

Three live/work units are proposed in Building 3, fronting Brea Boulevard. The live/work units would feature shopfront entry doors, three-pane shopfront windows with the option of etched business signage. The live/work units would feature an approximate 115-square-foot workspace, restroom, and attached two-vehicle garage on the ground level. The live/work units have direct interior access between the work and living areas and are intended to support low-impact businesses where customer/client visitations are limited or sporadic. These spaces would be restricted from being rented to a separate tenant. The upper floors would consist of the living areas.

Landscaping and Open Space

The landscaping design for the Project is primarily focused near the property lines. To promote sustainability, a variety of drought-tolerant plant materials would be incorporated into the landscape design. 750 square feet of common open space is provided on the northwest corner of Brea Boulevard and Fir Street and would feature a seating area, a permanent outdoor sculpture (Art in Public Places), and decorative paving. Protective barriers are also proposed to be constructed near the intersection for safety. In addition, a minimum of 50 square feet of private open space would be provided for each unit through second-level patios for each unit, gated front-entry patios for 13 units in Buildings 1, 3 and 4, and two covered entryways in Buildings 3 and 4.

FIGURE 5 – OPEN SPACE EXHIBITS



The conceptual landscape plan for the residential development is part of the Project Plans.

Affordable Housing

Brea City Code (BCC) Chapter 20.40 (Affordable Housing) was amended on August 15, 2023, through the City Council adoption of Ordinance No. 1242. However, the Project, submitted as a SB 330 preliminary application, is only subject to the ordinances and standards adopted and in effect on July 28, 2023. The previous BCC Chapter 20.40 required residential development of 20 or more units to provide 10 percent of the total units to be affordable units. Based on the proposed 32 total units, the Project is required to provide a minimum of four units as affordable units. As such, the Project includes four on-site affordable units for moderate-income households, which are comprised of two two-bedroom units and two three-bedroom units.

Density Bonus Law Requests

Density Bonus Law is a State mandate that allows housing projects that meet the requirements of the State law to receive an increase in maximum density permitted and other benefits, such as waivers of development standards, as a matter of right. The intent of the Density Bonus Law is to facilitate the development of affordable housing and to implement the goals, objectives and policies of the cities' Housing Elements. Consistent with State Law, the City's previous Affordable Housing Ordinance, which the Project is subject to, provided for incentives for flexible development standards, when associated with the production of affordable housing units.

As the Project includes four affordable units for moderate income households (10 percent of the total units), it qualifies to utilize the State Density Bonus Law provisions. As proposed, the Project is eligible for 5% increase in maximum density and reduced parking standards, along with one incentive/concession and unlimited waivers of development standards. Although the Applicant is not proposing to exceed the maximum allowable density for the Project Site, the Applicant is proposing to utilize: 1) Density Bonus parking standards; and 2) waivers associated with reduction of five development standards, as described below.

- *Parking provisions:* The Project utilizes the Density Bonus parking standards, which allows tandem parking and reduced parking ratio. Table 4 below shows propose parking breakdown:

TABLE 4 – PROPOSED PARKING BREAKDOWN

covered* * covered or uncovered*	**Zoning Code Standard**	**Density Bonus Standard**	**Proposed**
Required Parking Spaces			
Regular	2 per unit*	1.5 per unit**	2 per unit*
Guest	0.5 per unit**	None	None
Total	80	48	64
Configuration	Tandem not permitted	Tandem permitted	42 spaces are in tandem configuration

As shown on above table, the Project includes 64 garage parking spaces at a ratio of two parking spaces per unit, of which the garages for 21 units are designed with a tandem parking configuration. The provided parking for the Project exceeds the minimum parking allowed by the Density Bonus Law by 16 spaces.

- *Waivers:* The Project proposes five waivers to reduce various development standards, as shown on the Table 5 below:

TABLE 5 – PROPOSED DENSITY BONUS WAIVERS

Development Standard	**Zoning Code Minimum**	**Proposed**
Front Setback (Brea Boulevard)	10 feet	• First floor: 1'-6" • Upper floors: 0'-6"
Side Setbacks (Fir Street and Walnut Avenue)	15 feet	Fir Street: • First floor: 10'-1" • Upper floor: 9'- 2" • Ground floor patio walls: 5'-2" Walnut Avenue: • First floor: 5' • Upper floor: 3'-4"

Landscaping Street Setbacks	8 feet	Brea Boulevard: 1'-11" Fir Street: 5'-2" Walnut Avenue: 5'-11"
Common Open Space	100 square feet per unit	23 square feet per unit
Private Open Space	75 square feet per unit	50 square feet per unit

Tentative Tract Map

The Project includes a tentative tract map for residential condominium purposes to subdivide to existing parcel into 32 condominium units. The tract map will also adjust the lot boundaries to accommodate for the required public right-of-way dedication. The existing site is 1.11 acres in size; however, the required dedication of 10 feet of existing sidewalk areas along Brea Boulevard and Fir Street as public right-of-way would result in a new lot size of 0.99 acres.

Public Art

Pursuant to the City's Art in Public Places Ordinance, the Project would provide a new permanent outdoor sculpture. The tentative sculpture location has been identified to be located at the south of Building 3 along Fir Street, approximately 30 feet west of the sidewalk along Brea Boulevard. Installation of the sculpture would be required prior to Project completion. The art piece would be required to comply with provisions specified in the Art in Public Places Policy Manual. Preliminary discussions have occurred with City staff; however, the Art in Public Places Committee will review a formal proposal upon the Project approval.

The Project Narrative, Project Plans and Project Applications are Attachments G, H, I and J, respectively.

PROJECT DESCRIPTION

DISCUSSION

Tentative Tract Map No. 19315

TTM No. 19315 proposes to subdivide the existing parcel for condominium purposes. This would allow for individual ownership of the 32 residential condominiums. TTM No. 19315 would also adjust the lot line boundaries for public right-of-way dedications of existing sidewalk areas along the Project frontages along Brea Boulevard and Fir Street. Common areas would be established for vehicular and pedestrian circulation and for open space purposes, with a homeowner's association having responsibility for all common facilities. Covenants, Conditions, and Restrictions (CC&Rs) would be conditioned for the Project, to ensure proper maintenance is provided for the common areas of the Project Site. Also included in the map are proposed easements for public utilities and ingress/egress for emergency vehicles.

As proposed, the Project Site is physically suitable for the type of development proposed. The Project Site has and will continue to maintain proper infrastructure and related City services in place to support the proposed development. The proposed design and associated improvements satisfy the minimum lot size, width, lot depth and life safety needs required for properties in the MU-I zone. The design of the subdivision would not conflict with easements for access through or use of the property within the proposed subdivision to prevent any conflict.

Density Bonus No. 2023-01

Pursuant to the State Density Bonus Law, the City is required to grant the waivers proposed for qualifying housing developments unless the City finds that the waivers or reduction of development standards would have a specific adverse impact upon health, or safety, and for which there is no feasible method to satisfactorily mitigate or avoid the specific adverse impact, would have an adverse impact on any real property that is listed in the California Register of Historical Resources, or would be contrary to State or Federal law. In addition, the City cannot require minimum parking standards that exceed the Density Bonus parking standards, if the applicants of a qualifying housing development requests to utilize the parking standards provided in the Density Bonus Law.

The Project is proposing to develop a new housing development at the density identified in the City's Sixth Cycle Housing Element Inventory. The proposed waivers to reduce the minimum front and side street setbacks along all street frontages are appropriate for the Project Site and the surrounding mixed-use, urban environment. Similar to the proposed Project's reduced street setbacks, other existing mixed-use and commercial developments along Brea Boulevard feature little to no setback from the public right-of-way. In addition, it is important to note that while the Project is proposing waivers to reduce the minimum private and common open space requirements and landscaping street setbacks, the Applicant acknowledged the importance of providing open/recreation space for the future residents and has agreed to pay a monetary contribution in sum of $42,000 into the City's Park Development Fund (Fund 250). This voluntary contribution is in addition to the required Park Development Impact Fee ($9,818 per unit). Such additional funds can be used to improved existing City parks, such as Arovista Park, which is in walking distance from the Project Site.

As such, the proposed waivers are not expected to cause any specific adverse impacts upon health or safety.

Precise Development 2023-03: South Brea Townhomes Development

In MU-I Zoning district, PD review is required for residential construction of five or more units and non-residential construction that is over 10,000 square feet of gross floor area. The intent of PD review is to ensure that the Project complies with the applicable development standards and also allows for architectural review of the for-sale residential condominium buildings and an outdoor gathering space. As proposed, and conditioned, the Project represents quality design and complies with the development standards of MU-I Zone for stand-alone residential Projects, as shown on the Table 6 below:

Table 6 – Compliance with Development Standards

Development Standard	Zoning Code (min./max)	Proposed
Minimum Project Size	2,500 square feet	43,343 square feet
Density	12.1 to 50 units per acre	32.32 units per acre
Height	100 feet	• Building 1: 37 feet • Building 2: 37 feet • Building 3: 39'-4" • Building 4: 40 feet

Front Setback (Brea Boulevard)	10 feet	• First floor: 1’-6” • Upper floor: 0’-6”
Street Side Setbacks	15 feet	*Fir Street: • First floor: 10’-1” • Upper floor: 9’-2” • Ground floor patio walls: 5’-2” *Walnut Avenue: • First floor: 5’ • Upper floor: 3’-4”
Interior Site Setback	10 feet	• First floor: 15 feet • Upper floor: 14 feet
Landscaping Setbacks	Street: 8 feet Interior: 5 feet	*Brea Boulevard: 1’-11” *Fir Street: 5’-2” *Walnut Avenue: 5’-11” Interior: 8’-11”
Common Open Space	100 square feet per unit	*23 square feet per unit
Private Open Space	75 square feet per unit	*50 square feet per unit
Parking	80 spaces	*64 garage spaces
*Considered as compliant due to Density Bonus Provisions		

The proposed live/work units with ground level workspaces as proposed would fulfill the commercial requirement of the MU-I zone. The Project Site is adequate in size and shape to accommodate the proposed development and all of the yards, setbacks, walls or fences, landscaping, and other features, except for parking standards and those waivers proposed through the State Density Bonus Law, required to bring about conformity with other elements in the neighborhood.

The Project was reviewed by various departments, including the Fire Department, Police Department, Public Works Department and the Building & Safety Division. The Project is required to meet all Building and Fire codes and standards, thereby assuring the public health, safety, and welfare. To further ensure the Project would be compatible with surrounding uses and not adversely affect the public, health or general welfare, staff has prepared draft Conditions of Approval (Attachment D). Notably, a condition has been recommended by the Police Department for the Project to provide communication infrastructure and funding improvements at the two driveway locations that the Project will benefit from for the development of the Integrated Crime Center that will aid the Police Department in preventing, managing, and solving crime. In addition, the CC&Rs for the Project must include a requirement for the residents to use the garage spaces for vehicle parking only and provisions for maintenance of common areas.

No Net Loss

Pursuant to subdivision (b)(2) of Government Code Section 65863, if the City allows development of any parcel with fewer units by income category than identified in the Housing Element Sites Inventory for that parcel, the City is required to make a written finding supported by substantial evidence as to whether or not remaining sites identified in the Housing Element are adequate to meet the requirements of Government Code and to accommodate the City's RHNA at each income level. A quantification of the remaining unmet need for the City's share of the regional housing need at each income level and the remaining capacity of sites identified in the Housing Element to accommodate that need by income level is shown on the Table 7 below:

Table 7 – NO NET LOSS EVALUATION

Income Category	Total RHNA	Housing Element Site Inventory Total Unit Potential	Existing Surplus/ Shortfall	Proposed Project	Updated Surplus/Shortfall
Very Low	669	1,301	+239	-32	+207
Low	393				
Moderate	403	556	+153	+4	+157
Above Moderate	900	1,454	+554	+28	+582
Total	**2,365**	**3,311**	**+946**	**n/a**	**+946**

As shown on above table, the remaining sites identified in the Housing Element are adequate to meet the requirements of the No Net Loss law. The justification request from the Applicant is Attachment K and written finding and substantial evidence is provided in Draft Resolution for DB No. 2023-01 (Attachment B).

PUBLIC NOTICE AND COMMENTS

This Project was noticed in accordance with the City's public noticing requirements, which involved mailed notices sent to property owners within 500-feet of the Project Site, and publication in the Brea Star-Progress. The public hearing notice for this Project is provided as Attachment L.

As of the writing of this report, staff has received two letters of support for the Project from Jamboree Housing Corporation dated May 9, 2024 and Brea Chamber dated June 12, 2024. Both letters commend the Project for constructing new housing and providing homeownership opportunities for above moderate-income and moderate-income units. The public comment letters are provided as Attachment M.

In addition, on June 4, 2024, the Applicant conducted mailed outreach to property owners within a 500-foot radius of the Project Site, which provided the Project description, site plan, rendering, and availability to discuss the Project ahead of an anticipated hearing date. To date, one adjacent neighbor expressed interest in the Project and has been in contact with the Applicant.

ENVIRONMENTAL ASSESSMENT

The Project has been assessed in accordance with the California Environmental Quality Act (CEQA) Guidelines and the environmental regulations of the City. The Project is categorically exempt from the requirements to prepare additional environmental documentation per CEQA Guidelines Section 15332. The Class 32 exemption is applicable as the Project is an in-fill development that meets the following conditions: (a) the Project is consistent with the applicable general plan designation and all applicable general plan policies as well as the applicable designation and regulations; (b) the proposed development occurs on a Project Site of no more than five acres substantially surrounded by urban uses; (c) the Project has no value as a habitat for endangered, rare, or threatened species; (d) approval of the Project would not result in any significant effects relating to traffic, noise, air quality or water quality; and (e) the site can be adequately served by all required utilities and public services. Technical analyses prepared for the Project, which includes a Scoping Agreement for Traffic Impact Analysis, Noise Impact Study, Noise Impact Study, Air Quality, Greenhouse Gas, and Energy Impact Study, and Preliminary Water Quality Management Plan, demonstrated that the Project would not have any significant effect related to traffic, noise, air quality, and water quality. Therefore, the Project is categorically exempt from the provisions of CEQA. The technical studies are Attachments N, O, P and Q, and the draft Notice of Exemption is Attachment R.

CONCLUSION

For the reasons discussed above and the information attached to this report, the Project would conform with all the requirements of the General Plan and the provisions of the BCC. The proposed recommendation would not have an adverse effect on the public, health, safety, or general welfare. Therefore, staff recommends approval of the Project.

RESPECTFULLY SUBMITTED:

Joanne Hwang, AICP, City Planner

Prepared by: Jessica Newton, Senior Planner

Attachments

Attachment A- Draft Resolution TTM No. 19315.pdf
Attachment B- Draft Resolution DB No. 2023-01.pdf
Attachment C- Draft Resolution P-D No. 2023-03.pdf
Attachment D- Conditions of Approval.pdf
Attachment E- Technical Background.pdf
Attachment F- Vicinity Map.pdf
Attachment G- Project Narrative.pdf
Attachment H- Project Plans.pdf

Attachment I- Project Application.pdf
Attachment J- Density Bonus Application.pdf
Attachment K- No Net Loss Letter.pdf
Attachment L- Public Hearing Notice.pdf
Attachment M- Public Comments.pdf
Attachment N- Scoping Agreement for Traffic Impact Analysis.pdf
Attachment O- Noise Impact Study.pdf
Attachment P- Air Quality, Greenhouse Gas, and Energy Impact Study.pdf
Attachment Q- WQMP.pdf
Attachment R- Draft Notice of Exemption.pdf

(DRAFT) RESOLUTION NO. PC 2024-XX

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF BREA APPROVING TENTATIVE TRACT MAP NO. 19315 FOR RESIDENTIAL CONDOMINIUM PURPOSES ON A 0.99-ACRE SITE FOR THE SOUTH BREA TOWNHOMES PROJECT LOCATED AT 685 SOUTH BREA BOULEVARD.

A. RECITALS:

(i) The Planning Commission of the City of Brea (the "Planning Commission") did receive a verified petition for the approval of Tentative Tract Map (TTM) No. 19315, Density Bonus (DB) No. 2023-01, and Precise Development (PD) No. 2023-03 to allow the demolition of an approximately 6,592-square-foot commercial building and construction of a new housing development project that will include 29 residential single-family attached units and three live/work units, for a total of 32 units, dispersed in four buildings (referred to herein as the "Project") for that certain real property located at 685 South Brea Boulevard, in the City of Brea, and further legally described as Assessor Parcel Number 284-282-06, as shown in the latest records of the County of Orange Assessor's Office.

(ii) The Project applicant is Brea 1 Inv, LLC, 685 South Brea Boulevard.

(iii) The Project site is zoned Mixed-Use I (MU-I) and designated as Mixed Use I by the General Plan.

(iv) TTM No. 19315 would subdivide the Project Site for condominium purposes to construct a total of 32 residential units, including three live/work units.

(v) On July 23, 2024, the Planning Commission held a duly noticed public hearing on the Project, during which it received and considered all evidence and testimony presented prior to adoption of this resolution.

(vi) All legal prerequisites to the adoption of this Resolution have occurred.

B. RESOLUTION:

NOW, THEREFORE, BE IT FOUND, DETERMINED AND RESOLVED by the Planning Commission of the City of Brea, as follows:

1. In all respects as set forth in Recitals, Part A, of this Resolution.

2. The Project identified above in this Resolution has been assessed in accordance with the California Environmental Quality Act (CEQA) Guidelines, and the environmental regulations of the City. The Project is categorically exempt from the requirements to prepare additional environmental documentation per CEQA Guidelines Section 15332. Class 32 is applicable as the Project is an in-fill development that meets the following conditions: (a) the Project is consistent with the applicable general plan designation and all applicable general plan policies as well as the applicable designation and regulations; (b) the proposed development occurs on a project site of no more than five acres substantially surrounded by urban uses; (c) the Project has no habitat for endangered, rare, or threatened species; (d) approval of the Project will not result in any significant effects relating to traffic, noise, air quality or water quality; and (e) the site can be adequately served by all required utilities and public services. Technical analyses prepared for the Project, which includes a Scoping Agreement for Traffic Impact Analysis, Noise Impact Study, Air Quality, Greenhouse Gas, and Energy Impact Study, and Preliminary Water Quality Management Plan, demonstrated that the Project will not have any significant effect related to traffic, noise, air quality, and water quality. Therefore, the Project is categorically exempt from the provisions of CEQA.

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3. The Commission further finds in consideration of TTM No. 19315 as follows:

a. Finding: That the proposed map is consistent with the applicable General Plan and Specific plans;

Fact: The subject property has a General Plan land use designation of Mixed Use I, which is intended to create areas for intense, mixed-use, urban environments that offer opportunities for people to live, work, shop, and recreate without having to use their cars. TTM No. 19315 is consistent with the Brea General Plan because it will allow the construction of a for-sale housing development on a site in the City's Housing Element residential sites inventory, identified as Focused Development Site 10, with an estimated capacity to accommodate 32 units. In addition, TTM No. 19315 is consistent with Goal CD-1 and Policies CD-1.1, CD-1.4, and CD-1.5 in that it will allow development that integrates single-family attached housing and live/work units in a mixed-use area. The proposed subdivision will maintain the existing General Plan land use designation on the property, allowing the construction of a housing development, and creating 32 new condominium units for future homeowners.

b. Finding: That the site is physically suitable for the type of development;

Fact: The subject property is 1.11 acres in size (0.99 acres after the required public right-of-way dedication) and occupied by a single-story, existing commercial building. The map will subdivide the existing site into 32 condominium units. The Project Site is physically suitable to accommodate the

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mixed-use development and the proposed parcels meet all applicable development standards pursuant to Brea City Code Section 20.258.020 and 20.258.030 for development in the MU-I zone, except for parking standards and those waivers requested by State Density Bonus Law. As such, the Project site adequately accommodates the proposed subdivision.

c. Finding: That the site is physically suitable for the proposed density of development;

Fact: The Project Site is physically suitable for the proposed density of development. TTM No. 19315 will adjust the lot line boundaries to match the proposed Project's development configuration, including the required dedication of 10 feet of existing sidewalk areas along Brea Boulevard and Fir Street as public right-of-way. It will not result in a change to the density permitted on the site, as the Mixed-Use I designation allows for a residential density of 12.1 to 50 dwelling units per acre.

d. Finding: That the design of the subdivision or the proposed improvements are likely to cause substantial environmental damage or substantially unavoidably injure fish or wildlife, or their habitat;

Fact: The design of TTM No. 19315 is not likely to cause substantial environmental damage or substantially unavoidably injure fish or wildlife, or their habitat. The existing parcel has been previously disturbed and developed and is an urban property surrounded by other urban uses. The site is not suitable habitat for wildlife and the proposed Project will, therefore, not cause substantial environmental damage or injure wildlife.

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e. Finding: That the design of the subdivision or type of improvements is likely to cause serious public health problems;

Fact: The design of TTM No. 19315 is not likely to cause serious public health problems in that the new subdivision and improvements will be required to comply with the approved plans and development standards as required by the City of Brea. In addition to these development standards, any development will be required to comply with Brea City Code and all applicable codes, including but not limited to, California Building and Fire Codes. With implementation of the conditions of approval attached to a separate resolution approving PD No. 2023-03, the subdivision will not cause and change or impact to public health.

f. Finding: That the design of the subdivision or the type of improvements will conflict with easements, acquired by the public at large, for access through use of property within the proposed subdivision.

Fact: The design of the subdivision or the type of improvements will not conflict with easements, acquired by the public at large, for access through or use of property within the proposed subdivision.

4. TTM No. 19315 is hereby approved, subject to the conditions of approval attached to a separate resolution approving PD No. 2023-03 for the South Brea Townhomes Project.

5. The Secretary of this Commission shall certify to the adoption of this Resolution.

ADOPTED AND APPROVED this 23rd day of July, 2024.

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_____
Chair, Planning Commission

I, Joanne Hwang, Secretary to the Planning Commission of the City of Brea, do hereby certify that the foregoing Resolution was introduced at a regular meeting of the Planning Commission of the City of Brea held on the 23rd day of July, 2024, and was finally passed at a regular meeting of the Planning Commission of the City of Brea, held on the 23rd day of July, 2024, by the following votes:

AYES: COMMISSIONERS:

NOES: COMMISSIONERS:

ABSENT: COMMISSIONERS:

ABSTAIN: COMMISSIONERS:

ATTEST: _____
Secretary, Planning Commission

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(DRAFT) RESOLUTION NO. PC 2024-XX

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF BREA APPROVING DENSITY BONUS NO. 2023-01: TO ALLOW UTILIZATION OF STATE DENSITY LAW PROVISIONS FOR THE CONSTRUCTION OF A HOUSING DEVELOPMENT CONSISTING OF AFFORDABLE UNITS FOR THE SOUTH BREA TOWNHOMES PROJECT LOCATED AT 685 SOUTH BREA BOULEVARD AND FINDING COMPLIANCE WITH NO NET LESS LAW.

A. RECITALS:

(i) The Planning Commission of the City of Brea (the "Planning Commission") did receive a verified petition for the approval of Tentative Tract Map (TTM) No. 19315, Density Bonus (DB) No. 2023-01, and Precise Development (PD) No. 2023-03 to allow the demolition of an approximately 6,592-square-foot commercial building and construction of a new housing development project that will include 29 residential single-family attached units and three live/work units, for a total of 32 units, dispersed in four buildings (referred to herein as the "Project") for that certain real property located at 685 South Brea Boulevard, in the City of Brea, and further legally described as Assessor Parcel Number 284-282-06, as shown in the latest records of the County of Orange Assessor's Office.

(ii) The Project applicant is Brea 1 Inv, LLC, 685 South Brea Boulevard.

(iii) The Project site is zoned Mixed-Use I (MU-I) and designated as Mixed Use I by the General Plan.

(iv) DB No. 2023-01 would allow the Applicant to utilize the following Density Bonus provisions: 1) Density Bonus parking standards; and 2) waivers of five separate development standards, which includes reductions of the front setback to 6", the street side setbacks to between 3'-4" and 5'-2", the landscaping setbacks to between 1'-11"

and 5'-11", the common open space requirement to 23 square feet per dwelling unit, and the private open space requirement to 50 square feet per dwelling unit.

(v) On July 23, 2024, the Planning Commission held a duly noticed public hearing on the Project, during which it received and considered all evidence and testimony presented prior to adoption of this resolution.

(vi) All legal prerequisites to the adoption of this Resolution have occurred.

B. RESOLUTION:

NOW, THEREFORE, BE IT FOUND, DETERMINED AND RESOLVED by the Planning Commission of the City of Brea, as follows:

1. In all respects as set forth in Recitals, Part A, of this Resolution.

2. The Project identified above in this Resolution has been assessed in accordance with the California Environmental Quality Act (CEQA) Guidelines, and the environmental regulations of the City. The Project is categorically exempt from the requirements to prepare additional environmental documentation per CEQA Guidelines Section 15332. Class 32 is applicable as the Project is an in-fill development that meets the following conditions: (a) the Project is consistent with the applicable general plan designation and all applicable general plan policies as well as the applicable designation and regulations; (b) the proposed development occurs on a project site of no more than five acres substantially surrounded by urban uses; (c) the Project has no habitat for endangered, rare, or threatened species; (d) approval of the Project will not result in any significant effects relating to traffic, noise, air quality or water quality; and (e) the site can be adequately served by all required utilities and public services.

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Technical analyses prepared for the Project, which includes a Scoping Agreement for Traffic Impact Analysis, Noise Impact Study, Air Quality, Greenhouse Gas, and Energy Impact Study, and Preliminary Water Quality Management Plan, demonstrated that the Project will not have any significant effect related to traffic, noise, air quality, and water quality. Therefore, the Project is categorically exempt from the provisions of CEQA.

3. The Commission further finds in consideration of DB No. 2023-01 as follows:

a. Finding: The Project meets the requirements of the State Density Bonus Law to utilize parking standards and waivers specified in the State Density Bonus Law;

Fact: The Project consists of 29 residential and three live/work units, for a total of 32 housing units. Four of the 32 units would be reserved for moderate-income households. Thus, 10 percent of the base units would be affordable to moderate-income households, making the Project eligible for unlimited waivers and State Density Bonus Law parking standards under State Density Bonus Law. With the waiver requests, the Project would be built at the density identified in City's Sixth Cycle Housing Element, and the proposed reduction in applicable street setbacks is similar and compatible with existing development pattern in the surrounding mixed-use environment. Additionally, while the Project includes reductions to landscaping setbacks and open space, the Applicant would contribute funding toward off-site public park development. Based on the Project details, the proposed waivers are not expected to cause

any specific adverse impacts upon health or safety. In addition, the proposed Project is consistent with the General Plan Housing Element Goal 6 in that the Project will provide a variety of housing types and support production of affordable housing through density bonus incentives.

4. The Commission further finds in consideration of the State No Net Loss Law as follows:

a. Finding: That the remaining sites identified in the Housing Element are adequate to meet the requirements of Government Code Section 65583.2 and to accommodate the City's remaining unmet regional housing need allocation at each income level.

Fact: The Project site is identified in the City's Housing Element residential sites inventory as Focused Development Site 10, with an estimated capacity to accommodate 32 units, consisting of 16 very low-income units and 16 low-income units. The Project proposes a total of 32 units for the site, consisting of 28 above moderate-income units and four moderate income units. As a result, the proposed Project provides 32 fewer lower income units than identified in the Housing Element, while providing additional moderate income and above moderate income units. The City's regional housing need allocation (RHNA) for the 2021-2029 planning period is 2,365 housing units for all income levels, consisting of 669 very low-income units, 393 low-income units, 403 moderate-income units, and 900 above moderate-income units. The Housing Element sites inventory identifies a total unit capacity of 1,301 units for lower-

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income units, which is a surplus of 239 units. The City's approval of the Project, which would remove 32 of the units from the lower-income capacity calculation, would not cause the lower-income RHNA category to be insufficient, as shown in the below table:

Income Category	Total RHNA	Housing Element Site Inventory Total Unit Potential	Existing Surplus/ Shortfall	Proposed Project	Updated Surplus/ Shortfall
Very Low	669	1,301	+239	-32	+207
Low	393				
Moderate	403	556	+153	+4	+157
Above Moderate	900	1,454	+554	+28	+582
Total	**2,365**	**3,311**	**+946**	**n/a**	**+946**

As such, there is still more than adequate capacity at the remaining Housing Elements sites.

5. Based on reasons specified in the resolution, DB No. 2023-01 is hereby approved.

6. The Secretary of this Commission shall certify to the adoption of this Resolution.

ADOPTED AND APPROVED this 23rd day of July, 2024.

_____
Chair, Planning Commission

I, Joanne Hwang, Secretary to the Planning Commission of the City of Brea, do hereby certify that the foregoing Resolution was introduced at a regular meeting of the Planning Commission of the City of Brea held on the 23rd day of July, 2024, and was finally passed at a regular meeting of the Planning Commission of the City of Brea, held on the 23rd day of July, 2024, by the following votes:

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AYES: COMMISSIONERS:

NOES: COMMISSIONERS:

ABSENT: COMMISSIONERS:

ABSTAIN: COMMISSIONERS:

ATTEST: _____
Secretary, Planning Commission

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(DRAFT) RESOLUTION NO. PC 2024-XX

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF BREA APPROVING PRECISE DEVELOPMENT NO. 2023-03: TO ALLOW THE DEMOLITION OF AN EXISTING COMMERCIAL BUILDING AND CONSTRUCTION OF A HOUSING DEVELOPMENT (SOUTH BREA TOWNHOMES PROJECT) CONSISTING OF 29 SINGLE-FAMIILY ATTACHED UNITS AND THREE LIVE/WORK UNITS, FOR A TOTAL OF 32 UNITS, LOCATED AT 685 SOUTH BREA BOULEVARD.

A. RECITALS:

(i) The Planning Commission of the City of Brea (the "Planning Commission") did receive a verified petition for the approval of Tentative Tract Map (TTM) No. 19315, Density Bonus (DB) No. 2023-01, and Precise Development (PD) No. 2023-03 to allow the demolition of an approximately 6,592-square-foot commercial building and construction of a new housing development project that will include 29 residential single-family attached units and three live/work units, for a total of 32 units, dispersed in four buildings (referred to herein as the "Project") for that certain real property located at 685 South Brea Boulevard, in the City of Brea, and further legally described as Assessor Parcel Number 284-282-06, as shown in the latest records of the County of Orange Assessor's Office.

(ii) The Project applicant is Brea 1 Inv, LLC, 685 South Brea Boulevard.

(iii) The Project site is zoned Mixed-Use I (MU-I) and designated as Mixed Use I by the General Plan.

(iv) PD No. 2023-03 would allow demolition of the existing commercial building and construction of a new housing development that would include 29 residential single-family attached units and three live/work units, for a total of 32 units, dispersed in four buildings.

(v) On July 23, 2024, the Planning Commission held a duly noticed public hearing on the Project, during which it received and considered all evidence and testimony presented prior to adoption of this resolution.

(vi) All legal prerequisites to the adoption of this Resolution have occurred.

B. RESOLUTION:

NOW, THEREFORE, BE IT FOUND, DETERMINED AND RESOLVED by the Planning Commission of the City of Brea, as follows:

1. In all respects as set forth in Recitals, Part A, of this Resolution.

2. The Project identified above in this Resolution has been assessed in accordance with the California Environmental Quality Act (CEQA) Guidelines, and the environmental regulations of the City. The Project is categorically exempt from the requirements to prepare additional environmental documentation per CEQA Guidelines Section 15332. Class 32 is applicable as the Project is an in-fill development that meets the following conditions: (a) the Project is consistent with the applicable general plan designation and all applicable general plan policies as well as the applicable designation and regulations; (b) the proposed development occurs on a project site of no more than five acres substantially surrounded by urban uses; (c) the Project has no habitat for endangered, rare, or threatened species; (d) approval of the Project will not result in any significant effects relating to traffic, noise, air quality or water quality; and (e) the site can be adequately served by all required utilities and public services. Technical analyses prepared for the Project, which includes a Scoping Agreement for Traffic Impact Analysis, Noise Impact Study, Air Quality, Greenhouse Gas, and Energy

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Impact Study, and Preliminary Water Quality Management Plan, demonstrated that the Project will not have any significant effect related to traffic, noise, air quality, and water quality. Therefore, the Project is categorically exempt from the provisions of CEQA.

3. The Commission further finds in consideration of PD No. 2023-03 as follows:

a. Finding: The proposed Project is in compliance with applicable provisions of the Brea City Code and all requirements of law.

Fact: The demolition of an existing commercial building and the adjacent surface parking existing and development of the proposed Project that consists of the new South Brea Townhomes development is in compliance with all applicable development standards pursuant to Brea City Code Section 20.258.020 and 20.258.030 for development in the MU-I zone, except for parking standards and those waivers requested by State Density Bonus Law. The technical studies prepared for the Project demonstrated that the Project would not have any significant effect related to traffic, noise, air quality, and water quality. Given all information known to date and the conditions of approval, this request is not anticipated to result in significant impacts to City services nor to be detrimental to existing uses in the zone or within the surrounding neighborhood.

4. PD No. 2023-03 is hereby approved, subject to the conditions of approval found in Exhibit A of this resolution.

5. The Secretary of this Commission shall certify to the adoption of this Resolution.

ADOPTED AND APPROVED this 23rd day of July, 2024.

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Chair, Planning Commission

I, Joanne Hwang, Secretary to the Planning Commission of the City of Brea, do hereby certify that the foregoing Resolution was introduced at a regular meeting of the Planning Commission of the City of Brea held on the 23rd day of July, 2024, and was finally passed at a regular meeting of the Planning Commission of the City of Brea, held on the 23rd day of July, 2024, by the following votes:

AYES: COMMISSIONERS:

NOES: COMMISSIONERS:

ABSENT: COMMISSIONERS:

ABSTAIN: COMMISSIONERS:

ATTEST: _____
Secretary, Planning Commission

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EXHIBIT A OF RESOLUTION NO. 2024-XX

SOUTH BREA TOWNHOMES PROJECT
TENTATIVE TRACT MAP NO. 19315, DENSITY BONUS NO. 2023-01, AND PRECISE DEVELOPMENT NO. 2023-03
CONDITIONS OF APPROVAL

Planning Division – Community Development Department

1. Development and operations shall occur in substantial compliance with the plans and documents reviewed and approved by the Planning Commission on July 23, 2024, which includes, but not limited to, site plan, floor plans, and elevation drawings on file with the Planning Division, the conditions contained herein and all applicable Federal, State, County and local regulations. The City Planner may approve minor modifications to the approved project plans.

2. The Applicant shall prepare and submit a physical copy (suitable for archival storage) of the final plans and technical studies to the Brea Planning Division prior to the issuance of any building permits for the development.

3. Live/Work Units: The following use restrictions shall apply to three Live/Work units (Units 14, 17, and 18):

    a. The live/work units shall have direct interior access between the work and living areas and are restricted to businesses where customers/client visitations are limited or sporadic, such as administrative office and other similar uses as determined by the City Planner. This space is restricted from being rented to a separate tenant.

    b. Any businesses within the live/work space shall obtain a City Business License.

4. Prior to any permit issuance, Covenants, Conditions, and Restrictions (CC&R's) for the community association bylaws establishing a joint tenants and owners shall be submitted to the Planning Division for City review and approval. Such CC&Rs must, at minimum, address the following:

    a. A requirement that residents shall use the designated parking areas (i.e. garages), only for the parking of vehicles.
    b. A provision that parking garages are subject to inspection by the Association or City of Brea staff.
    c. Prohibition of vehicle parking within the drive aisles.
    d. Permitted hours of operation for the commercial use within live/work units
    e. Use restrictions for the commercial use within live/work units
    f. Maintenance of all common areas.

5. Final architectural elevation plans and details shall be provided at time of plan check for the review and approval of the City Planner prior to the issuance of building permits. Architecture and design features shall be consistent with the specifications and details provided in the approved Project plans and shall include high quality materials and finishes. Requests to modify the approved building elevations, materials and details, colors and other architectural elevation features may be reviewed and approved by the City Planner.

6. Prior to issuance of any building permits, the Applicant shall submit a final landscape, hardscape and light fixture/photometric plans and details shall be provided for the review and approval of the City Planner prior to the issuance of building permits. The final landscaping plan shall be in substantial conformance with the conceptual landscape plan on file and comply with the City's Water Efficient Landscaping Requirements.

    a. Prior to release of Certificate of Occupancy, approved landscaping and irrigation shall be installed.

7. All new landscaping shall be installed in conformance with the approved plans and applicable Brea City Code (BCC) and maintained in perpetuity. Landscaping shall be replaced in a timely manner in an event that it is removed, damaged and/or dead.

8. All roof-mounted and ground-mounted equipment shall be screened from public views at ground elevation. All screen designs shall be architecturally integrated with the building and shall be subject to the review and approval of the City Planner and Building and Safety Division.

    a. Noise generating equipment shall require special consideration in their location and screening in order to avoid creating a nuisance. All uses and operations shall adhere to the City's adopted noise ordinance.

9. Balcony run-off shall be integrated in the building structure and storm drain system. Balcony drain water shall not drain down the side of balconies and/or building exterior.

10. All electrical, telephone, community antenna, television and similar service wires or cables which provide direct service to the property being developed, shall be installed underground within the exterior boundary lines of such property.

11. Within 30 days of the issuance of the final invoice and prior to the issuance of any building permits, the Applicant is responsible for paying all charges related to the processing of the Project. Failure to pay all charges shall result in delays in the issuance of required permits or may result in the revocation of the approval of this application.

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12. Any permit is subject to expiration and revocation as provided in BCC Chapter 20.412.020, and said provisions are specifically made a part hereof without negating the applicability of any other provision of this title of any other ordinance.

13. To the fullest extent permitted by law, the applicant shall indemnify, defend and hold the City, its elected officials, officers, contractors serving as City officers, agents, and employees ("Indemnitees") free and harmless from: (i) any and all claims, liabilities and losses whatsoever occurring or resulting to any and all persons, firms, entities, or corporations furnishing or supplying work, services, materials, or supplies in connection with, or related to, the performance of work or the exercise of rights authorized by approval of Tentative Tract Map (TTM) No. 19315, Density Bonus (DB) No. 2023-01, and PD No. 2023-03, and (ii) any and all claims, lawsuits, liabilities, and/or the granting or exercise of the rights authorized by said approval; and (iii) from any and all claims, liabilities and losses occurring or resulting to any person, firm, entity, corporation for property damage, personal injury, or death, arising out of or related to the approval of, or exercise of rights granted by, this permit. Applicant's obligation to indemnify, defend and hold the Indemnitees free and harmless as required hereinabove shall include, but is not limited to, paying all fees and costs incurred by legal counsel of the Indemnitee's choice in representing the Indemnitees in connection with any such claims, losses, lawsuits, or actions, and any award of damages, judgments, verdicts, court costs or attorney's fees in any such lawsuit or action.

Housing Division – Community Development Department

14. Four units shall be provided as for-sale affordable units for moderate-income households for a minimum period of 45 years.

15. An Affordable Housing Agreement between the developer and the City, prepared by the City and approved by the City Council shall indicate the number, type, location, and approximate size, and construction scheduling of all dwelling units. Provisions shall be provided for resale restrictions, monitoring affordability of the units, and the eligibility of the households. Prior to any permit issuance, this agreement shall be recorded in the office of the Orange County Recorder.

16. The Applicant shall coordinate with and accommodate the City as necessary to provide the four affordable units as low-income units, if the City identifies an opportunity to offer potential financial assistance to future buyers of the four affordable units (e.g. down payment assistance with silent second loan, etc.).

Building and Safety Division – Community Development Department

17. All designs shall comply with the Codes adopted at the time of the permit submittal. Currently the 2022 California Building, Mechanical, Electrical, Plumbing, Cal Green, Energy, Fire Codes, City of Brea Municipal Code & Ordinances.

18. Building permits are required for all the proposed work, California Building Code (CBC) 2022 Sec [A]105.1.

    a. All plans must be submitted electronically, and shall include structural calculations, Title 24, and fire and life safety analysis with proposed occupant loads.

    b. At time of building permit submittal, some required construction documents are: Architectural, Structural, Mechanical, Electrical, Energy, Plumbing, Civil (Grading, Erosion Control), Landscaping, Structural Calculations, Energy Calculations, MEP related Calculations & Equipment Cut Sheets, Specs & Geotechnical Report.

        The following requires separate submittals and permit issuance:

        i. Demo work

        ii. Building construction documents

        iii. Civil construction documents (Grading Plans)

        iv. Landscape construction documents

        v. Accessory structures (trash enclosure(s)) construction documents

        vi. Art in Public Places (Art Sculpture)

        vii. Fire Sprinklers

        viii. PV Systems

        ix. Temporary Power

        x. Construction/Office Trailers

    c. If any code deviations are needed for the proposed project, submittal of Alternative Materials, design and Methods (CBC Sec. [A]104.11) or Modification request (CBC Sec. [A]104.10) will be required. Code sections and alternatives are required with complete justification for request.

    d. Deferred submittal items shall have the prior approval of the building official.

19. Prior to issuance of any construction permits, the Applicant shall pay all applicable impact fees as set forth in the City ordinances and in effect the time of permit approval.

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20. Prior to demolition permit issuance or the start of demolition to the existing building, an asbestos and lead analysis report shall be submitted for review to the Building & Safety Division.

21. A minimum of 65% of construction and demolition material are required to be recycled during demolition and construction. Prior to any permit issuance, a contract with Brea disposal or other proof of recycling must be submitted.

22. Prior to any permit issuance, construction plans shall indicate whether or not the site is with in any of the following zones:

    a. Methane zone

    b. Fire zone

    c. Flood zone

    d. Liquefaction zone

23. At grading permit submittal, a Geotechnical Soils Investigation report is required to be submitted to the Building & Safety Division.

    a. A licensed civil or structural engineer registered in the State of California shall provide a letter stating whether or not a ground motion hazard analysis shall be performed in accordance with ASCE 7-16 Sec. 11.4.8 (Section 21.2) for this development. If yes, then the geotechnical engineer shall update the preliminary geotechnical investigation accordingly.

    b. The geotechnical engineer of record shall review the grading plans, foundation plans and foundation details for conformance with the Geotechnical Investigation Report, stamp and sign plans and details.

24. At grading permit submittal, a color exhibit plan shall be provided on the civil drawings showing cut and fill areas.

25. Prior to grading permit issuance, the Applicant shall provide written evidence to the City of Brea Building & Safety Division that a geotechnical engineer has been retained to monitor the grading operation and assure implementation of the site grading recommendations. All recommendations shall be implemented to the performance standards specified in the Geotechnical Investigation report and to the satisfaction of the geotechnical engineer, City Engineer and Building Official. Evidence of implementation shall be provided to the Building & Safety Division prior to issuance of a building permit.

26. ADA accessible units shall comply with CBC 2022 Chapter 11A and Live/work units shall comply with CBC 2022 Chapter 11A & 11B respectively.

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27. Roof tiles shall be class “A” and shall have an ICC ESR approved report. The ICC ESR report shall be pasted on the plans.

28. An automatic fire sprinkler system is required and shall be complaint with CBC 2022 Chapter 9 and the City of Brea code amendments.

29. Structural plans, gravity and lateral calculations for the transformer shall be submitted for review.

30. Structural plans and calculations shall be provided for the mechanical units and platforms on roofs.

31. A separate water meter for the landscaping shall be provided.

32. Full project review shall be conducted when complete construction documents are submitted to the Building & Safety division.

33. Additional requirements may be imposed when the project is submitted for building & safety department plan check review and approval.

Public Works Department

General Conditions

34. This approval shall be contingent upon the approval of the Tentative Tract Map, and the conditions of said approval shall be implemented. The proposed subdivision shall occur in substantial conformance with Tentative Tract Map No. 19315, submitted to the Planning Commission, and all conditions set forth herein.

35. The proposed subdivision shall occur in substantial conformance with the plans and specifications approved through the City Planning Commission, and all conditions of said approval shall be implemented and incorporated herein.

36. The Applicant shall provide Building Demolition Plans and Site Demolition Plans for the demolition of the existing building and site infrastructure. The Demolition Plans shall be prepared by a registered Civil Engineer, and be in accordance with City of Brea Standard Plans and standards, and be to the satisfaction of the City Engineer. Said plans shall include an Erosion and Sediment Control Plan identifying the State issued WDID number and the contact information for the person that is to be reached in case of emergency. Applicant shall obtain approval of both the Building Demolition Plans and Site Demolition Plans prior to the issuance of any building permit.

37. Prior to the issuance of any building permits for the proposed developed site conditions, the Applicant shall submit and obtain approval for the Precise Grading Plans and applicable technical studies. The Precise Grading Plans and technical

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studies shall be prepared by a registered Civil Engineer, be in accordance with City of Brea Standard Plans and standards, and be to the satisfaction of the City Engineer. The Precise Grading Plan submittal shall include the following items:

a. Construction Document Plans for the review and approval of the City Engineer. The Construction Document Plans shall identify all proposed improvements that are required to facilitate the development and infrastructure improvements for the proposed development to the satisfaction of the City Engineer. Said Construction Document Plans shall include an Erosion and Sediment Control Plan identifying the State issued WDID number and the contact information for the person that is to be reached in case of emergency;

b. Soils Report for the review and approval of the Building & Safety Division and the City Engineer;

c. Sanitary Sewer Capacity Analysis for the review and approval of the City Engineer. Note that the Sanitary Sewer Capacity Analysis shall include a node analysis from the upstream point of connection to the ultimate outfall to the Orange County Sanitation District sanitary sewer line;

d. Hydrology & Hydraulic Study for the review and approval of the City Engineer. Said study shall meet all City and Orange County requirements, and include an analysis of the existing and proposed flow generated by the proposed development and an analysis of the hydraulic capacity of the existing storm drain line that is proposed to be tied into on W. Fir Street in both the existing and proposed conditions;

e. Final Water Quality Management Plan (WQMP) for the review and approval of the City Engineer. The Applicant shall submit the finalized and approved Preliminary WQMP at the time of first submittal, and prior to the issuance of any building permits. The Applicant and any future successors shall adhere to the approved Final WQMP during the life of the Project;

f. Water Demand Analysis for the review and approval of the City Engineer;

g. Solid Waste/Trash Collection Circulation Plan for the review and approval of the City Traffic Engineer; and

h. On-site Circulation Plan as requested for the review and approval of the City Traffic Engineer.

38. Prior to construction permit submittal, the Applicant shall submit an Address Request Application and submit via email to pwenchroachmentper@cityofbrea.net. To obtain the application, please visit the

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following link: https://www.ci.brea.ca.us/DocumentCenter/View/14699/Address-Request-Application-080323.

39. The Applicant and/or developer shall maintain the Storm Water Pollution Prevention Plan during construction in accordance with NPDES guidelines, which shall incorporate all best management practices to mitigate pollutant runoff during construction.

40. The Applicant and/or developer of the applicable development phase shall be responsible for the maintenance of all temporary and permanent Best Management Practices (BMP's) and associated infrastructure located on public or private property.

41. The Applicant shall maintain all public and private drainage facilities in good working order at all times.

42. The Applicant and/or developer shall be responsible to obtain the permission to perform any work on adjacent private properties.

43. All existing water and fire services are to be replaced with new service connections. All existing water and fire services are to be removed through the existing water main to the satisfaction of the City Engineer.

44. All water and fire services shall be per the latest City of Brea Public Works Standards. All proposed domestic, irrigation, and fire services shall include metering and above-grade backflow prevention to the satisfaction of the City Engineer and the Brea Fire Department.

45. The Applicant shall install water meters, vaults, fire hydrants, FDC's, and above ground backflow prevention devices for all domestic, irrigation, and fire services and systems, at locations to the satisfaction of the City Engineer and the Brea Fire Department. Easements shall be dedicated to the City for the maintenance, repair, and operation of all water meters, vaults, and fire hydrants.

46. All proposed fire hydrant locations shall be subject to the review and approval of the City Engineer, the Building & Safety Division, and the Brea Fire Department. Installation of fire hydrants shall be in accordance with City of Brea Public Works Standards and all applicable building codes.

47. All proposed sewer laterals shall be per City of Brea Public Works Standards, and meet all City Building and Plumbing Code requirements, and be to the satisfaction of the City Engineer and the Building & Safety Division.

48. The proposed development shall only be served by underground distribution utilities.

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49. Prior to the issuance of any building permits, the Applicant shall pay all applicable impact fees and connection fees as set forth in the City ordinances and in effect at the time of permit approval.

50. Prior to the issuance of any building permit for the proposed developed site conditions, the Applicant shall submit Public Improvement Plans for the review and approval of the City Engineer for all public improvements located within S. Walnut Avenue, W. Fir Street, and S. Brea Boulevard, and all proposed public easements and dedications adjacent to S. Walnut Avenue, W. Fir Street, and S. Brea Boulevard. The Public Improvement Plans shall showcase all easement and right-of-way dedications as identified on Tentative Tract Map No. 19315, and shall identify all improvements within these locations. The Public Improvement Plans shall be prepared by a registered Civil Engineer, and be in accordance with City of Brea Standard Plans and standards, and be to the satisfaction of the City Engineer. All improvements shall be constructed, including any field punch list items, prior to the issuance of any occupancy release. The public improvements shall include, but are not limited to, the following items:

    a. Removal of the existing driveway on S. Walnut Avenue and installation of curb and gutter and sidewalk to match the existing curb and gutter and be in accordance with current Americans with Disabilities Act (ADA) and City of Brea Public Works Standards.

    b. Removal of all existing sidewalk adjacent to the project site on S. Walnut Avenue and construction of a landscape parkway and a minimum 5-foot wide concrete sidewalk, to the satisfaction of the City Engineer. All proposed improvements shall be in accordance with current Americans with Disabilities Act (ADA) and City of Brea Public Works Standards.

    c. Removal of the existing driveway on W. Fir Street and installation of installation of curb and gutter and sidewalk to match the existing curb and gutter and be in accordance with current Americans with Disabilities Act (ADA) and City of Brea Public Works Standards.

    d. Removal and reconstruction of all existing sidewalk adjacent to the project site on W. Fir Street; removal, reconstruction, and/or modifications to the existing curb ramp at the intersection of S. Walnut Avenue & W. Fir Street; and removal, reconstruction and/or modifications to the intersection of S. Brea Boulevard & W. Fir Street; to achieve sidewalk from the back of curb to the proposed right-of-way limit identified on Tentative Tract Map No. 19315 to the satisfaction of the City Engineer. All proposed improvements shall be in accordance with current Americans with Disabilities Act (ADA) and City of Brea Public Works Standards.

    e. Removal of the two (2) existing driveways on S. Brea Boulevard and installation of installation of curb and gutter and sidewalk to match the

existing curb and gutter and be in accordance with current Americans with Disabilities Act (ADA) and City of Brea Public Works Standards.

f. Removal and reconstruction of all existing sidewalk and stamped concrete pavers adjacent to the project site on S. Brea Boulevard, to the satisfaction of the City Engineer. All proposed improvements shall be in accordance with current Americans with Disabilities Act (ADA) and City of Brea Public Works Standards.

g. Removal of all existing parkway drains and/or curb drains serving the existing property, and reconstruction of curb and gutter and sidewalk to match the existing curb and gutter and be in accordance with current Americans with Disabilities Act (ADA) and City of Brea Public Works Standards.

h. Removal and replacement of existing curb and gutter within the public right-of-way of S. Walnut Avenue, W. Fir Street, and S. Brea Boulevard, immediately adjacent to the project site, at locations to the satisfaction of the City Engineer.

i. All easement dedications and improvements required to facilitate the construction of a proposed driveway on S. Walnut Avenue in accordance with current Americans with Disabilities Act (ADA) and City of Brea Public Works standards. The radius returns of the proposed driveway approach shall be 10-foot minimum. The proposed driveway shall include a minimum 5-foot sidewalk crossing at the top of driveway to facilitate a driveway crossing that meets all accessibility requirements and connects to the proposed sidewalk construction. Note that an easement will be required to be dedicated to the City of Brea as part of the Final Map if the 5-foot sidewalk crossing encroaches into private property. No water meter, utility vaults, and/or other structures are to be located within the proposed driveway approach.

j. All easement dedications and improvements required to facilitate the construction of a proposed driveway on W. Fir Street in accordance with current Americans with Disabilities Act (ADA) and City of Brea Public Works standards. The radius returns of the proposed driveway approach shall be 10-foot minimum. The proposed driveway shall include a minimum 5-foot sidewalk crossing at the top of driveway to facilitate a driveway crossing that meets all accessibility requirements and connects to the proposed sidewalk construction. Note that an easement will be required to be dedicated to the City of Brea as part of the Final Map if the 5-foot sidewalk crossing encroaches into private property. No water meter, utility vaults, and/or other structures are to be located within the proposed driveway approach.

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k. Landscaping and irrigation improvements required to facilitate the removal of all street trees in conflict with the proposed driveway improvements, and planting of street trees within existing or proposed tree wells and/or landscaped parkways to the satisfaction of the City Engineer.

l. Pavement rehabilitation consisting of asphalt grind and overlay of the full roadway width adjacent to the project site for S. Walnut Avenue, W. Fir Street, and the intersection of S. Walnut Avenue & W. Fir Street, to the satisfaction of the City Engineer;

m. Renewal and/or implementation of signage and striping improvements within the limits of paving improvements adjacent to the project site along S. Walnut Avenue, W. Fir Street, and the intersection of S. Walnut Avenue & W. Fir Street, to the satisfaction of the City Traffic Engineer;

n. Installation of all signage and striping improvements as identified on the Signing and Striping Plan within Tentative Tract Map No. 19315, to the satisfaction of the City Traffic Engineer;

o. All proposed utility improvements, modifications, relocations, and/or connections located within the proposed public right-of-way and easement areas. Said improvements shall include all utility improvements as identified on Tentative Tract Map No. 19315, and that are required to facilitate the proposed private development to the satisfaction of the City Engineer. Proposed utility improvements, modifications, and connections located within the public right-of-way shall include items such as, but not limited to, the construction of domestic, irrigation, and fire service connections and infrastructure; the construction of fire hydrants; the construction of storm drain manhole connections to existing infrastructure; the construction of sanitary sewer manhole connections to existing infrastructure; the relocation of street lights; modifications to traffic signal and communications infrastructure; and the removal and/or relocation of utility vaults and/or meters;

p. Removal of the existing traffic signal pole at the northwest corner of the intersection of S. Brea Boulevard & W. Fir Street and installation of a new Type 15TS signal pole with a traffic safety light over the W. Fir Street crosswalk. These improvements shall include all traffic signal, communications, and electrical improvements to the traffic signal and shall be to the satisfaction of the City Traffic Engineer;

q. Installation of all communications infrastructure required to facilitate the proposed connection of the communications system from the intersection of S. Brea Boulevard & W. Fir Street to the existing light pole located at the northwest corner of the intersection of S. Walnut Avenue & W. Fir Street, to the satisfaction of the City Traffic Engineer and the Police Department.

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Note that the provided plans shall identify all paving and utility infrastructure modifications required to facilitate the proposed communications improvements to the satisfaction of the City Engineer.

r. The removal, replacement, and/or relocation of all existing infrastructure or structures interfering with the proposed improvements. This includes, but is not limited to, existing subsurface and at-grade infrastructure, water meters, backflow prevention, utility vaults, vent pipes, fire hydrants, signage, street lights, power poles, and paving.

51. A City of Brea Public Works Encroachment Permit shall be obtained prior to any construction, improvements, or staging in the public right-of-way or within existing public easement areas.

52. The Applicant shall obtain an Encroachment License Agreement for all non-standard improvements, improvements not in accordance with City of Brea Standard Plans and standards, located within the public right-of-way.

53. All existing public utilities located within the public right-of-way or within existing easements are to be protected in place, unless indicated otherwise by improvement plans approved by the City Engineer.

54. All public improvements, and improvements within the public right-of-way and public easement areas, shall be designed and constructed per current City standards and all other jurisdictional requirements.

55. No proposed privately-owned trees; structures for private utility infrastructure, lighting structures, utility vaults or cabinets; structures or walls with footing or foundation elements; building foundations, structural slabs, or building structural members; shall be located within adjacent properties, existing or proposed public easement areas, or within the public right-of-way.

56. The Applicant shall complete the construction of all improvements in the public right-of-way and in public easement or right-of-way dedication areas to the satisfaction of the City Engineer.

57. Prior to the issuance of any building permits for the proposed development, the Applicant shall provide verification, to the satisfaction of the City Engineer, that all dry utility purveyors have granted authorization to construct proposed improvements within existing easement areas or that all existing easements have been modified, removed, and/or quitclaimed to accommodate the proposed development.

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Tentative Tract Map Conditions

58. The proposed subdivision shall occur in substantial conformance with Tentative Tract Map No. 19315, submitted to the Planning Commission, and all conditions set forth herein.

59. The proposed subdivision shall occur in substantial conformance with the plans and specifications approved through the City Planning Commission, and all conditions of said approval shall be implemented and incorporated herein.

60. Prior to the issuance of any building permit for the proposed developed site conditions, the Applicant shall submit a Final Map for review and approval of the City Engineer. Said Final Map shall include all right-of-way and easement dedication and/or vacations. The Final Map shall be submitted to the City Engineer for conformance review prior to submittal to the County of Orange Surveyor's Office. The Final Map shall be submitted directly to the County of Orange Surveyor's Office for review and approval of the technical portion of the Final Map. All public improvements shall be constructed, including any field punch list items, prior to Final Map approval by City Council and Final Map recordation with the County of Orange. All right-of-way and easement dedications and vacations shall be in accordance with all requirements set forth in the California Streets and Highways Code, the Subdivision Map Act, and the Brea City Code.

61. The Applicant shall complete the construction of all public improvements in the public right-of-way or within public easement or right-of-way dedication areas to the satisfaction of the City Engineer, or enter into a Subdivision Improvement Agreement and guarantee the installation of these improvements by providing sufficient bonds or sureties for both Faithful Performance and Labor and Materials in a form approved by the City Attorney before the approval of the Final Map. All bonds or sureties shall be provided in an amount to the satisfaction of the City Engineer.

62. Applicant shall be responsible to prepare all documentation and pay for any publication fee (if applicable) for the proposed dedications and/or vacations of right-of-way or easements.

63. The Applicant shall submit a Monumentation Bond as required by the Subdivision Map Act in a form approved by the City Attorney to guarantee payment for the setting of monuments. The bond amount shall be provided before the approval of the Final Map, by the Licensed Surveyor or Registered Civil Engineer preparing the Final Map. The Monumentation Bond shall be provided in an amount to the satisfaction of the City Engineer.

64. Prior to the release of the Monumentation Bond, the Licensed Surveyor or Registered Civil Engineer who prepared the Final Map shall submit a letter to the City Engineer verifying the setting of all monuments, confirming that all monuments

DRAFT

have been set in conformance with the recorded Final Map, and confirming that the applicant/property owner has paid the Licensed Surveyor or Registered Civil Engineer in full for the setting of the monuments.

65. Prior to the release of all Faithful Performance Bonds and Labor and Materials Bonds, all improvements shall be completed and accepted by the City, and a warranty bond shall be provided in accordance with the Subdivision Improvement Agreement.

66. Prior to the issuance of any building permit for any proposed development phase, the Applicant shall provide CC&R's for the review and approval of the Public Works Department, Fire Department, Community Development Department, and City Attorney. The CC&R's shall incorporate a separate set of drawings, or airspace maps, as an attachment to the document for the proposed condominium airspace units. The CC&R's shall incorporate a Maintenance Exhibit map as a separate attachment to the document, that clearly identifies the ownership and responsibilities for maintenance for items on the proposed property. Said CC&R's shall apply to any successors to the property owner at the time of the subdivision. Said CC&R's shall be recorded prior to the issuance of any occupancy release for the proposed development. A copy of the recorded CC&R's shall be provided to the Community Development Department within thirty (30) days of recordation.

Fire Department

67. Final fire and life safety conditions will be addressed when the Fire Department reviews building plans. These conditions will be based on occupancy, use, California Building Code (CBC), California Fire Code (CFC), and related codes which are in effect at time of building plan submittal.

68. Fire Department access road shall be provided as specified in the BCC.

69. Prior to combustible construction, Fire Department Access roadways shall be provided.

70. The Fire Code Official is authorized to enforce the fire safety during construction requirements of CFC Ch. 33.

71. If temporary fencing is used to enclose the construction site, at least two (2) means of unobstructed access must be installed and maintained in locations as to give maximum access to all parts of the site, and in accordance with the Fire Departments' requirements.

72. Prior to issuance of any building permits, the Applicant shall pay all applicable impact fees as set forth in the City ordinances and in effect the time of permit approval.

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73. Prior to the issuance of a grading permit or any construction permits, a fire department access plan shall be submitted to Brea Fire Department for review and approval. Grading or construction permits shall not be issued until the fire department access plan has been approved by Brea Fire Department.

74. The minimum number of fire hydrants required, as well as the location and spacing of fire hydrants, shall comply with the CFC and NFPA 24. Fire hydrants shall be located no closer than 40 feet to a building. A fire hydrant shall be located within 50 feet of the FDC for buildings protected with a fire sprinkler system.

75. A municipal water supply system (public fire hydrants) shall be provided, capable of providing the required fire flow for the proposed type of construction. Minimum fire flow for this project will be calculated when construction type is known or applicant can refer to Appendix B of the CFC). Proof of a flow test will be required. Please contact the Fire Department for further direction if needed.

76. Prior to construction permit issuance, demonstrate methane mitigation consistent with the February 26, 2024 recommendation of the November 22, 2023 soil gas survey report.

77. Prior to building permit final, an engineered automatic fire sprinkler system is required for this project. Detailed drawings and calculations shall be submitted to the fire department for review, approval and permit issuance, and prior to installation.

78. Prior to building permit final, the applicant/developer shall install a monitored fire alarm system in accordance with CFC Section 907. Plans shall be submitted to the Fire Department prior to installation (CFC 907).

79. Where access to or within a structure is restricted due to secured openings, a "Knox" rapid entry key system will be required. The key box or switch shall be located in an accessible location, as determined by the Fire Department. Building size will determine number of Knox boxes needed. This building will require (4) Knox boxes, installation height will be no higher than 6’.

80. Multi-family residences shall display the address in accordance with CFC 505.1.

81. Prior to issuance of a demolition permit, contact the Brea Fire Department for potential emergency personnel training opportunities at the project site/existing building to enhance safety of the community. If requested by the Fire Department, the Applicant shall accommodate such training opportunities to its best ability.

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Police Department

82. Prior to issuance of any building permits, the Applicant shall pay all applicable impact fees as set forth in the City ordinances and in effect the time of permit approval.

83. The City has established a goal of developing an Integrated Crime Center (ICC). The ICC is a system comprised of advanced technology that will revolutionize how the Brea Police Department prevents, manages, and solves crime. The Project will benefit from the ICC with abilities that include but are not limited to: generating investigative leads, managing critical incidents, monitoring special events, traffic management and Emergency Operation Center functions. The Project shall be required to provide the following:

    a. Prior to release of Certificate of Occupancy for any residential unit:

        i. The Applicant shall install underground two-inch conduit and ethernet communications along Fir Street and portions of Walnut Avenue, consistent with Public Works and Police Departments requirements, that is connected to and extends the City's communications system from Brea Boulevard to an existing street light pole on Walnut Avenue, to the satisfaction of the City Traffic Engineer.

        ii. The Applicant shall provide funding for the procurement and installation of three video surveillance cameras at two viewing locations at the intersections of Fir Street and Brea Boulevard and Fir Street and Walnut Avenue, to the satisfaction to the Police Department.

84. Prior to issuance of a demolition permit, contact the Brea Police Department for potential emergency personnel training opportunities at the project site/existing building to enhance safety of the community. If requested by the Police Department, the Applicant shall accommodate such training opportunities to its best ability.

Parks- Community Services Department

85. Prior to issuance of building permits or recordation of the map, the Applicant shall pay Park Development Fees applicable to single-family residential units, as set forth in the City ordinances and in effect the time of permit approval.

86. Prior to release of Certificate of Occupancy for any residential unit, a monetary contribution in an amount of $42,000.00 shall be paid to the City's Park Development Fund.

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Arts in Public Places- Community Services Department

87. This project will be subject to an Art in Public Places (APP) obligation to install sculpture on-site, valued at 1% of the total building valuation. The applicant will need to meet all requirements of the current APP Policy Manual, as well as reach the following milestones:

    a. Submit Part 1 of the APP Application prior to issuance of building permits;

    b. Submit Part 2 of the APP Application and obtain APP Committee approval within six months of building permit issuances; and

    c. Prior to release of Certificate of Occupancy for any residential unit, submit Part 3 of the APP Application and complete sculpture installation.

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TECHNICAL BACKGROUND

Case Nos:	Tentative Tract Map No. 19315, Density Bonus No. 2023-01, Precise Development No. 2023-03
Property Location:	685 South Brea Boulevard
Project area:	43,343 sq. ft. or 0.99 acres (after the required public right-of-way dedication)
Building Size:	Building 1: 11,646 sq. ft. Building 2: 13,812 sq. ft. Building 3: 15,456 sq. ft. Building 4: 25, 646 sq. ft. Total: 66,557 sq. ft. (inclusive of garages and balconies)
Applicant:	Brea 1 Inv, LLC 3121 Michelson Drive, Suite 150 Irvine, CA 92612
General Plan Designation:	Mixed Use I
Zoning Designation:	Mixed-Use I (MU-I)
Adjacent Zoning	
North:	Multiple Family Residential (R-3) and Mixed-Use III (MU-III)
East:	MU-III and Single Family Residential (R-1) *(Across Brea Boulevard)*
South:	MU-III *(Across Fir Street)*
West:	R-1 (*Across Walnut Avenue)*
Site and Neighborhood Characteristics:	The Project site is approximately 0.99 acres in size, and is located on the north side of Fir Street between Brea Boulevard and Walnut Avenue, at 685 South Brea Boulevard.
Public Hearing Notices and Outreach:	Legal Notice was published in the Brea Star-Progress on July 11, 2024 and approximately 63 notices were sent to all property owners within a 500-foot radius of the subject property.

ATTACHMENT F

SUBJECT PROPERTY AND VICINITY MAP

DATE: JULY 23, 2024

CASE NO:
ACCELA RECORD NO. PLN-2023-00081
TENTATIVE TRACT MAP NO. 19315
DENSITY BONUS NO. 2023-01
PRECISE DEVELOPMENT NO. 2023-03

CITY VENTURES
Building It Forward

June 11, 2024

Brea Planning Division
ATTN: Jessica Newton
1 Civic Center Cir
Brea, CA 92821

Re: Updated Request Letter for a 32-Unit Townhome Project located at 685 S Brea Blvd

Dear Ms. Newton:

As requested, Brea 1 Inv, LLC is providing an updated request letter for the development application on the 685 S Brea Blvd site. The proposed project will consist of 32 3-story single-family attached townhomes with three along Brea Blvd designated as live/work. The project's design is Spanish-inspired to blend with the surrounding context and building environment. It will have Irving Gill-styled bay windows on the 3rd story and lightened accent colors. There will also be tile reveal in some windows and simplified entry trim to incorporate more Spanish-inspired details.

The trash service plan will be a mixture of placing trash carts in front of individual garages as well as in front of curbs. Trash carts will be placed in unit garages when not being serviced.

Finally, per the acoustical study, the proposed window STC ratings will be 31.

Please contact me if you have any questions regarding the above.

Regards,

Patrick Chien
Development Director
P: (949) 258-7542
E: pchien@cityventures.com

BREA & FIR

BREA, CALIFORNIA

DEVELOPER INFORMATION

CITY VENTURES
3121 MICHELSON DRIVE, SUITE 150
IRVINE, CA 92612
CONTACT: PATRICK CHIEN
PHONE: (949) 258-7542
EMAIL: PCHIEN@CITYVENTURES.COM

PROPERTY OWNER INFORMATION

MCCULLOCH FAMILY TRUST
15105 TACUBA DR.
LA MIRADA, CA 90638
PHONE: (714) 366-4991

CONSULTANT INFORMATION

ARCHITECTURE:
KTGY ARCHITECTURE & PLANNING
17911 VON KARMAN AVENUE, SUITE 200
IRVINE, CA 92614
CONTACT: ALAN SCALES
PHONE: (949) 221-6256
EMAIL: ASCALES@KTGY.COM

CIVIL:
KIMLEY-HORN
1100 W TOWN AND COUNTRY ROAD, SUITE 700
ORANGE, CA 92868
CONTACT: JASON MARECHAL
PHONE: (714) 939-1030
EMAIL: JASON.MARECHAL@KIMLEY-HORN.COM

LANDSCAPE ARCHITECTURE:
C2 COLLABORATIVE LANDSCAPE ARCHITECTURE
100 AVENIDA MIRAMAR
SAN CLEMENTE, CA 92672
CONTACT: NIKI WU
PHONE: (949) 366-6624
EMAIL: NWU@C2COLLABORATIVE.COM

COLORIST:
AT DESIGN CONSULTING, INC.
2211 MICHELSON DRIVE, SUITE 450
IRVINE, CA 92612
CONTACT: ANNIE TUTUNJIAN
PHONE: (949) 396-1785
EMAIL: ANNIE@ATCONSULTING.US

SHEET INDEX

ARCHITECTURE

A0.00 - COVER

A0.10 - SHEET INDEX + PROJECT SUMMARY

A0.11 - BUILDING CODE ANALYSIS

A0.12 - BUILDING CODE ANALYSIS

A1.00 - SITE PLAN

A2.00 - B610 - 6-PLEX - PERSPECTIVES

A2.10 - B610 - 6-PLEX - ELEVATIONS

A2.20 - B610 - 6-PLEX - BUILDING PLANS

A3.00 - B700 - 7-PLEX - PERSPECTIVES

A3.10 - B700 - 7-PLEX - ELEVATIONS

A3.20 - B700 - 7-PLEX - BUILDING PLANS

A4.00 - B-710 - 7-PLEX - PERSPECTIVES

A4.10 - B710 - 7-PLEX - ELEVATIONS

A4.20 - B710 - 7-PLEX - BUILDING PLANS

A5.00 - B1200 - 12-PLEX - PERSPECTIVES

A5.10 - B1200 - 12-PLEX - ELEVATIONS

A5.11 - B1200 - 12-PLEX - ELEVATIONS

A5.20 - B1200 - 12-PLEX - BUILDING PLANS

A5.21 - B1200 - 12-PLEX - BUILDING PLANS

A6.00 - P1 & P2 - UNIT PLANS

A6.10 - P3 - UNIT PLANS

A6.11 - P3 - ALT - UNIT PLANS

A6.20 - P4 - UNIT PLANS

A6.21 - P4 - ACCESSIBLE - UNIT PLANS

A6.22 - P4X - LIVE WORK - UNIT PLANS

A6.30 - P5 - UNIT PLANS

A7.00 - TYPICAL BUILDING SECTION & LINE OF SIGHT EXHIBIT

COLORIST

1 - COVER SHEET

2 - TABLE OF CONTENTS

3 - (NOT USED)

4 - COLOR SCHEME PLOTTING

5 - PAINT AND MISCELLANEOUS ITEMS

6 - EXTERIOR COLOR / MATERIAL SPECIFICATIONS

7 - EXTERIOR FIXTURE SPECIFICATIONS

8 - EXTERIOR COLOR / MATERIAL SPECIFICATIONS

9 - EXTERIOR COLOR / MATERIAL SPECIFICATIONS

LANDSCAPE

L-1 - OVERALL CONCEPTUAL LANDSCAPE PLAN

L-2 - CONCEPTUAL COURTYARD ENLARGEMENT

L-3 - CONCEPTUAL LIGHTING PLAN

L-4 - CONCEPTUAL SITE AMENITIES AND DESIGN DETAILS

L-5 - OVERALL IRRIGATION MASTER PLAN

L-6 - OVERALL CONCEPTUAL OPEN SPACE EXHIBIT

L-7 - TREE IDENTIFICATION EXHIBIT

L-8 - WALL AND FENCE PLAN

L-9 - CONCEPTUAL PLANT PALETTE

CIVIL

C1 - TITLE SHEET

C2 - TENTATIVE TRACT MAP (EXISTING CONDITION)

C3 - TENTATIVE TRACT MAP (PROPOSED CONDITIONS)

C4 - SIGNING AND STRIPING PLAN

C5 - TRUCK TURN EXHIBIT

C6 - TRUCK TURN EXHIBIT

C7 - TRUCK TURN EXHIBIT

C8 - FIRE TRUCK TURN EXHIBIT

C9 - FIRE TRUCK TURN EXHIBIT

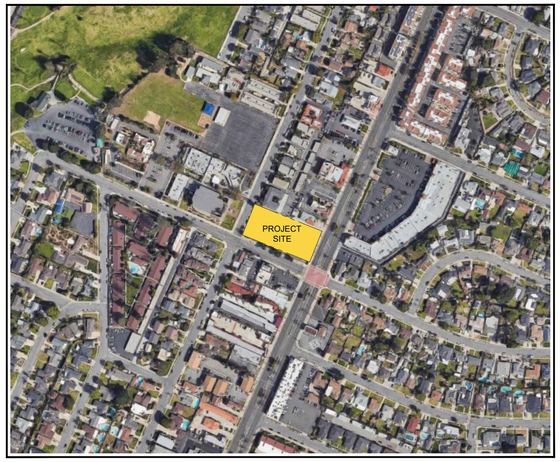
C10 - FIRE ACCESS PLAN

C11 - FIRE ACCESS DETAILS

1 - ALTA (FOR REFERENCE ONLY)

2 - ALTA (FOR REFERENCE ONLY)

COMMUNITY CONTEXT (1:300)



SITE SUMMARY

APN: 284-282-06

STREET ADDRESS:		685 S BREA BLVD, BREA CALIFORNIA 92821			
COUNTY:		ORANGE COUNTY			
GENERAL PLAN LAND USE:		MIXED-USE I			
ZONING:		MU-I			
		(EXISTING)		(PROPOSED)	
LOT AREA (GROSS):	1.10 AC	**48,062 SF**	0.99 AC	**43,343 SF**	
FLOOR AREA (GROSS):		6537 SF		48,153 SF	
FAR (MAX: 3.00 PER CHAPTER 20.258):		0.14		1.11	
DENSITY (GROSS):		**32.32 DU/AC**			
NUMBER OF HOMES:		**32 UNITS**			
LOT COVERAGE:		0.14		0.53	

OCCUPANCY:	R-2	*PER TABLE 2-6, DEVELOPMENT STANDARDS FOR "STAND ALONE" RESIDENTIAL PROJECTS IN MIXED USE 1 ZONING DISTRICT	
TYPE OF CONSTRUCTION:	V-B		
SPRINKLER SYSTEM:	FULL NFPA 13	**PER CBC 2022 TABLE 504.3	
NUMBER OF STORIES:	3		
BUILDING HEIGHT:	~40'-10" (~43'-10" w / FINIAL) MAX: *100', **60'		
SETBACKS (FOR SECOND STORY AND ABOVE):			
	PROVIDED	REQUIRED*	
FRONT (S BREA BLVD)	0'-6'	10'	*(WAIVER)*
SIDE (ADJOINING RESI. USE)	14'-0"	10' (ADJOINING RESIDENTIAL)	
SIDE (STREET, W FIR ST)	BUILDING: 9'-2" LOW LEVEL PATIO WALL: 5'-2"	15'	*(WAIVER)*
SIDE (STREET, S WALNUT AVE):	3'-4"	15'	*(WAIVER)*

UNIT SUMMARY

DWELLING UNITS

PLAN TYPE	DESCRIPTION	# OF UNITS	MIX	NET/ UNIT	TOTAL NET	GROSS/UNIT	TOTAL GROSS	GARAGE	PRIVATE BALCONIES	TOTAL PRIVATE BALCONIES
PLAN 1	2 BEDS / 2.5 BATHS	5 UNITS	16%	**1,133 SF**	5,665 SF	1,220 SF	6,100 SF	531 SF	63 SF	315 SF
PLAN 2	2 BEDS / 2.5 BATHS	5 UNITS	16%	**1,185 SF**	5,925 SF	1,278 SF	6,390 SF	491 SF	63 SF	315 SF
PLAN 3	3 BEDS / 3 BATHS	9 UNITS	28%	**1,352 SF**	12,168 SF	1,464 SF	13,176 SF	549 SF	55 SF	495 SF
PLAN 3-ALT	3 BEDS / 3 BATHS	2 UNITS	6%	**1,352 SF**	2,704 SF	1,464 SF	2,928 SF	650 SF	55 SF	110 SF
PLAN 4	3 BEDS / 3.5 BATHS	6 UNITS	19%	**1,629 SF**	9,774 SF	1,752 SF	10,512 SF	472 SF	59 SF	354 SF
PLAN 4X - LIVE WORK	3 BEDS + WORK SPACE / 3.5 BATHS	3 UNITS	9%	**1,628 SF**	4,884 SF	1,753 SF	5,259 SF	472 SF	50 SF	150 SF
PLAN 5	3 BEDS / 3.5 BATHS	2 UNITS	6%	**1,764 SF**	3,528 SF	1,894 SF	3,788 SF	465 SF	68 SF	136 SF
	TOTAL	**32 UNITS**	100%		**44,648 SF**		**48,153 SF**			**1,875 SF**

ACCESSIBLE UNITS: 10 % OF 32 UNITS = 3.2 = 4 ACCESSIBLE UNITS

BUILDING SUMMARY

BLDG #	DESCRIPTION	NET SF	GROSS SF	GROSS SF (+GARAGE & PRIV. BALC.)
BLDG 1	B610 (6-PLEX)	7,617 SF	8,212 SF	11,643 SF
BLDG 2	B710 (7-PLEX)	8,969 SF	9,676 SF	13,812 SF
BLDG 3	B700 (7-PLEX)	10,704 SF	11,545 SF	15,456 SF
BLDG 4	B1200 (12-PLEX)	17,358 SF	18,720 SF	25,646 SF
	TOTAL BUILDING SF	**44,648 SF**	**48,153 SF**	**66,557 SF**

OPEN SPACE SUMMARY

REQUIRED OPEN SPACE **PER TABLE 2-6, DEVELOPMENT STANDARDS FOR "STAND ALONE" RESIDENTIAL PROJECTS IN MIXED USE 1 ZONING DISTRICT*

COMMON	100 SF PER DWELLING UNIT (THE MIN. DIM. SHALL BE 15 FEET)	
	3,200 SF	
PRIVATE	75 SF PER DWELLING UNIT (THE MIN. DIM. SHALL BE 8')	
	2,400 SF	

PROVIDED OPEN SPACE **REFER TO LANDSCAPE DWG, L-6 FOR OVERALL CONCEPTUAL OPEN SPACE EXHIBIT*

COMMON	**750 SF**	23 SF OF COMMON OPEN SPACE PER DWELLING UNIT ON AVG.	*(WAIVER)*
PRIVATE			
GROUND FLOOR PATIOS	1,494 SF	SEE SITE PLAN (SHEET A1.00) AND LANDSCAPE DWGS FOR PATIO LOCATIONS	
PRIVATE BALCONIES	1,875 SF	59 SF OF PRIVATE BALCONIES PER DWELLING UNIT ON AVG.	
TOTAL:	**3,369 SF**	50 SF = MINIMUM PRIVATE OPEN SPACE PROVIDED FOR A UNIT	*(WAIVER)*

PARKING SUMMARY

REQUIRED PARKING

PER BREA CITY CODE, SECTION 20.08.040.D

1 BEDS	1.75 SPACES / UNIT	0 SPACES
2 BEDS	2 SPACES / UNIT	20 SPACES
3+ BEDS	2.50 SPACES / UNIT	55 SPACES
GUEST (IF 5 OR MORE UNITS)	0.20 SPACES / UNIT	6 SPACES
	TOTAL REQUIRED PARKING	**81 SPACES**

PROVIDED PARKING *(WAIVER)*

					WAIVER		
TOWNHOMES (GARAGE SPACES)	32 UNITS	x	2 SPACES	/DU	=	64 SPACES
GUESTS	32 UNITS	x	0 SPACES	/DU	=	0 SPACES
			TOTAL PARKING PROVIDED			**64 SPACES**

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CITY VENTURES
Building It Forward

685 S. BREA BLVD, BREA CALIFORNIA 92821
BREA AND FIR
BREA, CA # 2023-0485

Plot Date: 7.1.2024
1st Submittal Date: 11.21.2023
2nd Submittal Date: 02.22.2024
3rd Submittal Date: 05.09.2024
4th Submittal Date: 06.11.2024
5th Submittal Date: 06.27.2024

NTS

SHEET INDEX + PROJECT SUMMARY

A0.10

BUILDING ALLOWABLE AREA OF OPENINGS ANALYSIS

BUILDING 2, B710

LEFT

REAR

RIGHT

FRONT

BUILDING 3, B700

LEFT

REAR

RIGHT

FRONT

BUILDING CODE DATA

2022 CALIFORNIA BUILDING CODE
2022 CALIFORNIA RESIDENTIAL CODE (CRC)
2022 CALIFORNIA GREEN BUILDING CODE
2022 CALIFORNIA MECHANICAL CODE
2022 CALIFORNIA PLUMBING CODE
2022 CALIFORNIA ELECTRICAL CODE
2022 CALIFORNIA GREEN BUILDING STANDARDS (CGBSC)
2022 CALIFORNIA ENERGY EFFICIENCY STANDARDS (CEES)
LOCAL AGENCY PLANNING CODE
LOCAL AGENCY ZONING CODE
LOCAL AGENCY CODE AMENDMENTS

CONDOMINIUMS (R-2/U)

OCCUPANCY GROUP: (CBC SECTION 310)	GROUP R-2/U (PRIVATE GARAGES) - SEPARATED OCCUPANCIES
SEPARATIONS: (CBC SECTION 420.2)	WALLS SEPARATING DWELLING UNITS - 1/2 HOUR FIRE PARTITION (PER CBC SECTION 708.3, EXCEPTION 2)
TYPE OF CONSTRUCTION	TYPE VB
FIRE RESISTIVE RATING REQUIREMENTS FOR BUILDING ELEMENTS.	REFER TO TABLE 601 (NO RATING IS REQUIRED PER TABLE 601)
FIRE RESISTIVE RATING REQUIREMENTS FOR EXTERIOR WALLS BASED ON FIRE SEPARATION DISTANCE (TABLE 705.5):	FIRE SEPARATION DISTANCE $\geq$ 10' FOR TYPE VB CONSTRUCTION AND R-2 OCCUPANCY SHALL BE ZERO (0) (NON-RATED) FIRE SEPARATION DISTANCE < 10' FOR TYPE VB CONSTRUCTION AND R-2 OCCUPANCY SHALL BE ONE (1) - (1 HOUR) REFER TO SITE PLAN, SHEET A1-10 FOR ACTUAL DIMENSIONS BETWEEN BUILDINGS
ALLOWABLE HEIGHT:	100' PER TABLE 2-6, DEVELOPMENT STANDARDS FOR "STAND ALONE" RESIDENTIAL PROJECTS IN MIXED USE 1 ZONING DISTRICT 60' PER CBC 2022 TABLE 504.3 (AREA INCREASE NOT USED)
ACTUAL HEIGHT:	± 40'-10", ± 43'-10" w/ FINIAL
ALLOWABLE STORIES: (CBC TABLE 504.4)	3 STORIES - AREA INCREASE NOT USED, HEIGHT INCREASE USED
FIRE SPRINKLERS:	NFPA 13, PER CBC SECTION 903.3.1.1
MAXIMUM AREA OF EXTERIOR WALL OPENINGS:	UNPROTECTED, SPRINKLERED - PER C.B.C. TABLE 705.8, SEE SITE PLAN SHEET A1.0 FOR FIRE SEPARATION DISTANCE
ALLOWABLE FLOOR AREA:	SEE TABLE ON SHEET A0.12

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CITY VENTURES
Building It Forward

685 S. BREA BLVD, BREA CALIFORNIA 92821
BREA AND FIR
BREA, CA # 2023-0485

Plot Date:	6.5.2024
1st Submittal Date:	11.21.2023
2nd Submittal Date:	02.22.2024
3rd Submittal Date:	05.09.2024
4th Submittal Date:	06.11.2024
5th Submittal Date:	06.27.2024

SCALE: 3/32" = 1'-0"
0 8 16 24

BUILDING CODE ANALYSIS

A0.11

BUILDING ALLOWABLE AREA OF OPENINGS ANALYSIS CONT'D SCALE: 3/32" = 1'-0"

BUILDING 4, B1200

LEFT

REAR

RIGHT

FRONT

BUILDING AREA ANALYSIS

BUILDING CODE ANALYSIS

INDIVIDUAL ALLOWABLE BUILDING AREA

BLDG TYPE	STORY	OCCUPANCY	CONST. TYPE	ALLOWABLE NUMBER OF STORIES C.B.C. TABLE 504.4	FRONTAGE INCREASE C.B.C. SECTION 506.3	TOTALL ALLOWABLE AREA PER STORY C.B.C. SECTION 506.2.4	ACTUAL BUILDING AREA	BUILDING AREA RATIO PER STORY	***SUM OF THE BUILDING AREA RATIO PER STORY C.B.C. 508.4.2		AGGREGATE SUM OF THE RATIOS	
B700 7-PLEX	1ST	R-2	VB	3 (W/ NFPA 13 SPRINKLER SYSTEM, AND WITHOUT AREA INCREASE)	N/A	7,000	1,683	0.24	0.45	<1	1.92	<2
		U				16,500	3,528	0.21				
	2ND	R-2				7,000	5,387	0.77	0.77	<1		
	3RD	R-2				7,000	4,858	0.69	0.69	<1		
B710 7-PLEX	1ST	R-2	VB	3 (W/ NFPA 13 SPRINKLER SYSTEM, AND WITHOUT AREA INCREASE)	N/A	7,000	1,101	0.16	0.38	<1	1.65	<2
		U				16,500	3,715	0.23				
	2ND	R-2				7,000	4,593	0.66	0.66	<1		
	3RD	R-2				7,000	4,278	0.61	0.61	<1		
B1200 12-PLEX	1ST	R-2	VB	3 (W/ NFPA 13 SPRINKLER SYSTEM, AND WITHOUT AREA INCREASE)	0.63	11,410	2,505	0.22	0.45		1.93	<2
		U				26,895	6,221	0.23		<1		
	2ND	R-2				11,410	8,863	0.78	0.78	<1		
	3RD	R-2				11,410	8,061	0.71	0.71	<1		

*** PER 508.4.2 (IN EACH STORY), THE BUILDING AREA SHALL BE SUCH THAT THE SUM OF THE RATIOS OF THE ACTUAL BUILDING AREA OF EACH SEPARATED OCCUPANCY DIVIDED BY THE ALLOWABLE BUILDING AREA OF EACH SEPARATED OCCUPANCY SHALL NOT EXCEED 1.

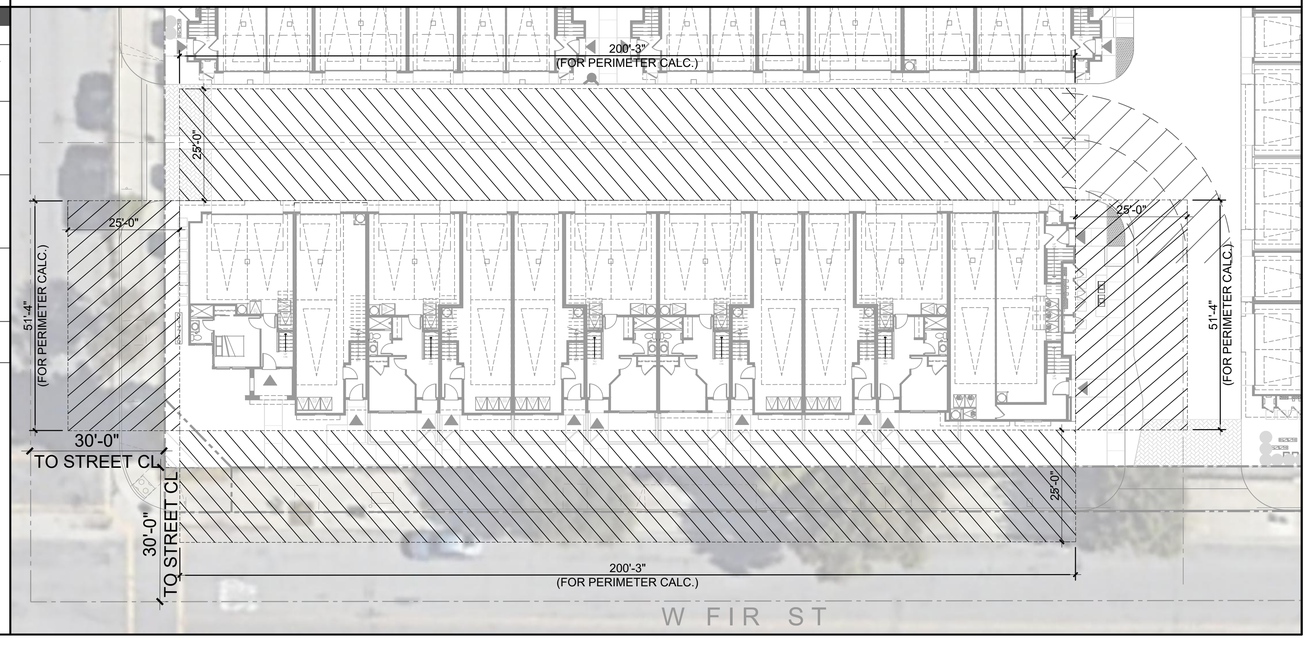
BUILDING 4, B1200 FRONTAGE INCREASE CALCULATION

503' - 6" (PERIMETER)
51' - 4" + 51' - 4" + 200' - 3" + 200' - 3" = 503' - 2" (PERIMETER THAT FRONTS ON PUBLIC WAY > 20')
503' - 2" / 503' - 6" = 99.9% (PERCENTAGE OF PERIMETER)

SMALLEST OPEN SPACE OF 20 FEET OR MORE: > 25 FEET

FRONTAGE INCREASE FACTOR (CBC TABLE 506.3.3) = 0.63

BUILDING 4, B1200 FRONTAGE INCREASE SCALE: 1/16" = 1'-0"



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CITY VENTURES
Building It Forward

685 S. BREA BLVD, BREA CALIFORNIA 92821
BREA AND FIR
BREA, CA # 2023-0485

Plot Date:	6.5.2024
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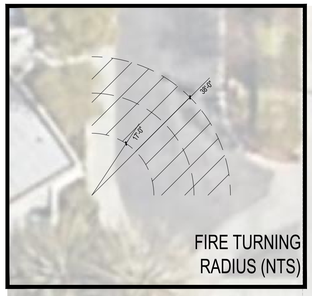
NTS

BUILDING CODE ANALYSIS

A0.12



FIRE TURNING RADIUS (NTS)

S WALNUT AVE

14'-0" TO 2ND FLOOR

SIDE, ADJOINING SETBACK PROVIDED (MIN. 10' REQ. WHEN ADJACENT TO RESI.)*

PROPERTY LINE

A.I.L.

300'-2"

17'-0"

15'-0"

14'-0" TO 2ND FLOOR

SIDE, ADJOINING SETBACK PROVIDED (MIN. 10' REQ. WHEN ADJACENT TO RESI.)*

SCREEN HEDGES, TYP. SEE LANDSCAPE DWGS.

TRANSFORMER DECORATIVE PANELS, SEE LANDSCAPE DWG.

2'-0" UTILITY EASEMENT

BLDG 1 B610

BLDG 2 B710

BLDG 3 B700

BLDG 4 B1200

UNIT 1 UNIT 2 UNIT 3 UNIT 4 UNIT 5 UNIT 6 UNIT 7 UNIT 8 UNIT 9 UNIT 10 UNIT 11 UNIT 12 UNIT 13 UNIT 14 UNIT 15 UNIT 16 UNIT 17 UNIT 18 UNIT 19 UNIT 20 UNIT 21 UNIT 22 UNIT 23 UNIT 24 UNIT 25 UNIT 26 UNIT 27 UNIT 28 UNIT 29 UNIT 30 UNIT 31 UNIT 32

A AF

30'-0"

BACKFLOW PREVENTERS, TYP. REFER TO CIVIL DWGS.

PROJECT ENTRY ACCENT HERRINGBONE PATTERN. REFER TO LANDSCAPE DWGS.

PROJECT ENTRY

160'-1"

24'-0" DRIVE AISLE (NOT A FIRE LANE)

22'-6"

20'-0"

FIRE HYDRANT

26'-0" DRIVE AISLE (FIRE LANE)

31'-0"

6" STREET SIDE SETBACK PROVIDED (MIN. 10' REQ.)*

S BREA BLVD

40'-0"

50'-0"

3'-4" SIDE, STREET SETBACK PROVIDED (MIN. 15' REQ.)*

MAILBOX

26'-0" DRIVE AISLE (FIRE LANE)

PROPOSED R/W DEDICATION

SOCIAL SEATING AREA W/ ART FEATURE AND ENHANCED PAVING (REF. LANDSCAPE DWGS)

PROPOSED PROPERTY LINE

LOW PATIO WALLS, SEE LANDSCAPE DWGS.

EXISTING RIGHT OF WAY

PROJECT ENTRY

PROJECT ENTRY ACCENT HERRINGBONE PATTERN. REFER TO LANDSCAPE DWGS.

BACKFLOW PREVENTERS, TYP. REFER TO CIVIL DWGS.

9'-2" SIDE, STREET SETBACK PROVIDED (MIN. 15' REQ.)* 9'-2" TO 2ND FLR

W FIR ST

NOTE:

* PER TABLE 2-6, DEVELOPMENT STANDARDS FOR "STAND ALONE" RESIDENTIAL PROJECTS IN MIXED USE 1 ZONING DISTRICT

LEGEND

- PLAN 1
- PLAN 2
- PLAN 3
- PLAN 3 - ALT
- PLAN 4
- PLAN 4X (LIVE WORK)
- PLAN 5
- CORNER CUT-OFF AREAS
- A — ACCESSIBLE UNIT
- AF — AFFORDABLE UNIT
- UNIT ENTRY
- TRANSFORMER

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5th Submittal Date:	06.27.2024

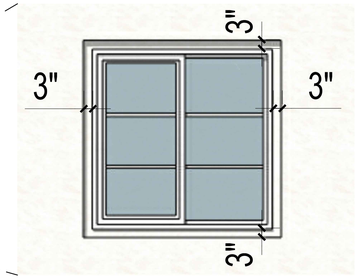
SCALE: 1/16" = 1'-0"

0 8 16 32

SITE PLAN

A1.00

FRONT



RECESSED WINDOW
W/ 3" REVEAL, TYP.

RECESSED DEPTH VARIES

REAR

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NTS
0 4 8 16

6-PLEX B610 - PERSPECTIVES

A2.00

4 - LEFT

3 - REAR

2 - RIGHT

1 - FRONT

NOTE: COLOR SCHEME 2 APPLIED. ALL DOWNSPOUT LOCATIONS SHOWN ARE CONCEPTUAL AND SUBJECT TO CHANGE IN FUTURE PROJECT PHASE.

MATERIAL LEGEND

1. STUCCO BODY, LIGHT SAND FINISH
2. SPANISH 'S' ROOF TILE
3. STUCCO RECESS / REVEAL AT WINDOW/DOOR
4. SLOPED STUCCO SILL
5. VINYL WINDOWS
6. BAY WINDOW
7. SIMULATED WOOD CORBELS
8. STUCCO DECORATIVE FOAM CORBELS
9. METAL HANDRAIL
10. SIMULATED WOOD HEADER BEAM
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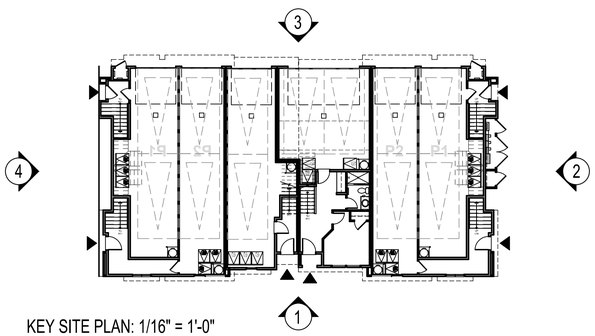
12. FIBERGLASS ENTRY DOOR
13. ADDRESS SIGN
14. DECORATIVE LIGHTING
15. METAL SECTIONAL GARAGE DOOR
16. UTILITY DOORS
17. TILE RECESS REVEAL
18. PATIO LOW WALLS, SEE LANDSCAPE DWG.
19. FINIAL
20. GABLE END DETAIL
21. STUCCO O/ FOAM TRIM SURROUND
22. PAVER CAP
23. LIVE WORK SIGNAGE
24. FIBERGLASS ENTRY DOOR WITH GLAZING



KEY SITE PLAN: 1/16" = 1'-0"

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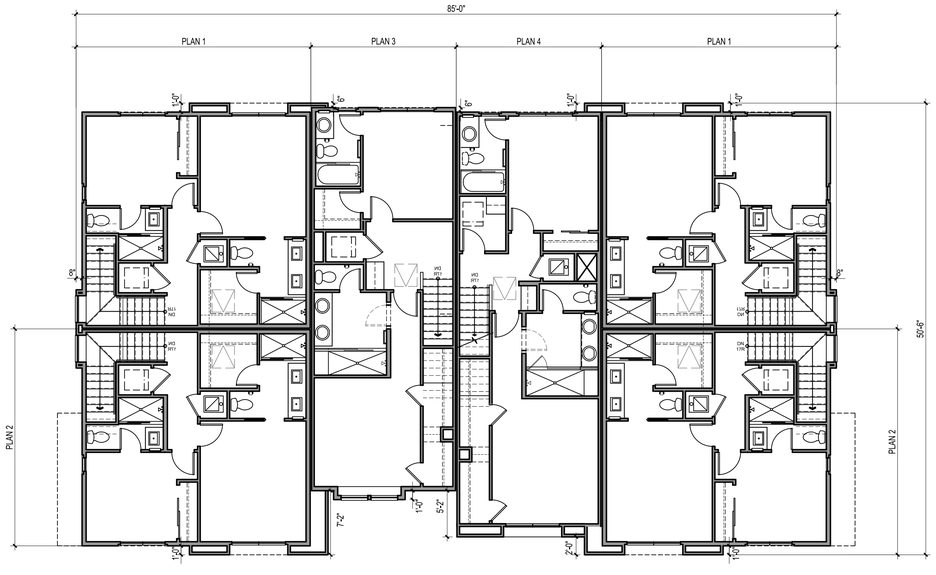
SCALE: 1/8" = 1'-0"
0 4 8 16

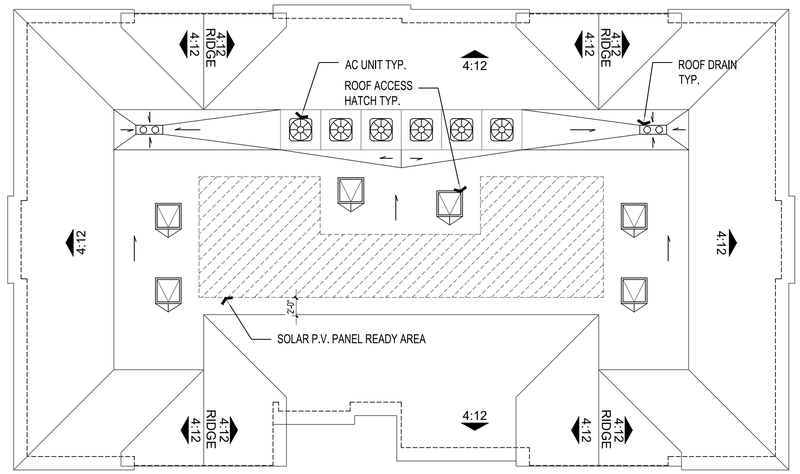
6-PLEX B610 - ELEVATIONS

A2.10



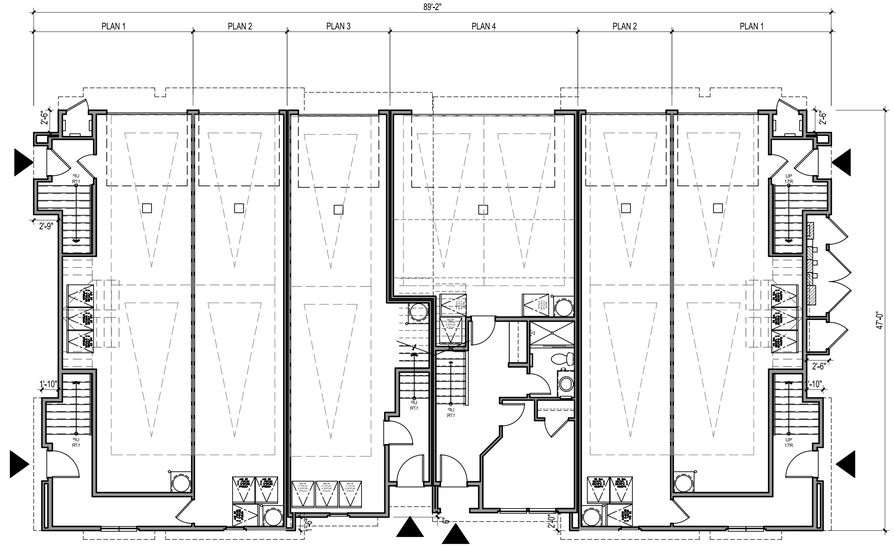
THIRD FLOOR

SECOND FLOOR



NOTE: SOLAR P.V. PANELS AND ROOF DRAINS PRECISE LOCATION AND SIZE WILL BE PER CODE REQUIREMENTS AND TO BE DETERMINED IN FUTURE PROJECT PHASE.

ROOF PLAN



FIRST FLOOR

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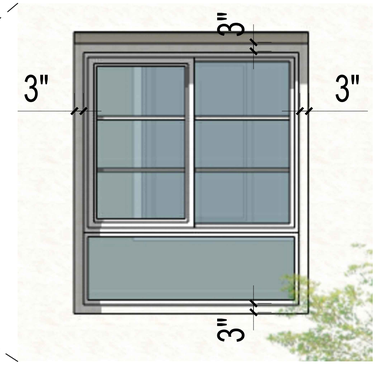
SCALE: 1/8" = 1'-0"
0 4 8 16

6-PLEX - B610 - BUILDING PLANS

A2.20

FRONT



RECESSED WINDOW
W/ 3" REVEAL, TYP.

RECESSED DEPTH VARIES

REAR

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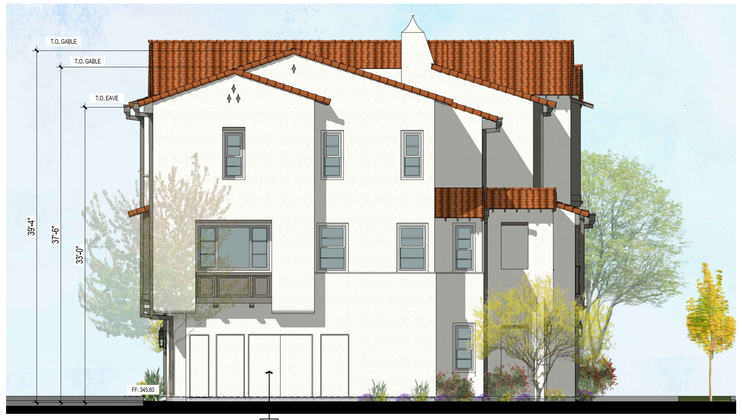
NTS
0 4 8 16

7-PLEX - B700 - PERSPECTIVES

A3.00



4 - LEFT

3 - REAR

2 - RIGHT

1 - FRONT

NOTE: COLOR SCHEME 1 APPLIED. ALL DOWNSPOUT LOCATIONS SHOWN ARE CONCEPTUAL AND SUBJECT TO CHANGE IN FUTURE PROJECT PHASE.

MATERIAL LEGEND

1. STUCCO BODY, LIGHT SAND FINISH
2. SPANISH 'S' ROOF TILE
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6. BAY WINDOW
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16. UTILITY DOORS
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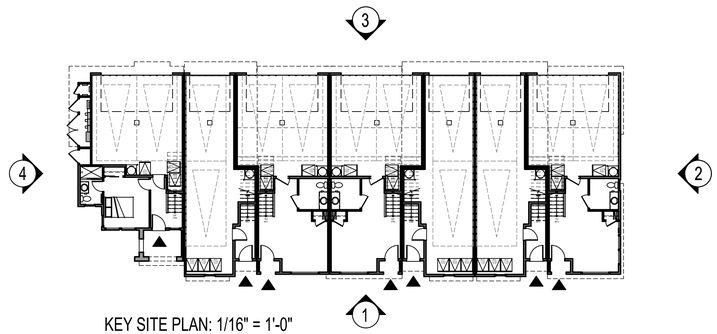
24. FIBERGLASS ENTRY DOOR WITH GLAZING



KEY SITE PLAN: 1/16" = 1'-0"

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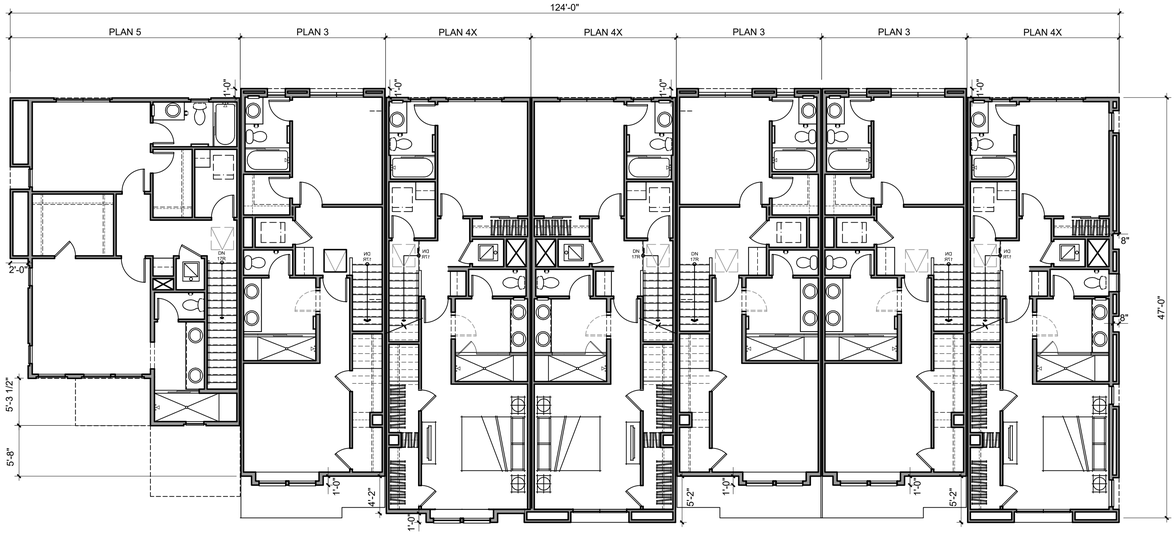
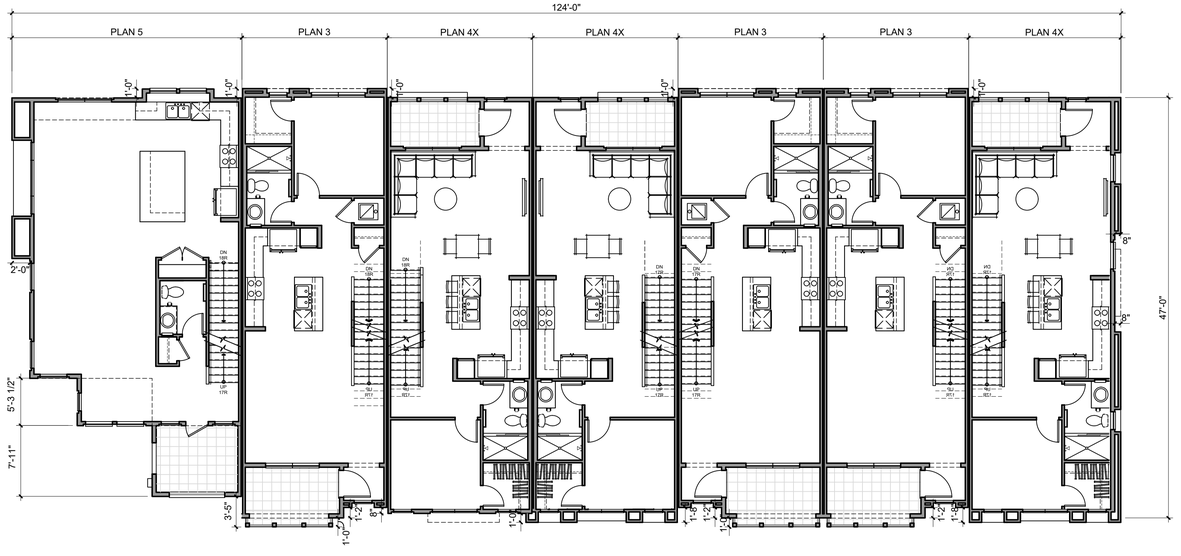
SCALE: 1/8" = 1'-0"
0 4 8 16

7-PLEX - B700 - ELEVATIONS

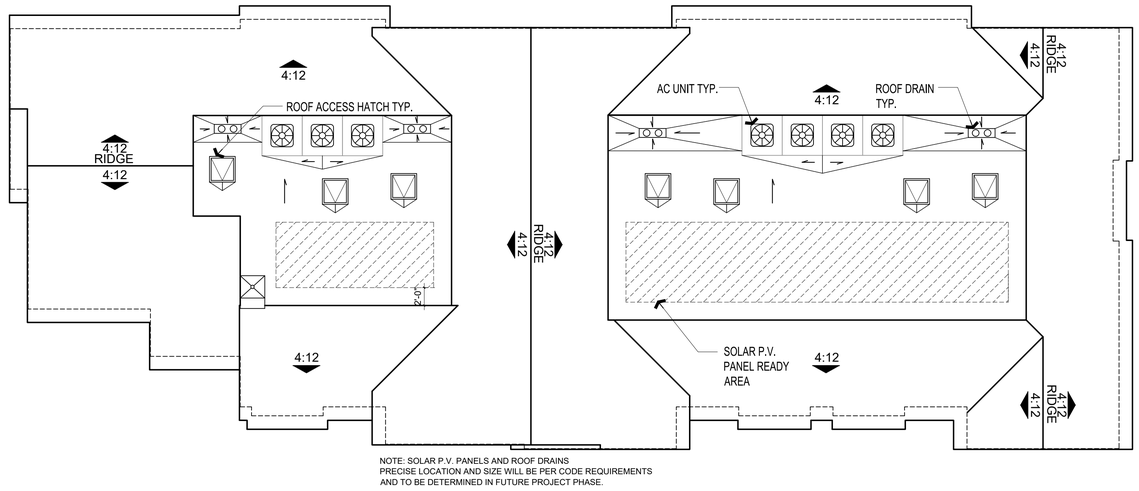
A3.10



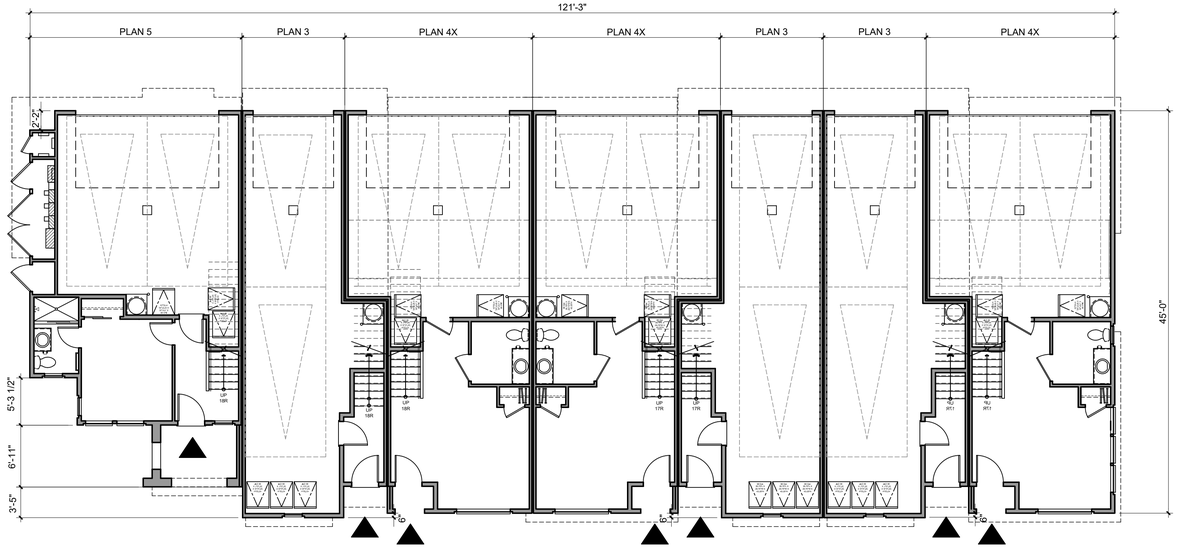
THIRD FLOOR



SECOND FLOOR



ROOF PLAN



FIRST FLOOR

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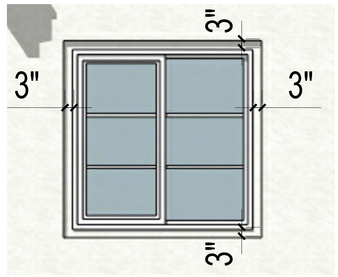
SCALE: 1/8" = 1'-0"
0 4 8 16

7-PLEX - B700 - BUILDING PLANS

A3.20

FRONT



RECESSED WINDOW
W/ 3" REVEAL, TYP.

RECESSED DEPTH VARIES

REAR

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NTS
0 4 8 16

7-PLEX - B710 - PERSPECTIVES

A4.00

4 - LEFT

3 - REAR

2 - RIGHT

1 - FRONT

NOTE: COLOR SCHEME 2 APPLIED. ALL DOWNSPOUT LOCATIONS SHOWN ARE CONCEPTUAL AND SUBJECT TO CHANGE IN FUTURE PROJECT PHASE.

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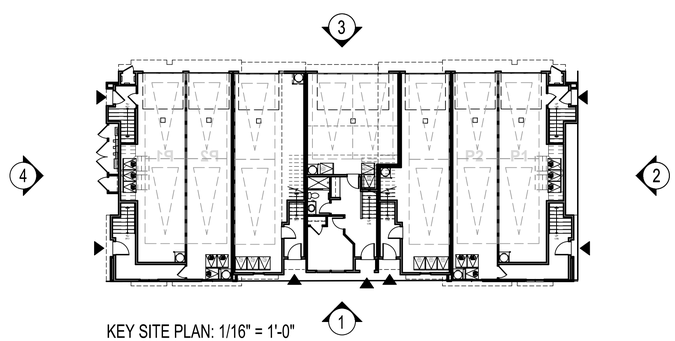

KEY SITE PLAN: 1/16" = 1'-0"

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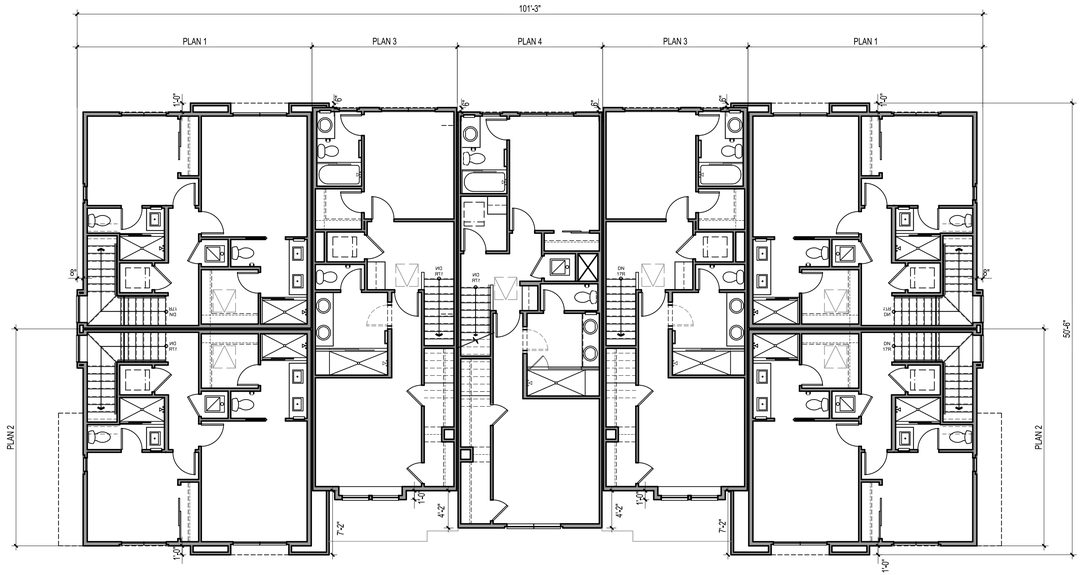
SCALE: 1/8" = 1'-0"
0 4 8 16

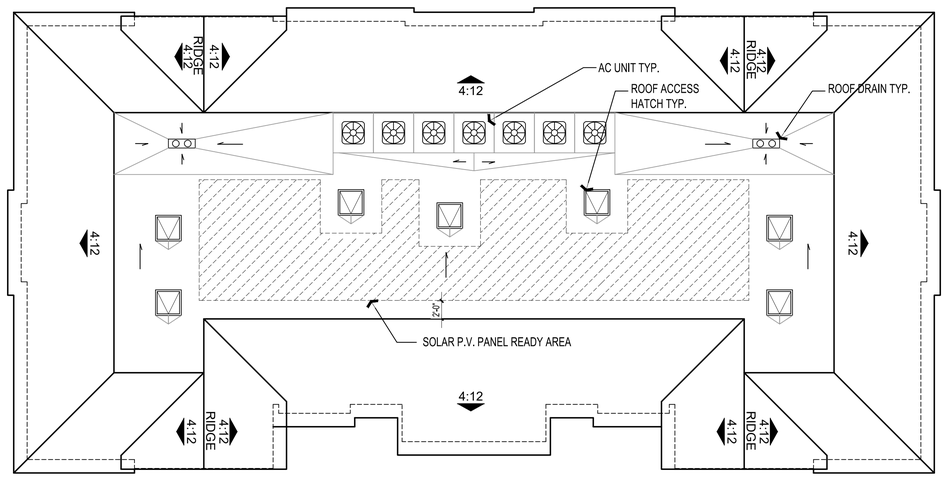
7-PLEX - B710 - ELEVATIONS

A4.10



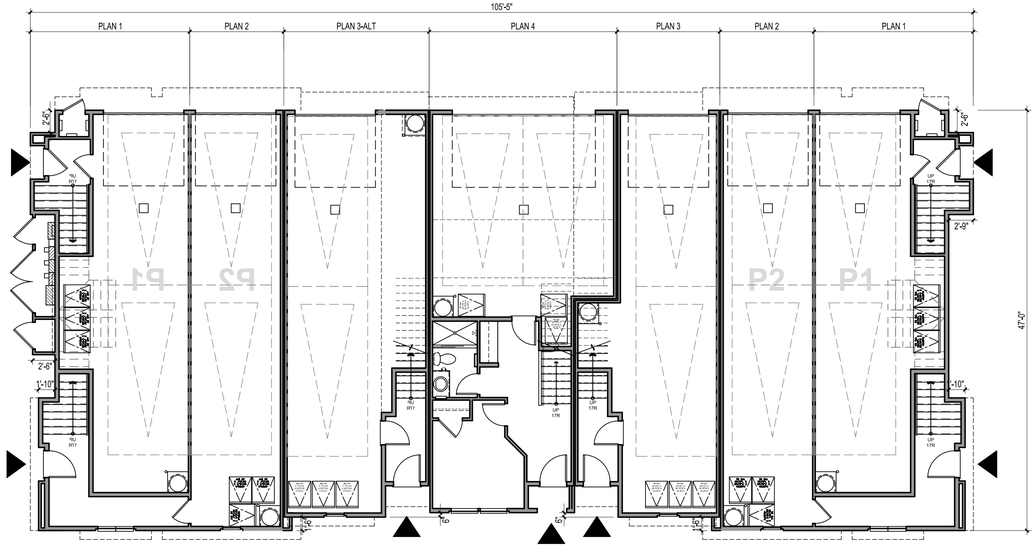
THIRD FLOOR

SECOND FLOOR



NOTE: SOLAR P.V. PANELS AND ROOF DRAINS PRECISE LOCATION AND SIZE WILL BE PER CODE REQUIREMENTS AND TO BE DETERMINED IN FUTURE PROJECT PHASE.

ROOF PLAN



FIRST FLOOR

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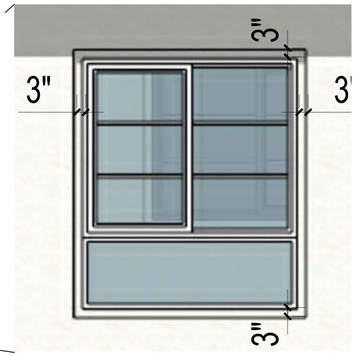
SCALE: 1/8" = 1'-0"
0 4 8 16

7-PLEX - B710 - BUILDING PLANS

A4.20

FRONT



RECESSED WINDOW
W/ 3" REVEAL, TYP.

RECESSED DEPTH VARIES

REAR

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NTS

NTS

12-PLEX - B1200 PERSPECTIVES

A5.00

3 - REAR

1 - FRONT

NOTE: COLOR SCHEME 1 APPLIED. ALL DOWNSPOUT LOCATIONS SHOWN ARE CONCEPTUAL AND SUBJECT TO CHANGE IN FUTURE PROJECT PHASE.

MATERIAL LEGEND

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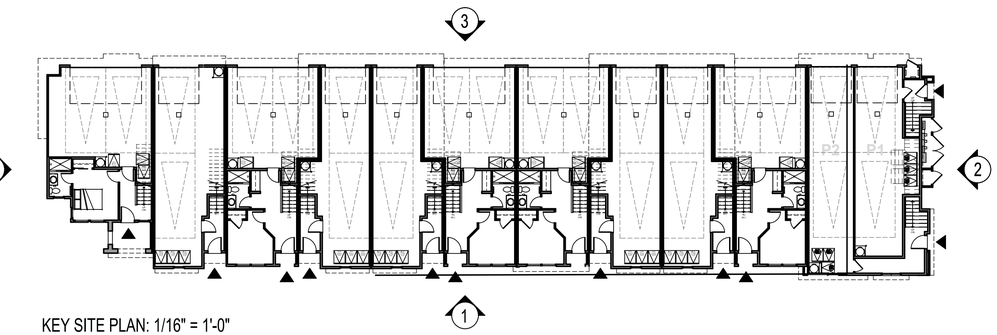
22. PAVER CAP
23. LIVE WORK SIGNAGE
24. FIBERGLASS ENTRY DOOR WITH GLAZING



KEY SITE PLAN: 1/16" = 1'-0"

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CITY VENTURES
Building It Forward

685 S. BREA BLVD, BREA CALIFORNIA 92821
BREA AND FIR
BREA, CA # 2023-0485

Plot Date:	5.6.2024
1st Submittal Date:	11.21.2023
2nd Submittal Date:	02.22.2024
3rd Submittal Date:	05.09.2024
4th Submittal Date:	06.11.2024
5th Submittal Date:	06.27.2024

SCALE: 1/8" = 1'-0"
0 8 16 32

12-PLEX - B1200 - ELEVATIONS

A5.10

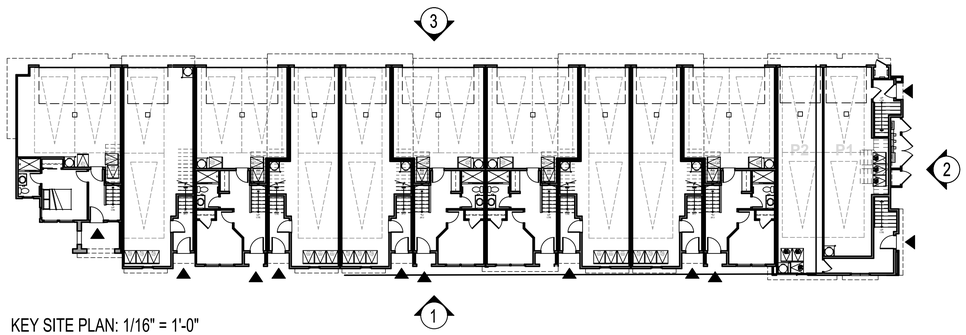
4 - LEFT

2 - RIGHT

NOTE: COLOR SCHEME 1 APPLIED. ALL DOWNSPOUT LOCATIONS SHOWN ARE CONCEPTUAL AND SUBJECT TO CHANGE IN FUTURE PROJECT PHASE.

MATERIAL LEGEND

1. STUCCO BODY, LIGHT SAND FINISH
2. SPANISH 'S' ROOF TILE
3. STUCCO RECESS / REVEAL AT WINDOW/DOOR
4. SLOPED STUCCO SILL
5. VINYL WINDOWS
6. BAY WINDOW
7. SIMULATED WOOD CORBELS
8. STUCCO DECORATIVE FOAM CORBELS
9. METAL HANDRAIL
10. SIMULATED WOOD HEADER BEAM
11. FIBER-CEMENT PANELING
12. FIBERGLASS ENTRY DOOR
13. ADDRESS SIGN
14. DECORATIVE LIGHTING
15. METAL SECTIONAL GARAGE DOOR
16. UTILITY DOORS
17. TILE RECESS REVEAL
18. PATIO LOW WALLS, SEE LANDSCAPE DWG.
19. FINIAL
20. GABLE END DETAIL
21. STUCCO O/ FOAM TRIM SURROUND
22. PAVER CAP
23. LIVE WORK SIGNAGE
24. FIBERGLASS ENTRY DOOR WITH GLAZING



KEY SITE PLAN: 1/16" = 1'-0"

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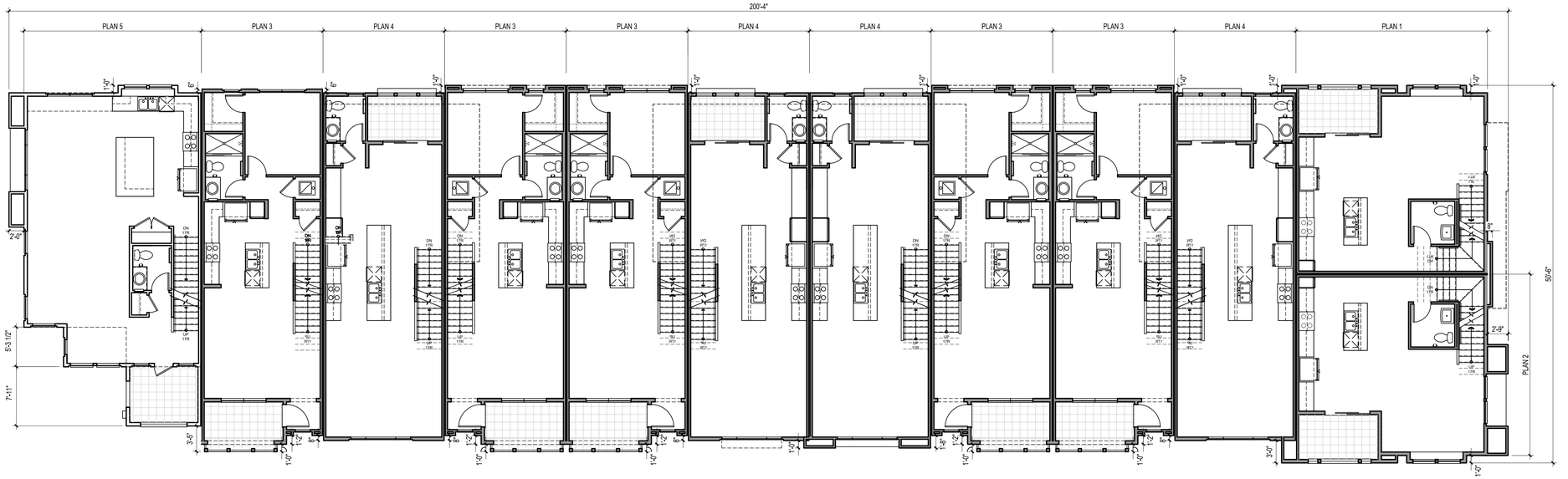
5th Submittal Date:	06.27.2024

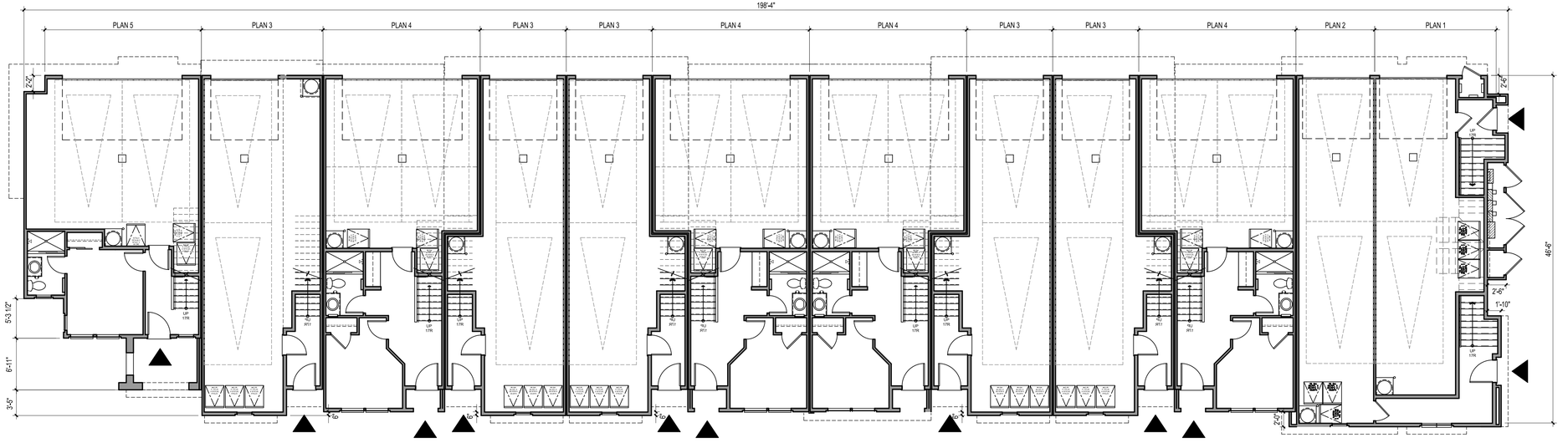
SCALE: 1/8" = 1'-0"
0 8 16 32

12-PLEX - B1200 - ELEVATIONS

A5.11



SECOND FLOOR



FIRST FLOOR

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Plot Date:	5.1.2024
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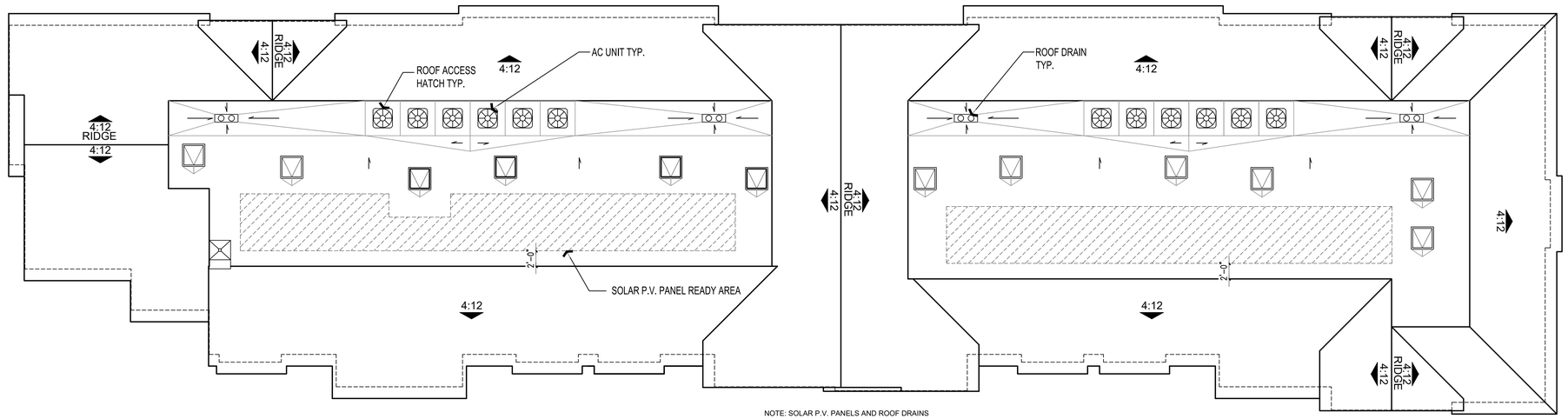
3rd Submittal Date:	05.09.2024
4th Submittal Date:	06.11.2024
5th Submittal Date:	06.27.2024

SCALE: 1/8" = 1'-0"
0 4 8 16

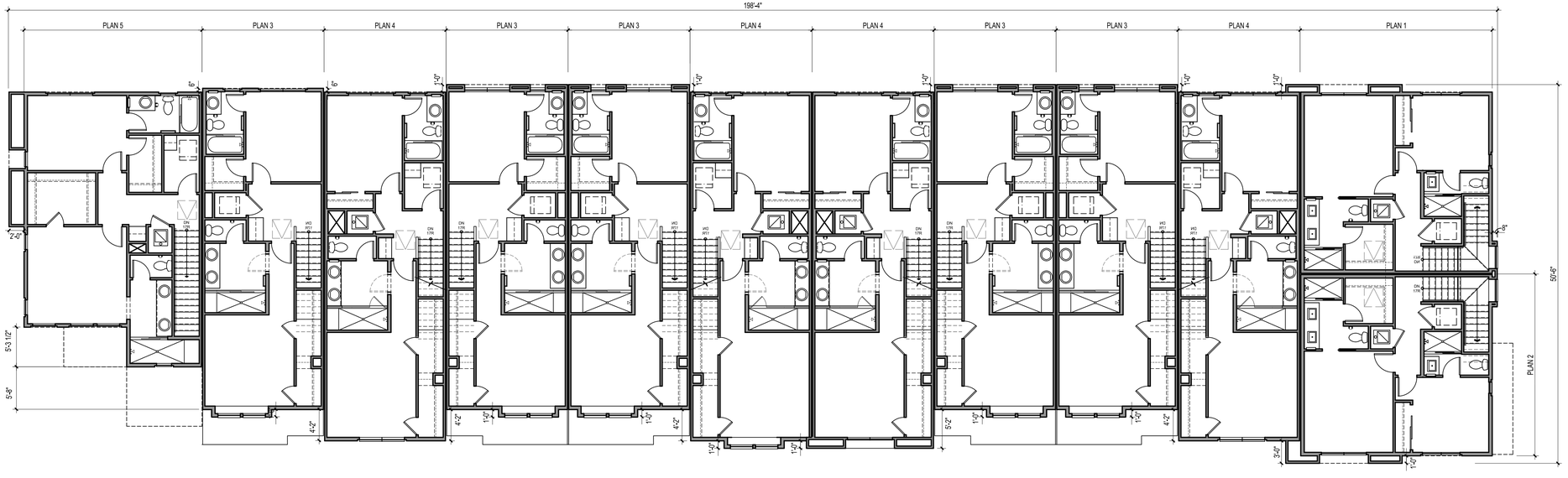
12-PLEX - B1200 - BUILDING PLANS

A5.20



NOTE: SOLAR P.V. PANELS AND ROOF DRAINS
PRECISE LOCATION AND SIZE WILL BE PER CODE REQUIREMENTS AND TO BE
DETERMINED IN FUTURE PROJECT PHASE.

ROOF



THIRD FLOOR

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BREA, CA # 2023-0485

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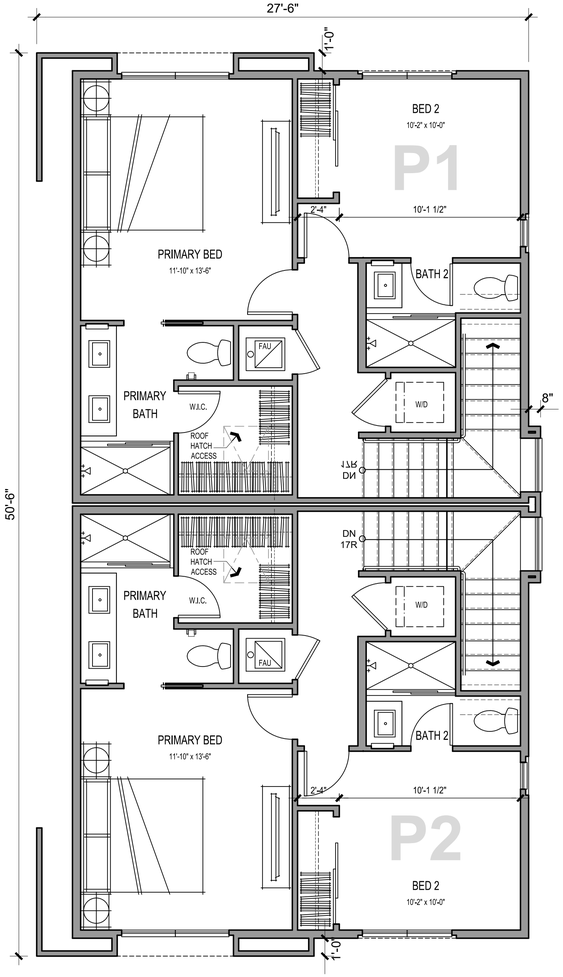
5th Submittal Date:	06.27.2024

SCALE: 1/8" = 1'-0"
0 4 8 16

12-PLEX - B1200 - BUILDING PLANS

A5.21



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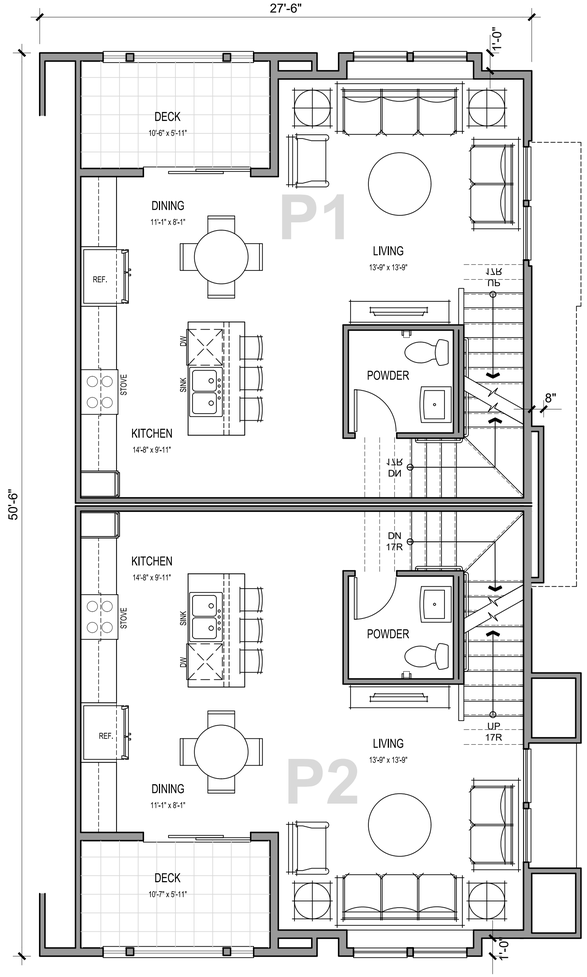
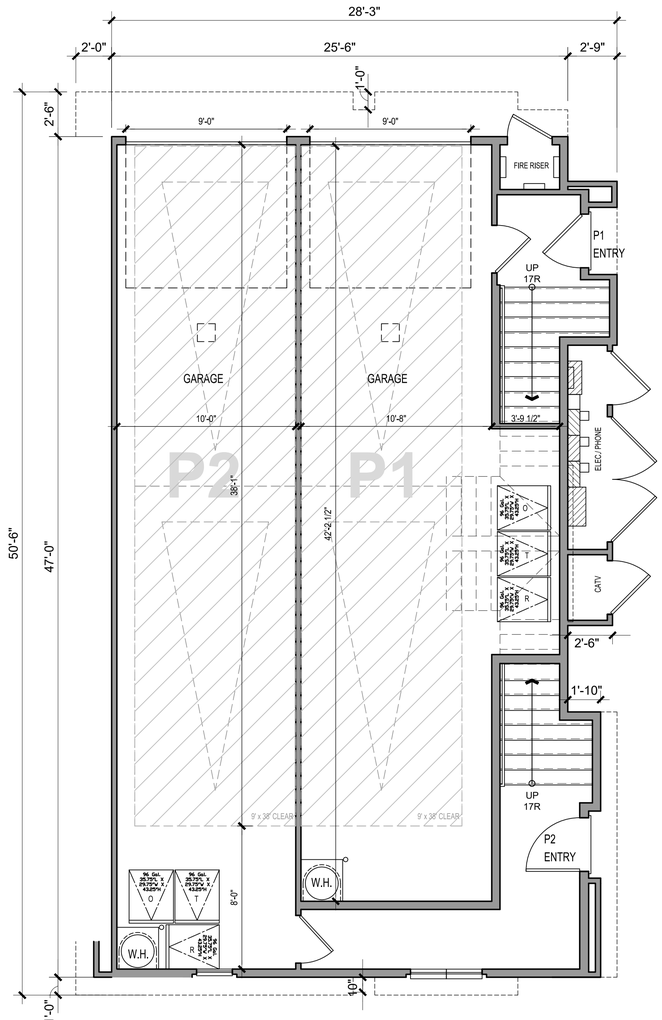


SECOND FLOOR



FIRST FLOOR

2 BEDS/ 2.5 BATHS

NET SF - PLAN 1	
1ST FLOOR	90 SQ. FT.
2ND FLOOR	519 SQ. FT.
3RD FLOOR	522 SQ. FT.
TOTAL LIVING	1132 SQ. FT.
DECK	63 SQ. FT.
GARAGE	531 SQ. FT.

2 BEDS/ 2.5 BATHS

NET SF - PLAN 2	
1ST FLOOR	144 SQ. FT.
2ND FLOOR	519 SQ. FT.
3RD FLOOR	522 SQ. FT.
TOTAL LIVING	1185 SQ. FT.
DECK	63 SQ. FT.
GARAGE	491 SQ. FT.

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CITY VENTURES
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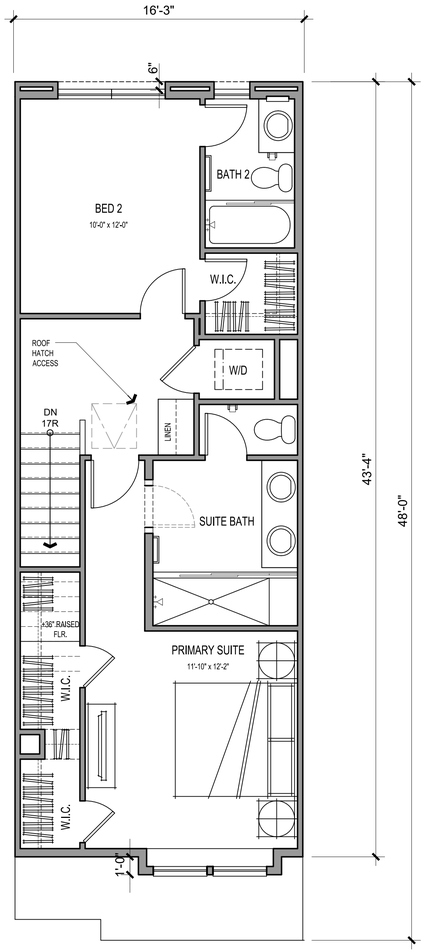
3rd Submittal Date:	05.09.2024
4th Submittal Date:	06.11.2024
5th Submittal Date:	06.27.2024

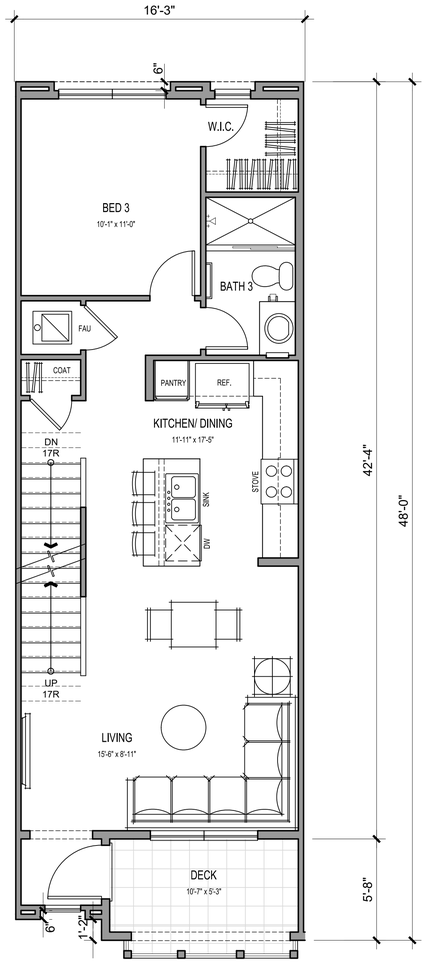
SCALE: 1/4" = 1'-0"
0 2 4 8

P1 & P2 - UNIT PLANS

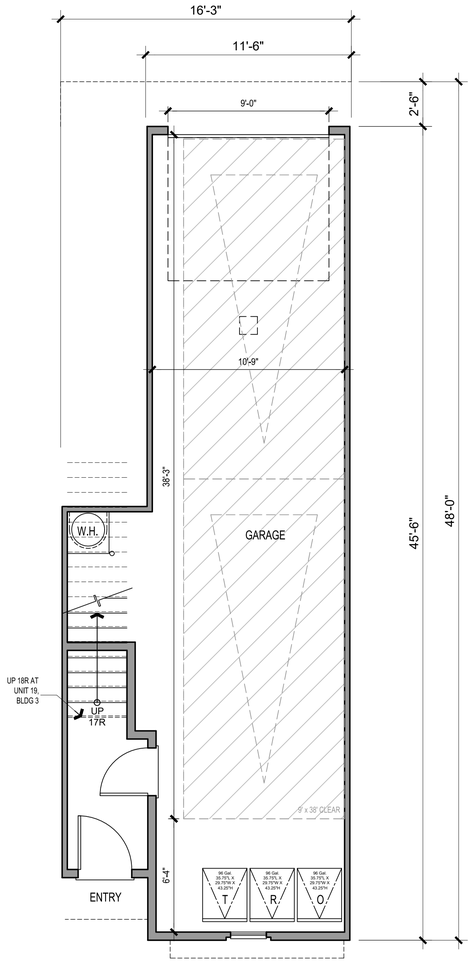
A6.00



THIRD FLOOR



SECOND FLOOR



FIRST FLOOR

3 BEDS/ 3 BATHS

NET SF	
1ST FLOOR	84 SQ. FT.
2ND FLOOR	651 SQ. FT.
3RD FLOOR	616 SQ. FT.
TOTAL LIVING	1352 SQ. FT.
DECK	55 SQ. FT.
GARAGE	549 SQ. FT.

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CITY VENTURES
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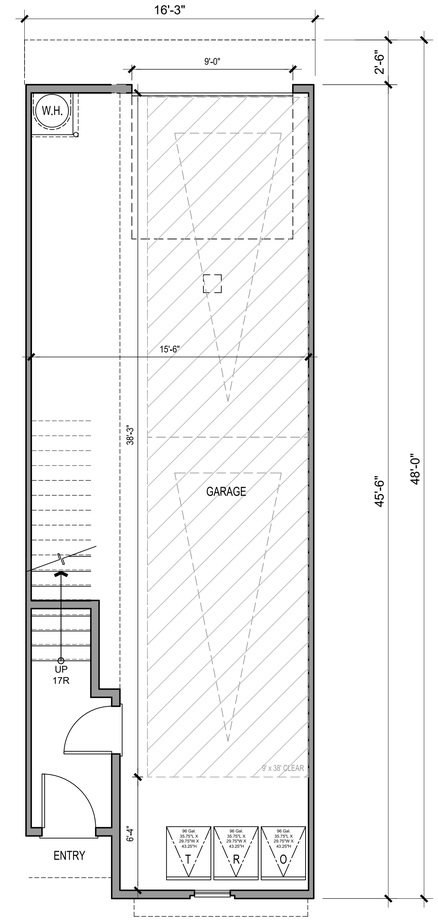
5th Submittal Date:	06.27.2024

SCALE: 1/4" = 1'-0"
0 2 4 8

P3 - UNIT PLANS

A6.10



FIRST FLOOR - ALT

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BREA, CA # 2023-0485

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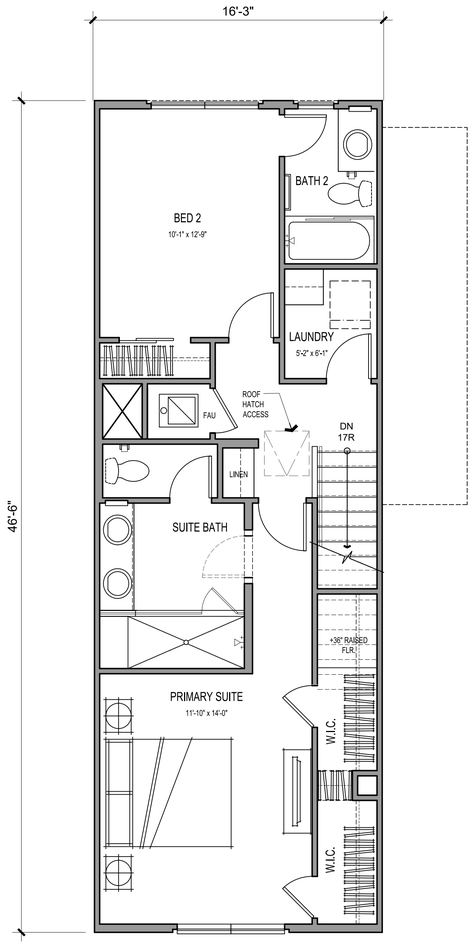
5th Submittal Date:	06.27.2024

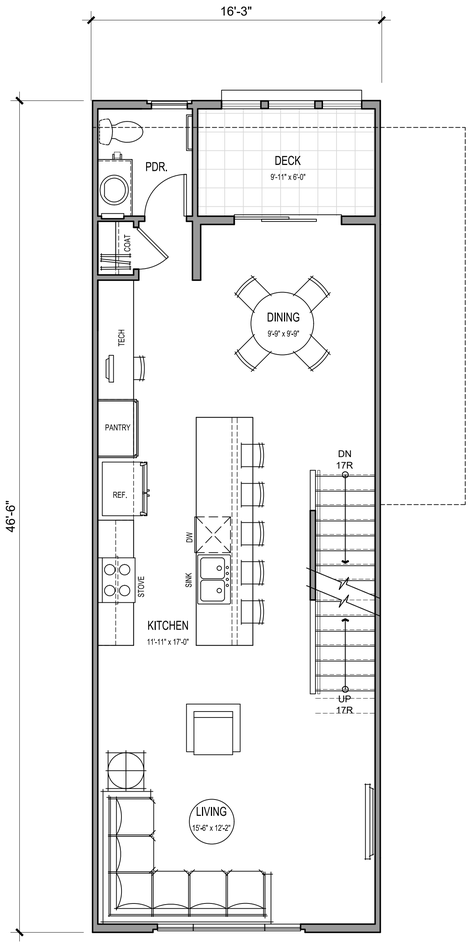
SCALE: 1/4" = 1'-0"
0 2 4 8

P3 - ALT - UNIT PLANS

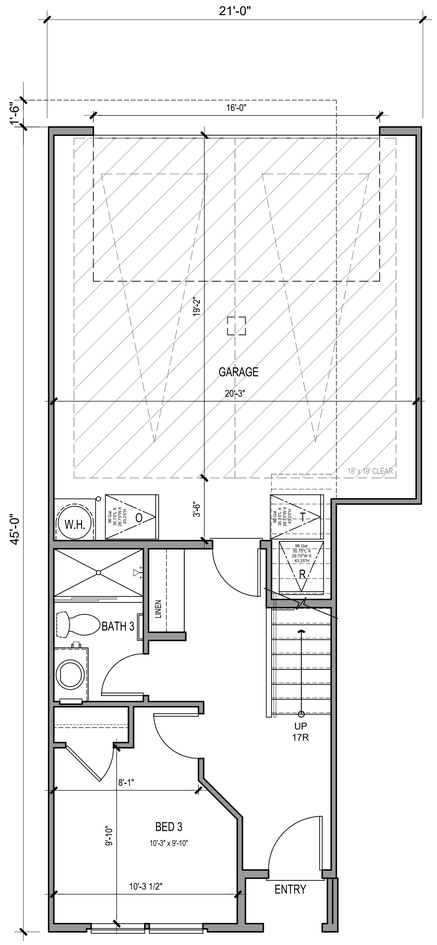
A6.11



THIRD FLOOR



SECOND FLOOR



FIRST FLOOR

3 BEDS + 3.5 BATHS

NET SF	
1ST FLOOR	324 SQ. FT.
2ND FLOOR	641 SQ. FT.
3RD FLOOR	665 SQ. FT.
TOTAL LIVING	1629 SQ. FT.
DECK	59 SQ. FT.
GARAGE	472 SQ. FT.

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CITY VENTURES
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BREA, CA # 2023-0485

Plot Date:	5.9.2024
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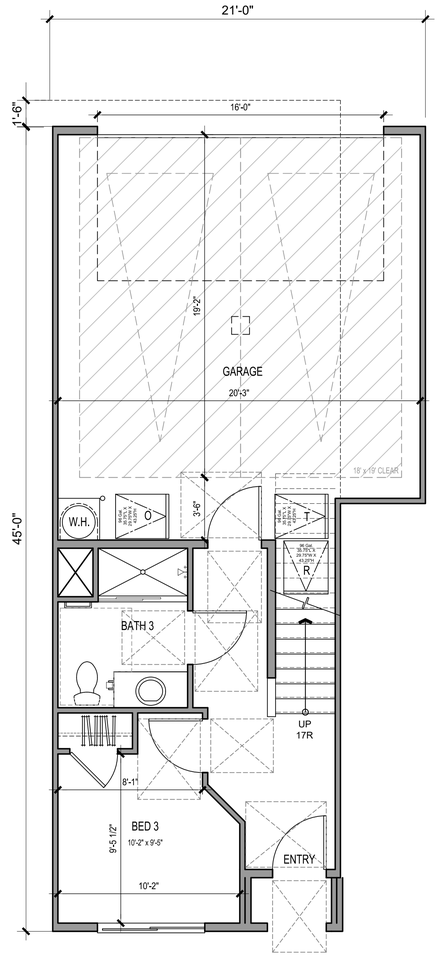
4th Submittal Date:	06.11.2024
5th Submittal Date:	06.27.2024

SCALE: 1/4" = 1'-0"
0 2 4 8

P4 - UNIT PLANS

A6.20



P4 - FIRST FLOOR - ACCESSIBLE

3 BEDS + 3.5 BATHS

NET SF	
1ST FLOOR	324 SQ. FT.
2ND FLOOR	641 SQ. FT.
3RD FLOOR	665 SQ. FT.
TOTAL LIVING	1629 SQ. FT.
DECK	59 SQ. FT.
GARAGE	472 SQ. FT.

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Plot Date:	5.9.2024
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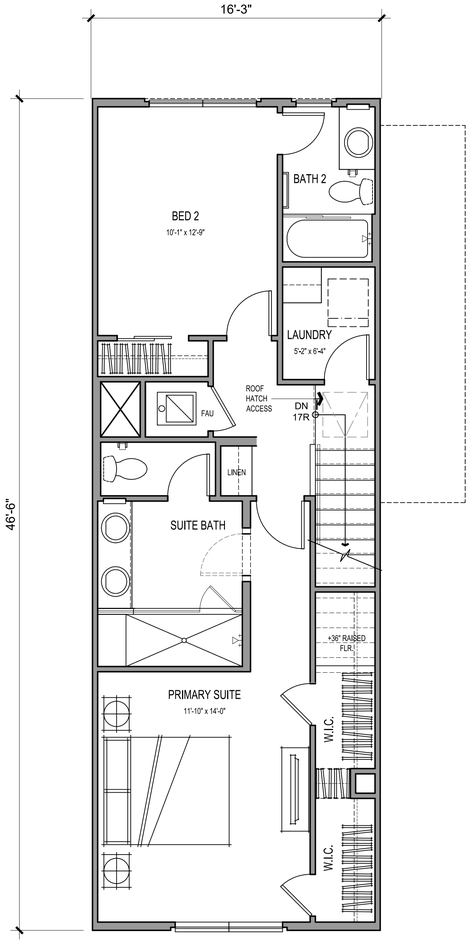
3rd Submittal Date:	05.09.2024
4th Submittal Date:	06.11.2024
5th Submittal Date:	06.27.2024

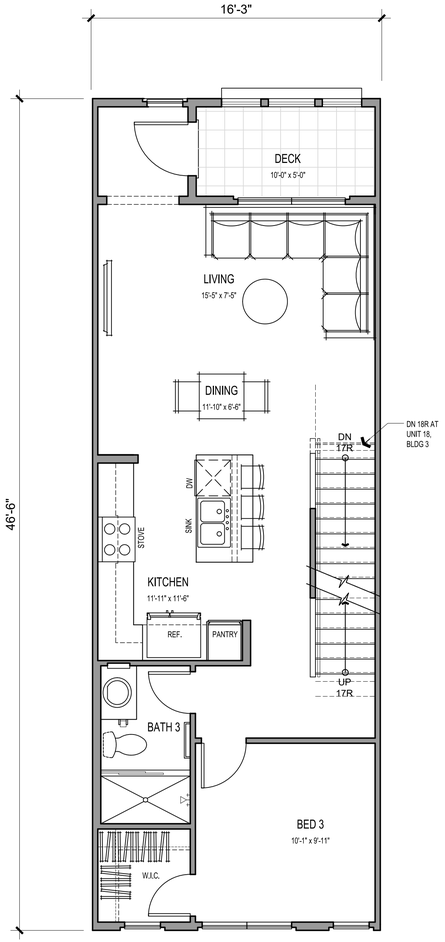
SCALE: 1/4" = 1'-0"
0 2 4 8

P4 - ACCESSIBLE - UNIT PLANS

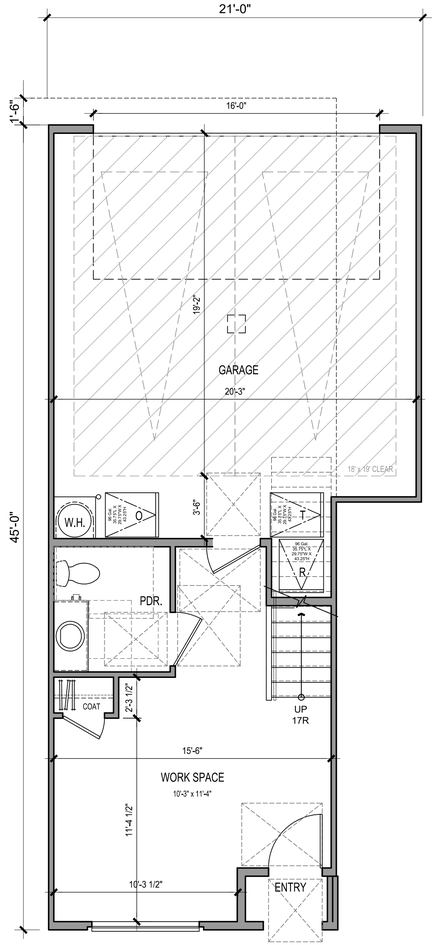
A6.21



THIRD FLOOR



SECOND FLOOR



FIRST FLOOR

3 BEDS / WORK SPACE + 3.5 BATHS

NET SF	
1ST FLOOR	327 SQ. FT.
2ND FLOOR	648 SQ. FT.
3RD FLOOR	653 SQ. FT.
TOTAL LIVING	1628 SQ. FT.
DECK	50 SQ. FT.
GARAGE	472 SQ. FT.

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2nd Submittal Date:	02.22.2024
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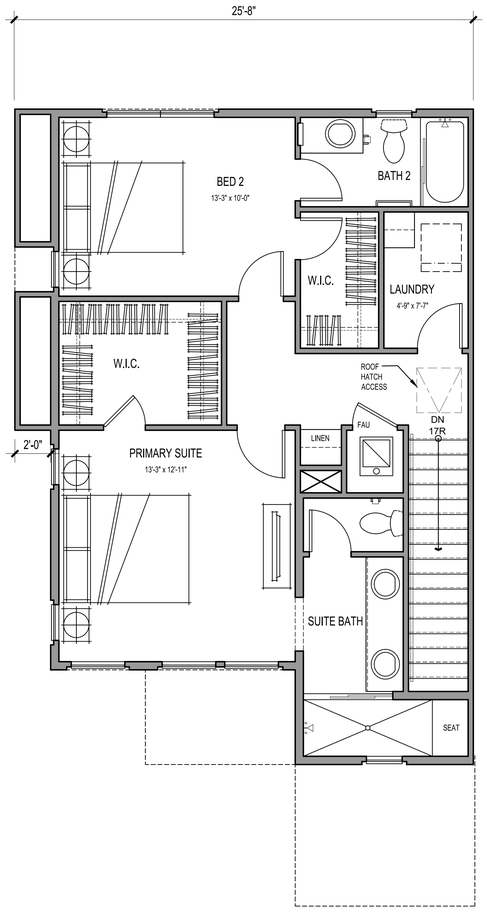
4th Submittal Date:	06.11.2024
5th Submittal Date:	06.27.2024

SCALE: 1/4" = 1'-0"
0 2 4 8

P4X - LIVE WORK - UNIT PLANS

A6.22



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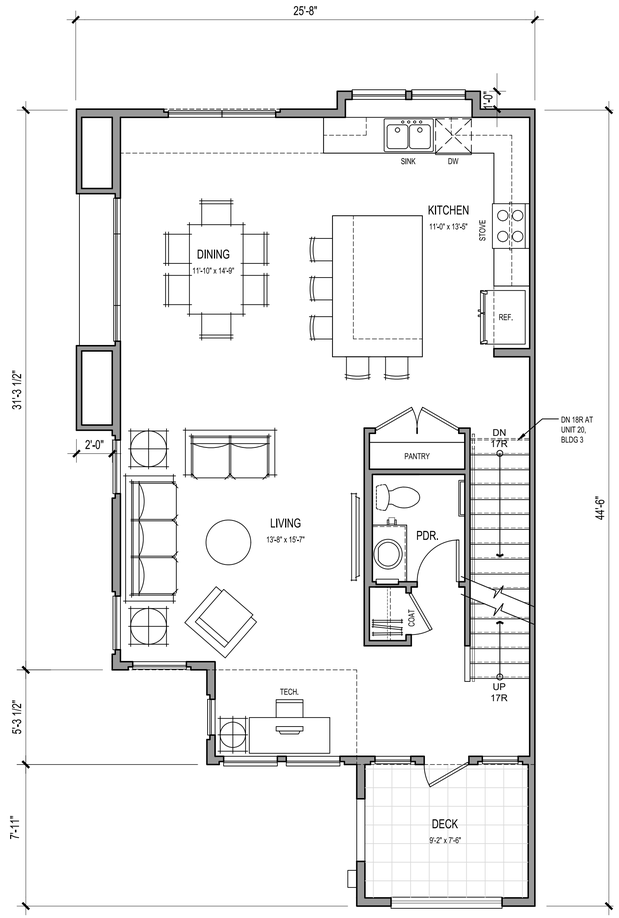
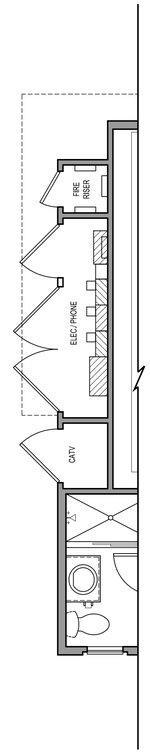
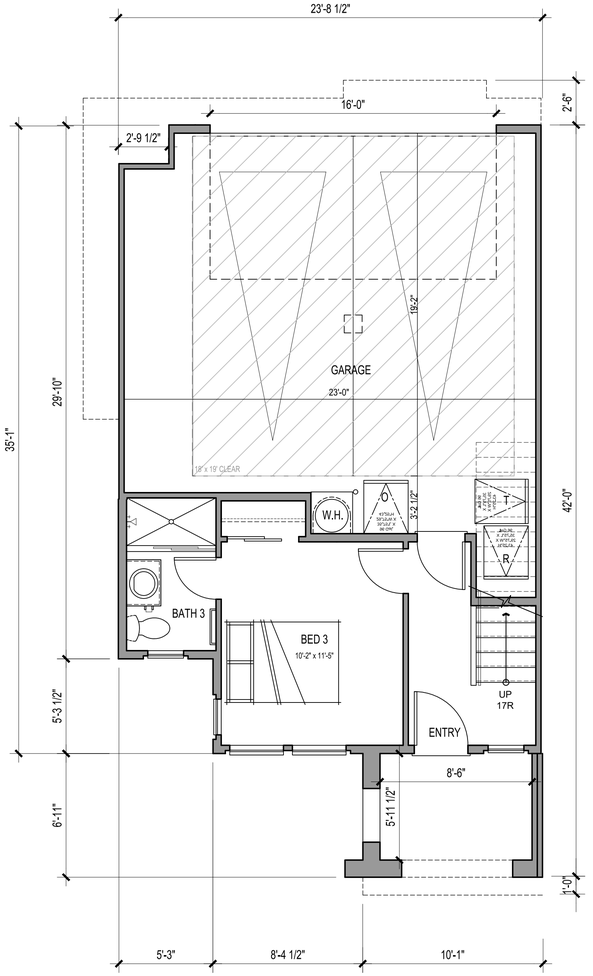


SECOND FLOOR



UTILITY CLOSET



FIRST FLOOR

3 BEDS + 3.5 BATHS

NET SF	
1ST FLOOR	275 SQ. FT.
2ND FLOOR	796 SQ. FT.
3RD FLOOR	692 SQ. FT.
TOTAL LIVING	1764 SQ. FT.
DECK	68 SQ. FT.
GARAGE	465 SQ. FT.

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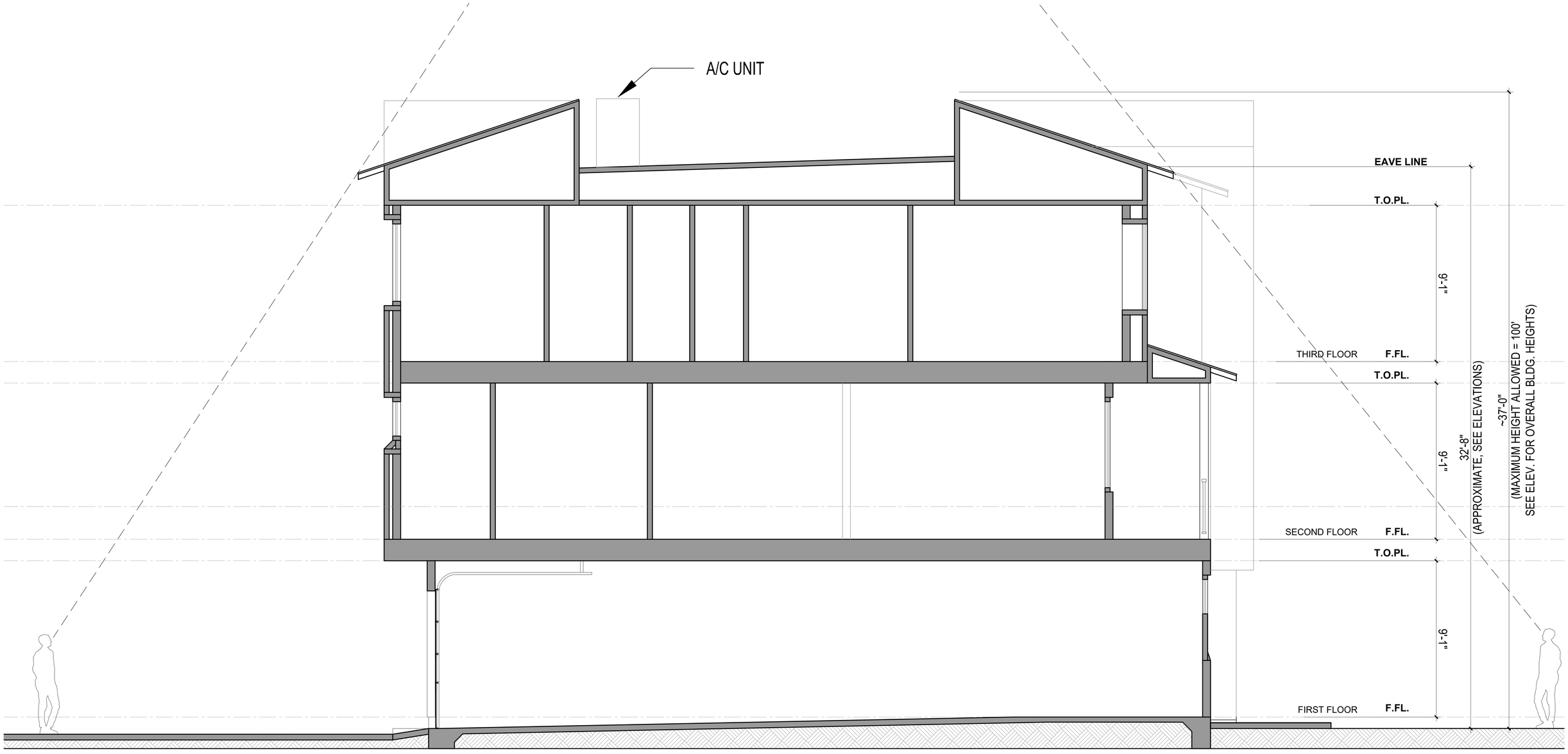
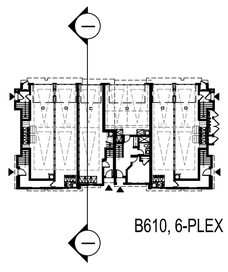
SCALE: 1/4" = 1'-0"
0 2 4 8

P5 - UNIT PLANS

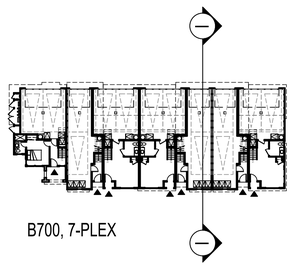
A6.30



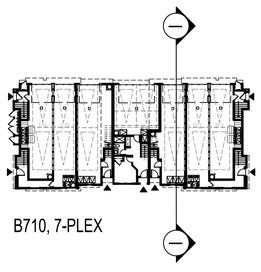
TYPICAL BUILDING SECTION AND LINE OF SIGHT OF DIAGRAM



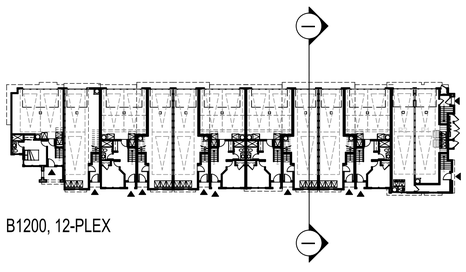
B610, 6-PLEX



B700, 7-PLEX



B710, 7-PLEX



B1200, 12-PLEX

KEY PLANS
SCALE: 1/32"=1'-0"

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4th Submittal Date:	06.11.2024
5th Submittal Date:	06.27.2024

SCALE: 3/8" = 1'-0"
0 2 4 6

TYP. BUILDING SECTION & LINE OF SIGHT EXHIBIT

A7.00

City Ventures

BREA & FIR

BREA CA

CITY SUBMITTAL

EXTERIOR COLOR/ MATERIAL DESIGN

MAY 8, 2024

AT DESIGN CONSULTING, INC
2211 Michelson Drive Suite 450 Irvine, CA 92612
P: 949.724.1619 WWW.ATDESIGNCONSULTING.COM

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Wall Sconce & Address Numbers

8 **EXTERIOR COLOR/MATERIAL SPECIFICATIONS**

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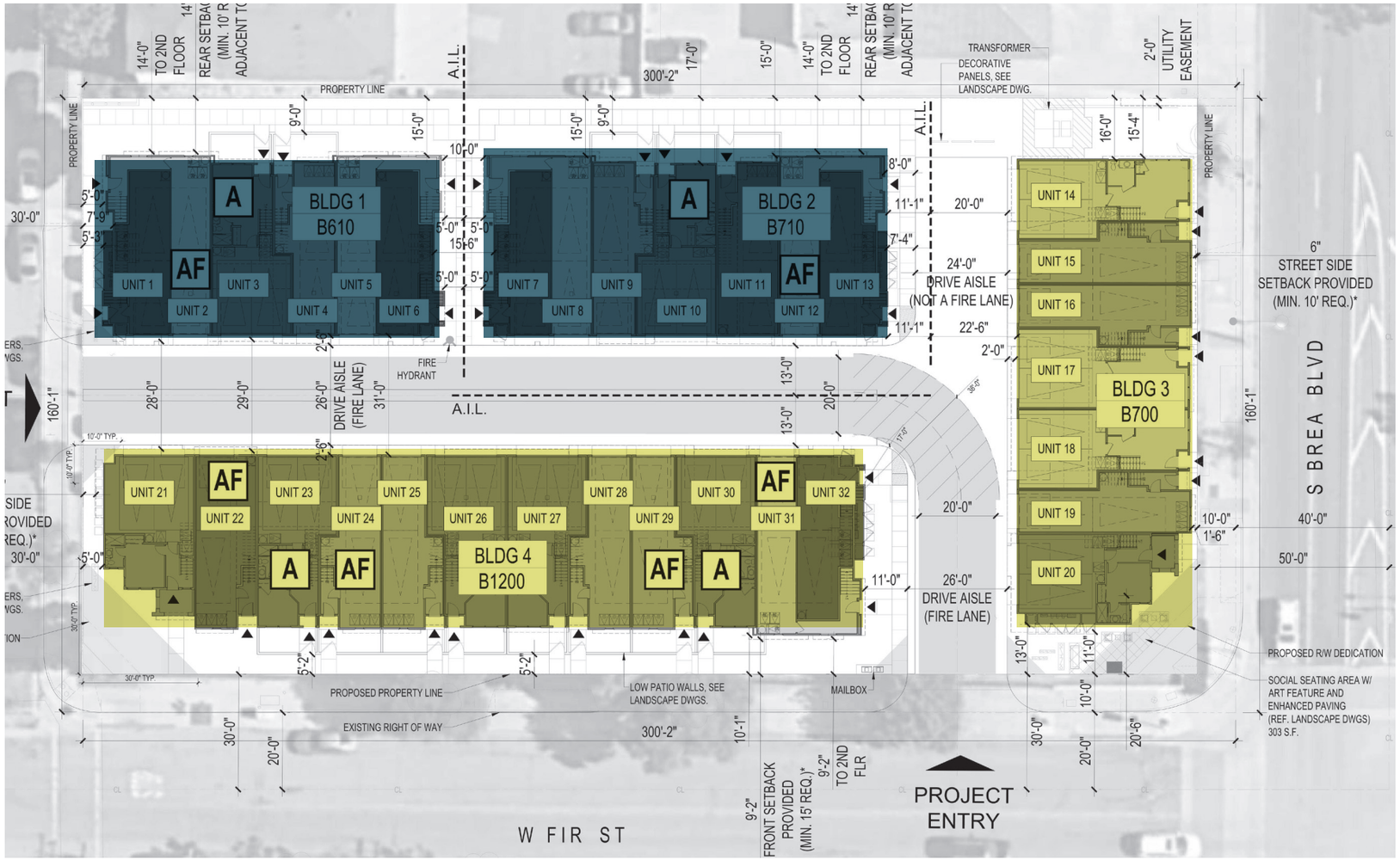

COLOR SCHEME

- SCHEME 1
- SCHEME 2

BREA & FIR
BREA CA

EXTERIOR COLOR/MATERIAL DESIGN

City Ventures

AT DESIGN CONSULTING

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PAINT AND MISCELLANEOUS ITEMS

PAINT MANUFACTURER	All paint to be Sherwin Williams, unless otherwise stated differently.
PAINT APPLICATION	Typical, all paint colors should terminate in **inside corners**. Fascia boards, overhangs, eaves, headers, etc. should be painted their specifically designated colors with the color being applied on all sides of each item, **including the undersides**.
NON-DECORATIVE ITEMS	All non-decorative items such as meter doors, non-decorative vents, etc. to be painted the same color as the adjacent field color.
ROOFTOP METALS	All rooftop metals to be painted to match the darkest color from the roof shingle blend per Color Scheme specified for that particular Building.
DIGITAL & PRINTED COLORS	Colors & textures seen on screen and/or printed material may not represent actual colors & textures accurately. Refer to actual paint chips & materials for color & texture accuracy.

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SCHEME 1

BODY 1

BODY 2 + TRIM

METALS/RAILINGS

ENTRY DOORS #1

ENTRY DOORS #2

GARAGE DOORS

ROOF

TILE

SCHEME 2

BODY 1

BODY 2 + TRIM

METALS/RAILINGS

ENTRY DOORS #1

ENTRY DOORS #2

GARAGE DOORS

ROOF

TILE

Colors seen on screen and/or printed material may not represent actual colors & textures accurately. Refer to actual materials for color & texture accuracy.

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EXTERIOR WALL SCONCE

SCONCE STYLE:

PRODUCT SPECIFICATIONS:

MANUFACTURER:	Hinkley
FAMILY:	Alford Place
PRODUCT SKU:	2564MB-LL
FINISH:	Museum Black
WIDTH:	10"
HEIGHT:	17.5"
GLASS:	Clear

ADDRESS NUMBER

UNIT ADDRESS STYLE:

1234567890

PRODUCT SPECIFICATIONS:

MANUFACTURER:	Modern House Number
TYPEFACE:	Soho
MATERIAL:	Black
INSTALLATION TYPE:	Wall Mount
MOUNTING HARDWARE:	Yes
PRODUCT FINISH:	Clear Sealant
SIZE:	Verify with City Requirements
THICKNESS:	3/8"
STUD HOLES:	3/16" Pre-Drilled Stud Holes (not visible from face of number)
STEEL STUDS:	Numbers include 3/16" diameter x 2" long steel studs and 3/16" inside diameter x 1/2" long aluminum spacers.
STANDOFFS:	Include 1/2" aluminum spacers. If a subtle shadowed effect is desired, standoffs are included to slide over studs.

PRODUCT DIMENSIONS:

number width								
	*1"	*2"	*3"	4"	6"	8"	12"	15"
0	1	2	3	4	6	8	12	15
1	0.25	0.5	0.87	1.16	1.74	2.32	3.48	4.36
2	0.75	1.5	2.13	2.84	4.26	5.68	8.52	10.65
3	0.75	1.5	2.22	2.96	4.43	5.92	8.87	11.09
4	0.75	1.5	2.32	3.1	4.65	6.2	9.3	11.62
5	0.75	1.25	2.18	2.87	4.3	5.74	8.6	10.75
6	0.75	1.5	2.18	2.91	4.36	5.82	8.72	10.9
7	0.75	1.5	2.21	2.95	4.42	5.9	8.86	11.07
8	0.75	1.5	2.06	2.75	4.13	5.5	8.21	10.26
9	0.75	1.5	2.18	2.91	4.36	5.82	8.72	10.9

quantity of pre-drilled stud holes					
	4"	6"	8"	12"	15"
0	2	2	2	4	4
1	2	2	2	3	3
2	2	2	2	3	3
3	2	2	2	3	3
4	2	2	3	3	3
5	2	2	2	3	3
6	2	2	2	4	4
7	2	2	2	3	3
8	2	2	2	4	4
9	2	2	2	4	4

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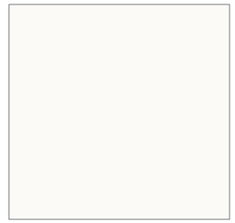
SCHEME 1

Blocking Color Code	Item	Manufacturer	Color & Name
	Body 1 (Stucco)	Omega Integral Stucco *(matched to Sherwin Williams)*	(7551, Greek Villa)
	Body 2 (Siding) + Trim (Fascia Boards, Wood Corbels, Posts, Beams, French Doors)	Sherwin Williams	7053, Adaptive Shade
	Metals/Railings	Sherwin Williams	7069, Iron Ore
	Garage Doors	Sherwin Williams	7053, Adaptive Shade
	Entry Door #1	Sherwin Williams	9124, Verde Marrón
	Entry Door #2	Sherwin Williams	7645, Thunder Gray
	Gutters & Downspouts	*Paint to match adjacent Body Color*	
	Deck Coating	Pli Deck	
	Windows	*Client's Vendor*	White
	Concrete Roof Tile (S-Tile)	Eagle Roofing	Capristano, SMC8403 Santa Barbara Blend
	Tile	Lili Cement Tiles	Nora 3, 6x6"
	Tile Grout		

BODY 1



BODY 2 + TRIM

METALS/RAILINGS

ENTRY DOORS #1

ENTRY DOORS #2

GARAGE DOORS

ROOF

TILE

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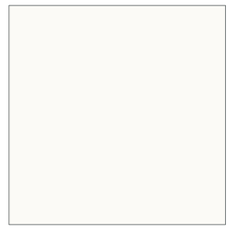
SCHEME 2

Blocking Color Code	Item	Manufacturer	Color & Name
	Body 1 (Stucco)	Omega Integral Stucco *(matched to Sherwin Williams)*	(7551, Greek Villa)
	Body 2 (Siding) + Trim (Fascia Boards, Wood Corbels, Posts, Beams, French Doors)	Sherwin Williams	6152, Superior Bronze
	Metals/Railings	Sherwin Williams	7069, Iron Ore
	Garage Doors	Sherwin Williams	6152, Superior Bronze
	Entry Door #1	Sherwin Williams	6222, Riverway
	Entry Door #2	Sherwin Williams	7645, Thunder Gray
	Gutters & Downspouts	*Paint to match adjacent Body Color*	
	Deck Coating	Pli Deck	
	Windows	*Client's Vendor*	White
	Concrete Roof Tile (S-Tile)	Eagle Roofing	Capristano, SMC8403 Santa Barbara Blend
	Tile	Lili Cement Tiles	Sabine 4, 6x6"
	Tile Grout		

BODY 1



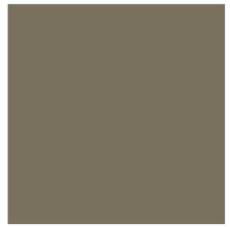
BODY 2 + TRIM

METALS/RAILINGS

ENTRY DOORS #1

ENTRY DOORS #2

GARAGE DOORS



ROOF

TILE

Colors seen on screen and/or printed material may not represent actual colors & textures accurately. Refer to actual materials for color & texture accuracy.

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LEGEND

1. Project Entry with Stamped Accent Herringbone Pattern in “Paprika” color
2. Social Seating Area with Art Feature and Enhanced Paving (Davis Color Pebble 641)
3. Decorative Panels
4. Transformer (per Civil)
5. Community Mailbox Cluster
6. Tree Planting- one per 25 LF of PL abutting street/ one per 30 LF interior PL
7. Pedestrian Concrete Sidewalk (Natural Gray Color with Topcast Finish)
8. Screen Hedges for Transformer and Backflow
9. Accent Vines and Landscape
10. Existing Concrete Sidewalk to Remain
11. Existing Street Trees/Palms
12. Water Quality Modular
13. Water Meter (per Civil)
14. Backflow (per Civil)

ADA Path

City Ventures

BREA AND FIR - OVERALL CONCEPTUAL LANDSCAPE PLAN

BREA, CA

0 5' 20' 40'

Scale: 1”= 20’-0”

06.27.24

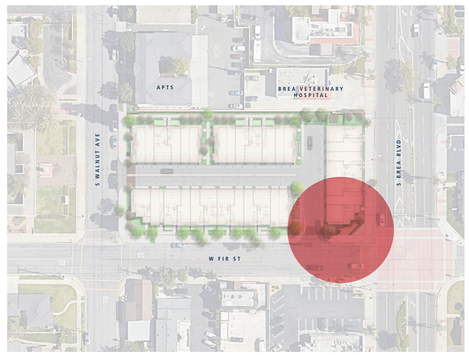
L-1

C2 Collaborative

LEGEND

1. Project Entry with Stamped Accent Herringbone Pattern in "Paprika" color
2. Social Seating Area with Decor Concrete Paving in Diamond Sawcut Pattern (Davis Color Pebble 641)
3. Art Feature
4. Protective Barrier - Precast Concrete Bollard w/ Interlocking Sleeve
5. Screening Hedges
6. Entry Trees
7. Accent Trees
8. Mailbox Cluster

KEYMAP



City Ventures

BREA AND FIR - CONCEPTUAL COURTYARD ENLARGEMENT

BREA, CA

0 2' 4' 8'
Scale: 1/4"=1'-0"

06.27.24

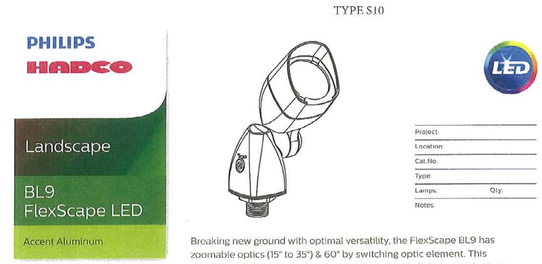
L-2

C2 Collaborative

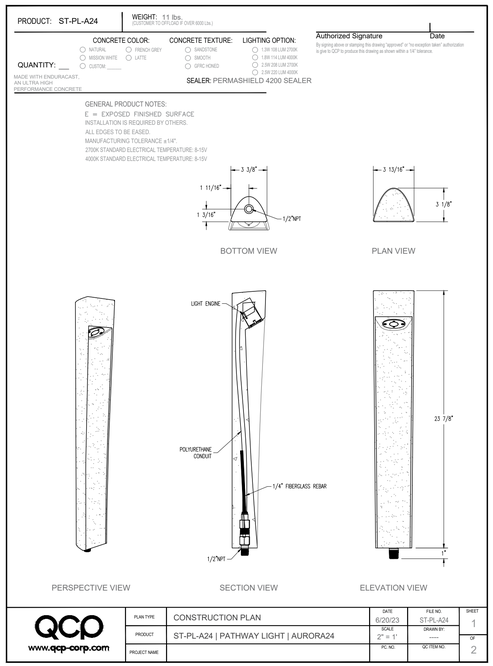
LEGEND

- Tree Uplight
- Pedestrian Pathway Light

TREE UPLIGHT



PEDESTRIAN PATHWAY LIGHT



City Ventures

BREA AND FIR - CONCEPTUAL LIGHTING PLAN

BREA, CA

0 5' 20' 40'

Scale: 1"= 20'-0"

06.27.24

L-3

C2 Collaborative

LOLL
Nisswa Lounge

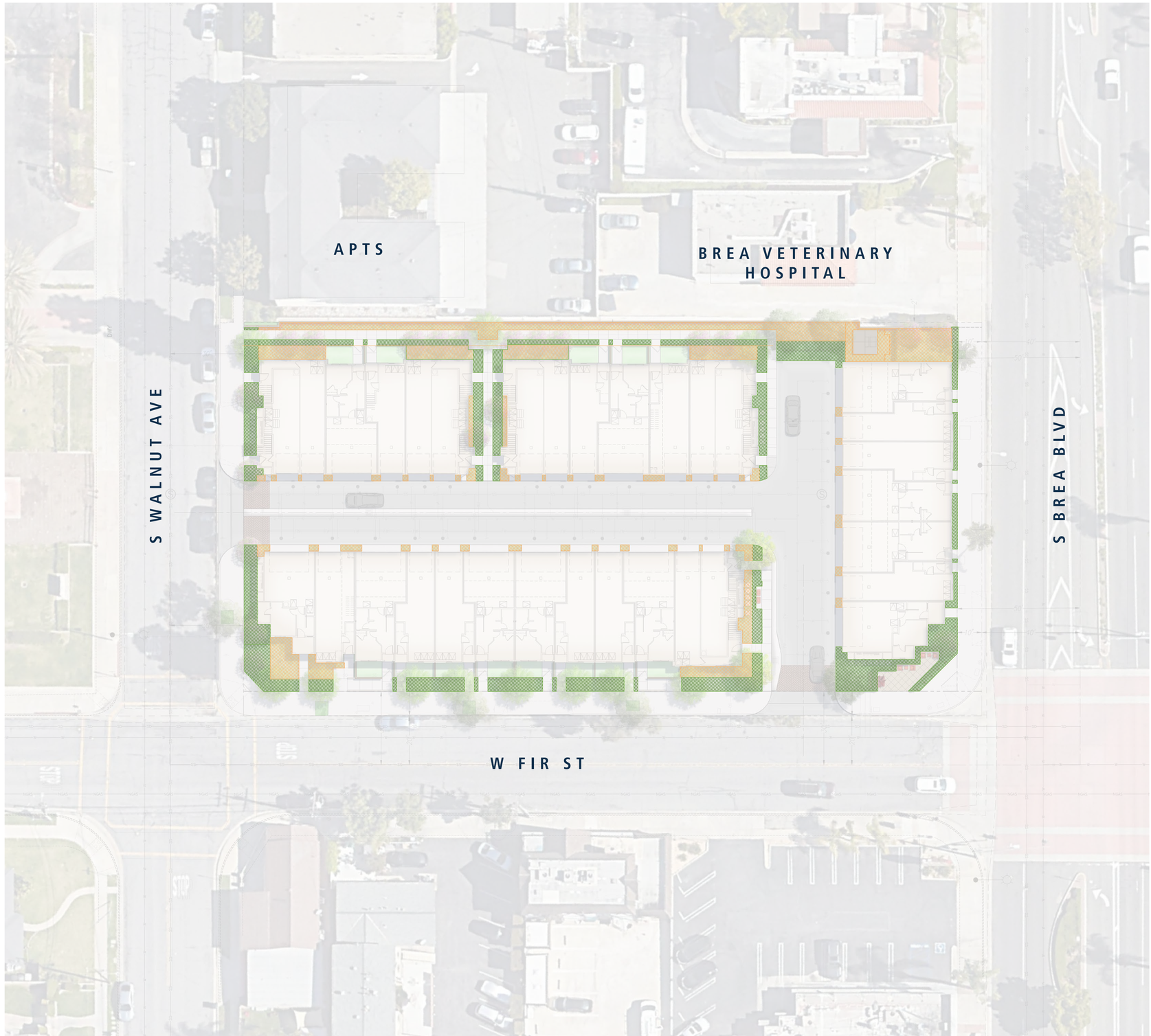
LOUNGE SEATING

Color: Gray

MAIL BOX

Color: Natural Gray
Finish: Sandstone

PRECAST CONCRETE BOLLARD



LEGEND

Total Landscape Area: 6,480 sf provided

(Required 15% of the overall site 0.99 ac = 6,469 sf)

Low Water Use

Medium Water Use

Project Name: Brea and Fir

Date: May 9, 2024

WATER EFFICIENT WORK SHEET

Maximum Applied Water Allowance (MAWA)

Total MAWA = (Eto x 0.50 x LA in Sq.ft. x 0.62)+(Eto x 1.0 x SLA in Sq.ft. x 0.62)= Gallons per year for LA + SLA

Hydrozone:	Eto:	KL	LA Sq. Ft.	Conversion	SLA Sq. Ft.	MAWA
Landscaped Area	51.8	0.55	6,402	0.62	NA	113,084

MAWA= Maximum Applied Water Allowance (gallons per year)
Eto= Reference Evapotranspiration from Appendix C (inches per year)
0.50= Evapotraspiration Adjustment Factor (ETAF)
1.0= ETAF for Sprcial Landscaped Area
LA= Landscaped Area includes Special Landscape Area (square feet)
0.62= Conversion Factor (to gallons per square foot)
0.3= the additional ET adjustment Factor for Special Landscape Area (1.0- 0.7= 0.3)
SLA= Speical Landscape Area (square feet)

Applicant to fill in boxes below:

Eto (Reference Evapotranspiration from Appendix C inches per year)	**51.8**
Landscaped Area includes Special Landscape Area (square feet)	**6,402**
Speical Landscape Area (square feet)	**0**

Estimated Annual Water Use:

Total EAWU = (Eto x KL x LA in Sq.ft. / IE)= Gallons per Year

Hydrozone:	Eto:	KL	Sq. Ft.	Conversion	IE	EAWU
Low Water Use Shrubs (Drip)	51.8	0.2	2,635	0.62	0.81	20,895
Medium Water Use Shrubs (Drip)	51.8	0.5	3,767	0.62	0.81	74,680
High Water Use (Rotor)	51.8	0.8	-	0.62	0.73	-
High (Water Feature)	51.8	1.0	-	0.62	1.00	-
Total EAWU:			6,402			95,575

EAWU= Estimated Applied Water Use (gallons per year)
Eto= Reference Evapotranspiration from Appendix C (inches per year)
KI= Landscape Coefficient
LA= Landscaped Area (square feet)
0.62= Conversion Factor (to gallons per square foot)
IE= Irrigation Efficiency= IME X DU (See definication in Appendix E for exmaplne IE percentages)
IME= Irrigation Management Efficiency (90%)
DU= Distribution Uniformity of Irrigation Head
KI= Ks x Kc x Kmc
Ks= species factor (range 1.0- 0.9) (see WUCOLS list for values)
Kd= density factor (range 0.5- 1.3) (see WUCOLS list for density value)
Kmc= microclimatic factor (range 0.5- 1.4) (see WUCOLS)

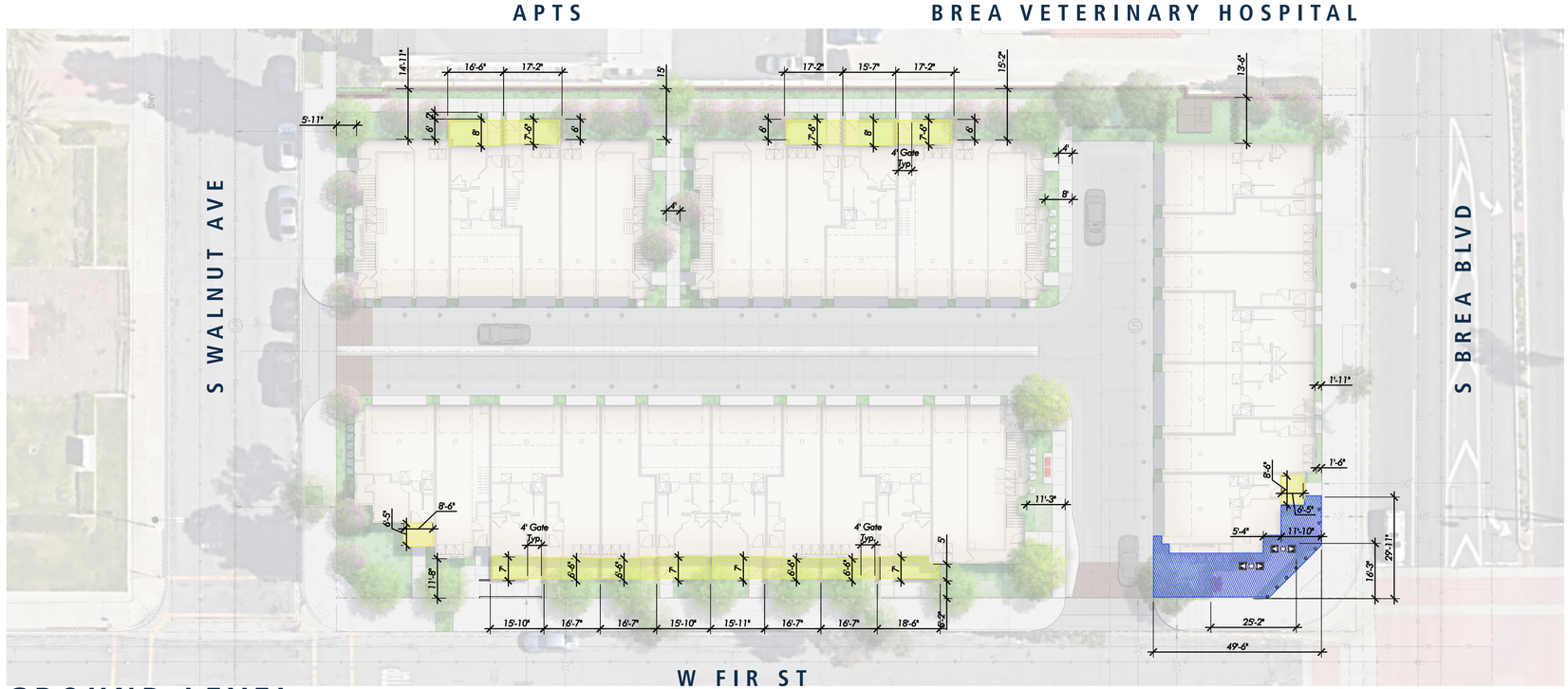
Table A- PF (Plant Factor)

Cool Season Turf= 0.8
Warm Season Turf= 0.7
High Water Use Plants= 0.7 (can be between 0.7-0.9)
Moderate Water Use Plants= 0.5 (can be between 0.4-0.6)
Low Water Use Plants= 0.2 (can be between 0.1-0.3)
Very Low Water Use Plants= 0.1

IE (Irrigation Efficiency)- Appendix E

Pop-up Stream Rotor= 0.73
Rotor Head= 0.76
Microspray= 0.76
Bubblers= 0.77
Drip Emitters= 0.81
Subsurface Irrigation= 0.81

GROUND LEVEL



LEGEND

Private Ground Level Open Space: 1,494 sf
(See sheet A0.10 for private balcony areas)

Common Open Space: 750 sf

PRIVATE BALCONIES

LEGEND

Private Balcony Space: 1,875 sf (50 sf minimum per dwelling unit. Waiver)
(See sheet A0.10 for private balcony area summary)

LEGEND

Existing Trees- to be removed. Total (4) Per Arborist Report: See Below

BOTANICAL NAME	COMMON NAME
Tree 2 - Cycas revoluta	Sago Palm
Tree 4 Pinus canariensis	Canary Island Pine
Tree 5 Pinus canariensis	Canary Island Pine
Tree 6 Pinus canariensis	Canary Island Pine

Proposed Trees (One per 25 LF of PL abutting street).
Required Trees (17), Proposed Trees (17)

Proposed Trees (One per 30 LF of PL Interior, Includes (6)trees from S. Brea Blvd requirement). Required Trees (16), Proposed Trees (16)

Proposed Trees Interior (3)

Proposed Conceptual Tree Palette

BOTANICAL NAME	COMMON NAME
Arbutus unedo "Marina"	Strawberry Tree
Bauhinia x blakeana	Hong Kong Orchid Tree
Chitalpa tashkentensis	Chitalpa
Laurus nobilis	Sweet Bay
Lophostemon confertus	Brisbane Box
Pinus canariensis	Canary Island Pine
Platanus acerifolia "Columbia"	London Plane Tree
Prunus caroliniana	Carolina Laurel Cherry
Pyrus calleryana	Callery Pear
Rhus lancea	African Sumac
Tabebuia chrysotricha	Golden Trumpet Tree
Ulmus parvifolia "true Green"	True Green Chinese Elm

Tree Report

Number	Latin Name	Common Name	Diameter	Ht & Wdth	Condition	Status	Disposition
2	***Cycas revoluta***	Sago palm	12"	13' x 8'	**Mature**	**Not protected**	**Removal**
	Mature specimen, possibly 60 years or older, not withstanding its short hight but but broad volume and mass. It is non-native.						
4	***Pinus canariensis***	Canary Island pine	23"	60' x 18-20'	**Mature**	**Not protected**	**Removal**
	Mature specimen with broadly dispersed root structure across the closer pavement areas. Evident in uplifting and cracking in a manner consistent tree root invasion and damage.						
5	***Pinus canariensis***	Canary Island pine	16"	50' x 18-20'	**Mature**	**Not protected**	**Removal**
	Mature specimen with broadly dispersed root structure across the closer pavement areas. Evident in uplifting and cracking in a manner consistent tree root invasion and damage.						
6	***Pinus canariensis***	Canary Island pine	22"	60' x 20'	**Mature**	**Not protected**	**Removal**
	Mature specimen with broadly dispersed root structure across the closer pavement areas. Evident in uplifting and cracking in a manner consistent tree root invasion and damage.						

City Ventures

BREA AND FIR - TREE IDENTIFICATION EXHIBIT

BREA, CA

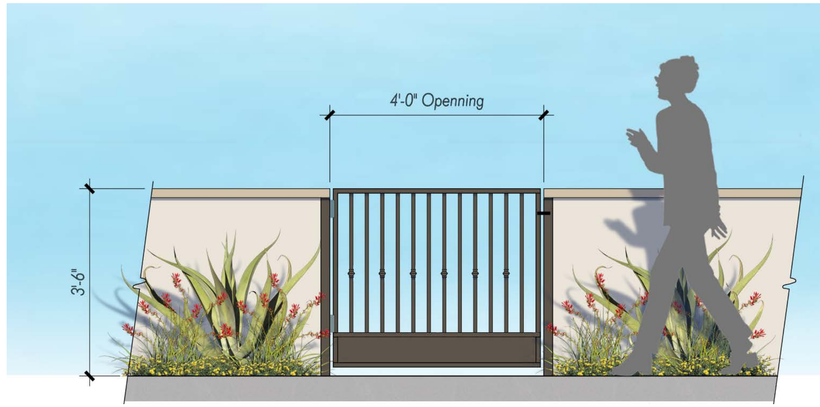
0 5' 20' 40'
Scale: 1" = 20'-0"

06.27.24

C2 Collaborative

LEGEND

- Patio Wall- Standard CMU block wall (Color to match Architecture)
- Patio Gate- Metal gate (Color to match Architecture)
- Existing Perimeter / Sideyard Wall - Protect in Place



PRIVATE PATIO GATE & WALL

City Ventures

BREA AND FIR - WALL AND FENCE PLAN

BREA, CA

0 5' 20' 40'
Scale: 1" = 20'-0"

06.27.24

C2 Collaborative

TREE SCHEDULE:

BOTANICAL NAME	COMMON NAME
Acacia stenophylla	Shoestring Acacia
Arbutus unedo "Marina"	Strawberry Tree
Archontophoenix alexandrae	King Palm
Bauhinia x blakeana	Hong Kong Orchid Tree
Cercis occidentalis	Western Redbud
Citrus spp.	Citrus Tree
Chamaerops humilis	Mediterranean Fan Palm
Chitalpa tashkentensis	Chitalpa
Dracaena draco	Dragon Tree
Eriobotrya deflexa	Bronze Loquat
Feijoa sellowiana	Pineapple Guava
Ginkgo biloba	Ginkgo
Lagerstroemia indica	Crape Myrtle
Laurus nobilis	Sweet Bay
Liriodendron tulipifera	Tulip Tree
Lophostemon confertus	Brisbane Box
Olea europaea	Olive
Platanus acerifolia "Columbia"	London Plane Tree
Podocarpus gracilior	Fern Pine
Prosopis chilensis	Chilean Mesquite Tree
Prunus caroliniana	Carolina Laurel Cherry
Populus nigra "Italica"	Lombardy Poplar
Punica granatum	Pomegranate
Pyrus calleryana	Callery Pear
Quercus ilex	Holly Oak
Quercus rubra	Northern Red Oak
Quercus suber	Cork Oak
Quercus virginiana	Southern Live Oak
Rhus lancea	African Sumac
Robinia pseudoacacia	Black Locust
Schinus molle	California Pepper Tree
Tabebuia chrysotricha	Golden Trumpet Tree
Ulmus parvifolia "true Green"	True Green Chinese Elm
Washingtonia robusta	Mexican Fan palm

SHRUB SCHEDULE:

BOTANICAL NAME	COMMON NAME
Bougainvillea spp.	Bougainvillea
Buxus japonica 'Green Gem'	Japanese Boxwood
Ceanothus spp.	California Lilac
Cercis spp.	Redbud
Cistus spp.	Rockrose
Coprosma	Mirror Plant
Elaeagnus pungens	Silverberry
Encelia farinose	Brittlebush
Hesperaloe spp.	Yucca
Ligustrum 'texanum'	Texas Privet
Myrtus communis	Myrtle
Penstemon spp.	Penstemon
Phlomis spp.	Sage
Pittosporum tobira 'Variegatus'	Variegated Mock Orange
Prunus caroliniana	Carolina Laurel Cherry
Rhaphiolepis 'Majestic Beauty'	Indian Hawthorn
Romneya coulteri	California Tree Poppy
Rosmarinus spp.	Rosemary
Salvia spp.	Sage
Santolina chamaecyparissus	Lavender Cotton
Santolina virens	Green Lavender Cotton
Solanum rantonnetii	Blue Potato Bush
Tecoma stans	Yellow Trumpet Flower
Viburnum davidii	David Viburnum
Xylosma congestum	Shiny Xylosma

GROUNDCOVER SCHEDULE:

BOTANICAL NAME	COMMON NAME
Bougainvillea spp.	Bougainvillea
Carissa macrocarpa 'Nana'	Dwarf Natal Plum
Lantana spp.	Lantana
Lonicera japonica	Japanese Honeysuckle
Trachelospermum jasminoides	Star Jasmine
Verbena spp.	Verbena
Vinca minor	Periwinkle

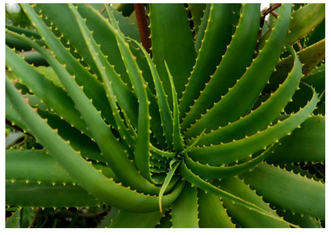
GRASSES/SUCCULENTS SCHEDULE:

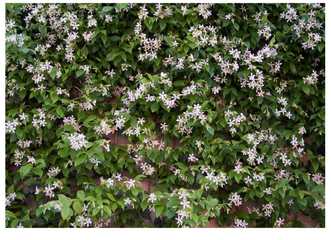
BOTANICAL NAME	COMMON NAME
Agave spp.	Agave
Aloe spp.	Aloe
Carex spp.	Sedges
Dudleya spp.	Chalk Lettuce
Echeveria spp.	Mexican Hens & Chicks
Festuca glauca	Blue Fescue
Festuca rubra	Red Fescue
Helictotrichon sempervirens	Blue Oat Grass
Liriope spicata	Creeping Lilyturf
Sedum spp.	Stonecrops
Yucca elephantipes	Spineless Yucca
Yucca rostrate	Big Bend Yucca

Note: 1. Plant selection and landscape/irrigation design should comply with the Water Efficient Landscape requirements and ordinances.

2. All Landscaping should meet the minimum Crime Prevention Through Environmental Design (CPTED) guidelines as follows:

- All shrub or ground cover vegetation should be no higher than 2 feet in height
- Tree canopies should be no lower than 6 feet in height.
- Avoid creating areas of potential concealment by using "lacy" vegetation.
- Avoid using vegetation that requires constant maintenance and upkeep as to avoid excessive growth potentially compromising the 2' x 6' rule.





IN THE CITY OF BREA, ORANGE COUNTY, STATE OF CALIFORNIA

TENTATIVE TRACT MAP TR - 19315
FOR CONDOMINIUM PURPOSES
FOR
685 BREA BOULEVARD, BREA, CA 92821

DATE: 6/25/2024

PROJECT TEAM

RECORD OWNER
MCCULLOCH FAMILY TRUST
15105 TACUBA DRIVE
LA MIRADA, CA 90638
PHONE: (714)366)4991

DEVELOPER:
PATRICK CHIEN
CITY VENTURES
3121 MICHELSON DRIVE, SUITE 150
IRVINE, CALIFORNIA 92612
PHONE: (949) 258–7542

CIVIL ENGINEER:
JASON MARECHAL, PE(#63164)
KIMLEY–HORN AND ASSOCIATES
1100 TOWN AND COUNTRY ROAD,
SUITE 700
ORANGE, CA 92868
PHONE: (714)–705–1305

ARCHITECT:
ALAN SCALES
KTGY, INC
17911 VON KARMAN AVE #200
IRVINE, CA 92614
PHONE: (949) 221–6256

GEOTECHNICAL ENGINEER
YOUSSEF HIJAZI
ALTA CALIFORNIA GEOTECHNICAL, INC
170 NORTH MAPLE STREET, SUITE 108
CORONA, CA 92880

SURVEYOR
PETER E. WEILBACHER
PBLA SURVEYING, INC
981 CORPORATE CENTER DRIVE, SUITE 168
POMONA, CA 91768
PHONE: 888–714–9642

UTILITY PURVEYORS

WATER & SEWER
CITY OF BREA
545 BERRY STREET
BREA, CA 92821
(714(990–7691

ELECTRIC
SOUTHERN CALIFORNIA EDISON (SCE)
14005 S BENSON AVE
CHINO, CA
(909) 548–7047

GAS
SOUTHERN CALIFORNIA GAS COMPANY
1919 STATE COLLEGE BLVD
ANAHEIM, CA 92806
(877) 238–0092

TELEPHONE
AT&T
1452 EDINGER AVENUE, 3RD FLOOR
TUSTIN, CA 92780
(714) 815–9170

CABLE/INTERNET
SPECTRUM
3430 E. MIRALMOMA AVENUE
ANAHEIM, CA 92806
(714) 414–1454

STORM DRAIN
CITY OF BREA PUBLIC WORKS
1 CIVIC CENTER CIR
BREA, CA 92821
(714) 990–7691
(714) 990–7667

SCOPE OF WORK

THE PROJECT CONSISTS OF 32 UNIT RESIDENTIAL PROJECT ON 0.99 ACRES, INCLUDING TOWNHOMES, PRIVATE DRIVE AISLES, DRIVEWAYS, SEWER/WATER/STORM DRAIN UTILTIES CONNECTING TO PUBLIC FACILITIES.
APN 284–282–06

BASIS OF BEARINGS

THE BEARING OF NORTH 29°04'08" EAST, BEING THE CENTERLINE OF BREA BOULEVARD, AS SHOWN ON RECORD OF SURVEY NO. 2015–1083, FILED IN BOOK 282, PAGE 36, RECORDS OF SURVEY, IN THE OFFICE OF THE COUNTY RECORDER OF ORANGE COUNTY, STATE OF CALIFORNIA, WAS USED AS THE BASIS OF BEARINGS FOR THIS MAP.

BENCHMARK:
COUNTY OF ORANGE BENCHMARK DESIGNATION "2F–23–90"
ELEVATION: 352.774 FEET

DATUM: NAVD 88 (YEAR LEVELED: 2005)

DESCRIPTION: DESCRIBED BY OCS 2001 – FOUND 3 3\4" OCS ALUMINUM BENCHMARK DISK STAMPED "2F–23–90", SET IN THE EAST CORNER OF A 5.5 FT. BY 5.5 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED ALONG THE WESTERLY SIDE OF BREA BOULEVARD, 43 FT. NORTHWESTERLY OF THE CENTERLINE OF BREA BOULEVARD AND 180 FT. NORTHEASTERLY OF THE CENTERLINE OF ALDER STREET. MONUMENT IS SET LEVEL WITH SIDEWALK.

LEGAL DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF BREA IN THE COUNTY OF ORANGE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THAT PORTION OF LOT THIRTY–THREE OF THE W.J. HOLE TRACT, AS SHOWN ON A MAP RECORDED IN BOOK 2, PAGE 25 OF MISCELLANEOUS MAPS, RECORDS OF ORANGE COUNTY, CALIFORNIA, DESCRIBED AS FOLLOWS:

BEGINNING AT THE MOST SOUTHERLY CORNER OF SAID LOT THIRTY–THREE; THENCE NORTHWESTERLY 300.00 FEET ALONG THE SOUTHWESTERLY LINE OF SAID LOT THIRTY–THREE TO THE SOUTHEASTERLY LINE OF THE 60.00 FEET WIDE STRIP OF LAND DESCRIBED IN THE DEED TO THE CITY OF BREA RECORDED ON AUGUST 7, 1958 IN BOOK 4375, PAGE 148 OF OFFICIAL RECORDS; THENCE NORTHEASTERLY 160.00 FEET ALONG SAID SOUTHEASTERLY LINE, BEING PARALLEL WITH THE SOUTHEASTERLY LINE OF SAID LOT THIRTY–THREE; THENCE SOUTHEASTERLY 300.00 FEET PARALLEL WITH SAID SOUTHWESTERLY LINE TO THE SOUTHEASTERLY LINE OF SAID LOT THIRTY THREE; THENCE SOUTHWESTERLY 160.00 FEET TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM ONE–HALF OF ALL OIL, GAS AND OTHER HYDROCARBON SUBSTANCES AND MINERALS IN OR UNDER SAID LAND, AS RESERVED IN THE DEED FROM JOSEPH LOMBINO AND WIFE TO THE ROMAN CATHOLIC ARCHBISHOP OF LOS ANGELES, DATED JULY 27, 1951 AND FILED SEPTEMBER 18, 1951 IN THE OFFICE OF THE REGISTRATION OF TITLES OF SAID ORANGE COUNTY AS DOCUMENT NO. 24106.

APN: 284–282–06

LEGEND

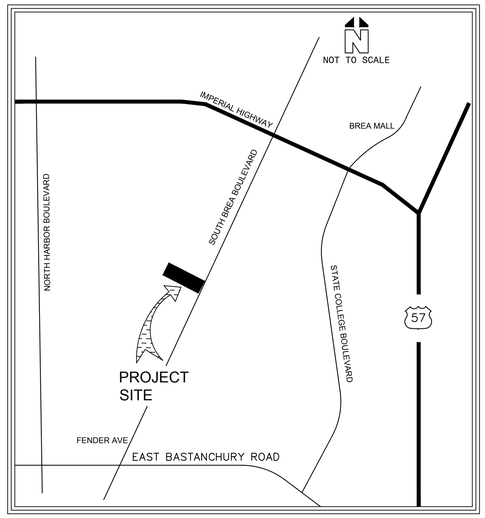
- SUBDIVISION BOUNDARY
- PROPOSED LOT LINE
- EXISTING LOT LINE
- PROPOSED EASEMENTS
- EXISTING EASEMENTS
- CENTERLINE
- BUILDING SETBACK

ABBREVIATIONS

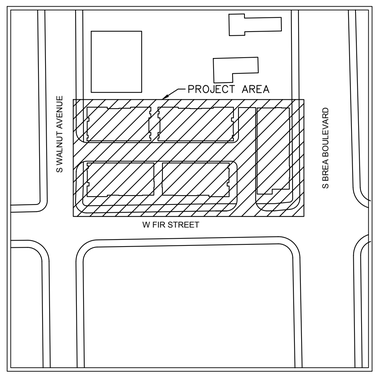
R/W	RIGHT OF WAY
BLDG.	BUILDING
SUB.	SUBDIVISION
PROP.	PROPOSED
EX.	EXISTING
℄	CENTERLINE
P.L.	PROPERTY LINE
AC	ACRES
CONC	CONCRETE

SHEET INDEX

Sheet Number	Sheet Title
C1	TITLE SHEET
C2	TENTATIVE PARCEL MAP EXISTING CONDITION
C3	TENTATIVE PARCEL MAP PROPOSED CONDITIONS
C4	SIGNING AND STRIPING PLAN
C5	TRUCK TURN EXHIBIT
C6	TRUCK TURN EXHIBIT
C7	TRUCK TURN EXHIBIT
C8	FIRE TRUCK TURN EXHIBIT
C9	FIRE TRUCK TURN EXHIBIT
C10	FIRE ACCESS PLAN
C11	FIRE ACCESS DETAILS
1	ALTA
2	ALTA



VICINITY MAP
N.T.S.



KEY MAP
N.T.S.

PROJECT SUMMARY:

SITE ADDRESS:	685 SOUTH BREA BOULEVARD CITY OF BREA, CA
GROSS AREA	0.99 AC
EXISTING ZONING CLASSIFICATION:	MIXED USE
EXISTING USE:	COMMERCIAL
PROPOSED USE:	RESIDENTIAL
PARCEL MAP NO. ASSESSOR'S PARCEL NO.	97–150 284–282–06

ASSESSOR'S PARCEL NUMBERS

284–282–06

FLOOD NOTE:

ZONE X. BASED OFF OF MAP 06059C0042J EFFECTIVE 12/3/2009

LAND AREA CALCULATIONS

	ACRES	SQUARE FOOT
EXISTING SITE (MU–1)	1.10	48,062.00
PROPOSED SITE (MU–1)	0.99	43,343.00

SETBACK REQUIREMENT:

THE PROPERTY IS ZONED "MU–I", FOR MIXED USE DISTRICT, CITY OF BREA PLANNING DIVISION. SETBACKS PER TABLE 2–6, DEVELOPMENT STANDARDS FOR "STAND ALONE" RESIDENTIAL PROJECTS IN MIXED USE 1 ZONING DISTRICTS.

FRONT AND STREET SIDE ALONG BREA BOULEVARD	– NONE PERMITTED EXCEPT FOR ALLOWABLE TOWNHOMES AND OUTDOOR DINING AREAS/USES
FRONT (S BREA BLVD)	– 10' (6" PROVIDED; WAIVER REQUESTED)
SIDE (ADJOINING RESI. USE)	– 10' (1.5' PROVIDED; WAIVER REQUESTED)
SIDE (STREET, W FIR ST)	– 15' (9'2" PROVIDED; WAIVER REQUESTED)
SIDE (STREET, S WALNUT AVE)	– 10' (14' PROVIDED)
PARKING AREA (FRONT AND STREET SIDE)	– 5 FEET (NOTE: NO PARKING ADJACENT TO BREA BOULEVARD)
MINIMUM DISTANCE BETWEEN STRUCTURES ON THE SAME PARCEL	– NONE
MAXIMUM STRUCTURE HEIGHT	– 100 FEET *(40' 6" PROVIDED)*
PARCEL NUMBERS:	284–282–06

WRITTEN STATEMENT INFORATION

GEOTECNICAL:
GEOTECH REPORT 1–0501 DATED OCTOBER 25, 2023 WITH PERC TEST OF 0.4 IN/HR.
ENVIRONMENTAL: NO CEQA DOCUMENTS ARE PROVIDED AS THE PROJECT IS UNDER 5 ACRES.

PUBLIC IMPROVEMENTS:
THE PROJECT PUBLIC IMPROVEMENTS WILL INCLUDE LATERALS INSTALLED IN WALNUT AND FIR FOR WATER, SEWER, AND STORM DRAIN. THERE ARE TWO TOTAL PROPOSED DRIVEWAYS LOCATED ONE EACH ON WALNUT AVENUE AND FIR STREET.

TREE PLANTING:
REFER TO SEPARATE LANDSCAPE PLANS FOR TREE INFORMATION.

OWNER'S STATEMENT

I HEREBY ACKNOWLEDGE THE SUBMISSION OF THE PARCEL MAP AND REQUEST THE CITY TO PROCESS IT.

SIGNATURE _____ DATE _____

No.	REVISIONS	DATE	BY

Kimley»Horn

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1100 W TOWN AND COUNTRY ROAD,SUITE 700,
ORANGE, CA 92868
PHONE: 714–939–1030 FAX: 714–938–9488
WWW.KIMLEY–HORN.COM

KHA PROJECT	094848007
DATE	6/26/2024
SCALE	AS SHOWN
DESIGNED BY	KH
DRAWN BY	FC
CHECKED BY	TG

685 BREA
PREPARED FOR
CITY VENTURES
CITY OF BREA CA

REGISTERED PROFESSIONAL ENGINEER — Jason Marechal — No. 63164 — CIVIL — STATE OF CALIFORNIA

TITLE SHEET

SHEET NUMBER
C1

Know what's below. Call 811 before you dig.

Plotted By:Huo, Kevin Sheet Set:Kha Layout:1 COVER SHEET June 26, 2024 06:32:43pm K:\ORA_LDEV\094848007 – brea\CAD\plansheets\Preliminary\TITLE SHEET.dwg
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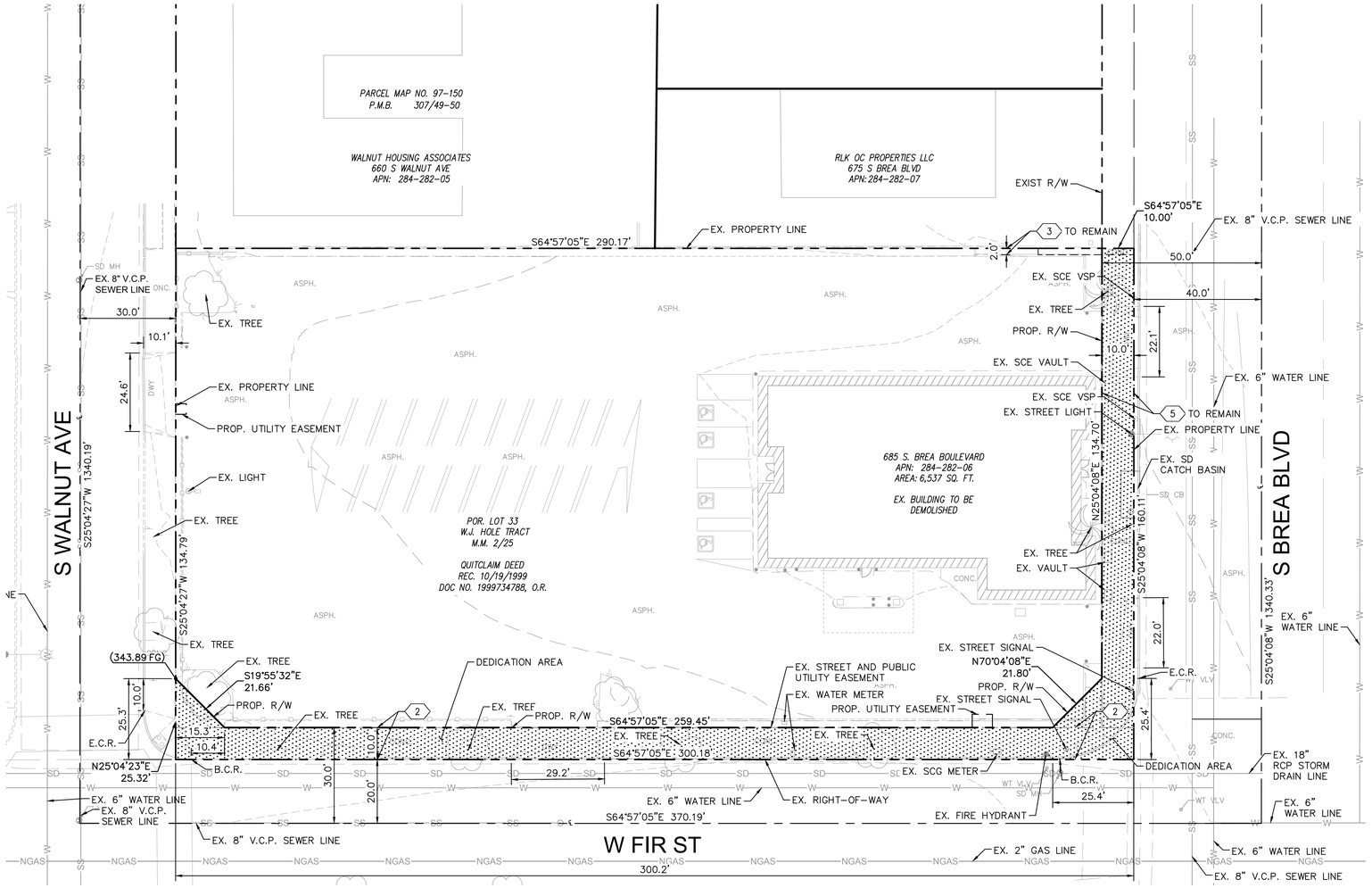

LEGEND

- PROPOSED PROPERTY LINE
- PROPOSED RIGHT OF WAY
- EXISTING PROPERTY LINE
- EXISTING RIGHT OF WAY
- EXISTING EASEMENT
- PROPOSED EASEMENT
- EXISTING CENTERLINE
- DEDICATION AREA
- XXX — EASEMENT WITH REFERENCE TO SCHEDULE B EXCEPTION NUMBER

TITLE REPORT EXCEPTIONS

EASEMENTS ARE PLOTTED HEREON WITH REFERENCE TO SCHEDULE B EXCEPTION NUMBER. EXAMPLE = 2 SCHEDULE B EXCEPTION NUMBER.

A. *PROPERTY TAXES, WHICH ARE A LIEN NOT YET DUE AND PAYABLE, INCLUDING ANY ASSESSMENTS COLLECTED WITH TAXES TO BE LEVIED FOR THE FISCAL YEAR 2023-2024.*

B. *THE LIEN OF SUPPLEMENTAL OR ESCAPED ASSESSMENTS OF PROPERTY TAXES, IF ANY, MADE PURSUANT TO THE PROVISIONS OF CHAPTER 3.5 (COMMENCING WITH SECTION 75) OR PART 2, CHAPTER 3, ARTICLES 3 AND 4, RESPECTIVELY, OF THE REVENUE AND TAXATION CODE OF THE STATE OF CALIFORNIA AS A RESULT OF THE TRANSFER OF TITLE TO THE VESTEE NAMED IN SCHEDULE A OR AS A RESULT OF CHANGES IN OWNERSHIP OR NEW CONSTRUCTION OCCURRING PRIOR TO DATE OF POLICY.*

1. *WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.*

2. *EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:*
   - *GRANTED TO:* THE CITY OF BREA
   - *PURPOSE:* STREET AND PUBLIC UTILITIES
   - *RECORDING DATE:* AUGUST 7, 1958
   - *RECORDING NO:* BOOK 4375, PAGE 146, OFFICIAL RECORDS
   - *AFFECTS:* THE SOUTHWESTERLY 10 FEET OF THE LAND

   [AFFECTS THE PROPERTY AND PLOTTED HEREON]

3. *EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:*
   - *GRANTED TO:* SOUTHERN CALIFORNIA EDISON COMPANY
   - *PURPOSE:* PUBLIC UTILITIES
   - *RECORDING DATE:* APRIL 13, 1960
   - *RECORDING NO:* BOOK 5193, PAGE 347, OFFICIAL RECORDS
   - *AFFECTS:* A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.

   [AFFECTS THE PROPERTY AND PLOTTED HEREON]

4. *DISCREPANCIES, CONFLICTS IN BOUNDARY LINES, SHORTAGE IN AREA, ENCROACHMENTS, OR ANY OTHER MATTERS SHOWN ON*
   - *MAP:* RECORD OF SURVEY
   - *RECORDING NO:* BOOK 54, PAGE 31, OF RECORD OF SURVEYS

   [AFFECTS THE PROPERTY; NOT A PLOTTABLE EASEMENT]

5. *EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:*
   - *GRANTED TO:* THE CITY OF BREA
   - *PURPOSE:* STREET AND PUBLIC UTILITIES
   - *RECORDING DATE:* AUGUST 29, 1966
   - *RECORDING NO:* BOOK 8032, PAGE 746, OFFICIAL RECORDS
   - *AFFECTS:* A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.

   [AFFECTS THE PROPERTY AND PLOTTED HEREON]

6. *ANY RESTRICTIONS COVERING THE FUTURE USE OF THE LAND, AS DISCLOSED BY "ORDINANCE NO. 752" RECORDED DECEMBER 30, 1983 AS INSTRUMENT NO. 83-592126 AND BY "PROPOSED SUPPLEMENT TO THE AMENDED REDEVELOPMENT PLAN FOR REDEVELOPMENT PROJECT AB", RECORDED DECEMBER 30, 1983 AS INSTRUMENT NO. 83- 592127, BOTH OF OFFICIAL RECORDS, COVERING THE HEREIN DESCRIBED AND OTHER LAND.*

   [AFFECTS THE PROPERTY; NOT A PLOTTABLE EASEMENT]

7. *DISCREPANCIES, CONFLICTS IN BOUNDARY LINES, SHORTAGE IN AREA, ENCROACHMENTS, OR ANY OTHER MATTERS SHOWN*
   - *MAP:* RECORD OF SURVEY
   - *RECORDING NO:* BOOK 135, PAGES 1 TO 4, OF RECORD OF SURVEYS

   [AFFECTS THE PROPERTY; NOT A PLOTTABLE EASEMENT]

8. *A DEED OF TRUST TO SECURE AN INDEBTEDNESS IN THE AMOUNT SHOWN BELOW,*
   - *AMOUNT:* $450,000.00
   - *DATED:* JUNE 22, 2018
   - *TRUSTOR/GRANTOR:* JACKSON GRAHAM MCCULLOCH, JR. AND APRYL HILLEARY MCCULLOCH TRUSTEES OF THE MCCULLOCH FAMILY TRUST
   - *TRUSTEE:* BRENT HILLERY
   - *BENEFICIARY:* FIDELITY BANK
   - *RECORDING DATE:* JUNE 25, 2018
   - *RECORDING NO:* 20180000232371, OFFICIAL RECORDS

   [AFFECTS THE PROPERTY; NOT A PLOTTABLE EASEMENT]

9. *AN ASSIGNMENT OF ALL THE MONEYS DUE, OR TO BECOME DUE AS RENTAL, AS ADDITIONAL SECURITY FOR THE OBLIGATIONS SECURED BY DEED OF TRUST SHOWN AS ITEM NO. 8*
   - *ASSIGNED TO:* FIDELITY BANK
   - *RECORDING DATE:* JUNE 25, 2018
   - *RECORDING NO:* 20180000232372, OFFICIAL RECORDS

10. *DISCREPANCIES, CONFLICTS IN BOUNDARY LINES, SHORTAGE IN AREA, ENCROACHMENTS, OR ANY OTHER MATTERS WHICH A CORRECT SURVEY WOULD DISCLOSE AND WHICH ARE NOT SHOWN BY THE PUBLIC RECORDS.*

    IN ORDER TO DELETE THE SURVEY EXCEPTION SHOWN ABOVE, A SATISFACTORY SURVEY OF THE SUBJECT LAND, WHICH COMPLIES WITH THE MINIMUM STANDARDS FOR LAND SURVEYS MADE FOR TITLE INSURANCE PURPOSES, IS TO BE FURNISHED TO THE COMPANY.

    THE COMPANY RESERVES THE RIGHT TO ADD ADDITIONAL ITEMS AS DISCLOSED BY THE SURVEY, OR MAKE FURTHER REQUIREMENTS AFTER REVIEW OF THE REQUESTED DOCUMENTATION.

11. *ANY EASEMENTS NOT DISCLOSED BY THE PUBLIC RECORDS AS TO MATTERS AFFECTING TITLE TO REAL PROPERTY, WHETHER OR NOT SAID EASEMENTS ARE VISIBLE AND APPARENT.*

12. *MATTERS WHICH MAY BE DISCLOSED BY AN INSPECTION AND/OR BY A CORRECT ALTA/NSPS LAND TITLE SURVEY OF SAID LAND THAT IS SATISFACTORY TO THE COMPANY, AND/OR BY INQUIRY OF THE PARTIES IN POSSESSION THEREOF.*

13. *ANY RIGHTS OF THE PARTIES IN POSSESSION OF A PORTION OF, OR ALL OF, SAID LAND, WHICH RIGHTS ARE NOT DISCLOSED BY THE PUBLIC RECORDS.*

    THE COMPANY WILL REQUIRE, FOR REVIEW, A FULL AND COMPLETE COPY OF ANY UNRECORDED AGREEMENT, CONTRACT, LICENSE AND/OR LEASE, TOGETHER WITH ALL SUPPLEMENTS, ASSIGNMENTS AND AMENDMENTS THERETO, BEFORE ISSUING ANY POLICY OF TITLE INSURANCE WITHOUT EXCEPTING THIS ITEM FROM COVERAGE.

    THE COMPANY RESERVES THE RIGHT TO EXCEPT ADDITIONAL ITEMS AND/OR MAKE ADDITIONAL REQUIREMENTS AFTER REVIEWING SAID DOCUMENTS.

14. *ANY INVALIDITY OR DEFECT IN THE TITLE OF THE VESTEES IN THE EVENT THAT THE TRUST REFERRED TO HEREIN IS INVALID OR FAILS TO GRANT SUFFICIENT POWERS TO THE TRUSTEE(S) OR IN THE EVENT THERE IS A LACK OF COMPLIANCE WITH THE TERMS AND PROVISIONS OF THE TRUST INSTRUMENT.*

    IF TITLE IS TO BE INSURED IN THE TRUSTEE(S) OF A TRUST, (OR IF THEIR ACT IS TO BE INSURED), THIS COMPANY WILL REQUIRE A TRUST CERTIFICATION PURSUANT TO CALIFORNIA PROBATE CODE SECTION 18100.5.

    THE COMPANY RESERVES THE RIGHT TO ADD ADDITIONAL ITEMS OR MAKE FURTHER REQUIREMENTS AFTER REVIEW OF THE REQUESTED DOCUMENTATION.

15. *THE TRANSACTION CONTEMPLATED IN CONNECTION WITH THIS REPORT IS SUBJECT TO THE REVIEW AND APPROVAL OF THE COMPANY'S CORPORATE UNDERWRITING DEPARTMENT. THE COMPANY RESERVES THE RIGHT TO ADD ADDITIONAL ITEMS OR MAKE FURTHER REQUIREMENTS AFTER SUCH REVIEW.*

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

No.	REVISIONS	DATE	BY

Kimley»Horn
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1100 W TOWN AND COUNTRY ROAD,SUITE 700,
ORANGE, CA 92868
PHONE: 714-939-1030 FAX: 714-938-9488
WWW.KIMLEY-HORN.COM

KHA PROJECT	094848007
DATE	6/26/2024
SCALE	AS SHOWN
DESIGNED BY	KH
DRAWN BY	FC
CHECKED BY	TG

685 BREA
PREPARED FOR
CITY VENTURES
CITY OF BREA CA

TENTATIVE PARCEL MAP
EXISTING CONDITION

SHEET NUMBER
C2

Know what's below. Call 811 before you dig.

Plotted By:Huo, Kevin Sheet Set:Kha Layout:TEMPORARY TRACT MAP June 26, 2024 06:32:57pm K:\ORA_LDEV\094848007 - brea\CAD\plansheets\Preliminary\TEMPORARY TRACT MAP.dwg
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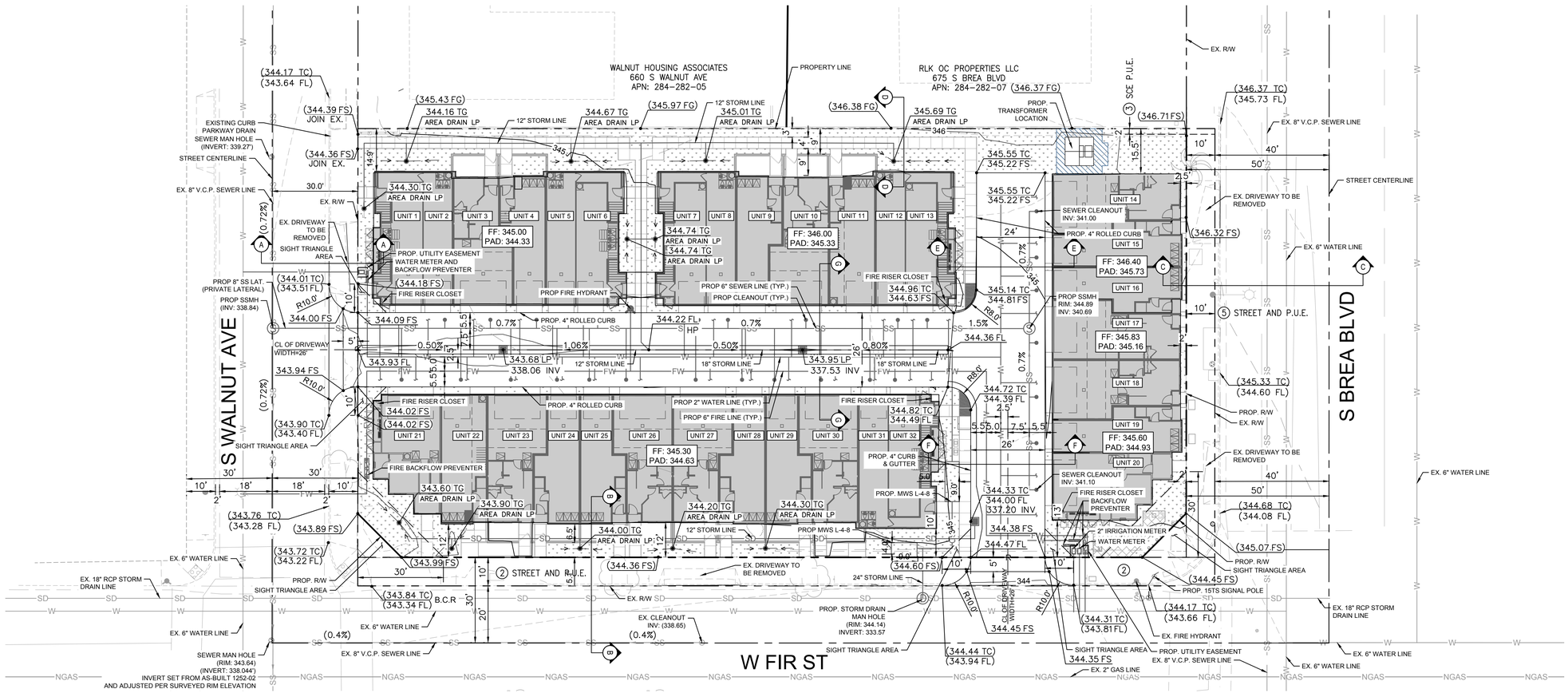
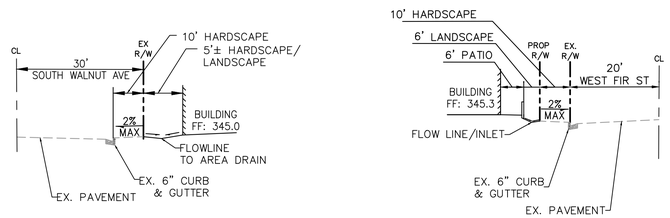
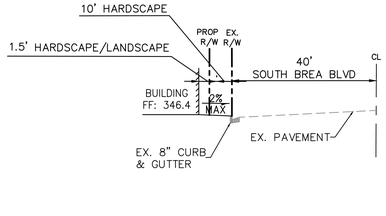




SECTION A–A
N.T.S.

SECTION B–B
N.T.S.



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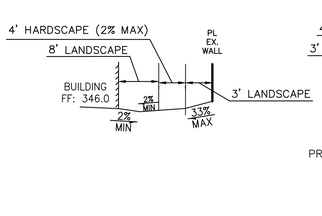

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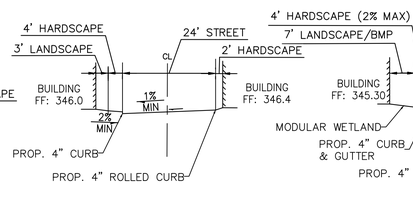

SECTION E–E
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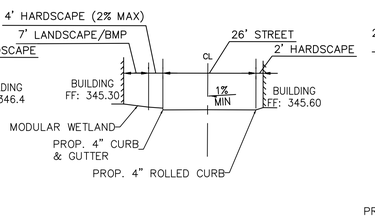

SECTION F–F
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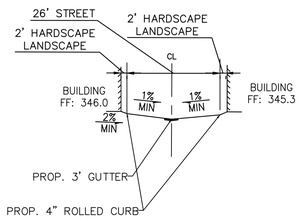

SECTION G–G
N.T.S.

LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- EXISTING EASEMENT
- PROPOSED EASEMENT
- CENTERLINE
- GB — GRADE BREAK LINE
- R — RIDGE LINE
- FLOW LINE
- SS — PROPOSED SANITARY SEWER PIPE
- SD — PROPOSED STORM DRAIN PIPE
- W — PROPOSED WATER PIPE
- FW — PROPOSED FIRE WATER PIPE
- SS — EXISTING SANITARY SEWER PIPE
- SD — EXISTING STORM DRAIN PIPE
- W — EXISTING WATER PIPE
- POINT OF CONNECTION
- D S — STORM DRAIN AND SANITARY SEWER MANHOLE
- STORM DRAIN INLETS
- PROPOSED MODULAR WETLAND SYSTEM
- XX.XX TC / XX.XX FS — PROPOSED SPOT GRADE
- (XX.XX TC) / (XX.XX FS) — EXISTING SPOT GRADE
- PROPOSED FLOW (DIRECTION AND SLOPE)
- LANDSCAPE/ PLANTER AREA
- SEWER CLEANOUT
- INTERSECTION/DRIVEWAY SIGHT TRIANGLES

TITLE REPORT EXCEPTIONS

EASEMENTS ARE PLOTTED HEREON WITH REFERENCE TO SCHEDULE B EXCEPTION NUMBER. EXAMPLE = (X) SCHEDULE B EXCEPTION NUMBER.

(2) EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: THE CITY OF BREA
PURPOSE: STREET AND PUBLIC UTILITIES
RECORDING DATE: AUGUST 7, 1958
RECORDING NO: BOOK 4375, PAGE 146, OFFICIAL RECORDS
AFFECTS: THE SOUTHWESTERLY 10 FEET OF THE LAND

[AFFECTS THE PROPERTY AND PLOTTED HEREON]

(3) EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SOUTHERN CALIFORNIA EDISON COMPANY
PURPOSE: PUBLIC UTILITIES
RECORDING DATE: APRIL 13, 1960
RECORDING NO: BOOK 5193, PAGE 347, OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.

[AFFECTS THE PROPERTY AND PLOTTED HEREON]

(5) EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: THE CITY OF BREA
PURPOSE: STREET AND PUBLIC UTILITIES
RECORDING DATE: AUGUST 29, 1966
RECORDING NO: BOOK 8032, PAGE 746, OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.

[AFFECTS THE PROPERTY AND PLOTTED HEREON]

ESTIMATED EARTHWORK QUANTITIES

CUT:	390 CY
FILL:	230 CY
NET:	160 CY (CUT)

NOTE: THE ABOVE QUANTITIES ARE APPROXIMATE IN PLACE VOLUMES CALCULATED FROM THE EXISTING GROUND TO THE PROPOSED FINISHED GRADE. EXISTING GROUND IS DEFINED BY THE CONTOURS AND SPOT GRADES ON THE BASE SURVEY. PROPOSED FINISHED GRADE IS DEFINED AS THE FINAL GRADE AS INDICATED ON THE GRADING PLAN(S). THE OVER–EXCAVATION IS ESTIMATED AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.

THE EARTHWORK QUANTITIES ABOVE ARE FOR PERMIT PURPOSES ONLY. THEY HAVE NOT BEEN FACTORED TO ACCOUNT FOR CHANGES IN VOLUME DUE TO BULKING, CLEARING AND GRUBBING, SHRINKAGE, OVER– EXCAVATION AND RE–COMPACTION, AND CONSTRUCTION METHODS. NOR DO THEY ACCOUNT FOR THE THICKNESS OF PAVEMENT SECTIONS, FOOTINGS, SLABS, REUSE OF PULVERIZED MATERIALS THAT WILL UNDERLIE NEW PAVEMENTS, ETC. THE CONTRACTOR SHALL RELY ON THEIR OWN EARTHWORK ESTIMATES FOR BIDDING PURPOSES.

EXISTING UTILITY NOTE

THE EXISTING UTILITIES SHOWN ON THE PLAN ARE BASED ON AVAILABLE RECORDS. THE CONTRACTOR MUST FIELD DETERMINE THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO ANY CONSTRUCTION. REPORT DISCREPANCIES AND POTENTIAL CONFLICTS WITH PROPOSED UTILITIES TO ENGINEER PRIOR TO INSTALLATION OF ANY PIPING.

GENERAL NOTES

1. THE EX. UTILITIES SHOWN ON THE PLAN ARE BASED ON AVAILABLE RECORDS. A TOPOGRAPHICAL AND UNDERGROUND SURVEY WILL BE REQUIRED TO DETERMINE THE FINAL LOCATION OF ALL EX. AND PROP. UTILITY ROUTINGS.
2. COORDINATION WITH UTILITY PURVEYORS WILL BE REQUIRED TO DETERMINE FINAL LOCATION OF ALL PROP. CONNECTIONS TO PUBLIC MAIN LINES.
3. ALL DRY AND WET UTILITY CROSSING SHALL HAVE MIN. 12" VERTICAL CLEARANCE.
4. EXISTING UTILITIES/METERS/FIRE HYDRANTS/POWER POLES/STREET LIGHTS/CABINETS/AND SIGNS ARE TO BE PROTECTED IN PLACE UNLESS OTHER WISE NOTED OR IN CONFLICT WITH PROPOSED IMPROVEMENTS

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

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KHA PROJECT	094848007
DATE	6/26/2024
SCALE	AS SHOWN
DESIGNED BY	KH
DRAWN BY	FC
CHECKED BY	TG

CITY OF BREA CA

685 BREA
PREPARED FOR
CITY VENTURES

REGISTERED PROFESSIONAL ENGINEER — ASHLEY M. GOSSETT — No. 93554 — CIVIL — STATE OF CALIFORNIA — NOT FOR CONSTRUCTION

TENTATIVE PARCEL MAP PROPOSED CONDITIONS

SHEET NUMBER
C3

Plotted By:Huo, Kevin Sheet Set:Kha Layout:PROPOSED CONDITIONS June 26, 2024 06:33:20pm K:\ORA_LDEV\094848007 – brea\CAD\plansheets\Preliminary\PRELIM PROPOSED CONDITIONS.dwg
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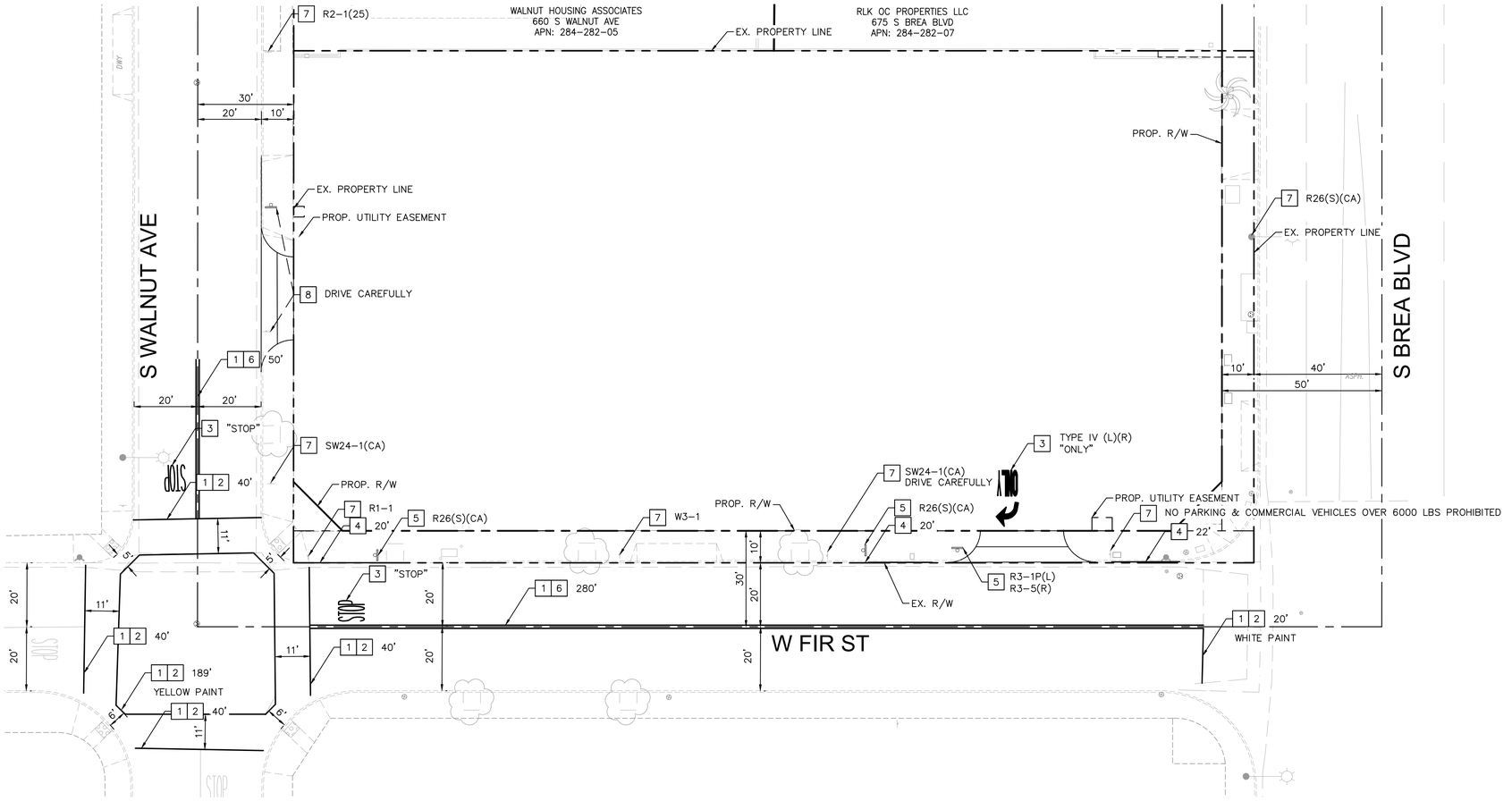


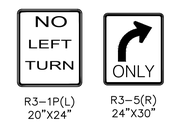
GENERAL NOTES

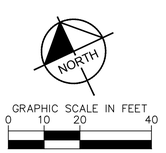
1. TRAFFIC STRIPING, PAVEMENT LEGEND, RAISED MARKERS SHALL BE PER CALTRANS STANDARD AND SPECIFICATIONS LATEST EDITION.
2. ALL STRIPING WITHIN CITY R/W SHALL BE PAINT ONLY. PAINTING PROCEDURES FOR STRIPING AND MARKINGS SHALL BE PER CALTRANS STANDARD SPECIFICATIONS.
3. ALL CONFLICTING MARKINGS SHALL BE REMOVED BY SANDBLASTING. ALL CONFLICTING RAISED PAVEMENT MARKERS SHALL BE PRYED OFF AND ANY REMAINING RESIDUE SHALL BE REMOVED BY SANDBLASTING. METHOD SHALL BE CONFIRMED WITH FIELD INSPECTOR PRIOR TO START OF WORK.
4. STRIPING SHALL BE CAT-TRACKED AND APPROVED BY THE TRAFFIC ENGINEER PRIOR TO FINAL INSTALLATION. A MINIMUM OF 5 WORKING DAYS NOTICE IS REQUIRED BY THE TRAFFIC ENGINEER FOR APPROVAL OF STRIPING.
5. ALL TRAFFIC SIGNS SHALL BE PER CALTRANS SIGN SPECIFICATIONS.
6. ALL POSTS SHALL BE PER CALTRANS STANDARD OR APPROVED EQUAL.
7. STRIPING AND SIGNING TO BE DONE BY CONTRACTOR AND IS SUBJECT TO APPROVAL BY THE CITY OF BREA CITY'S ENGINEER.
8. BLUE REFLECTORS ARE TO BE INSTALLED AT ALL HYDRANT LOCATIONS BY THE CONTRACTOR.
9. ALL SIGNING AND TRAFFIC CONTROL DURING CONSTRUCTION SHALL BE PER CA MUTCD, LATEST EDITION.

CONSTRUCTION NOTES

1. REFRESH PAINT ONE-COAT WITHIN EXISTING PROJECT AREA AND REPLACE DAMAGED RPMS, IF APPLICABLE
2. INSTALL 12" MIN CROSSWALK PER CALTRANS STD PLAN A24F AND A24G
3. INSTALL PAVEMENT MARKING LEGEND PER CALTRANS STD. PLAN A24A, A24D, AND A24E AS SHOWN ON PLAN.
4. INSTALL RED CURB PAINT, LENGTH AS SHOWN ON PLAN
5. INSTALL NEW SIGN AND POST AS SHOWN ON PLAN.
6. INSTALL NO PASSING ZONES-TWO DIRECTION LINE PER CALTRANS STD. PLAN A20A, DETAIL 22.
7. PROTECT-IN-PLACE SIGN AND POST AS SHOWN ON PLAN
8. REMOVE AND RELOCATE SIGN AS SHOWN IN PLAN

SIGN LEGEND





Plotted By:Huo, Kevin Sheet Set:Kha Layout:STRIPING June 26, 2024 06:33:30pm K:\ORA_LDEV\094848007 - brea\CAD\plansheets\STRIPING PLAN\STRIPING PLAN.dwg
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KHA PROJECT	094848007
DATE	6/26/2024
SCALE	AS SHOWN
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685 BREA
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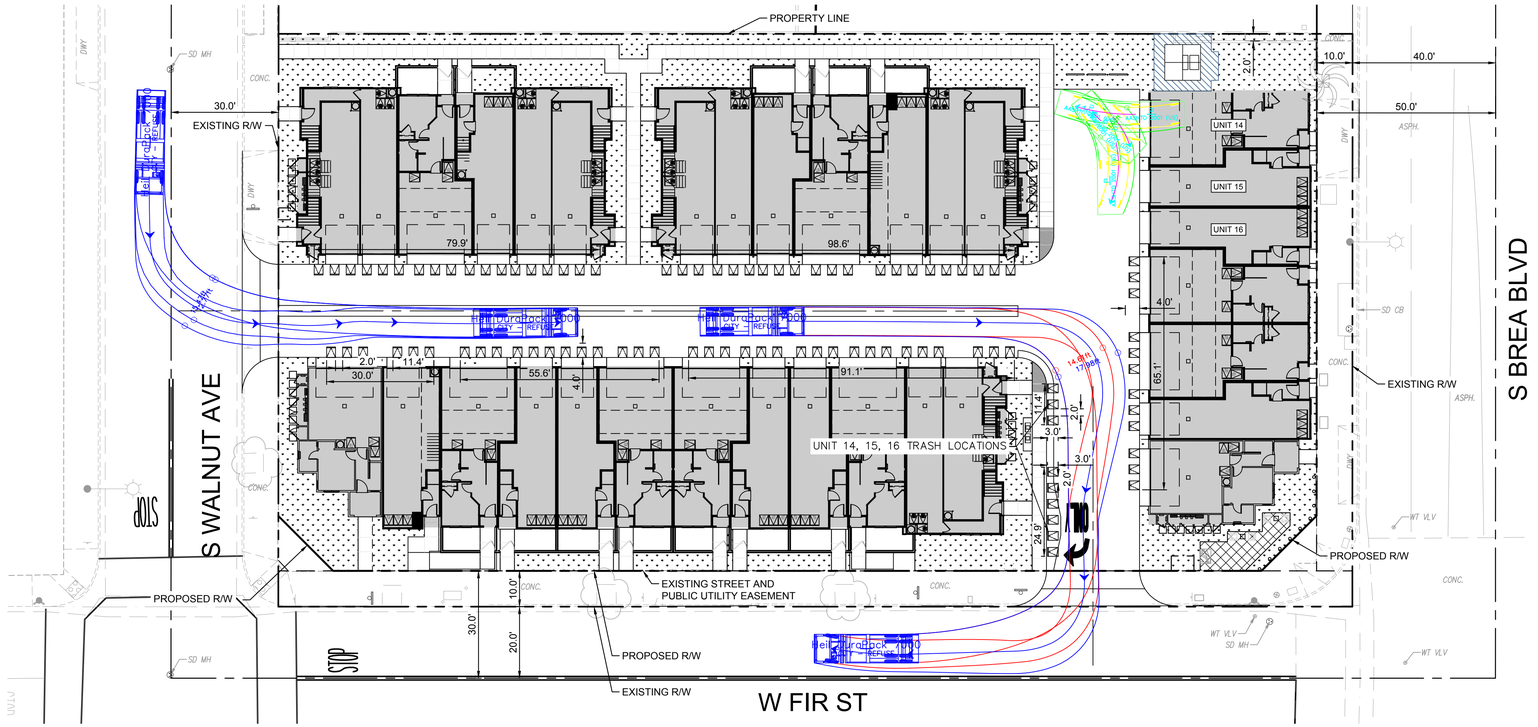
CITY VENTURES
CITY OF BREA CA

REGISTERED PROFESSIONAL ENGINEER — SCOTT A. GRUNDY — No. 84000 — CIVIL — STATE OF CALIFORNIA

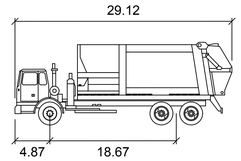
SIGNING AND STRIPING PLAN

SHEET NUMBER
C4



LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- EXISTING EASEMENT
- CENTERLINE



Heil DuraPack 7000

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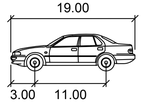
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 45.0



P

	feet
Width	: 7.00
Track	: 6.00
Lock to Lock Time	: 6.0
Steering Angle	: 31.6

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

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TRUCK TURN EXHIBIT

SHEET NUMBER
C5

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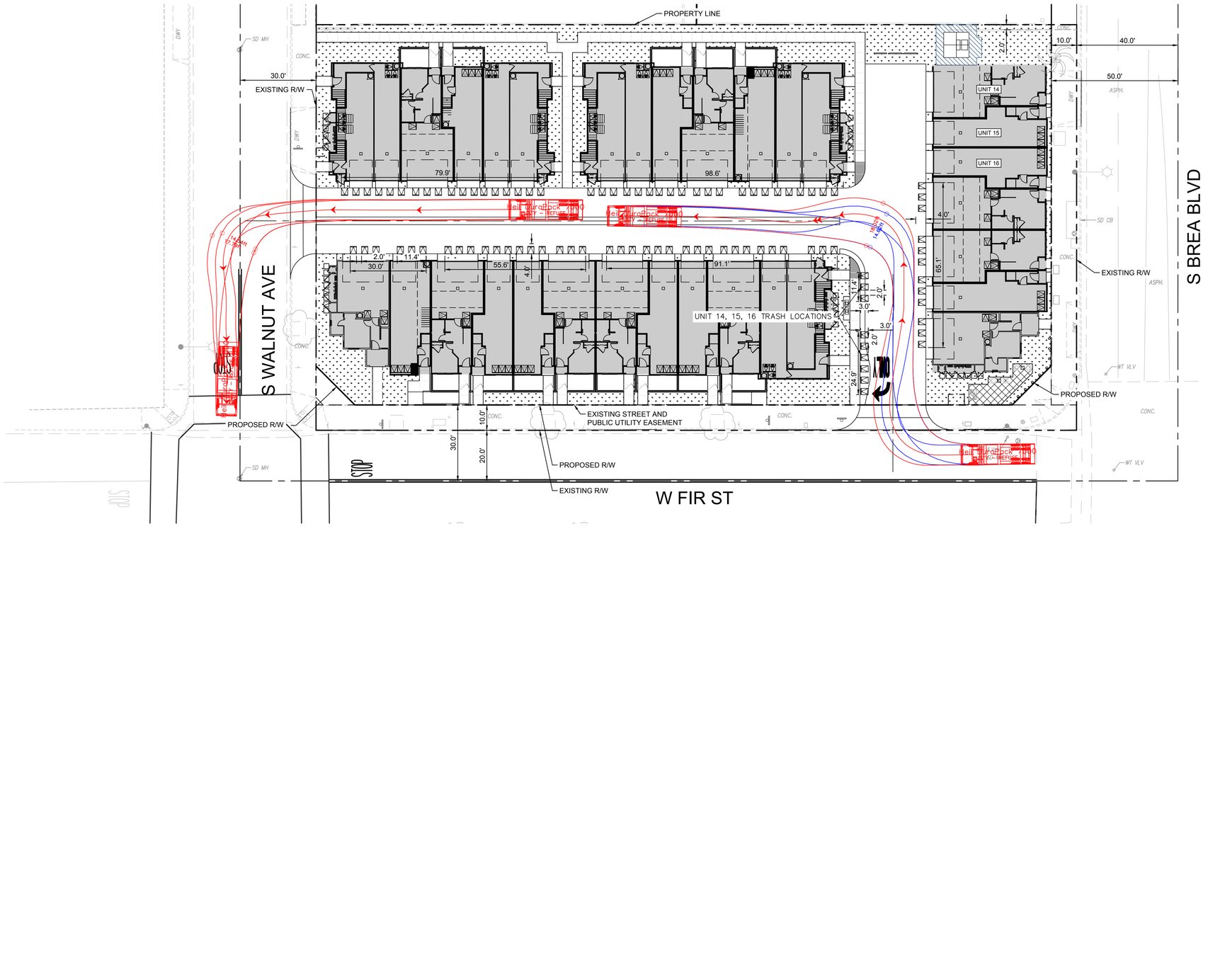
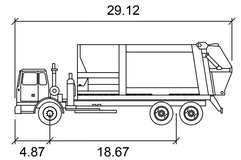


LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- EXISTING EASEMENT
- CENTERLINE



Heil DuraPack 7000

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Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 45.0

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

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CITY OF BREA CA

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KEVIN HUO No. 24000 REGISTERED PROFESSIONAL ENGINEER CIVIL STATE OF CALIFORNIA

TRUCK TURN EXHIBIT

SHEET NUMBER
C6

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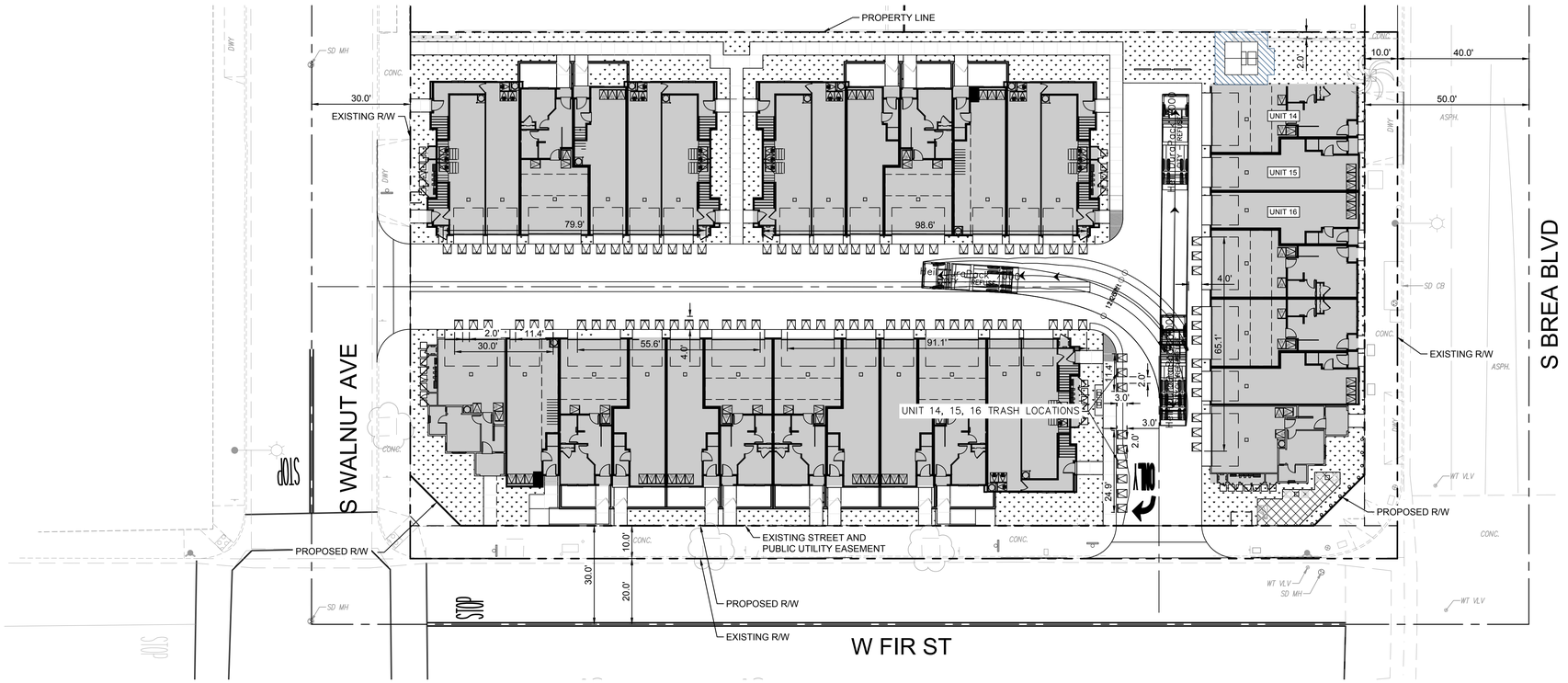
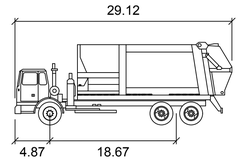


LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- EXISTING EASEMENT
- CENTERLINE



Heil DuraPack 7000

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Width	: 8.00
Track	: 8.00
Lock to Lock Time	: 6.0
Steering Angle	: 45.0

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

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KEVIN HUO No. 24551 REGISTERED PROFESSIONAL ENGINEER CIVIL STATE OF CALIFORNIA

TRUCK TURN EXHIBIT

SHEET NUMBER
C7

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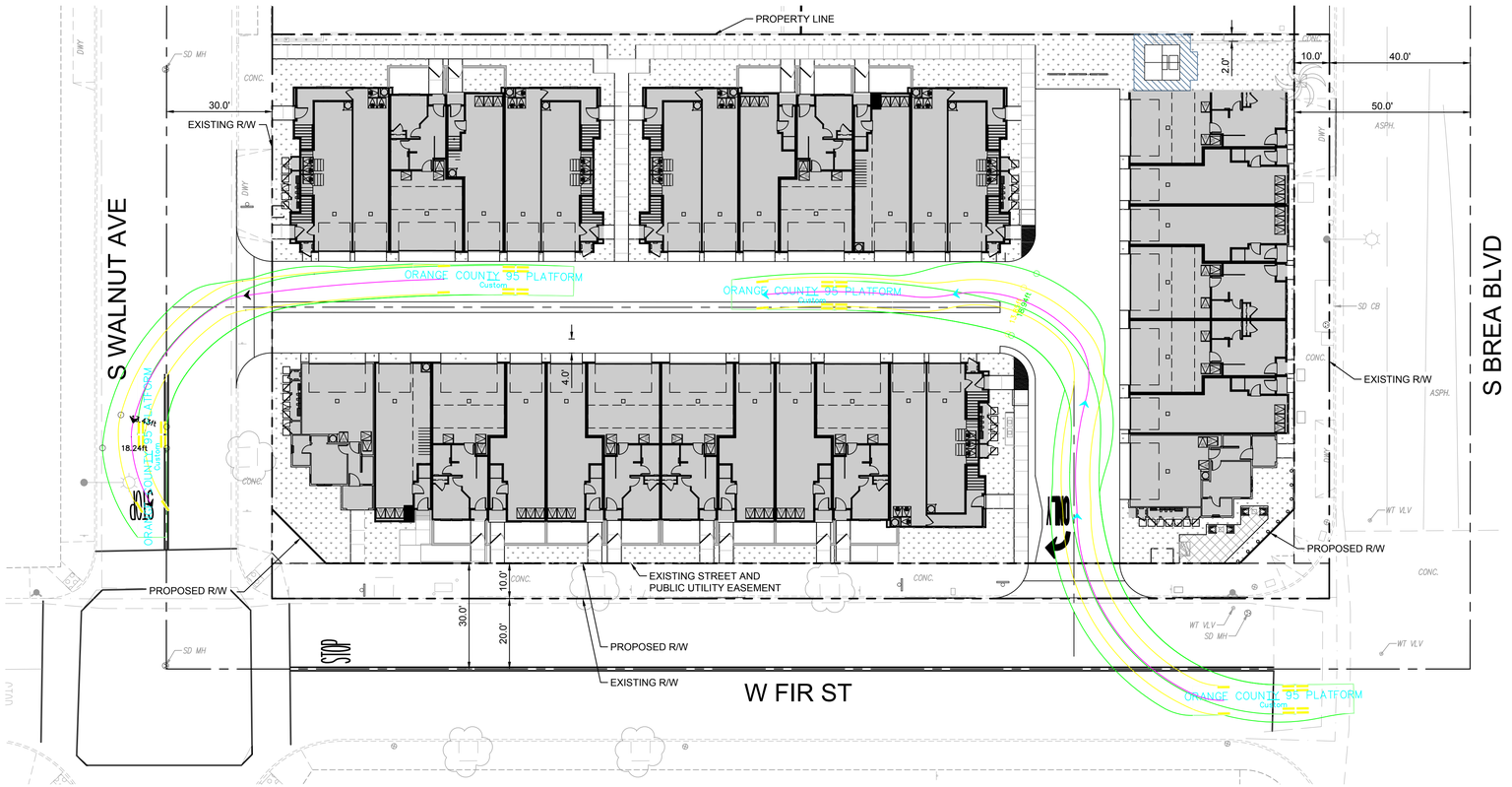
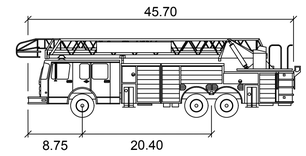


LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- EXISTING EASEMENT
- CENTERLINE



ORANGE COUNTY 95 PLATFORM

	feet
Width	: 8.33
Track	: 8.33
Lock to Lock Time	: 6.0
Steering Angle	: 44.2

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

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FIRE TRUCK TURN EXHIBIT

SHEET NUMBER
C8

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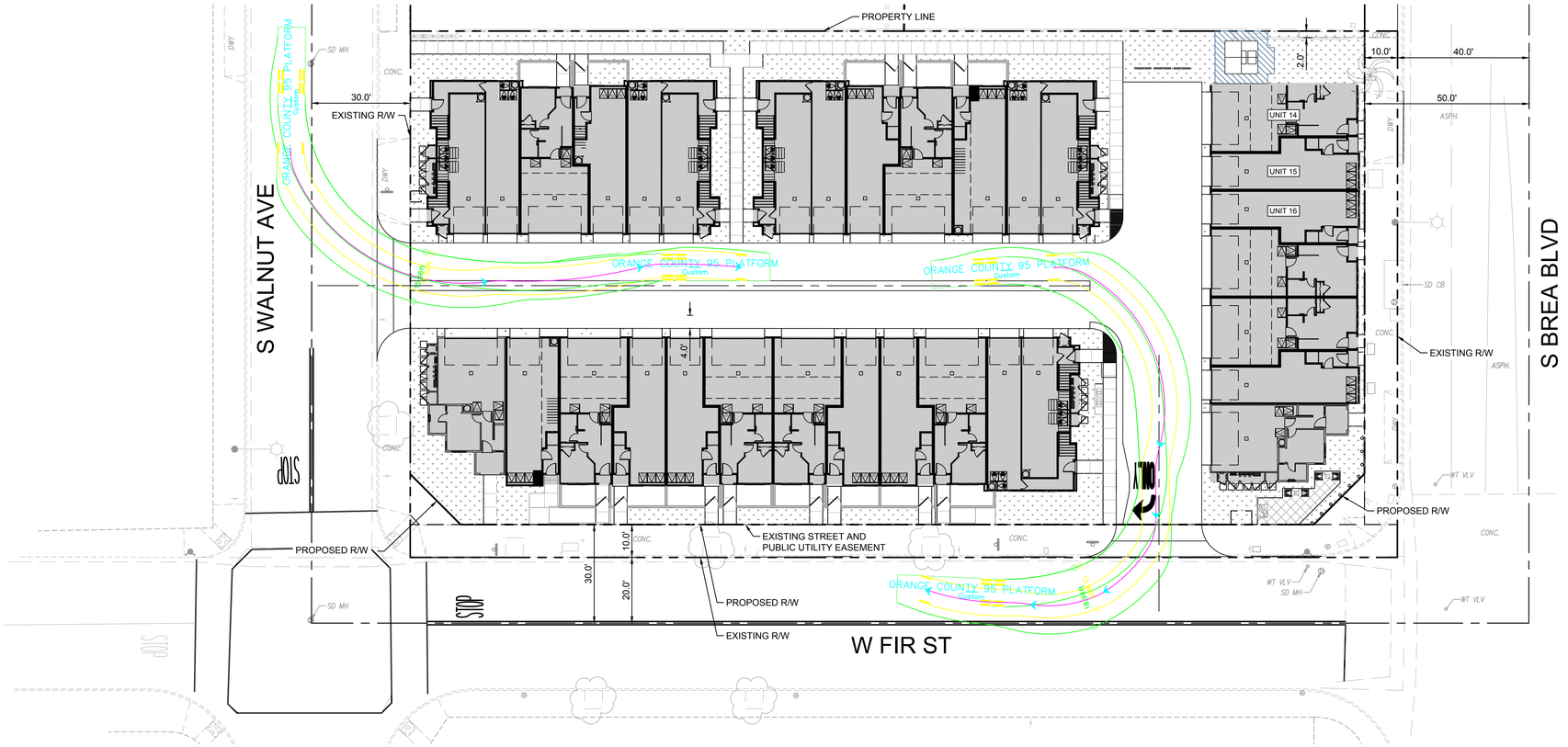
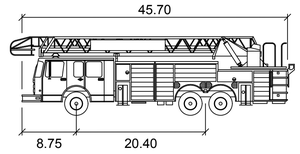


LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- EXISTING EASEMENT
- CENTERLINE



ORANGE COUNTY 95 PLATFORM

	feet
Width	: 8.33
Track	: 8.33
Lock to Lock Time	: 6.0
Steering Angle	: 44.2

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

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CITY VENTURES

REGISTERED PROFESSIONAL ENGINEER
JESSICA MARIE GOSSETT
No. 93137
CIVIL
STATE OF CALIFORNIA

FIRE TRUCK TURN EXHIBIT

SHEET NUMBER
C9

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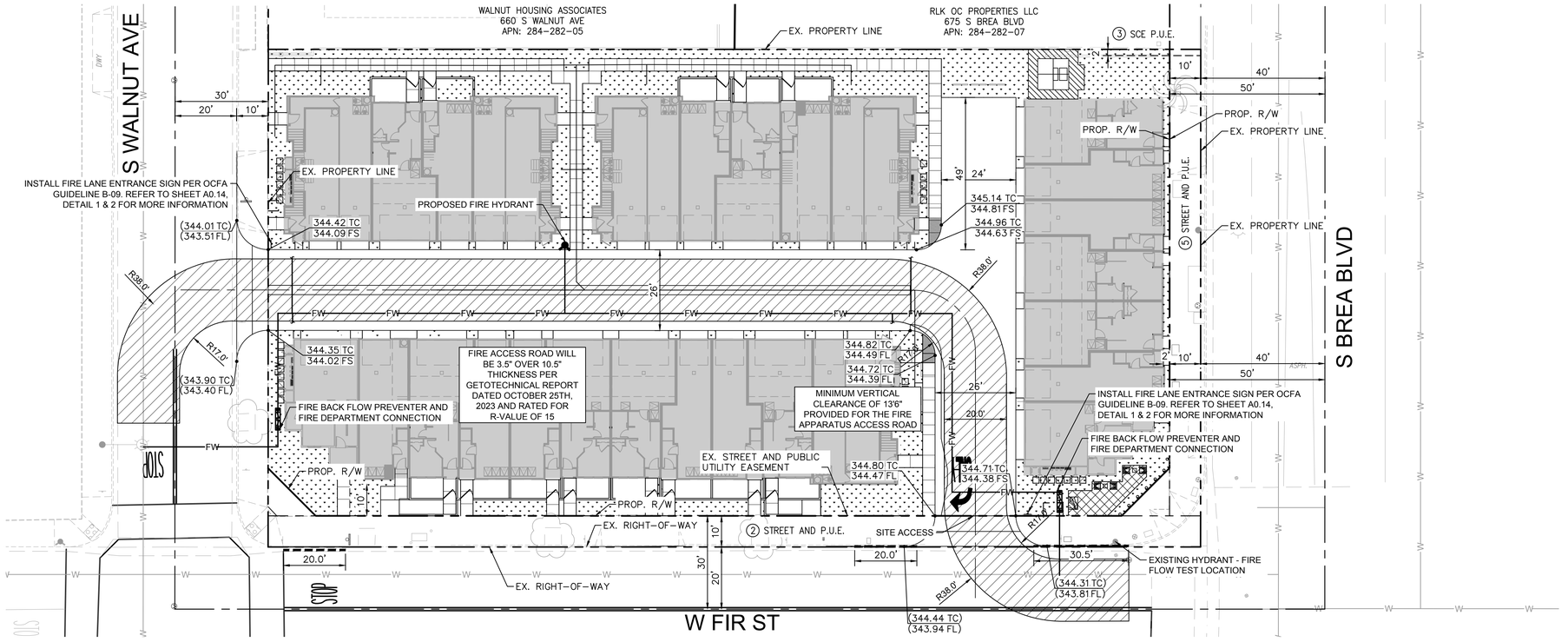


LEGEND

- FIRE ACCESS ROAD
- FIRE LANE RED CURB – SEE SHEET A0.14, DETAIL 3 FOR MORE INFORMATION
- EXISTING FIRE HYDRANT
- PROPOSED FIRE HYDRANT

FIRE DEPARTMENT NOTES

INSPECTIONS

1. BREA FD FINAL INSPECTION REQUIRED. PLEASE SCHEDULE ALL FIELD INSPECTIONS AT LEAST 48 HOURS IN ADVANCE. INSPECTIONS CANCELED AFTER 1 P.M. ON THE DAY BEFORE THE SCHEDULED DATE WILL BE SUBJECT TO A RE-INSPECTION FEE. PHASING OF INSPECTIONS MAY REQUIRE ADDITIONAL FEES, ALSO. CALL BREA FD FOR INSPECTION SCHEDULING AT 714-990-7655.
2. BUILDINGS UNDER CONSTRUCTION OR DEMOLITION SHALL CONFORM TO CFC CHAPTER 14. NO SMOKING OR COOKING IS ALLOWED IN STRUCTURES WHERE COMBUSTIBLE MATERIALS ARE EXPOSED OR WITHIN 25' OF COMBUSTIBLE MATERIALS STORAGE AREAS. CUTTING, WELDING, OR OTHER HOT WORK SHALL BE IN CONFORMANCE WITH CFC CHAPTER 35.
3. IN BUILDINGS FOUR OR MORE STORIES IN HEIGHT, STANDPIPES SHALL BE PROVIDED DURING CONSTRUCTION WHEN THE HEIGHT REACHES 40 FEET ABOVE THE LOWEST POINT OF FIRE DEPARTMENT ACCESS. A FIRE DEPARTMENT CONNECTION SHALL BE NO MORE THAN 100 FEET FROM AVAILABLE FIRE DEPARTMENT VEHICLE ACCESS ROADWAYS. A HYDRANT SHALL BE LOCATED ALONG THE ACCESS ROADWAY WITHIN 150 FEET OF THE LOCATION(S) THAT THE FDC CAN BE ACCESSED FROM. CFC 3310 & 3313
4. ADDRESS NUMBERS SHALL BE PROVIDED FOR ALL NEW AND EXISTING BUILDINGS, BE A MINIMUM OF FOUR INCHES HIGH FOR INDIVIDUAL DWELLING UNITS AND SIX INCHES HIGH FOR ALL OTHER INSTALLATIONS AND STRUCTURES, CONTRAST WITH THEIR BACKGROUND, AND BE PLAINLY VISIBLE FROM THE ROADWAY THE BUILDING IS ADDRESSED ON. ADDRESS NUMBERS SHALL HAVE A MINIMUM OF 1/2" STROKE. TEMPORARY ADDRESS NUMBERS SHALL BE PROVIDED ON CONSTRUCTION FENCING OR THE BUILDING UNTIL PERMANENT NUMBERS CAN BE PROVIDED. CBC 502.1, CFC 505.1
5. LOCATIONS AND CLASSIFICATIONS OF EXTINGUISHERS SHALL BE IN ACCORDANCE WITH CFC 906 AND CCR TITLE 19. AT LEAST ONE EXTINGUISHER SHALL BE PROVIDED DURING CONSTRUCTION ON EACH FLOOR AT EACH STAIRWAY, IN EACH STORAGE AND CONSTRUCTION SHED, IN LOCATIONS WHERE FLAMMABLE OR COMBUSTIBLE LIQUIDS ARE STORED OR USED, OR WHERE SIMILAR HAZARDS ARE PRESENT PER CFC 3315.1. BEFORE FINAL OCCUPANCY, AT LEAST ONE 2A:10B:C EXTINGUISHER SHALL BE PROVIDED SO THAT NO POINT IS MORE THAN 75' TRAVEL DISTANCE FROM THE EXTINGUISHER. EXTINGUISHERS SHALL BE LOCATED ALONG THE PATH OF EGRESS TRAVEL AND IN A READILY VISIBLE AND ACCESSIBLE LOCATION, WITH THE BOTTOM OF THE EXTINGUISHER AT LEAST 4" ABOVE THE FLOOR. ADDITIONAL EXTINGUISHERS MAY BE REQUIRED BY BREA FD INSPECTORS DEPENDING ON PROJECT OR SITE CONDITIONS AND FINAL PLACEMENT IS SUBJECT TO THEIR APPROVAL.
6. WALL, FLOOR AND CEILING FINISHES AND MATERIALS SHALL NOT EXCEED THE FLAME SPREAD CLASSIFICATIONS IN CBC TABLE 803.13 DECORATIVE MATERIALS SHALL BE PROPERLY TREATED BY A PRODUCT OR PROCESS APPROVED BY THE STATE FIRE MARSHAL WITH APPROPRIATE DOCUMENTATION PROVIDED TO THE BREA FD. SUCH ITEMS SHALL BE APPROVED AND INSPECTED PRIOR TO INSTALLATION.
7. KNOX BOXES/KEY CABINETS SHALL BE PROVIDED FOR ALL HIGH-RISE BUILDINGS, POOL ENCLOSURES, GATES IN THE PATH OF FIREFIGHTER TRAVEL TO STRUCTURES, SECURED PARKING LEVELS, DOORS GIVING ACCESS TO ALARM PANELS AND/OR ANNUNCIATORS, AND ANY OTHER STRUCTURES OR AREAS WHERE IMMEDIATE ACCESS IS REQUIRED OR IS UNDULY DIFFICULT. A BREA FD INSPECTOR CAN ASSIST WITH LOCKING GATE KEYS IN KNOX BOXES, CONTACT YOUR LOCAL FIRE STATION TO ARRANGE AN APPOINTMENT TO SECURE MASTER BUILDING KEYS IN THE KNOX BOX.
8. APPROVAL OF THESE PLANS SHALL NOT PERMIT THE VIOLATION OF ANY CODE OR LAW. REQUIREMENTS OR FEATURES NOT IDENTIFIED ON THE PLAN MAY APPLY AND BREA FD INSPECTORS MAY REQUIRE ADDITIONAL INFORMATION OR ITEMS FROM THOSE SHOWN ON THE PLAN DEPENDING ON ACTUAL OR ANTICIPATED FIELD CONDITIONS. SUCH CHANGES MAY NECESSITATE SUBMITTAL OF REVISED OR AS-BUILT PLANS TO THE BREA FD.

FIRE DEPARTMENT NOTES

GENERAL REQUIREMENTS:

9. THE PROJECT SHALL COMPLY WITH 2022 CALIFORNIA BUILDING CODE, 2019 CALIFORNIA FIRE CODE, AND OTHER CURRENTLY ADOPTED CODES, STANDARDS, REGULATIONS AND REQUIREMENTS AS ENFORCED BY THE BREA FD.
10. DUMPSTERS AND TRASH CONTAINERS EXCEEDING 1.5 CUBIC YARDS SHALL NOT BE STORED IN BUILDINGS OR PLACED WITHIN 5 FEET OF COMBUSTIBLE WALLS, OPENINGS OR COMBUSTIBLE ROOF EAVE LINES UNLESS PROTECTED BY AN APPROVED SPRINKLER SYSTEM OR LOCATED IN A TYPE I OR IIA STRUCTURE SEPARATED BY 10 FEET FROM OTHER STRUCTURES. CONTAINERS LARGER THAN 1 CUBIC YARD SHALL BE OF NON- OR LIMITED-COMBUSTIBLE MATERIALS OR SIMILARLY PROTECTED OR SEPARATED. CFC 304.3
11. EXITS, EXIT SIGNS, FIRE ALARM PANELS, HOSE CABINETS, FIRE EXTINGUISHER LOCATIONS, AND STANDPIPE CONNECTIONS SHALL NOT BE CONCEALED BY CURTAINS, MIRRORS, OR OTHER OBJECTS.
12. THE EGRESS PATH SHALL REMAIN FREE AND CLEAR OF ALL OBSTRUCTIONS AT ALL TIMES. NO STORAGE IS PERMITTED IN AISLES.
13. EXIT DOORS SHALL BE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT. DOORS SHALL NOT BE PROVIDED WITH THUMB-TURN LOCKS OR DEADBOLTS THAT DO NOT UNLATCH IN TANDEM WITH THE NORMAL OPERATING LEVER. THE OPENING FORCE FOR INTERIOR DOORS WITHOUT CLOSERS SHALL NOT EXCEED 5 POUNDS. THE UNLATCHING AND OPENING FORCE FOR OTHER DOORS, INCLUDING FIRE DOORS, SHALL NOT EXCEED 15 POUNDS. CBC 1010
14. THE EXIT PATH SHALL BE CLEARLY IDENTIFIED WITH EXIT SIGNS CONFORMING TO CBC 1013. ILLUMINATED EXIT SIGNS MUST HAVE 90-MINUTE EMERGENCY POWER BACK-UP.
15. TACTILE SIGNS SHALL BE PROVIDED IN COMMERCIAL BUILDINGS, PUBLIC BUILDINGS/ACCOMMODATIONS, AND PUBLICLY FUNDED HOUSING SUBJECT TO CBC CHAPTERS 11A AND B AND CONFORM TO 1143A OR 11B-703.1, -703.2, -703.3, AND 703.5, BE MOUNTED WITH THE BOTTOM OF THE LOWEST LINE OF BRAILLE CHARACTERS AT LEAST 4 FEET ABOVE THE FLOOR BUT THE BOTTOM OF THE HIGHEST LINE OF RAISED TEXT CHARACTERS NO MORE THAN 5 FEET ABOVE THE FLOOR AND, WHENEVER POSSIBLE, ON THE STRIKE SIDE OF THE DOOR. LETTERING SHALL BE BETWEEN 5/8" AND 2" HIGH. CBC 1009.9
16. STAIRS SERVING 4+ STORIES SHALL HAVE STAIRWELL SIGNS CONFORMING TO CBC 1023.9
17. THE EXIT PATH SHALL BE ILLUMINATED AT ALL TIMES IN ACCORDANCE WITH CBC 1008. EMERGENCY LIGHTING SHALL BE PROVIDED WITH 90-MINUTE BACK-UP.
18. RATED ASSEMBLIES SHALL CONFORM TO APPROVED METHODS AND MATERIALS OF CONSTRUCTION. PENETRATIONS THROUGH RATED WALLS, CEILINGS, OR FLOORS SHALL BE PROTECTED IN AN APPROVED MANNER COMPLYING WITH CBC/CFC CHAPTER 7.
19. FIRE/ SMOKE RATED DOORS SHALL BE SELF-CLOSING AND LATCHING; SUCH DOORS SHALL NOT BE EQUIPPED WITH DOOR STOPS OR OTHERWISE PROPPED OPEN. FIRE/ SMOKE RATED DOORS SHALL BE EQUIPPED WITH RATED HARDWARE. CFC 705

PROJECT-SPECIFIC REQUIREMENTS:

22. AN UNDERGROUND PIPING PLAN IS REQUIRED FOR THE INSTALLATION OF AN AUTOMATIC FIRE SPRINKLER SYSTEM OR FOR A PRIVATE FIRE HYDRANT SYSTEM. A SEPARATE PLAN SUBMITTAL IS REQUIRED AFTER THE ENTITLEMENT PHASE.
24. BUILDING USED FOR HIGH-PILED STORAGE SHALL COMPLY WITH CFC REQUIREMENTS. A SEPARATE PLAN SUBMITTAL IS REQUIRED IF MATERIALS WILL BE STORED HIGHER THAN 12 FEET FOR LOWER-HAZARD COMMODITIES, OR HIGHER THAN SIX FEET FOR HIGH-HAZARD COMMODITIES SUCH AS PLASTICS, RUBBER, FLAMMABLE / COMBUSTIBLE LIQUIDS, TIRES, CARPET, ETC.
25. AN AUTOMATIC FIRE SPRINKLER SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE CODES AND LOCAL ORDINANCES, AMENDMENTS, AND GUIDELINES. SPRINKLER SYSTEMS, OTHER THAN THOSE LISTED IN CFC 903.4, SHALL BE MONITORED BY AM APPROVED CENTRAL STATION. SEPARATE PLAN SUBMITTALS FOR THE SPRINKLER AND MONITORING SYSTEMS ARE REQUIRED.
26. BUILDING CONTAINING INDUSTRIAL REFRIGERATION SYSTEMS SHALL COMPLY WITH CFC REQUIREMENTS. A SEPARATE PLAN SUBMITTAL IS REQUIRED IF REFRIGERANT QUANTITIES EXCEED THRESHOLDS.
27. A FIRE ALARM SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH APPLICABLE CODE AND LOCAL ORDINANCES, AMENDMENTS, AND GUIDELINES. A SEPARATE PLAN SUBMITTAL IS REQUIRED.

SCOPE OF WORK STATEMENT:

1. THE SCOPE OF WORK INVOLVES THE INSTALLATION OF 685 SOUTH BREA BOULEVARD 32 UNITS OF SINGLE FAMILY HOMES. THIS PLAN IS FOR THE APPROVAL OF THE FIRE ACCESS ROUTE TO THE PROPOSED DEVELOPMENT.

ENGINEER'S NOTES:

1. FIRE ACCESS ROADWAY SHALL BE DESIGNED, CONSTRUCTED AND MAINTAINED TO MEET THE 68,000 POUND, ALL-WEATHER REQUIREMENT.
2. ALL VEGETATION AND OTHER OBSTRUCTIONS OVERHANGING A FIRE ACCESS ROADWAY SHALL BE MAINTAINED TO A CLEAR HEIGHT OF 13'-6".

DEFERRED SUBMITTAL NOTES:

1. THIS PLAN IS SUBMITTED FOR FIRE MASTER PLAN APPROVAL ONLY. APPROVAL OF THE UNDERGROUND SYSTEM COMPONENTS SHALL BE PER SEPARATE SUBMITTAL AND PERMIT.
2. PORTIONS OF THE PROJECT THAT DEFERRED SHALL BE SUBJECT TO THE CODES, STANDARDS, AND OTHER APPLICABLE REQUIREMENTS IN FORCE ON THE DATE THAT THE DEFERRED PLANS IS SUBMITTED TO CITY OF BREA.

APPLICABLE CODES:

1. THIS PLAN SHALL COMPLY WITH ALL CURRENTLY ADOPTED 2022 CFC AND CBC.

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40
1" = 20'

No.	REVISIONS	DATE	BY

Kimley»Horn
© 2024 KIMLEY-HORN AND ASSOCIATES, INC.
1100 W TOWN AND COUNTRY ROAD,SUITE 700, ORANGE, CA 92868
PHONE: 714-939-1030 FAX: 714-938-9488
WWW.KIMLEY-HORN.COM

KHA PROJECT	094848007
DATE	6/26/2024
SCALE	AS SHOWN
DESIGNED BY	KH
DRAWN BY	FC
CHECKED BY	TG

CITY OF BREA CA

685 BREA
PREPARED FOR
CITY VENTURES

REGISTERED PROFESSIONAL ENGINEER JOSHUA M. GRIFFIN 24127 CIVIL STATE OF CALIFORNIA

FIRE ACCESS PLAN

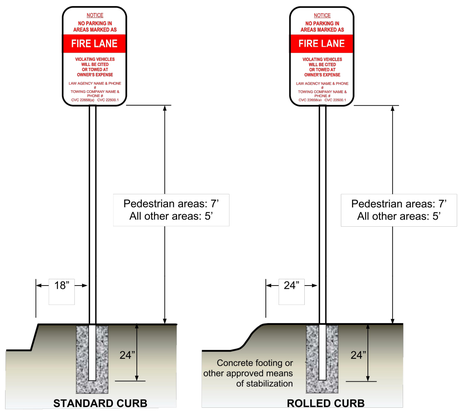
SHEET NUMBER
C10

811 Know what's below. Call 811 before you dig.

Plotted By:Huo, Kevin Sheet Set:Kha Layout:MASTER FIRE ACCESS June 26, 2024 06:34:23pm K:\ORA_LDEV\094848007 - brea\CAD\planSheets\FIRE MASTER PLAN\FIRE MASTER PLAN.dwg
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

ATTACHMENT 14

Mounting Specifications for Fire Lane Entrance and No Parking Signs



Signs shall be mounted facing the direction of vehicular travel.

Signs may be mounted on existing posts or buildings where the centerline of the sign is no more than 24" from the edge of the roadway.

Depth of bury shall be a *minimum* of 24" and rebar, a concrete footing, or another method to prevent removal of the sign is recommended. Footings for signs located in the public right-of-way shall be per the local jurisdiction's requirements.

DETAIL 1
N.T.S.
1

ATTACHMENT 10

Specifications for Fire Lane Entrance Signs
To be used only at *vehicle entry points* to areas that contain "Fire Lane—No Parking" signs or red curbs

All sign and lettering dimensions shown are minimums. "Arial Narrow" font is used in sample above though other legible sans-serif fonts may be acceptable.

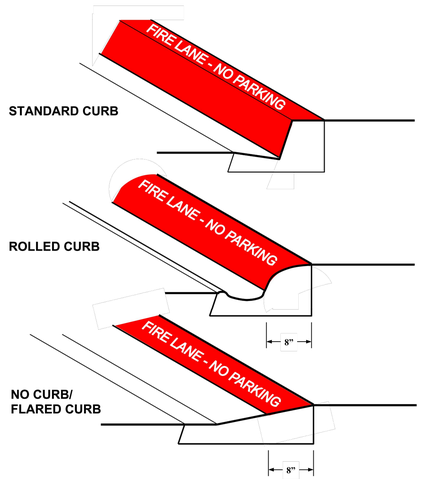
This sign shall be posted at all vehicle entrances to areas marked with either red curbs or fire lane "No Parking" signs. Signs shall be securely mounted facing the direction of travel and clearly visible to oncoming traffic entering the designated area. Signs shall be made of durable material and installed per Attachments 13 and 14.

Towing company contact information is required for all properties with a standing written agreement for services with a towing company per the California Vehicle Code.

DETAIL 2
N.T.S.
2

ATTACHMENT 9

Fire Lane Identification – Red Curbs



1. Fire lane entrance sign(s) shall also be provided per Attachment 10 or 11.
2. Curbs shall be painted OSHA safety red.
3. "FIRE LANE – NO PARKING" shall be painted on top of curb in 3" white lettering at a spacing of 30' on center or portion thereof.

DETAIL 3
N.T.S.
3

Hydrant Flow Test Report

Test Date 2/6/2024 **Test Time** 10:15 AM

Location
W Fir Street and South Brea Blvd, Brea, CA

Tested by
FIRE CODE
63 VIA PICO PLAZA SUITE #100
SAN CLEMENTE, CA 92672
(949) 369-1000
LIC# 893794

Notes
None

Read Hydrant
75 psi **static pressure**
65 psi **residual pressure**
0 ft **hydrant elevation**

Flow Hydrant(s)

Outlet	Elev	Size	C	Pitot Pressure	Flow
#1		2.5			852 gpm

Flow Graph

Plotted By:Huo, Kevin Sheet Set:Kha Layout:DETAILS June 26, 2024 06:34:23pm K:\ORA_LDEV\094848007 - brea\CAD\plansheets\FIRE MASTER PLAN\FIRE MASTER PLAN.dwg
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Know what's below. Call 811 before you dig.

No.	REVISIONS	DATE	BY

Kimley»Horn
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ORANGE, CA 92868
PHONE: 714-939-1030 FAX: 714-938-9488
WWW.KIMLEY-HORN.COM

KHA PROJECT	094848007
DATE	6/26/2024
SCALE	AS SHOWN
DESIGNED BY	KH
DRAWN BY	FC
CHECKED BY	TG

CITY OF BREA CA

685 BREA
PREPARED FOR
CITY VENTURES

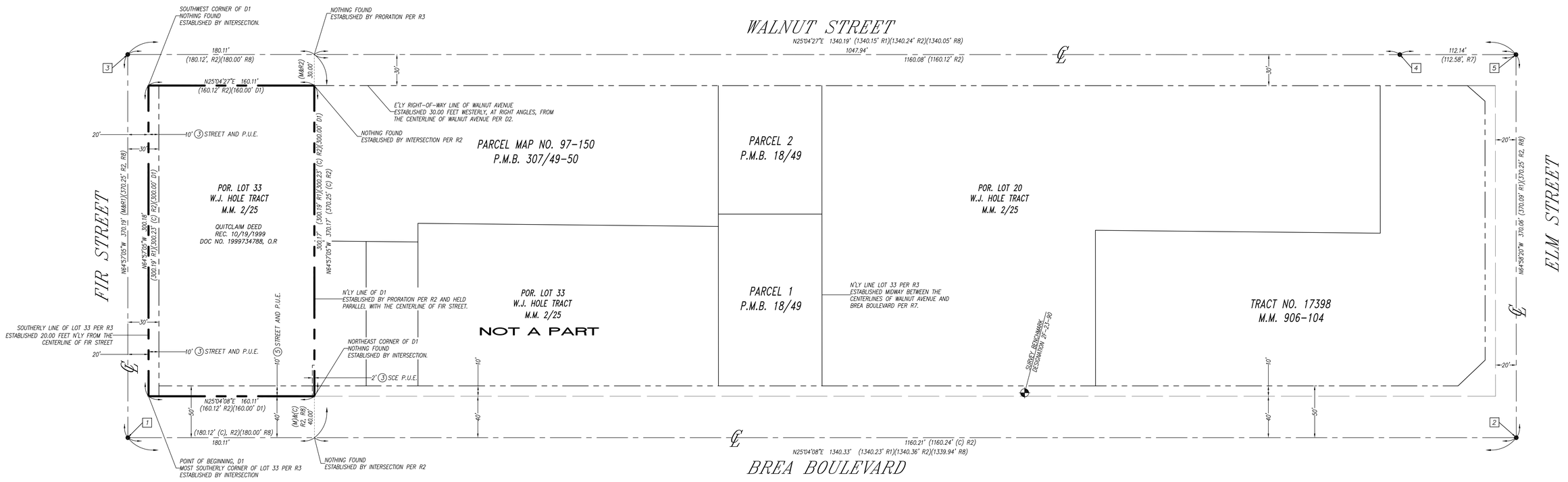
REGISTERED PROFESSIONAL ENGINEER — SCOTT A. MORGAN — No. C 78696 — CIVIL — STATE OF CALIFORNIA

FIRE ACCESS DETAILS

SHEET NUMBER
C11

A.L.T.A./N.S.P.S. LAND TITLE SURVEY

CITY OF BREA, COUNTY OF ORANGE, STATE OF CALIFORNIA



BOUNDARY ESTABLISHMENT DETAIL

PROPERTY DESCRIPTION

THE LAND REFERRED TO HEREIN BELOW IS SITUATED IN THE CITY OF BREA IN THE COUNTY OF ORANGE, STATE OF CALIFORNIA, AND IS DESCRIBED AS FOLLOWS:

THAT PORTION OF LOT THIRTY-THREE OF THE W.J. HOLE TRACT, AS SHOWN ON A MAP RECORDED IN BOOK 2, PAGE 25 OF MISCELLANEOUS MAPS, RECORDS OF ORANGE COUNTY, CALIFORNIA, DESCRIBED AS FOLLOWS:

BEGINNING AT THE MOST SOUTHERLY CORNER OF SAID LOT THIRTY-THREE; THENCE NORTHWESTERLY 300.00 FEET ALONG THE SOUTHWESTERLY LINE OF SAID LOT THIRTY-THREE TO THE SOUTHEASTERLY LINE OF THE 60.00 FEET WIDE STRIP OF LAND DESCRIBED IN THE DEED TO THE CITY OF BREA RECORDED ON AUGUST 7, 1958 IN BOOK 4375, PAGE 148 OF OFFICIAL RECORDS; THENCE NORTHEASTERLY 160.00 FEET ALONG SAID SOUTHEASTERLY LINE, BEING PARALLEL WITH THE SOUTHEASTERLY LINE OF SAID LOT THIRTY-THREE; THENCE SOUTHEASTERLY 300.00 FEET PARALLEL WITH SAID SOUTHWESTERLY LINE TO THE SOUTHEASTERLY LINE OF SAID LOT THIRTY THREE; THENCE SOUTHWESTERLY 160.00 FEET TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM ONE-HALF OF ALL OIL, GAS AND OTHER HYDROCARBON SUBSTANCES AND MINERALS IN OR UNDER SAID LAND, AS RESERVED IN THE DEED FROM JOSEPH LOMBINO AND WIFE TO THE ROMAN CATHOLIC ARCHBISHOP OF LOS ANGELES, DATED JULY 27, 1951 AND FILED SEPTEMBER 18, 1951 IN THE OFFICE OF THE REGISTRATION OF TITLES OF SAID ORANGE COUNTY AS DOCUMENT NO. 24106.

APN: 284-282-06

POLICY OF PREPARER

AS A MATTER OF POLICY, ONLY OFFICIALLY RELEASED COPIES OF THIS SURVEY HAVE A "WET" SIGNATURE ALONG WITH THE RELEASE/REVISION DATE(S) SHOWN. ANY MODIFICATIONS, UPDATES, OR REVISIONS WITH THEIR EFFECTIVE RELEASE DATES WILL BE SHOWN THEREON. ANY PARTIES REQUIRING INFORMATION WHICH MAY BE DERIVED FROM THIS SURVEY AFTER THE INITIAL RELEASE DATE ARE ADVISED TO CONTACT THE OFFICE OF THE PREPARER TO INQUIRE ON THE PRESENT STATUS OF THE SURVEY AND IF LATER VERSIONS HAVE BEEN RELEASED. COPIES OF THIS SURVEY LACKING THE HEREIN ABOVE MENTIONED SIGNATURE ARE TO BE CONSIDERED NON NOR OFFICIALLY RELEASED VERSIONS OF THIS SURVEY.

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY TOACKSON GRAHAM MCCULLOCH, JR. AND APRYL HILLEARY MCCULLOCH, TRUSTEES OF THE MCCULLOCH FAMILY TRUST DATED OCTOBER 13, 1999, AS COMMUNITY PROPERTY, AND FIDELITY NATIONAL TITLE INSURANCE COMPANY:

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 6(A)(B), 7(A)(B)(1), 8, 9, 10, 11(B), 13, 14, 16, 17, 18, 19, AND 20 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON AUGUST 10, 2023

Feb 22 2024

PETER E. WEILBACHER, PLS 8403 *DATE:*
EXPIRES 06-30-24

LICENSED LAND SURVEYOR
PETER EDWARD WEILBACHER
Exp. 06/30/24
NO. 8403
STATE OF CALIFORNIA

BASIS OF BEARINGS

THE BEARING OF NORTH 29°04'08" EAST, BEING THE CENTERLINE OF BREA BOULEVARD, AS SHOWN ON RECORD OF SURVEY NO. 2015-1083, FILED IN BOOK 282, PAGE 36, RECORDS OF SURVEY, IN THE OFFICE OF THE COUNTY RECORDER OF ORANGE COUNTY, STATE OF CALIFORNIA, WAS USED AS THE BASIS OF BEARINGS FOR THIS MAP.

BENCHMARK

COUNTY OF ORANGE BENCHMARK DESIGNATION "2F-23-90"
ELEVATION: 352.774 FEET

DATUM: NAVD 88 (YEAR LEVELED: 2005)

DESCRIPTION: DESCRIBED BY OCS 2001 - FOUND 3 3\4" OCS ALUMINUM BENCHMARK DISK STAMPED "2F-23-90", SET IN THE EAST CORNER OF A 5.5 FT. BY 5.5 FT. CONCRETE CATCH BASIN. MONUMENT IS LOCATED ALONG THE WESTERLY SIDE OF BREA BOULEVARD, 43 FT. NORTHWESTERLY OF THE CENTERLINE OF BREA BOULEVARD AND 180 FT. NORTHEASTERLY OF THE CENTERLINE OF ALDER STREET. MONUMENT IS SET LEVEL WITH SIDEWALK.

RECORD REFERENCES

R1 PER A RECORD OF SURVEY NO. 2015-1083, BOOK 282, PAGE 36, RECORDS OF SURVEY.
R2 PER PARCEL MAP NO. 97-150, BOOK 307, PAGES 49-50, OF PARCEL MAPS.
R3 PER A MAP OF THE W.J. HOLE TRACT, BOOK 2, PAGE 25, OF MISCELLANEOUS MAPS
R4 PER AN ORANGE COUNTY CORNER RECORD, DOCUMENT NO. 2023-0695.
R5 PER AN ORANGE COUNTY CORNER RECORD, DOCUMENT NO. 2023-0693.
R6 PER A CITY OF BREA FIELD BOOK C-4, PAGE 10.
R7 PER AN ORANGE COUNTY CORNER RECORD, DOCUMENT NO. 2002-2020.
R8 PER A RECORD OF SURVEY, BOOK 54, PAGE 31, RECORDS OF SURVEY.

DEED REFERENCES

D1 PER A QUITCLAIM DEED RECORDED 10/19/1999 AS DOC NO. 1999734788, O.R.

D2 PER A GRANT DEED TO THE CITY OF BREA FOR PUBLIC STREET AND UTILITY PURPOSES, RECORDED 08/07/1958 IN BOOK 4375, PAGE 148, O.R.

MONUMENT AND BOUNDARY ESTABLISHMENT NOTES

- ● *INDICATES FOUND MONUMENT AS NOTED.*
- [1] *FOUND A LEAD TACK AND TAG, STAMPED "RCE 20206" FLUSH IN CONCRETE PER R1 AND R2, ACCEPTED AS THE CENTERLINE INTERSECTION OF FIR STREET AND BREA BOULEVARD.*
- [2] *FOUND A LEAD TACK AND TAG, STAMPED "RCE 20206" FLUSH IN CONCRETE PER R1 AND R2, ACCEPTED AS THE CENTERLINE INTERSECTION OF ELM STREET AND BREA BOULEVARD.*
- [3] *CENTERLINE INTERSECTION OF FIR STREET AND WALNUT AVENUE, FOUND FOUR (4) LEAD TACK AND TAGS STAMPED "LS 8133" FLUSH ON CURB PER R4.*
- [4] *CENTERLINE INTERSECTION OF VALENCIA STREET AND WALNUT AVENUE, FOUND TWO (2) LEAD TACK AND TAGS STAMPED "RCE 20206" FLUSH ON CURB PER R5.*

  [NOTE: TWO LEAD TACK AND TAGS STAMPED "LS 8133" FLUSH ON CURB DO NOT FIT THE POSITIONS AS INDICATED PER R5; CORNER RECORD WAS PRE-CONSTRUCTION AND MAY HAVE BEEN RESET.
- [5] *CENTERLINE INTERSECTION OF ELM STREET AND WALNUT AVENUE, FOUND (1) LEAD TACK AND TAG STAMPED "RCE 20206" FLUSH ON CURB PER R6. HELD AT RECORD DISTANCE (38.19') PER R1.*

  A DILIGENT SEARCH AT THE INTERSECTION WAS UNABLE TO RECOVER THE REMAINING TAGS, AT THE TIME OF THE R1 SURVEY, THE PREVIOUS SURVEYOR DISCOVERED TWO (2) OF THE FOUR TAGS PER R6.

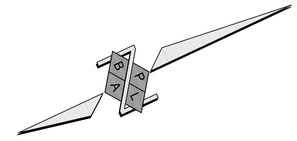
SEE PLAT HEREINABOVE FOR BOUNDARY ESTABLISHMENT NOTES.

LEGEND

RIGHT-OF-WAY LINE		S	- SOUTH
LOT/PARCEL LINE		N	- NORTH
STREET CENTERLINE		W	- WEST
DEED BOUNDARY LINE		E	- EAST
EASEMENT SIDELINE		S'LY	- SOUTHERLY
TIE LINE		N'LY	- NORTHERLY
		W'LY	- WESTERLY
		E'LY	- EASTERLY
		C/L	- CENTERLINE
		APN	- ASSESSORS PARCEL NUMBER
		PTR	- TITLE REPORT
		ESMT	- EASEMENT
		O.R.	- OFFICIAL RECORDS

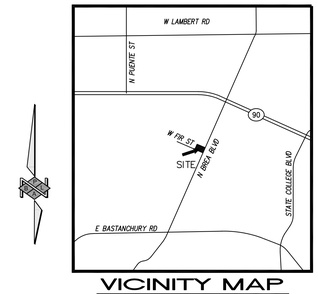
SURVEYOR'S NOTES

1. *SEE SHEET 2 FOR TITLE REPORT EXCEPTIONS.*
2. *THE DEED BOUNDARY LINE IS EXPRESSED PER THE PROPERTY DESCRIPTION AS EXPRESSED IN (D1) AND (D2). THE NET AREA AS DESCRIBED IN GENERAL NOTE 1 (SEE SHEET 2) IS EXPRESSED BASED ON ITEMS 3 AND 5 OF THE TITLE REPORT, BOTH OF WHICH ARE SHOWN AS DEDICATED ON R1, R2 AND R8.*
3. *THE NORTHERLY LINE OF (D1) IS BASED ON THE ESTABLISHMENT OF THE SOUTHERLY LINE OF (R2).*



40 0 20 40 80 160

GRAPHIC SCALE
1 INCH = 40 FEET



VICINITY MAP
NOT TO SCALE

PREPARED FOR:	PREPARED BY:
Kimley»Horn	PBLA SURVEYING, INC.
© 2024 KIMLEY-HORN AND ASSOCIATES, INC.	Planning • Engineering • Surveying
1100 W TOWN AND COUNTRY ROAD, SUITE 700, ORANGE, CA 92868	981 CORPORATE CENTER DR., STE. 168
PHONE: 714-939-1030	POMONA, CALIF. 91768
WWW.KIMLEY-HORN.COM	(888) 714-9642 • (714)389-9191 FAX

DATE	BY	REVISION	APP'D
08/11/23	DH	1ST SUBMITTAL	PW
01/10/24	DH	2ND SUBMITTAL - ALTA COMMENTS	PW
02/21/24	DH	3RD SUBMITTAL - ALTA COMMENTS	PW

JOB NO. 5001-834

PRELIMINARY TITLE REPORT
FIDELITY NATIONAL TITLE INSURANCE COMPANY
ORDER NUMBER: 987-30102567-MAM

A.L.T.A./N.S.P.S. LAND TITLE SURVEY

CITY OF BREA, COUNTY OF ORANGE, STATE OF CALIFORNIA

TITLE REPORT EXCEPTIONS

EASEMENTS ARE PLOTTED HEREON WITH REFERENCE TO SCHEDULE B EXCEPTION NUMBER.
EXAMPLE = (2) SCHEDULE B EXCEPTION NUMBER.

A. PROPERTY TAXES, INCLUDING ANY PERSONAL PROPERTY TAXES AND ANY ASSESSMENTS COLLECTED WITH 2023–2024 FISCAL YEAR TAXES ARE AS FOLLOWS:
TAX IDENTIFICATION NO.: 284–282–06
1ST INSTALLMENT: $4,322.38, OPEN (DELINQUENT AFTER 12–10–2023)
2ND INSTALLMENT: $4,322.38, OPEN (DELINQUENT AFTER 04–10–2024)
CODE AREA: 02–026
AFFECTS: PORTION OF LOT 33

B. THE LIEN OF SUPPLEMENTAL OR ESCAPED ASSESSMENTS OF PROPERTY TAXES, IF ANY, MADE PURSUANT TO THE PROVISIONS OF CHAPTER 3.5 (COMMENCING WITH SECTION 75) OR PART 2, CHAPTER 3, ARTICLES 3 AND 4, RESPECTIVELY, OF THE REVENUE AND TAXATION CODE OF THE STATE OF CALIFORNIA AS A RESULT OF THE TRANSFER OF TITLE TO THE VESTEE NAMED IN SCHEDULE A OR AS A RESULT OF CHANGES IN OWNERSHIP OR NEW CONSTRUCTION OCCURRING PRIOR TO DATE OF POLICY.

1. WATER RIGHTS, CLAIMS OR TITLE TO WATER, WHETHER OR NOT DISCLOSED BY THE PUBLIC RECORDS.

(2) EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: THE CITY OF BREA
PURPOSE: STREET AND PUBLIC UTILITIES
RECORDING DATE: AUGUST 7, 1958
RECORDING NO: BOOK 4375, PAGE 146, OFFICIAL RECORDS
AFFECTS: THE SOUTHWESTERLY 10 FEET OF THE LAND

[AFFECTS THE PROPERTY AND PLOTTED HEREON]

(3) EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: SOUTHERN CALIFORNIA EDISON COMPANY
PURPOSE: PUBLIC UTILITIES
RECORDING DATE: APRIL 13, 1960
RECORDING NO: BOOK 5193, PAGE 347, OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.

[AFFECTS THE PROPERTY AND PLOTTED HEREON]

4. INTENTIONALLY DELETED.

(5) EASEMENT(S) FOR THE PURPOSE(S) SHOWN BELOW AND RIGHTS INCIDENTAL THERETO, AS GRANTED IN A DOCUMENT:
GRANTED TO: THE CITY OF BREA
PURPOSE: STREET AND PUBLIC UTILITIES
RECORDING DATE: AUGUST 29, 1966
RECORDING NO: BOOK 8032, PAGE 746, OFFICIAL RECORDS
AFFECTS: A PORTION OF SAID LAND AS MORE PARTICULARLY DESCRIBED IN SAID DOCUMENT.

[AFFECTS THE PROPERTY AND PLOTTED HEREON]

6. ANY RESTRICTIONS COVERING THE FUTURE USE OF THE LAND, AS DISCLOSED BY "ORDINANCE NO. 752" RECORDED DECEMBER 30, 1983 AS INSTRUMENT NO. 83–592126 AND BY "PROPOSED SUPPLEMENT TO THE AMENDED REDEVELOPMENT PLAN FOR REDEVELOPMENT PROJECT AB", RECORDED DECEMBER 30, 1983 AS INSTRUMENT NO. 83– 592127, BOTH OF OFFICIAL RECORDS, COVERING THE HEREIN DESCRIBED AND OTHER LAND.

[AFFECTS THE PROPERTY; NO PLOTTABLE EASEMENTS]

7. INTENTIONALLY DELETED.

8. INTENTIONALLY DELETED.

9. AN ASSIGNMENT OF ALL THE MONEYS DUE, OR TO BECOME DUE AS RENTAL, AS ADDITIONAL SECURITY FOR THE OBLIGATIONS SECURED BY DEED OF TRUST SHOWN AS ITEM NO. 8
ASSIGNED TO: FIDELITY BANK
RECORDING DATE: JUNE 25, 2018
RECORDING NO: 2018000232372, OFFICIAL RECORDS

10. INTENTIONALLY DELETED.

11. INTENTIONALLY DELETED.

12. MATTERS WHICH MAY BE DISCLOSED BY AN INSPECTION AND/OR BY A CORRECT ALTA/NSPS LAND TITLE SURVEY OF SAID LAND THAT IS SATISFACTORY TO THE COMPANY, AND/OR BY INQUIRY OF THE PARTIES IN POSSESSION THEREOF.

13. ANY RIGHTS OF THE PARTIES IN POSSESSION OF A PORTION OF, OR ALL OF, SAID LAND, WHICH RIGHTS ARE NOT DISCLOSED BY THE PUBLIC RECORDS.

THE COMPANY WILL REQUIRE, FOR REVIEW, A FULL AND COMPLETE COPY OF ANY UNRECORDED AGREEMENT, CONTRACT, LICENSE AND/OR LEASE, TOGETHER WITH ALL SUPPLEMENTS, ASSIGNMENTS AND AMENDMENTS THERETO, BEFORE ISSUING ANY POLICY OF TITLE INSURANCE WITHOUT EXCEPTING THIS ITEM FROM COVERAGE.

THE COMPANY RESERVES THE RIGHT TO EXCEPT ADDITIONAL ITEMS AND/OR MAKE ADDITIONAL REQUIREMENTS AFTER REVIEWING SAID DOCUMENTS.

14. ANY INVALIDITY OR DEFECT IN THE TITLE OF THE VESTEES IN THE EVENT THAT THE TRUST REFERRED TO HEREIN IS INVALID OR FAILS TO GRANT SUFFICIENT POWERS TO THE TRUSTEE(S) OR IN THE EVENT THERE IS A LACK OF COMPLIANCE WITH THE TERMS AND PROVISIONS OF THE TRUST INSTRUMENT.

IF TITLE IS TO BE INSURED IN THE TRUSTEE(S) OF A TRUST, (OR IF THEIR ACT IS TO BE INSURED), THIS COMPANY WILL REQUIRE A TRUST CERTIFICATION PURSUANT TO CALIFORNIA PROBATE CODE SECTION 18100.5.

THE COMPANY RESERVES THE RIGHT TO ADD ADDITIONAL ITEMS OR MAKE FURTHER REQUIREMENTS AFTER REVIEW OF THE REQUESTED DOCUMENTATION.

15. THE TRANSACTION CONTEMPLATED IN CONNECTION WITH THIS REPORT IS SUBJECT TO THE REVIEW AND APPROVAL OF THE COMPANY'S CORPORATE UNDERWRITING DEPARTMENT. THE COMPANY RESERVES THE RIGHT TO ADD ADDITIONAL ITEMS OR MAKE FURTHER REQUIREMENTS AFTER SUCH REVIEW.

16. MATTERS CONTAINED IN THAT CERTAIN DOCUMENT
ENTITLED: MEMORANDUM OF PURCHASE AGREEMENT AND JOINT ESCROW INSTRUCTIONS
DATED: OCTOBER 3, 2023
EXECUTED BY: JACKSON GRAHAM MCCULLOCH, JR AND APRYL HILLEARY MCCULLOCH
RECORDING DATE: OCTOBER 4, 2023
RECORDING NO: 2023–242976

REFERENCE IS HEREBY MADE TO SAID DOCUMENT FOR FULL PARTICULARS.

GENERAL NOTES

1. AREA – BASED UPON MEASURED BEARINGS AND DISTANCES AS SHOWN ON HEREON, SAID LAND CONTAINS 48,062 SQ. FT., 1.103 ACRES (GROSS) [43,559 SQ. FT./0.999 ACRES NET]
2. TITLE SEARCH – THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY PBLA SURVEYING, INC. OR THE SURVEYOR TO DETERMINE OWNERSHIP OF THIS PROPERTY OR TO VERIFY THE DESCRIPTIONS PROVIDED. THE COMPATIBILITY OF THESE DESCRIPTIONS WITH THAT OF ADJACENT PROPERTIES; NOR EASEMENTS, RIGHTS–OF–WAY OR TITLE OF RECORD. PBLA SURVEYING, INC. RELIED UPON A PRELIMINARY TITLE REPORT, WITH AN ORDER NUMBER 987–30102567–MAM, PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, DATED OCTOBER 19, 2023 AND AMENDED OCTOBER 23, 2023.
3. OCCUPATION LINES, ENCROACHMENTS AND RECOVERED SURVEY MONUMENTS ARE SHOWN AS FOUND DURING A FIELD SURVEY PERFORMED UNDER MY DIRECT SUPERVISION DURING AUGUST, 2023.
4. PARCEL AREA SHOWN IS DETERMINED BASED UPON FIELD MEASUREMENTS MADE DURING A FIELD SURVEY PERFORMED IN AUGUST, 2023.
5. BUILDING TIES WERE MEASURED FROM THE BUILDING WALL TO THE PROPERTY LINE.
6. THE PROPERTY IS COINCIDENT WITH, AND HAS ACCESS TO FIR STREET, WALNUT AVENUE, AND BREA BOULEVARD, ALL BEING A PUBLICLY DEDICATED ROADS.
7. THERE IS NO EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING DEMOLITION, OR BUILDING REMOVAL WITHIN RECENT MONTHS, OBSERVED IN THE PROCESS OF CONDUCTING THE FIELDWORK.
8. THERE IS NO EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELDWORK.
9. THE SURVEY OBSERVED 19 REGULAR PARKING STALLS AND 5 HANDICAP STALLS.
10. THE PROPERTY IS LOCATED AT 685 S. BREA BOULEVARD, BREA, CALIFORNIA.
11. THERE IS NO OBSERVABLE EVIDENCE OF SITE USE AS A SOLID WASTE DUMP, SUMP, SANITARY LANDFILL OR CEMETERY.
12. NO EVIDENCE OF POTENTIAL WETLANDS WERE OBSERVED ON THE SUBJECT PROPERTY AT THE TIME THE SURVEY WAS CONDUCTED, NOR HAVE WE RECEIVED ANY DOCUMENTATION OF ANY WETLANDS BEING LOCATED ON THE SUBJECT PROPERTY.
13. THERE ARE NO DISCREPANCIES BETWEEN THE BOUNDARY LINES SHOWN ON THIS SURVEY AND THE LEGAL DESCRIPTION CONTAINED IN THE TITLE COMMITMENT.
14. THE BOUNDARY LINE DIMENSIONS AS SHOWN ON THE SURVEY MAP FORM A MATHEMATICALLY CLOSED FIGURE WITHIN +/– 0.1 FOOT.
15. ALL LOTS ARE CONTIGUOUS AND THERE ARE NO GAPS AND GORES BETWEEN THE PARCELS.
16. THE PROPERTY SHOWN HEREON IS IDENTICAL TO THE TITLE REPORT.
17. A ZONING REPORT/LETTER WAS NOT PROVIDED FOR THIS SURVEY.

FLOOD ZONE

THE PROPERTY DESCRIBED ON THIS SURVEY LIES WITHIN ZONE "X" OF THE FLOOD INSURANCE RATE MAP IDENTIFIED AS MAP NO. 06059C0042J, BEARING AN EFFECTIVE DATE OF 12/3/2009.

ZONE "X" IS DEFINED AS AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN.

ZONING

THE PROPERTY IS ZONED "MU–I", FOR MIXED USE DISTRICT [STAND–ALONE RESIDENTIAL PROJECTS], CITY OF BREA PLANNING DIVISION.

DEVELOPMENT STANDARDS

MINIMUM PROJECT SIZE	– 2,500 SQUARE FEET
MINIMUM PARCEL WIDTH	– NONE
MINIMUM PARCEL DEPTH	– NONE
MAXIMUM FLOOR/AREA RATIO	– 3.00
MINIMUM SETBACKS	
SINGLE STORY	– 5 FEET
SECOND STORY OR ABOVE	– 10 FEET
FRONT	– 15 FEET
SIDE (INTERIOR, EACH)	– 5 FEET
SIDE (ADJOINING, RESIDENTIAL USES)	– 10 FEET
REAR	– 5 FEET
REAR (ADJOINING, RESIDENTIAL USES)	– 10 FEET
PARKING AREA SETBACKS (FRONT AND STREET SIDES) (NO PARKING ADJACENT TO BREA BOULEVARD OR IMPERIAL HIGHWAY ALLOWED, EXCEPT IN THE UPPER FLOORS OF A PARKING STRUCTURE)	– 5 FEET

NO MINIMUM SETBACK REQUIREMENT ALONG BREA BOULEVARD.

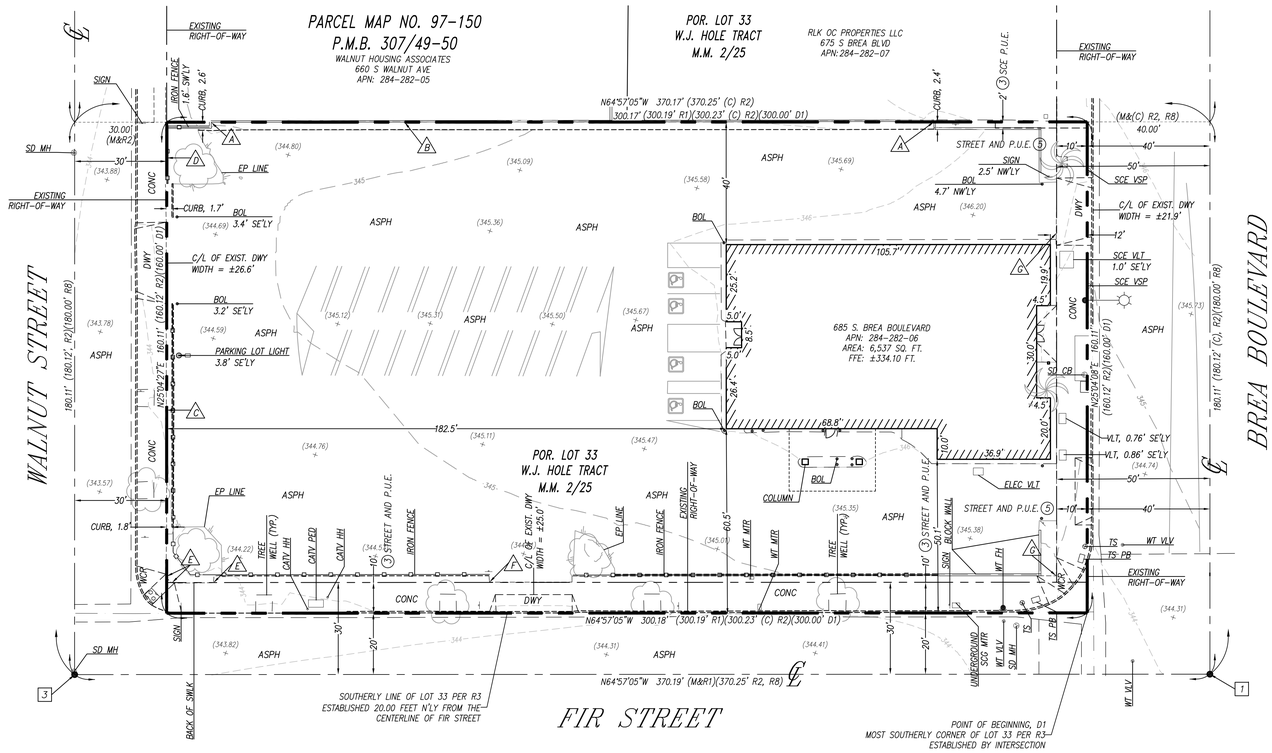
MINIMUM DISTANCE BETWEEN STRUCTURES ON THE SAME PARCEL – NONE

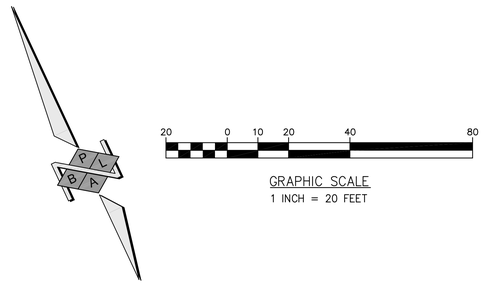
MAXIMUM STRUCTURE HEIGHT – 100 FEET

SURVEYING OBSERVATIONS

OBJECTS THAT CROSS THE PROPERTY BOUNDARY A WILL BE DENOTED WITH THE SYMBOL AND CONTAINING A CORRESPONDING NUMBER.
EXAMPLE: (A) = SURVEY OBSERVATION WITH RELATION TO THE PROPERTY LINE.

(A) BLOCK WALL CROSSES THE NE'LY LINE OF THE PROPERTY.
(B) BLOCK WALL RUNS ALONG THE NE'LY PROPERTY LINE
(C) BACK END OF THE SIDEWALK RUNS ALONG THE NW'LY PROPERTY LINE.
(D) BLOCK WALL RUNS ALONG THE NW'LY PROPERTY LINE.
(E) BACK OF SIDEWALK CROSSES THE PROPERTY LINE.
(F) BACK OF SIDEWALK RUNS ALONG THE SW'LY PROPERTY LINE.
(G) BACK OF SIDEWALK RUNS ALONG THE SE'LY PROPERTY LINE.





LEGEND

RIGHT–OF–WAY LINE
LOT/PARCEL LINE
STREET CENTERLINE
BOUNDARY LINE
CONCRETE
CURB
BUILDING OVERHANG LINE
LANE STRIPING
EDGE OF ASPH PAVEMENT
WALL
GRADE BREAK LINE
CONCRETE SIDEWALK
1 FOOT CONTOUR INTERVAL
5 FOOT CONTOUR INTERVAL
EXISTING BUILDING
TRUNCATED DOME PAD
EASEMENT SIDELINE
C/L TIE LINE

ABOVE GROUND FEATURES
CONC – CONCRETE
ASPH – ASPHALT
SWLK – SIDEWALK
AD – AREA DRAIN
BOL – BOLLARD
CB – CATCH BASIN
CO – CLEANOUT
DI – DROP INLET
DWY – DRIVEWAY
EP – EDGE OF PAVEMENT
FH – FIRE HYDRANT
HH – HANDHOLE
PB – PULLBOX
PED – PEDESTAL
ICV – IRRIGATION CONTROL VALVE
MH – MANHOLE
MTR – METER
SL – STREET LIGHT
TS – TRAFFIC SIGNAL
VLT – VAULT
VLV – VALVE
VSP – VENTILLATION SERVICE PIPE RISER

VALVE
WT FH
UTILITY MH
SIGN
TS TRAFFIC SIGNAL
STREET LIGHT
BOLLARD
TREE
PALM
HANDICAP STALL DECAL
DOOR/GATED ACCESS

MONUMENT AND BOUNDARY ESTABLISHMENT NOTES

● INDICATES FOUND MONUMENT AS NOTED.

[1] FOUND A LEAD TACK AND TAG, STAMPED "RCE 20206" FLUSH IN CONCRETE PER R1 AND R2, ACCEPTED AS THE CENTERLINE INTERSECTION OF FIR STREET AND BREA BOULEVARD.

[2] FOUND A LEAD TACK AND TAG, STAMPED "RCE 20206" FLUSH IN CONCRETE PER R1 AND R2, ACCEPTED AS THE CENTERLINE INTERSECTION OF ELM STREET AND BREA BOULEVARD.

[3] CENTERLINE INTERSECTION OF FIR STREET AND WALNUT AVENUE, FOUND FOUR (4) LEAD TACK AND TAGS STAMPED "LS 8133" FLUSH ON CURB PER R4.

[4] CENTERLINE INTERSECTION OF VALENCIA STREET AND WALNUT AVENUE, FOUND TWO (2) LEAD TACK AND TAGS STAMPED "RCE 20206" FLUSH ON CURB PER R5.

[NOTE: TWO LEAD TACK AND TAGS STAMPED "LS 8133" FLUSH ON CURB DO NOT FIT THE POSITIONS AS INDICATED PER R5; CORNER RECORD WAS PRE–CONSTRUCTION AND MAY HAVE BEEN RESET.

[5] CENTERLINE INTERSECTION OF ELM STREET AND WALNUT AVENUE, FOUND (1) LEAD TACK AND TAG STAMPED "RCE 20206" FLUSH ON CURB PER R6. HELD AT RECORD DISTANCE (38.19') PER R1.

A DILIGENT SEARCH AT THE INTERSECTION WAS UNABLE TO RECOVER THE REMAINING TAGS, AT THE TIME OF THE R1 SURVEY, THE PREVIOUS SURVEYOR DISCOVERED TWO (2) OF THE FOUR TAGS PER R6.

SEE PLAT HEREINABOVE FOR BOUNDARY ESTABLISHMENT NOTES.

PREPARED FOR:
Kimley»Horn
© 2024 KIMLEY-HORN AND ASSOCIATES, INC.
1100 W TOWN AND COUNTRY ROAD, SUITE 700, ORANGE, CA 92868
PHONE: 714-939-1030
WWW.KIMLEY-HORN.COM

PREPARED BY:
PBLA SURVEYING, INC.
Planning • Engineering • Surveying
981 CORPORATE CENTER DR., STE. 168
POMONA, CALIF. 91768
(888) 714-9642 • (714)389-9191 FAX

DATE	BY	REVISION	APP'D
08/11/23	DH	1ST SUBMITTAL	PW
01/10/24	DH	2ND SUBMITTAL – ALTA COMMENTS	PW
02/21/24	DH	3RD SUBMITTAL – ALTA COMMENTS	PW

JOB NO. 5001–834

PRELIMINARY TITLE REPORT
FIDELITY NATIONAL TITLE INSURANCE COMPANY
ORDER NUMBER: 987–30102567–MAM

BREA PLANNING DIVISION

SUBMITTAL INSTRUCTIONS FOR PROJECT APPLICATIONS

Project applications shall be submitted directly to the Planning Division through electronic email. Since August 15, 2022, the Planning Division no longer accepts in-person submittal. Please see instructions below for the electronic project application submission.

SUBMITTAL INSTRUCTIONS:

By email: Project applications shall be submitted to planner@cityofbrea.net. To confirm your application has been received, contact a Planner at 714-990-7674.

NOTE: No application will be considered submitted for Plan Review until the following is satisfied:

1. The required application deposit has been paid, as outlined in the Development Processing Fees. Credit card (Visa or Mastercard) is accepted over the phone at 714-990-7674. Checks can be dropped off at the 3rd floor front counter of 1 Civic Center Circle, Brea, CA, 92821 or mailed. If a check is mailed, please address to ATTN: Planning Division.
2. Completed Application, pages 2-6.
3. Accompanying plans and documents outlined on pages 7-9.

****It is HIGHLY RECOMMENDED to speak with a Planner prior to formal submittal. To speak with a Planner regarding your project, please contact the Planning Division at planner@cityofbrea.net or 714-990-7674.**

Application Completeness:
Once the uniform application has been submitted, no later than thirty (30) days as determined in the application processing schedule, the Director shall determine, in writing, if such application is complete, and immediately transmit such determination to the applicant. If an application is determined not to be complete, the Director determination shall specify the deficiencies and the manner in which the application can be made complete. Upon determination that an application is complete and meets the requirements for acceptance, or expiration of the thirty (30) day period if no determination regarding completeness is made, the application shall be deemed accepted.

IMPORTANT UPDATE:
Since August 1, 2022, all planning development applications are accepted and reviewed based on the established application processing schedule, which includes a weekly submittal deadline. View the latest processing schedule on this page: https://www.ci.brea.ca.us/177/Planning

SHOULD YOU HAVE ANY QUESTIONS, PLEASE CONTACT THE PLANNING DIVISON AT 714-990-7674 OR PLANNER@CITYOFBREA.NET

PROJECT APPLICATION

GENERAL INFORMATION REQUIRED: *(Print or Type)*

Name of Proposed Project: South Brea Townhomes

Location of Project *(Address Required):*
685 S Brea Blvd
Brea, CA 92821

Legal Description of Project Location *(Assessor's Parcel No.):*
284-282-06

APPLICANT INFORMATION:

Applicant's Name: Brea 1 Inv, LLC Phone: 949-258-7555

Email: pchien@cityventures.com

Address: 3121 Michelson Dr, Ste 150

City: Irvine State: CA Zip Code: 92612

PROJECT CONTACT PERSON: (*If Different*)

Contact Person: Patrick Chien Phone: 949-258-7542

Email: pchien@cityventures.com

PROJECT INFORMATION: *(Print or Type)*

Zoning Designation: Mixed-Use I General Plan Designation: Mixed Use I

Existing Use: retail store Proposed Use: development of residential for-sale units

Type of Development:

☑ **Residential** ☐ **Commercial** ☐ **Industrial** ☐ **Mixed-Use**

Lot Size *(square feet):* 48,062 SF
Lot Width: 160.11 feet
Lot Depth: 300.18 feet

Existing Floor Area (square feet): 6,537 SF
Existing FAR: 0.14
Existing Lot Coverage: 0.14

STAFF USE ONLY

Accela Record Number: PLN-2023-00081

Project Manager: Jessica Newton

Entitlement File Number(s): P-D No. 2023-03, TPM No. 2023-01, & DB No. 2023-01 **Related Files:**

SUBMITTAL INFO:
Date Time Received: 11/22/2023 Received by: JN Deposit Received:

PROJECT INFORMATION: *(Continued)*

Proposed Floor Area (square feet):	Proposed FAR:	Proposed Lot Coverage:
47,028 SF	1.09	0.52

Proposed No. of Stories: 3

Proposed Building Height: 36'6"

Existing Parking Stalls: 24

Proposed Parking Stalls: 64

Project Description: The project description should include a detailed description of demolition, on-side improvements, proposed use & operations, ect. In addition, please describe all building material and color as well as description of signage and their location. Please provide a separate PDF attachment labeled "Project Description" if more space is needed.

☐ **Check if project description is attached.**

The proposed project will consist of 32 3-story single-family attached townhomes.

TYPE OF REVIEW REQUESTED: (*Select all that apply*)

Planning Commission/City Council

☐ Conditional Use Permit	☐ Planned Community	☐ Historic Designation
☐ Development Agreement	☑ Precise Development Plan	☐ Zone Change
☐ General Plan Amendment	☐ Temporary Trailer	☐ Zone Variance
☐ Certificate of Compatibility	☑ Other Tentative Parcel Map	

Administrative/Community Development Director

☐ Administrative Remedy	☐ Plan Review	☐ Other _____

☐ Tree Removal *(see pg. 9)*

PROPERTY OWNER INFORMATION & AUTHORIZATION

(as listed in the Orange County Assessor's records)

Legal Owner's Name: McCulloch Family Trust Company Name:

Email: 4blkjak@gmail.com Phone: 714-366-4991

Address: 15105 Tacuba Dr

City: La Mirada State: CA Zip Code: 90638

I hereby certify under penalty of perjury under the laws of the State of California that I am the owner(s) of the subject property, or have been authorized to sign on behalf of the property owner, and consent to the filing of this application on the above referenced property. **If the owner did not sign below, a letter of authorization is required.**

By: _____ Date: 11/07/2023
(Signature)

By: Jack McCulloch
(Printed Name)

DESIGN PROFESSIONAL OR OWNER OF THE COPYRIGHT IF DIFFERENT *(OPTIONAL)*

Name(s):

Email: Phone:

Address:

City: State: Zip Code:

AUTHORIZATION TO REPRODUCE PROJECT PLANS- Gov. Code § 65103.5(f)(2)

I hereby grant permission for the City of Brea to provide the project plans for inspection as a part of the public record, to copy for members of the public, and post the plans online. This permission shall be constituted as the permission for architectural drawings that contain a copyright annotation and are protected by the federal Copyright Act of 1976 (Government Code Section 65103.5(f)(2).

By: Patrick Chien Digitally signed by Patrick Chien DN: CN=Patrick Chien, OU=City Ventures, DC=CityVentures, DC=local Reason: I have reviewed this document Date: 2023.11.20 15:16:31-08'00' Date: 11/21/2023
(Signature)

By: Patrick Chien
(Printed Name)

TRUST ACCOUNT OWNER INFORMATION

All project applications require the specified minimum deposit to a Trust Account. Additional funds and/or subsequent deposits may be required depending on the specified project and level of staff time necessary. All unused funds will be reimbursed following the completion of project and/or review. Staff time devoted to your project will be billed according to our **Development Processing Fees.** The necessary staff time will vary according to the complexity of the project and may include, initial review and ongoing project processing by City staff including, but not limited to:

- Reviewing plans/submittal packages.
- Routing plans to, and communicating with other city staff and outside agencies.
- Researching documents relative to site history and site visits/inspections.
- Consulting with applicant and other interested parties (e.g. neighbors, adjacent property or business owners) in person or by phone.
- Preparing environmental documents, staff reports, presentations, and resolutions.
- Preparing pertinent maps, graphs and exhibits.
- Attending meetings / public hearings before the Planning Commission / City Council.
- Review of tentative maps and improvement plans by City staff.
- On-site inspections of the project by City staff.
- Consultant services

TRUST ACCOUNT OWNER:

Name of Individual or Corporation Financially Responsible for the Project:

Address:

City: Zip Code:

Email: Phone:

STATEMENT OF UNDERSTANDING AND AGREEMENT

I understand that my initial deposit is a retainer and not a fee. This deposit will be used to set up an account, against which fees shall be charged based on the hourly rate listed in the City fee schedule in effect at the time the work is performed. I understand that should the costs exceed the deposit, I will be billed monthly for any additional deposit amount intended to cover future charges. If I fail to pay the fees when due, I understand approximately that the City will stop working on the application. If the final costs are less, the unused portion of the deposit will be returned to me after the conclusion of the process or final inspection of the completed project, whichever occurs later.

As the trust account owner, I assume full financial responsibility for all costs incurred by the City in processing this application(s).

BY SIGNING BELOW, I HEREBY CONSENT THAT I UNDERSTAND THE MATTERS AS DESCRIBED ABOVE AND AGREE TO THE TERMS. I HEREBY FURTHER REPRESENT THAT I HAVE THE AUTHORITY TO BIND MY BUSINESS BY SIGNING ON ITS BEHALF.

Patrick Chien Digitally signed by Patrick Chien DN: CN=Patrick Chien, OU=City Ventures, DC=CityVentures, DC=local Reason: I have reviewed this document Date: 2023.11.21 10:06:35 -08'00'

Trust Account Owner's Signature

11/21/2023

Date

Trust Account Owner Printed Name

INDEMNIFICATION AGREEMENT

PLEASE READ, FILL IN, AND SIGN AT THE BOTTOM

I, the undersigned, certify that I am the applicant in the foregoing application, that I have read the foregoing application and know the content thereof, and state that the same is true and correct to the best of my knowledge and belief, and further certify that I shall comply with each and every condition of approval as stated herein.

Furthermore, Patrick Chien, on behalf of Brea 1 Inv, LLC hereby agrees to defend, indemnify, and hold free and harmless the City of Brea, its elected officials, officers, employees, and agents, with respect to any and all liabilities, claims, suits, actions, losses, expenses or costs of any kind, whether actual, alleged or threatened, including the payment of actual attorney's fees, court costs, and any and all other costs of defense.

Patrick Chien Digitally signed by Patrick Chien
DN: CN=Patrick Chien, OU=City Ventures, DC=CityVentures, DC=local
Reason: I have reviewed this document
Date: 2023.11.20 15:19:56-08'00'

Applicant's Signature

11/21/2023

Date

Staff Use Only

ACCELA RECORD NUMBER: PLN-2023-00081

TRUST ACCOUNT NUMBER: T240078

SUBMITTAL CHECKLIST

If you obtained this application through our website, please contact a Planner at 714-990-7674 to confirm applicability of the submittal items. The items listed below are considered *minimum*. Additional information may be necessary for clarification during the review process.

APPLIES TO ALL APPLICATIONS

☐ **1. COMPLETED PROJECT APPLICATION -** Property owner information & authorization must be included

☐ **2. PHOTOGRAPHS -** Photographs should include the project site's existing exterior and interior.

☐ **3. LETTER OF REQUEST -** Describe the project/proposal and reason for the request. For businesses, include operations, number of employees, hours of operation, property tenant list, alcohol requests and any other pertinent information. For residential projects, include number of units, phasing/ timing plan and any other pertinent information. *For tree removal permits, a statement indicating the reason for the removal or relocation of tree(s).*

☐ **4. PLANS TITLE PAGE**

- ☐ Date (Resubmitted plans shall reflect new date of submittal)
- ☐ Project Address
- ☐ Legal Description
- ☐ Scope of work
- ☐ List of Required Entitlements
- ☐ Owner Information Architect/Designer Information
- ☐ Zoning Conformance Development Standards (existing/allowed/proposed)

☐ **5. SITE PLAN**

- ☐ Show entire Parcel with property lines and dimensions
- ☐ Development Summary Table – noting pertinent information such as proposed square footage, floor area
- ☐ Provide separate existing and proposed site plans Provide plan drawn to scale with dimensions
- ☐ Show all setbacks (front, rear and side)
- ☐ Truck turning radius (industrial and commercial) Show location of:
  - Carpool/van spaces
  - Bicycle parking area
  - Rideshare vehicle loading area
- ☐ Distance between buildings
- ☐ Location of utility poles and fire hydrants
- ☐ Indicate locations of trash enclosures and SCE transformer
- ☐ Location of proposed monument signs
- ☐ Proposed outdoor storage area, if any, and required screening Label proposed uses for all building sites on site
- ☐ Location of bus stop improvements, if applicable to project
- ☐ Show locations of street and sidewalks, with all improvements (trees, light poles, curbs, etc.)
- ☐ Show all existing and proposed driveways and driveways immediately adjacent to the site
- ☐ Show all curb, gutter and driveway within the full right-of-way adjacent to the project site
- ☐ Photometric plan
- ☐ Circulation plan

☐ **6. FLOOR PLAN**

- ☐ Provide separate existing and proposed floor plans
- ☐ Provide plans drawn to scale with dimensions
- ☐ Label room and/or areas
- ☐ Provide a window and door schedule (when part of scope)

☐ **7. DEPOSIT -** The application will **NOT** be considered submitted until payment is received. Please visit our Development Processing Fees to verify the deposit amount.

☐ **8. ELECTRONIC PLAN COPIES -** PDF format digital copies of all submitted plans, photographs and photographs of the colors and materials board in minimum 300 D.P.I. (dots per square inch) format for presentation purposes. A clean site plan and colored landscape plan with no construction information or dimensions is required for presentation purposes. Include one 750KB or less jpeg image of the proposed rendering to be displayed on the City's development map. If you are submitting in person, all submitted material shall be saved in a USB Drive or CD.

APPLIES TO ALL NEW CONSTRUCTION, BUILDING ADDITIONS, AND BUILDING REMODELS:

☐ **9. PRELIMINARY TITLE REPORT** - Must be dated within six (6) months.

☐ **10. ELEVATIONS**

- ☐ Show all sides of proposed
- ☐ Elevations Provide plans drawn to scale with dimensions
- ☐ Provide the height of all structures
- ☐ Label proposed colors, materials (with level of quality and longevity)
- ☐ Location and size of signs
- ☐ Provide details of architectural elements, walls, and fences, as needed Line of sight drawings

☐ **11. RENDERING(S) – COLOR**

☐ **12. SECTION PLAN**

☐ **13. SIGN PLANS**

- ☐ Show location of all signs and on building and site plan
- ☐ Label size of signs

☐ **14. ROOF PLAN**

- ☐ Provide plans drawn to scale with dimensions Show roof pitches and slope
- ☐ Show all-roof mounted equipment
- ☐ Cross-section demonstrating the roof-mounted equipment will be fully screened from view by the architectural design of the building

☐ **15. CONCEPTUAL LANDSCAPE PLAN**

- ☐ Proposed and existing improvements as shown on the site plan Dimensions such as setbacks and street widths shall be excluded Identify plan materials by botanical and common namesIdentify size and spacing of plants
- ☐ Identify mounted areas, turf, ground covered areas, shrub locations, accent trees, street trees, sloping planting materials. Private yard areas.
- ☐ Location of community amenities including common or public recreation areas (open play areas, barbecue area, pool, spa, recreation building)
- ☐ Location of primary and secondary entry point areas and their treatment (textured paving, security gates, accent or special planting, entry walls, monument signs**)**
- ☐ Location of emergency vehicle access, trail locations, public walkways, hardscape amenities (paving, benches etc.)

☐ **16. WATER QUALITY MANAGEMENT PLAN (WQMP) CHECKLIST**

☐ **17. COLOR & MATERIAL BOARD**

☐ **18. PRELIMINARY GRADING PLANS**

- ☐ Proposed items should be designated with solid lines, existing with small dashes, and future with long dashes if a phased project.
- ☐ Cross sections at all site boundaries (maximum & minimum conditions)
- ☐ Drainage and flood control facilities-size, type, etc.
- ☐ Easements, property lines, right-of-way
- ☐ Earthwork quantities-borrow and disposal areas
- ☐ Erosion control measures
- ☐ Existing features within and 50 feet beyond the site boundaries (label to remain or to be removed)–natural ground, trees, structures, drainage courses, streets, trails, slopes, etc.
- ☐ Grading (Proposed)–structures, curbs, walls (height), gutters, pavement, walks,

swales, mounding, slopes, open space, trails
- ☐ Natural areas to be preserved
- ☐ Parkway culverts where drainage is directed to streets, except for single family residences
- ☐ Retaining walls-top and footing elevations
- ☐ Separate cut and fill areas with a line. In addition, one copy of the plan shall be submitted with fill areas colored in green and cut areas in red
- ☐ Shade pavement areas and slopes 3:1 or steeper
- ☐ Location, elevation, and size of proposed buildings pads
- ☐ Streets-cross sections, improvements, right-of-way, etc.

☐ **19. FIRE MASTER PLAN** (applies to new commercial, multifamily residential, and subdivisions). Contact the Fire Department for more information.
- ☐ Fire access road on property and streets
- ☐ Fire hydrant locations(s) new and existing
- ☐ Fire department connection location and control valve location

APPLIES TO TREE REMOVAL PERMIT:

☐ **20. TREE REMOVAL SITE PLAN**
- ☐ Property Boundary with Property Line Dimensions
- ☐ Tree(s) Locations(s)
- ☐ Lot and Easements Lines
- ☐ Scale
- ☐ Pavement Areas
- ☐ Structures
- ☐ Fences, Gates, and Walls
- ☐ Grading

☐ **21. ARBORIST REPORT** (A written technical report and photographs from a certified arborist regarding the size, information, health and value of the tree(s) proposed for removal.
- ☐ Tree protection plan

OTHER DOCUMENTS OR STUDIES

☐ ***20.*** **PARKING JUSTIFICATION** *(for shared parking agreements or parking variance)*

☐ ***21.*** **PARKING STUDY** *(if applicable)*

☐ ***22.*** **ENVIRONMENTAL STUDIES** *(if applicable)*
- ☐ Traffic Impact Analysis/Traffic Assessment
- ☐ Air Quality Study
- ☐ Habitat Assessment/Jurisdiction Delineation
- ☐ Noise Study
- ☐ Phase 1 and/or 2 Assessment

☐ **23.** **ARTS AND PUBLIC PLACES**

☐ **24. ENVIRONMENTAL FORM**

☐ **25.** **PUBLIC NOTIFICATION PACKET** *(if applicable)*

BREA PLANNING DIVISION

DENSITY BONUS APPLICATION

Housing development project applicants intending to request a density bonus, incentives or concessions, modifications or waivers, and/or reduced parking pursuant to California Government Code Section 65915 et. seq. (Density Bonuses and Other Incentives) must complete the following application.

Density Bonus applications shall be submitted with the Uniform Project Application Form directly to the Planning Division through electronic email. Please provide the following information:

GENERAL INFORMATION REQUIRED: *(Print or Type)*

Name of Proposed Project: South Brea Townhomes

Location of Project *(Address Required):* 685 S Brea Blvd Brea, CA 92821

Legal Description of Project Location *(Assessor's Parcel No.):* 284-282-06

PROJECT INFORMATION*: (Print or Type)*

A. PROJECT DESCRIPTION. Please include additional pages as needed.

Parcel size: 48,062 SF

Total number of units proposed without Density Bonus: 32

Total number of units proposed with Density Bonus: 0

Consistent with the annual Orange County income limits published by the Department of Housing and Community Development (HCD), total number of units affordable to:

- Extremely-Low Income Households: 0
- Very-Low Income Households: 0
- Lower Income Households: 0
- Moderate Income Households: 4

Total number of:

- Studio Units: 0
- 1-bedroom units: 0
- 2-bedroom units: 10
- 3-bedroom units: 22
- 4 or more bedroom units: 0

☐ The project includes a _____ square foot child care facility.

☐ The project is intended for a Special Needs Population. Please describe: _____

_____

_____

Staff Use Only

ACCELA RECORD NUMBER:

RELATED ENTITLEMENT NUMBER(S):

B. TYPE OF DENSITY BONUS. Please check the box next to the type of Density Bonus requested:

- ☐ General Density Bonus
- ☐ Land Donation (that satisfies the requirements of California Government Code Subsection 65915(g)(1))
- ☐ Child Care Facilities (that satisfies the requirements of California Government Code Subsection 65915(h))

C. DEVELOPMENT INCENTIVES. Describe below all incentives or concessions the applicant requests pursuant to California Government Code Section 65915. Attach additional pages as necessary to fully describe each incentive or concession.

Waiver: Private open space requirements
Waivers: Side street setbacks
Waiver: Front street setback
Waiver: landscaping setbacks
Waiver: Common open space requirements
(see included list on page 3)

D. PARKING RATIOS. Please indicate the number of required parking spaces Brea City Code Section 20.08.040.D and the number of proposed parking spaces. Please also provide this information on the site plan.

Number of Parking Spaces Required per the City Code (BCC 20.08.040.D): 81

Number of Parking Spaces Provided: 64

E. IMPACT ANALYSIS. Please attach an impact analysis for the project indicating that the proposed Density Bonus and/or Incentives are necessary to provide the Affordable Units proposed.

F. COMPLIANCE WITH CHAPTER 20.40 (AFFORDABLE HOUSING). Most housing developments are required to comply with the City's Affordable Housing Ordinance, which is codified as BCC Chapter 20.40 of the Zoning Code. Describe how the proposed project complies with the requirements of the said chapter:

The project is adhering to the City's previous Affordable Housing Ordinance by setting-aside 10% of the project, or 4 units, for moderate-income households.

G. ADDITIONAL INFORMATION. Any other information as may be required by the Planning and/or Community Development Department.

The project is also utilizing State Density Bonus Law's parking requirements. Under State Density Bonus Law, tandem parking is acceptable in the project design.

WAIVERS LIST

(Requirements stated *PER TABLE 2-6, DEVELOPMENT STANDARDS FOR "STAND ALONE" RESIDENTIAL PROJECTS IN MIXED USE 1 ZONING DISTRICT)

1) FRONT SETBACK (**WAIVER**):

	PROVIDED	REQUIRED*
FRONT (BREA BLVD)	0'-6"	10'

2) SIDE SETBACKS (**WAIVER**):

	PROVIDED	REQUIRED*
SIDE (W FIR ST BUILDING)	9'-2"	15'
SIDE (Patio Wall)	5'-2"	
SIDE (S WALNUT AVE)	3'-4"	15'

3) COMMON OPEN SPACE (**WAIVER**)

PROVIDED	REQUIRED*
23 SF/DU	100 SF/DU

4) PRIVATE OPEN SPACE (**WAIVER**)

PROVIDED	REQUIRED*
50 SF/DU	75 SF/DU

5) LANDSCAPING SETBACKS (**WAIVER**)

	PROVIDED	REQUIRED
BREA BLVD	1'-11"	8'
FIR ST	5'-2"	8'
WALNUT AVE	5'-11"	8'

COX CASTLE

Cox, Castle & Nicholson LLP
3121 Michelson Drive, Suite 200
Irvine, California 92612-5678
P: 949.260.4600 **F**: 949.260.4699

Sean Matsler
949.260.4652
SMatsler@coxcastle.com

January 24, 2024

VIA E-MAIL

Jessica Newton
Senior Planner
City of Brea
1 Civic Center Circle
Brea, CA 92821

Re: Brea 1 Inv, LLC Project and No Net Loss Findings

Dear Ms. Newton:

This Firm represents Brea 1 Inv, LLC in conjunction with a proposed residential development consisting of 32 three-story townhomes, generally located at the northwest corner of Fir Street and Brea Boulevard. This letter addresses the findings under the State's No Net Loss Law (Government Code § 65863) associated with the City's future consideration of the project.

The No Net Loss Law ("NNL") prohibits a city from causing its inventory of housing element sites to be insufficient to meet its remaining unmet share of the RHNA for lower and moderate-income households. (Govt. Code § 65863(a).) If a city approves the development of a parcel identified in its housing element with fewer units than shown in the housing element, it must either make findings that the housing element's remaining sites have sufficient capacity to accommodate the unmet RHNA by each income level or identify and make available sufficient sites to accommodate the remaining unmet RHNA. (Govt. Code § 65863(b).)

Here, even with approval of Brea 1 Inv, LLC's proposed project, the City's Housing Element ("HE") ***has adequate remaining capacity*** to accommodate its RHNA allocations by income level. The project site is identified as Focused Development Site 10 in the City's HE, with a unit potential of 32 lower income dwelling units. (HE Table HE-45, Appendix D.) However, as noted in Table HE-46, the City has a RHNA requirement of 669 VLI units and 393 LI units (or 1,062 total lower income units). The HE's sites inventory identifies a total unit capacity of 1,302 units lower income units, which is a ***surplus of 240 units***. The City's approval of the project, which would remove 32 of the units from the lower income capacity calculation, would not cause the lower income RHNA category to be insufficient, as there is still ***more than adequate capacity at the remaining HE sites***. As a result, the City is not required to identify alternative sites or undertake any rezoning.

Procedurally, to comply with the NNL, the City should make findings consistent with the facts above when approving the project. The resulting remaining capacity (also reflective of any

other projects approved within the calendar year that effect the HE's sites inventory capacity) should be included in the City's Housing Element Annual Progress Report submitted to the Department of Housing and Community Development.

Sincerely,

Sean Matsler
of COX, CASTLE & NICHOLSON LLP

CITY OF BREA

PLANNING COMMISSION NOTICE OF PUBLIC HEARING FOR TENTATIVE TRACT MAP NO. 19315, DENSITY BONUS NO. 2023-01, AND PRECISE DEVELOPMENT NO. 2023-03: TO ALLOW DEMOLITION OF AN EXISTNG COMMERCIAL BUILDING AND CONSTRUCTION OF A HOUSING DEVELOPMENT CONSISTING OF 29 SINGLE-FAMILY ATTACHED UNITS AND THREE (3) LIVE/WORK UNITS, FOR A TOTAL OF 32 UNITS, LOCATED AT 685 SOUTH BREA BOULEVARD.

NOTICE IS HEREBY GIVEN, pursuant to State Law, that a public hearing will be held by the Planning Commission to determine whether or not the subject request shall be approved under the provisions of State Law and the Brea City Code as follows:

DATE AND TIME OF HEARING:	**Tuesday, July 23, 2024, 6:00 p.m.** ***All interested persons may appear and be heard at that time.***
PLACE OF HEARING:	Brea Civic & Cultural Center, Council Chambers 1 Civic Center Circle, Brea, CA 92821
REQUEST:	The Applicant, Brea 1 Inv, LLC, is requesting the following entitlements: Tentative Tract Map (TTM) No. 19315, Density Bonus (DB) No. 2023-01, and Precise Development (P-D) No. 2023-03 to allow the demolition of an existing 6,845.97-square-foot commercial building and construction of a new housing development project that would include 29 residential single-family attached units and three live/work units, for a total of 32 units, dispersed in four buildings. The project includes four affordable units for moderate income households (10 percent of the total units). In addition, pursuant to the State Density Bonus Law, the proposed project proposes to utilize the following Density Bonus provisions: 1) Density Bonus parking standards; and 2) five waivers of development standards including, reductions to the front setback to 6", the street side setbacks to between 3'-4" and 5'-2", the common open space requirement to 19 square feet per dwelling unit, the private open space requirement to 50 square feet per dwelling unit, and the landscaping setbacks to between 1'-11" and 5'-11".
LOCATION:	The Project site is approximately 0.99 acres in size, and is located on the north side of Fir Street between Brea Boulevard and Walnut Avenue, at 685 South Brea Boulevard. The project site has a General Plan Land Use designation of Mixed Use I and a Zoning designation of Mixed-Use I (MU-I).
ENVIRONMENTAL:	The project has been assessed in accordance with the California Environmental Quality Act (CEQA) Guidelines and the environmental regulations of the City. The Project is categorically exempt from the requirements to prepare additional environmental documentation per CEQA Guidelines Section 15332 – Class 32 (In-Fill Development Projects).

IF YOU CHALLENGE THE PROJECT AND RELATED ENVIRONMENTAL DETERMINATIONS IN COURT, YOU MAY BE LIMITED TO RAISING ONLY THOSE ISSUES YOU OR SOMEONE ELSE RAISED AT THE PUBLIC HEARING DESCRIBED IN THIS NOTICE, OR IN WRITTEN CORRESPONDENCE, DELIVERED TO THE COMMISSION AT, OR PRIOR TO, THE PUBLIC HEARING.

FURTHER INFORMATION MAY BE OBTAINED BY CALLING THE PLANNING DIVISION AT (714) 990-7674 OR BY EMAILING planner@cityofbrea.net.

COMMUNITY DEVELOPMENT DEPARTMENT

Joanne Hwang, AICP, City Planner

AREA MAP

Jamboree

May 9, 2024

Mr. Jason Killebrew
Community Development Director
City of Brea
1 Civic Center Circle
Brea, California 92821

Re: Letter of Support – City Ventures Project at 685 South Brea Boulevard

Dear Mr. Killebrew,

I am writing to express my support for City Ventures' proposed 32-unit mixed-income homeownership project located at 685 South Brea Boulevard that will bring 28 market-rate and 4 income-restricted single-family attached townhomes to South Brea Boulevard.

Jamboree is an award-winning nonprofit housing development company that develops, acquires, renovates, and manages permanently affordable rental and ownership housing throughout California. With over 10,000 units, 209 of which are in Brea, we are one of the largest nonprofit developers in the State. Included in that portfolio are two of our best projects, Bonterra and Birch Hills, which remain successful affordable housing communities in Brea. As you know, Jamboree previously attempted to develop this property for an affordable rental community. We greatly appreciated the City's support for that proposal and we remain disappointed that the project was ultimately not feasible. However, we are encouraged to see a mixed-income for-sale project move forward.

One of the greatest challenges facing local Orange County cities is the lack of affordable housing options for families across ALL income levels. The City Ventures project presents a unique opportunity to address this issue by providing affordable homeownership opportunities while also promoting social integration and cohesion within the neighborhood.

By incorporating a mix of market-rate and affordable housing units, this project will not only expand access to homeownership for moderate-income families but also contribute to the overall vibrancy and diversity of the community. Homeownership plays a crucial role in building wealth and stability for families, and by making it more accessible to a broader range of residents, we can help bridge the gap between socioeconomic disparities.
City Ventures is, of course, one of the preeminent developers in California. Their track record is a long history of delivering high-quality, mixed-income developments that become strong neighborhoods, adding value to their homebuyers and the overall community.

I commend the City of Brea for taking steps to address the pressing issue of housing affordability, and I urge you to support the approval and implementation of this mixed-income homeownership project.

Thank you for your attention to this matter and please do not hesitate to reach out if you require any further information or assistance.

Sincerely,

Michael Massie
Executive Vice President & Chief Development Officer
Jamboree
MMassie@Jamboreehousing.com

BREA CHAMBER
CATALYST. CONVENER. CHAMPION.

June 12, 2024

Brea Planning Commission
City of Brea
1 Civic Center Circle
Brea, California 92821

Re: Support for City Ventures' Project at 685 South Brea Boulevard

Dear Chair Covey, Vice Chair Schlotterbeck, and Planning Commissioners,

I am writing to express the Brea Chamber of Commerce's support for City Ventures' proposed 32 unit mixed-income homeownership project located at 685 South Brea Boulevard that will bring 28 market-rate and four income-restricted single-family attached townhomes to South Brea Boulevard.

As you know, Brea—and the region—faces a significant housing crisis. Between 2018-2023, Brea experienced a 33.3% increase in home values. Brea's housing shortage hurts our local economy by making it increasingly difficult for local businesses to attract and retain workers. That's why the Brea Chamber of Commerce recently hosted the 2024 Orange County Regional Housing Forum. During the forum, the panelists commended the City of Brea's efforts to build more housing at all income levels, but all agreed that more work was needed. This project helps Brea alleviate the housing shortage while ensuring that Brea families can attain the American Dream of homeownership.

On behalf of the Brea Chamber of Commerce, I urge you to support the approval and implementation of this mixed-income homeownership project. Together, we can create homeownership opportunities for Brea residents and create a stronger local economy for our businesses.

Thank you for your consideration of this project and please do not hesitate to reach out if you require any further information or assistance.

Sincerely,

Lacy Schoen
President/CEO

2023 Executive Committee
Eric Padilla
Chairman of the Board
Palatable Promotions

Bill Murray
Finance & Operations
Edward Jones Investments

Ashley Cole
Housing
Business Success Services

Jill Dunn
Chevron

Justin Lee
Events
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Albertsons Distribution Center

Ross McCune
Caisteal Builders

Robert Nevarez
HN Financial

Tim Hou
Amazon

Lacy Schoen
President/CEO

Scoping Agreement for Traffic Impact Analysis

This form acknowledges the requirements for the traffic impact analysis of the following project. The analysis will follow the local jurisdiction's traffic impact analysis guidelines.

Project Name:	Brea and Fir Traffic and Parking
Project Address:	Northwest corner of Brea Blvd and Fir St in the city of Brea
Project Description:	32 units of single-family homes ~~with 8 of them as 3 story live/work units and 24 as 3 story attached townhomes.~~

	Consultant	Developer
Name:	TJW Engineering	
Address:	9841 Irvine Center Drive, Suite 200	
	Irvine, CA	
Telephone:	949-878-3509	
Email:		

Trip Generation Source: ITE Trip Generation Manual, 11th Edition (2021)

Current GP Land Use:	Mixed-Use I	Proposed GP Land Use:	Mixed-Use I
Current Zoning:		Proposed Zoning:	

Is the project screened from LOS analysis? [X] Yes [ ] No

Justification:	The Project generates fewer than 50 peak hour trips and per City of Brea TIA Guidelines (2020), projects generating fewer than 50 peak hour trips do not require a complete TIA analysis.

Is the project screened from VMT analysis? [X] Yes [ ] No

Justification:	Project is within a low VMT area and is consistent with the existing land uses of the area. As shown on the attached NOCC+ tool analysis report the proposed project screens out of the need for a VMT assessment in accordance with the CIty of Brea screening guidelines.

	Existing Trip Generation			Proposed Trip Generation		
	In	Out	Total	In	Out	Total
AM Trips				4	11	15
PM Trips				11	7	18
Daily						230

Internal Trip Capture: [ ] Yes [X] No _____ % Trip Discount

Pass-By Allowance: [ ] Yes [X] No _____ % Trip Discount

Trip Distribution: _____

Project Build-out Year: _____ Annual Ambient Growth Rate: _____

Study Intersections:

1. _____ 6. _____
2. _____ 7. _____
3. _____ 8. _____
4. _____ 9. _____
5. _____ 10. _____

Study Roadway Segments:

1. _____ 3. _____
2. _____ 4. _____

Analysis Scenarios:

1. _____ 6. _____
2. _____ 7. _____
3. _____ 8. _____
4. _____ 9. _____
5. _____ 10. _____

Other Jurisdiction Analyzed? [ ] Yes [X] No Name of Jurisdiction: _____

Date of Traffic Counts: _____

Additional Items to be Addressed:	TJW will conduct a parking demand study. The Parking demand study will identify the City code parking requirement, the proposed project's parking supply, and the project's proposed parking demand. The project's proposed parking demand will be based on ITE's Parking Generation Manual (5th edition). A comparison will be provided to determine if adequate parking is provided.

Additional Notes:	See attached NOCC+ tool analysis report for the project as provided by David Roseman, City Traffic Engineer. The report indicates that the proposed project screens out of further VMT anayslis and thus it is anticipated to not have a significant effect on the transportation system for the purposes of CEQA.

Names:	
David Chew	David Roseman
Consultant's Representative	City (Approved By)
Signatures:	City Traffic Engineer
Consultant's Representative	City (Approved By)
10/11/2023	7/1/2024
Date	Date

Table 1

Project Trip Generation

Proposed Land Use[1]	ITE Code	Qty	Unit[2]	Daily		AM Peak Hour					PM Peak Hour				
				Rate	Volume	Rate	In:Out Split	Volume			Rate	In:Out Split	Volume		
								In	Out	Total			In	Out	Total
Single-Family Atached Housing	215	32	DU	7.2	230	0.48	25:75	4	11	15	0.57	59:41	11	7	18

1: Trip generation and pass-by rates from ITE Trip Generation (11th Edition, 2021).

2: DU = Dwelling Units.

PROJECT SUMMARY

ZONING	MIXED-USE I
AREA	0.98 AC (GROSS)
UNITS	32 DU
DENSITY	32.6 DU/AC

UNIT MIX

PLAN	BD / BA	SF	PRIVATE OS / UNIT	COUNT	PRIVATE OS TOTAL
PLAN 1	2 BD/ 2 BA	±1,250 SF	50 SF	4 DU (12.5%)	200 SF
PLAN 2	3 BD/ 3 BA	1,481 SF	80 SF	12 DU (37.5%)	960 SF
PLAN 3	3 BD/ 2.5 BA	±1,500 SF	60 SF	4 DU (12.5%)	240 SF
PLAN 4	3 BD + DEN/ 3 BA	1,716 SF	90 SF	8 DU (25%)	720 SF
PLAN 5	3 BD/3 BA + LIVE/WORK	1,716 SF	90 SF	4 DU (12.5%)	720 SF
TOTAL				32 DU (100%)	2,840 SF

BUILDING AREA

BUILDING TYPE 100 - 13,000 SF - 4 BLDGS ON SITE	52,000 SF
BUILDING TYPE 200 - 16,000 SF - 1 BLDG ON SITE	16,000 SF
TOTAL BUILDING AREA	68,000 SF

PARKING PROVIDED

ON-SITE (GARAGE)	64 SPACES (2.0 / DU)
OFF-SITE (ON-STREET)	±11 SPACES
TOTAL	75 SPACES (2.3 / DU)

DEVELOPMENT STANDARDS

SETBACKS	
FRONT	0'
SIDE, SINGLE STORY	0'
SIDE, SECOND STORY AND ABOVE	10'
SIDE, STREET	0'
SIDE, ADJOINING, RESI	10'
REAR, ADJACENT TO RESI	10'
BLDG SEPARATION ON SAME PARCEL	0'
BLDG HEIGHT	100'

*NOTE: PROJECT BOUNDARY IS APPROXIMATE AND NEEDS VERIFICATION BY CIVIL ENGINEER.

ktgy
Architecture + Planning
888.456.5849
ktgy.com

City Ventures

BREA AND FIR
BREA, CA # 2023-0485

CONCEPTUAL DESIGN
SEPTEMBER 07, 2023

0 10 20 40

CONCEPTUAL YIELD STUDY
ALT 1

A1.0

NOCC+

North Orange County Collaborative VMT Traffic Study Screening Tool

Project Information

Project Name	Opening Year
City Ventures @ 685 S. Brea Boulevard	2025

Parcel Number (OCTAM TAZ#65)

T

Screening Criteria for Brea

Is the project location in a Transit Priority Area?	No
Is the project location in a low VMT generating zone?	Review
Is the Project one of these land use types? (show land use types)	No
Does the project generate fewer than 250 daily trips? (enter project land use in the section below)	Yes

The Project can be considered for screening from additional analysis.
Please refer to the 'secondary screening checks' table in the User Guide.

Project Land Use Information

		Unit
Residential : Single Family Homes	0	Dwelling Units
Residential : MultiFamily Homes	32	Dwelling Units
Office	0.000	1,000 Sqaure Feet
Retail	0.000	1,000 Sqaure Feet
Industrial	0.000	1,000 Sqaure Feet
Private School	0	Students
University	0	Students
Entertainment	0.000	1,000 Sqaure Feet
Hotel	0	Rooms

Project Trips and VMT Information

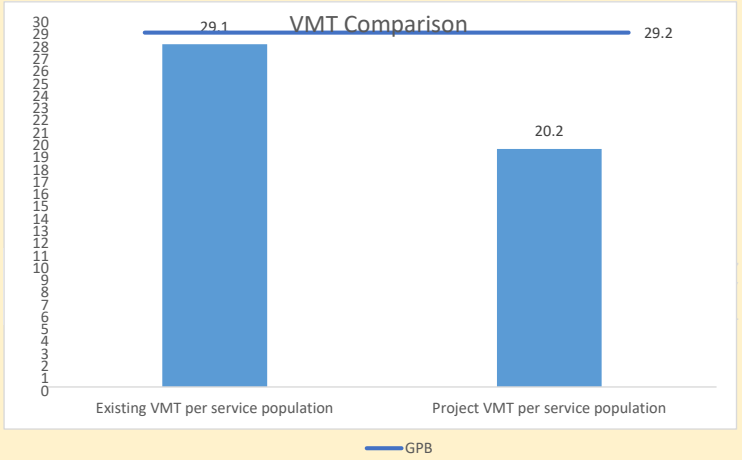
VMT Methodology: Origin Destination (OD)

Daily Trips: 211 Average Trip Length: 7.7 Service Population: 80

VMT per service population: 20.2

Project VMT Thresholds Comparison

- [ ] OPR Guidance (15% Below Existing)
- [ ] GHG Reduction Targets (14.3% Below Existing)
- [ ] Below Existing
- [x] Better than General Plan Buildout



FEHR PEERS

West Fir Street & South Brea Blvd Project

Noise Impact Study

City of Brea, CA

Prepared for:

Mr. Patrick Chien
City Ventures
3121 Michaelson Drive, Suite 150
Irvine, CA 92555

Prepared by:

MD Acoustics, LLC
Matthew Gyles
Claire Pincock, INCE-USA
1197 Los Angeles Ave, Ste C-256
Simi Valley, CA 93065

Date: 7/3/2024

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1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

This noise assessment was prepared to evaluate the potential noise impacts for the project study area and to recommend noise mitigation measures, if necessary, to minimize the potential noise impacts. The assessment was conducted and compared to the noise standards set-forth by the Federal, State and Local agencies. Consistent with the City's Noise Guidelines, the project must demonstrate compliance to the applicable noise criterion as outlined within the City's Noise Element and Municipal Code.

The following is provided in this report:

- A description of the study area and the proposed project
- Information regarding the fundamentals of noise
- A description of the local noise guidelines and standards
- An analysis of traffic noise impacts to and from the project site
- An analysis of construction noise impacts

1.2 Site Location and Study Area

The project site is located at West Fir Street & South Brea Blvd, in the City of Brea, California, as shown in Exhibit A. The project site lot is designated as high-density residential. Land uses surrounding the site include residential to the north, east, and west, and commercial to the north and south.

1.3 Proposed Project Description

The project consists of a housing development of 29 attached 3-story townhomes and 3 live/work units on 0.99 acres. The site plan used for this project, provided by City Ventures, is shown in Exhibit B.

This study assesses the traffic noise to and from the project site and compares the results to the applicable City noise standards. In addition, the study reviews noise generated by construction activities.

Construction activities within the Project area will consist of on-site demolition, site prep, grading, building, paving, and architectural coating.

Windows must be STC 31 or higher for first-row units facing S Brea Blvd.

Exhibit A

Location Map

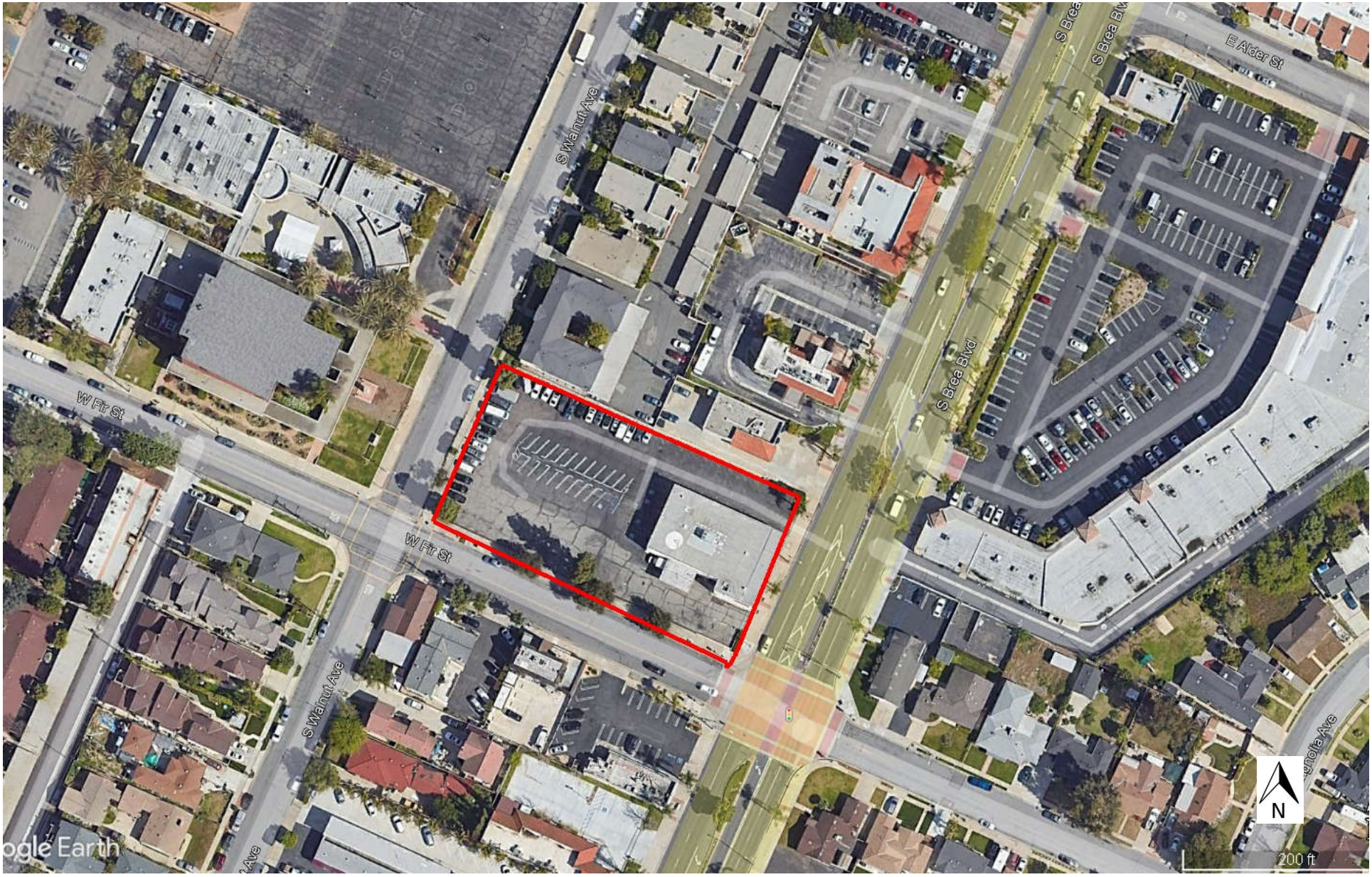
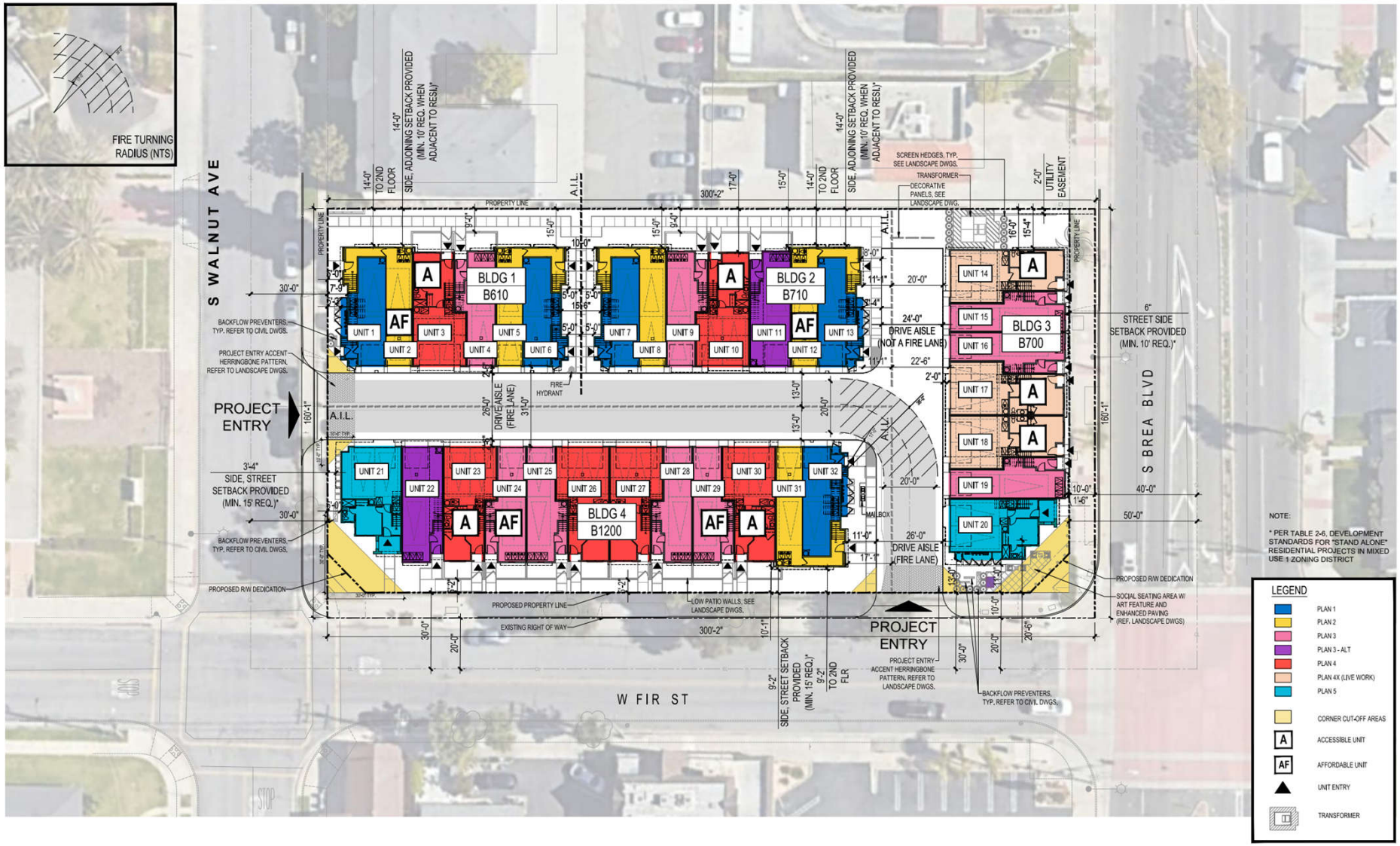


Exhibit B

Site Plan



ktgy Architecture + Planning 888.456.5849 ktgy.com

CITY VENTURES Building It Forward

685 S. BREA BLVD, BREA CALIFORNIA 92821
BREA AND FIR
BREA, CA # 2023-0485

Plot Date: 6.25.2024
1st Submittal Date: 11.21.2023
2nd Submittal Date: 02.22.2024
3rd Submittal Date: 05.09.2024
4th Submittal Date: 06.11.2024
5th Submittal Date: 06.27.2024

SCALE: 1/16" = 1'-0"

SITE PLAN A1.00

2.0 Fundamentals of Noise

This section of the report provides basic information about noise and presents some of the terms used within the report.

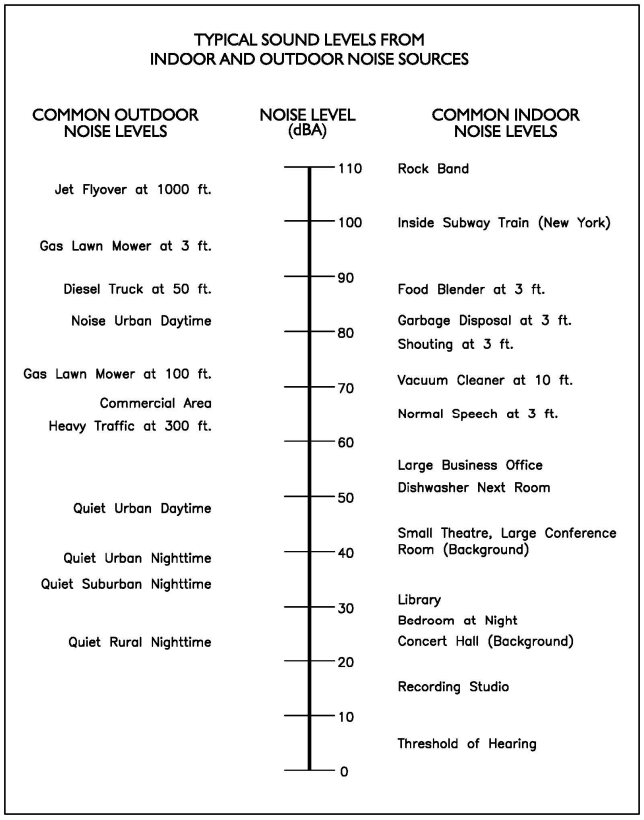
2.1 Sound, Noise and Acoustics

Sound is a disturbance created by a moving or vibrating source and is capable of being detected by the hearing organs. Sound may be thought of as mechanical energy of a moving object transmitted by pressure waves through a medium to a human ear. For traffic, or stationary noise, the medium of concern is air. *Noise* is defined as sound that is loud, unpleasant, unexpected, or unwanted.

2.2 Frequency and Hertz

A continuous sound is described by its *frequency* (pitch) and its *amplitude* (loudness). Frequency relates to the number of pressure oscillations per second. Low-frequency sounds are low in pitch (bass sounding) and high-frequency sounds are high in pitch (squeak). These oscillations per second (cycles) are commonly referred to as Hertz (Hz). The human ear can hear from the bass pitch starting out at 20 Hz all the way to the high pitch of 20,000 Hz.

Exhibit C: Typical A-Weighted Noise Levels



2.3 Sound Pressure Levels and Decibels

The *amplitude* of a sound determines it loudness. The loudness of sound increases or decreases as the amplitude increases or decreases. Sound pressure amplitude is measure in units of micro-Newton per square inch meter (N/m2), also called micro-Pascal (µPa). One µPa is approximately one hundred billionths (0.00000000001) of normal atmospheric pressure. Sound pressure level (SPL or L_p) is used to describe in logarithmic units the ratio of actual sound pressures to a reference pressure squared. These units are called decibels abbreviated dB. Exhibit C illustrates references sound levels for different noise sources.

2.4 Addition of Decibels

Because decibels are on a logarithmic scale, sound pressure levels cannot be added or subtracted by simple plus or minus addition. When two sounds or equal SPL are combined, they will produce an SPL 3 dB greater than the original single SPL. In other words, sound energy must be doubled to produce a 3 dB increase. If two sounds differ by approximately 10 dB, the higher sound level is the predominant sound.

2.5 Human Response to Changes in Noise Levels

In general, the healthy human ear is most sensitive to sounds between 1,000 Hz and 5,000 Hz, (A-weighted scale) and it perceives a sound within that range as being more intense than a sound with a higher or lower frequency with the same magnitude. For purposes of this report as well as with most environmental documents, the A-scale weighting is typically reported in terms of A-weighted decibel (dBA). Typically, the human ear can barely perceive the change in noise level of 3 dB. A change in 5 dB is readily perceptible, and a change in 10 dB is perceived as being twice or half as loud. As previously discussed, a doubling of sound energy results in a 3 dB increase in sound, which means that a doubling of sound energy (e.g. doubling the volume of traffic on a highway) would result in a barely perceptible change in sound level.

Changes in Intensity Level, dBA	Changes in Apparent Loudness
1	Not perceptible
3	Just perceptible
5	Clearly noticeable
10	Twice (or half) as loud

https://www.fhwa.dot.gov/environMent/noise/regulations_and_guidance/polguide/polguide02.cfm

2.6 Noise Descriptors

Noise in our daily environment fluctuates over time. Some noise levels occur in regular patterns, others are random. Some noise levels are constant while others are sporadic. Noise descriptors were created to describe the different time-varying noise levels.

A-Weighted Sound Level: The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear. A numerical method of rating human judgment of loudness.

Ambient Noise Level: The composite of noise from all sources, near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

Community Noise Equivalent Level (CNEL): The average equivalent A-weighted sound level during a 24-hour day, obtained after addition of five (5) decibels to sound levels in the evening from 7:00 to 10:00 PM and after addition of ten (10) decibels to sound levels in the night before 7:00 AM and after 10:00 PM.

Decibel (dB): A unit for measuring the amplitude of a sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micro-pascals.

dB(A): A-weighted sound level (see definition above).

Equivalent Sound Level (LEQ): The sound level corresponding to a steady noise level over a given sample period with the same amount of acoustic energy as the actual time varying noise level. The energy average noise level during the sample period.

Habitable Room: Any room meeting the requirements of the Uniform Building Code or other applicable regulations which is intended to be used for sleeping, living, cooking or dining purposes, excluding such enclosed spaces as closets, pantries, bath or toilet rooms, service rooms, connecting corridors, laundries, unfinished attics, foyers, storage spaces, cellars, utility rooms and similar spaces.

L(n): The A-weighted sound level exceeded during a certain percentage of the sample time. For example, L10 in the sound level exceeded 10 percent of the sample time. Similarly L50, L90 and L99, etc.

Noise: *A*ny unwanted sound or sound which is undesirable because it interferes with speech and hearing, or is intense enough to damage hearing, or is otherwise annoying. The State Noise Control Act defines noise as "...excessive undesirable sound...".

Outdoor Living Area: Outdoor spaces that are associated with residential land uses typically used for passive recreational activities or other noise-sensitive uses. Such spaces include patio areas, barbecue areas, jacuzzi areas, etc. associated with residential uses; outdoor patient recovery or resting areas associated with hospitals, convalescent hospitals, or rest homes; outdoor areas associated with places of worship which have a significant role in services or other noise-sensitive activities; and outdoor school facilities routinely used for educational purposes which may be adversely impacted by noise. Outdoor areas usually not included in this definition are: front yard areas, driveways, greenbelts, maintenance areas and storage areas associated with residential land uses; exterior areas at hospitals that are not used for patient activities; outdoor areas associated with places of worship and principally used for short-term social gatherings; and, outdoor areas associated with school facilities that are not typically associated with educational uses prone to adverse noise impacts (for example, school play yard areas).

Percent Noise Levels: See L(n).

Sound Level (Noise Level): The weighted sound pressure level obtained by use of a sound level meter having a standard frequency-filter for attenuating part of the sound spectrum.

Sound Level Meter: An instrument, including a microphone, an amplifier, an output meter, and frequency weighting networks for the measurement and determination of noise and sound levels.

Single Event Noise Exposure Level (SENEL): The dB(A) level which, if it lasted for one second, would produce the same A-weighted sound energy as the actual event.

2.7 Traffic Noise Prediction

Noise levels associated with traffic depends on a variety of factors: (1) volume of traffic, (2) speed of traffic, (3) auto, medium truck (2 axle) and heavy truck percentage (3 axle and greater), and sound propagation. The greater the volume of traffic, higher speeds and truck percentages equate to a louder volume in noise. A doubling of the Average Daily Traffic (ADT) along a roadway will increase noise levels by approximately 3 dB; reasons for this are discussed in the sections above.

2.8 Sound Propagation

As sound propagates from a source it spreads geometrically. Sound from a small, localized source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates at a rate of 6 dB per doubling of distance. The movement of vehicles down a roadway makes the source of the sound appear to propagate from a line (i.e., line source) rather than a point source. This line source results in the noise propagating from a roadway in a cylindrical spreading versus a spherical spreading that results from a point source. The sound level attenuates for a line source at a rate of 3 dB per doubling of distance.

As noise propagates from the source, it is affected by the ground and atmosphere. Noise models use hard site (reflective surfaces) and soft site (absorptive surfaces) to help calculate predicted noise levels. Hard site conditions assume no excessive ground absorption between the noise source and the receiver. Soft site conditions such as grass, soft dirt or landscaping attenuate noise at a rate of 1.5 dB per doubling of distance. When added to the geometric spreading, the excess ground attenuation results in an overall noise attenuation of 4.5 dB per doubling of distance for a line source and 7.5 dB per doubling of distance for a point source.

Research has demonstrated that atmospheric conditions can have a significant effect on noise levels when noise receivers are located 200 feet or more from a noise source. Wind, temperature, air humidity and turbulence can further impact have far sound can travel.

3.0 Ground-Borne Vibration Fundamentals

3.1 Vibration Descriptors

Ground-borne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of ground-borne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although ground-borne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Ground-borne noise is an effect of ground-borne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

Several different methods are used to quantify vibration amplitude.

PPV – Known as the peak particle velocity (PPV) which is the maximum instantaneous peak in vibration velocity, typically given in inches per second.

RMS – Known as root mean squared (RMS) can be used to denote vibration amplitude

VdB – A commonly used abbreviation to describe the vibration level (VdB) for a vibration source.

3.2 Vibration Perception

Typically, developed areas are continuously affected by vibration velocities of 50 VdB or lower. These continuous vibrations are not noticeable to humans whose threshold of perception is around 65 VdB. Outdoor sources that may produce perceptible vibrations are usually caused by construction equipment, steel-wheeled trains, and traffic on rough roads, while smooth roads rarely produce perceptible ground-borne noise or vibration. To counter the effects of ground-borne vibration, the Federal Transit Administration (FTA) has published guidance relative to vibration impacts. According to the FTA, fragile buildings can be exposed to ground-borne vibration levels of 0.3 inches per second without experiencing structural damage.

There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves, or Rayleigh waves, travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves, or compression waves, are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal (i.e., in a "push-pull" fashion). P-waves are analogous to airborne sound waves. S-waves, or shear waves, are also body waves that carry energy along an expanding spherical wave front. However, unlike P-waves, the particle motion is transverse, or side-to-side and perpendicular to the direction of propagation.

As vibration waves propagate from a source, the vibration energy decreases in a logarithmic nature and the vibration levels typically decrease by 6 VdB per doubling of the distance from the vibration source. As stated above, this drop-off rate can vary greatly depending on the soil but has been shown to be

effective enough for screening purposes, in order to identify potential vibration impacts that may need to be studied through actual field tests.

4.0 Regulatory Setting

The proposed project is located in the City of Brea and noise regulations are addressed through the efforts of various federal, state and local government agencies. The agencies responsible for regulating noise are discussed below.

4.1 Federal Regulations

The adverse impact of noise was officially recognized by the federal government in the Noise Control Act of 1972, which serves three purposes:

- Publicize noise emission standards for interstate commerce
- Assist state and local abatement efforts
- Promote noise education and research

The Federal Office of Noise Abatement and Control (ONAC) originally was tasked with implementing the Noise Control Act. However, it was eventually eliminated leaving other federal agencies and committees to develop noise policies and programs. Some examples of these agencies are as follows: The Department of Transportation (DOT) assumed a significant role in noise control through its various agencies. The Federal Aviation Agency (FAA) is responsible to regulate noise from aircraft and airports. The Federal Highway Administration (FHWA) is responsible to regulate noise from the interstate highway system. The Occupational Safety and Health Administration (OSHA) is responsible for the prohibition of excessive noise exposure to workers.

The federal government advocates that local jurisdiction use their land use regulatory authority to arrange new development in such a way that “noise sensitive” uses are either prohibited from being constructed adjacent to a highway or, or alternatively that the developments are planned and constructed in such a manner that potential noise impacts are minimized.

Since the federal government has preempted the setting of standards for noise levels that can be emitted by the transportation source, the City is restricted to regulating the noise generated by the transportation system through nuisance abatement ordinances and land use planning.

4.2 State Regulations

Established in 1973, the California Department of Health Services Office of Noise Control (ONC) was instrumental in developing regularity tools to control and abate noise for use by local agencies. One significant model is the “Land Use Compatibility for Community Noise Environments Matrix.” The matrix allows the local jurisdiction to clearly delineate compatibility of sensitive uses with various incremental levels of noise.

The State of California has established noise insulation standards as outlined in Title 24 and the Uniform Building Code (UBC) which in some cases requires acoustical analyses to outline exterior noise levels and to ensure interior noise levels do not exceed the interior threshold. The State mandates that the legislative body of each county and city adopt a noise element as part of its comprehensive general plan.

4.3 City of Brea Noise Regulations

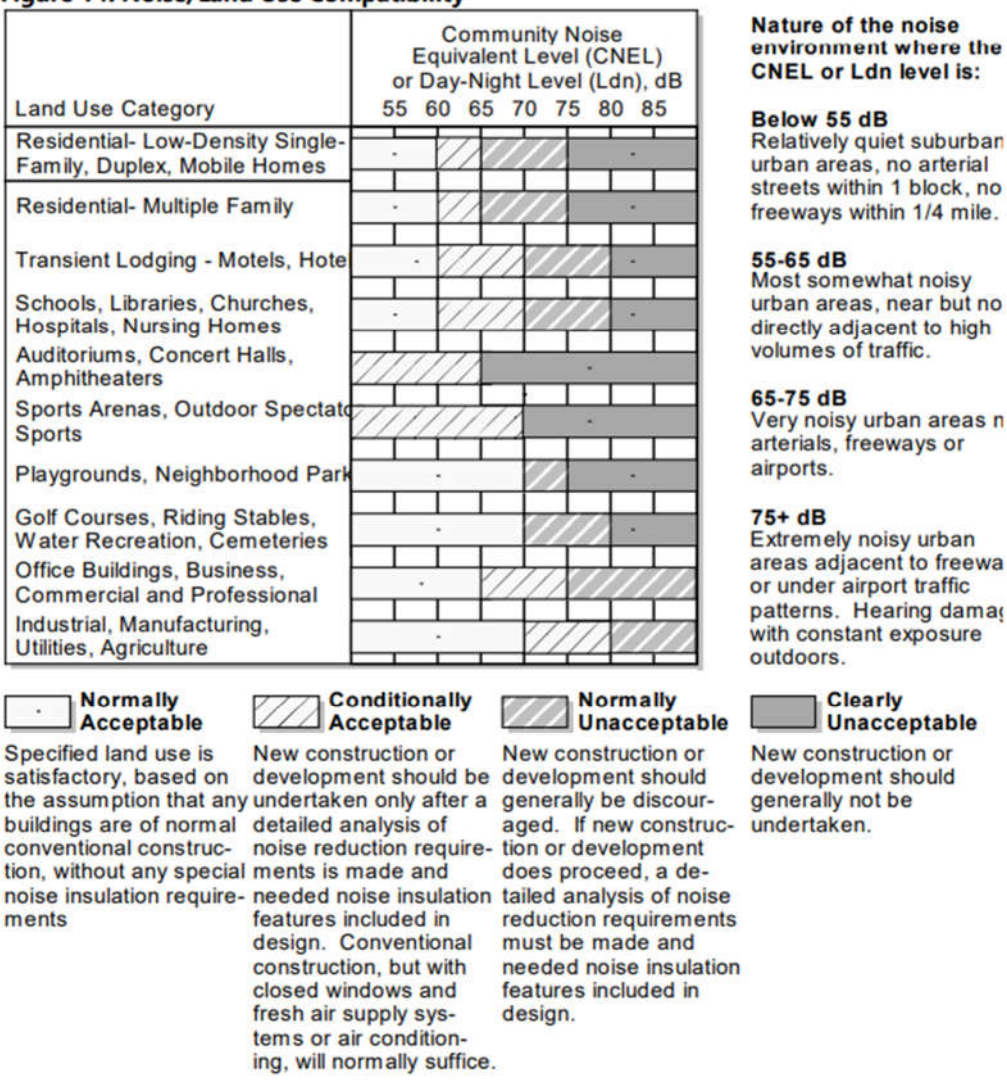
The City of Brea outlines its noise regulations and standards within the Noise Element from the General Plan and the Noise Ordinance from the Municipal Code.

City of Brea General Plan

The Brea General Plan describes the major noise sources and defines the goals and policies to include noise control in the planning process to maintain compatible land uses with acceptable environmental noise levels. The noise element outlines the land use compatibility guidelines published by the State Department of Health Services. The guidelines rank noise land use compatibility in terms of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable as illustrated in Exhibit D (Figure 14 from the General Plan).

Exhibit D: Land Use Compatibility Guidelines

Figure 14. Noise/Land Use Compatibility



Goals, Policies, and Implementation Measures

Policies, goals and implementation program measures from the Noise Element that would mitigate potential impacts on noise include the following.

Goal PS-9: Minimize the impact of point source noise and ambient noise levels throughout the community.

Policies

PS-9.1 1 Evaluate the need to require acoustical studies for development proposals that address both direct and indirect, particularly traffic, noise impacts, and require such studies, with appropriate mitigation included, as warranted.

PS-9.2 Ensure that the noise standards set forth in the Municipal Code reflect standards most appropriate for Brea

PS-9.3 Ensure that acceptable noise levels are maintained near schools, hospitals, convalescent homes, and other noise sensitive areas in accordance with the City's Municipal Code and noise standards contained in the General Plan.

PS-9.4 Employ creative methods of reducing noise pollution in the City.

PS-9.5 Avoid placing high-noise activity centers near residential areas.

Goal PS-10: Minimize the impacts of transportation related noise.

Policies

PS-10.1 Reduce transportation noise by imposing traffic restrictions where necessary.

PS-10.2 Work with the counties of Orange and Los Angeles to include noise mitigation measures in the design of new roadway projects.

Goal PS-11:Minimize noise impacts from sources other than transportation.

Policies

PS-11.1 Require the inclusion of noise mitigation measures, techniques, and design features in the planning, design, and construction of future development and redevelopment projects.

PS-11.2 Require that mixed-use structures be designed to prevent transfer of noise and vibration from commercial/retail to residential use.

PS.11.3 Minimize stationary noise sources and noise emanating from construction activities and special events.

PS-11.4 Require that new non-residential development plan delivery areas away from existing residential areas.

PS-11.5 Continue active enforcement to limit commercial and industrial delivery hours adjoining residential areas.

City of Brea Municipal Code – Chapter 8.20: Noise Control

Section 8.20.050A. establishes the noise standards for residential properties to be 55 dBA between 7am and 10pm, and 50 dBA between 10PM and 7am.

Section 8.20.050B. state that it shall be unlawful for any person at any location within the city to create any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other residential property, to exceed:

1.The noise standard for a cumulative period of more than 30 minutes in any hour; or

2.The noise standard plus five (5) dB(A) for a cumulative period of more than 15 minutes in any hour; or

3.The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or

4.The noise standards plus fifteen (15) dB(A) for a cumulative period of more than one (1) minute in any hour; or

5.The noise standard plus twenty (20) dB(A) for any period of time.

Section 8.20.070 establishes that the construction, repair, remodeling, or grading of property is exempt from the provisions of chapter 8.20, provided said activities do not take place between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, including Saturday, or at any time on Sunday or a federal holiday.

City of Brea Municipal Code – Chapter 20.20: Performance Standards

Section 20.20.040 Vibration states: Every use shall be so operated that the ground vibration inherently and recurrently generated does not cause a displacement of the earth greater than .003 of one (1) inch as measured at the property line of the subject use.

The project is not anticipated to generate substantial vibration due to operations. This code does not apply to short-term construction vibration, as it is not “inherently and recurrently generated” at the project site.

5.0 Study Method and Procedure

The following section describes the noise modeling procedures and assumptions used for this assessment.

5.1 Noise Measurement Procedure and Criteria

Noise measurements are taken to determine the existing noise levels. A noise receiver or receptor is any location in the noise analysis in which noise might produce an impact. The following criteria are used to select measurement locations and receptors:

- Locations expected to receive the highest noise impacts, such as the first row of houses
- Locations that are acoustically representative and equivalent of the area of concern
- Human land usage
- Sites clear of major obstruction and contamination

MD conducted the sound level measurements in accordance to the County's and Caltrans (TeNS) technical noise specifications. All measurement equipment meets American National Standards Institute (ANSI) specifications for sound level meters (S1.4-1983 identified in Chapter 19.68.020.AA). The following gives a brief description of the Caltrans Technical Noise Supplement procedures for sound level measurements:

- Microphones for sound level meters were placed 5-feet above the ground for all measurements
- Sound level meters were calibrated (Larson Davis CAL 200) before and after each measurement
- Following the calibration of equipment, a windscreen was placed over the microphone
- Frequency weighting was set on "A" and slow response
- Results of the long-term noise measurements were recorded on field data sheets
- During any short-term noise measurements, any noise contaminations such as barking dogs, local traffic, lawn mowers, or aircraft fly-overs were noted
- Temperature and sky conditions were observed and documented

5.2 Noise Measurement Locations

Noise monitoring locations were selected based on the nearest sensitive receptors relative to the proposed noise sources impacting the area. Four (4) short-term 15-min noise measurement were conducted at or near the project site and are illustrated in Exhibit F. Appendix A includes photos, field sheet, and measured noise data.

5.3 FHWA Traffic Noise Prediction Model

Traffic noise from vehicular traffic was projected using the FHWA Traffic Noise Prediction Model (FHWA-RD-77-108) standards. The FHWA model arrives at the predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). Project counts were obtained from the CalEEMod prepared for this project. The referenced traffic data was applied to the model and is in Appendix B. The following outlines the key adjustments made to the REMEL for the roadway inputs:

- Roadway classification – (e.g., freeway, major arterial, arterial, secondary, collector, etc.),

- Roadway Active Width – (distance between the center of the outermost travel lanes on each side of the roadway)
- Average Daily Traffic Volumes (ADT), Travel Speeds, Percentages of automobiles, medium trucks and heavy trucks
- Roadway grade and angle of view
- Site Conditions (e.g., soft vs. hard)
- Percentage of total ADT which flows each hour throughout a 24-hour period

Table 1 indicates the roadway parameters and vehicle distribution utilized for this study.

Table 1: Roadway Parameters and Vehicle Distribution

Roadway	Segment	Existing ADT[1]	Existing + Project ADT[1]	Speed (MPH)	Site Conditions
Brea Blvd	S Brea Blvd and W Fir St	28,220	28,363	40	Hard
Whittier Blvd Vehicle Distribution and Mix[2]					
Motor-Vehicle Type		**Daytime % (7AM to 7 PM)**	**Evening % (7 PM to 10 PM)**	**Night % (10 PM to 7 AM)**	**Total % of Traffic Flow**
Automobiles		77.5	12.9	9.6	97.5
Medium Trucks		84.8	4.9	10.3	1.8
Heavy Trucks		86.5	2.7	10.8	0.7

Notes:
[1] Projected ADT to 2024.
[2] Project ADT from project CalEEMod.

Fir Street and Walnut Avenue do not significantly contribute to the noise level on site. To determine the project's noise impact to the surrounding land uses, MD generated noise contours for projected 2024 conditions. Noise contours are used to provide a characterization of sound levels experienced at a set distance from the centerline of a subject roadway. They are intended to represent a worst-case scenario and do not take into account structures, sound walls, topography, and/or other sound attenuating features which may further reduce the actual noise level. Noise contours are developed for comparative purposes and are used to demonstrate potential increases/decreases along subject roadways because of a project.

5.4 Interior Noise Modeling

The interior noise level is the difference between the projected exterior noise level at the structure's facade and the noise reduction provided by the structure itself. Typical building construction will provide a conservative 12 dBA noise level reduction with a "windows open" condition and a very conservative 20 dBA noise level reduction with "windows closed". MD estimated the interior noise level by subtracting the building shell design from the predicted exterior noise level.

For a "windows closed" condition, the project will require mechanical fresh air ventilation (e.g., air conditioning) to the habitable dwelling units.

5.5 FHWA Roadway Construction Noise Model

The construction noise analysis utilizes the Federal Highway Administration (FHWA) Roadway Construction Noise Model (RNCM), together with several key construction parameters. Key inputs include distance to the sensitive receiver, equipment usage, % usage factor, and baseline parameters for the project site.

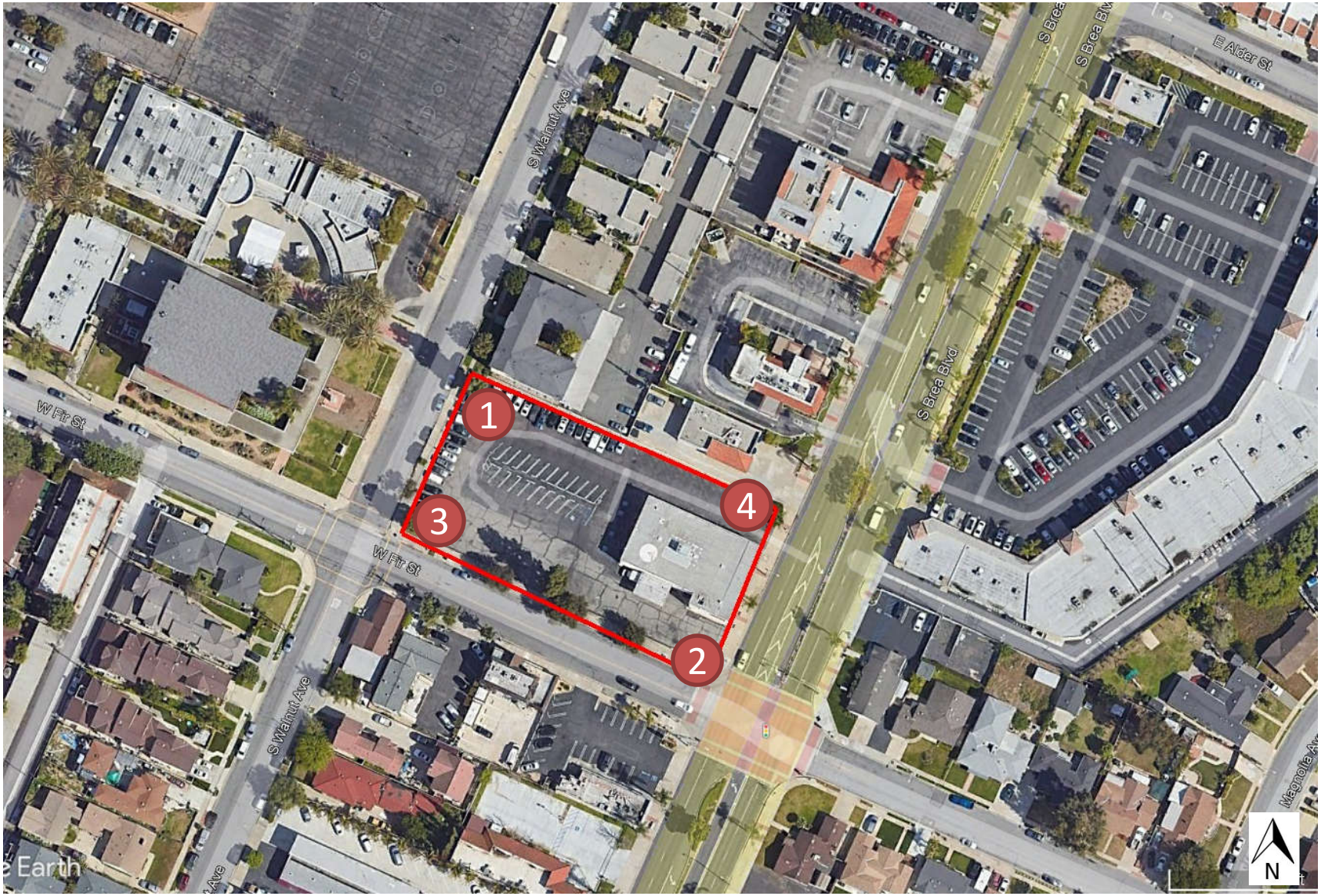
The project was analyzed based on the different construction phases. The construction noise calculation output worksheet is in Appendix C. The following assumptions relevant to short-term construction noise impacts were used:

- It is estimated that construction will occur over a 6-month time period per CalEEMod.

Exhibit F

Measurement Locations

= Short-Term Monitoring Location



6.0 Existing Noise Environment

Four (4) 15-min ambient noise measurements were conducted at or near the property site. The noise measurements were taken to determine the existing ambient noise levels. Noise data indicates that traffic along South Brea Boulevard is the primary source of noise impacting the site and the adjacent uses.

6.1 Short-Term Noise Measurement Results

The results of the short-term noise data are presented in Table 2.

Table 2: Short-Term Noise Measurement Data[1]

Location	Date	Start Time	Stop Time	Leq	Lmax	Lmin	L(2)	L(8)	L(25)	L(50)
1	10/12/23	11:03 AM	11:18 AM	60.3	70.0	44.1	65.6	62.8	61.7	60.4
2	10/12/23	11:22 AM	11:37 AM	68.9	79.4	54.1	73.3	71.6	70.0	68.5
3	10/12/23	11:39 AM	11:54 AM	61.3	83.5	47.8	66.1	61.0	58.1	56.1
4	10/12/23	11:58 AM	12:13 PM	64.1	72.6	49.5	70.6	69.1	64.8	61.5

Notes:
[1.] Measurements were taken over a ten-minute interval. Measurement locations are indicated in Exhibit E.

Noise data indicates the ambient noise level ranged from 60 to 69 dBA Leq at the project site. Additional field notes and photographs are provided in Appendix A.

7.0 Future Noise Environment Impacts and Mitigation

This assessment analyzes future noise impacts to the project and compares the results to the City's Noise Standards. The analysis details the estimated exterior noise levels associated with traffic from adjacent roadway sources. Only Brea Boulevard has a significant noise impact on the site. Fir Street and Walnut Avenue have a significantly lower ADT and will not result in exterior or interior noise impacts on and off site.

7.1 Future Off-Site Exterior Noise Impact

The exterior noise level off-site of the project will be impacted by transportation-related sources and other stationary sources. The following outlines the impacts associated with exterior noise levels.

7.1.1 Future Off-Site Traffic Noise Impact

The potential off-site noise impacts caused by the increase in vehicular traffic as a result of the project were calculated at a distance of 50 feet. The distance to the 55, 60, 65, and 70 dBA CNEL noise contours are also provided for reference. The noise level at 50 feet is representative of approximate distances to existing buildings homes close to the subject roadway impacted by the project. The noise contours were calculated for the following scenarios and conditions:

- Existing Condition (2024 ADT): This scenario refers to the year 2024 traffic noise condition and is demonstrated in Table 3.
- Existing + Project Condition: This scenario refers to the year 2024 plus project traffic noise condition and is demonstrated in Table 3.

Table 3: Existing/Existing + Project Scenario – Noise Levels Along Roadways (dBA CNEL)

Roadway	Segment	CNEL at 50 Ft (dBA)	Distance to Contour (Ft)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Brea Blvd	S Brea Blvd and W Fir St	71.4	66	207	655	2072

Existing With Project Exterior Noise Levels

Roadway	Segment	CNEL at 50 Ft (dBA)	Distance to Contour (Ft)			
			70 dBA CNEL	65 dBA CNEL	60 dBA CNEL	55 dBA CNEL
Brea Blvd	S Brea Blvd and W Fir St	71.4	66	208	658	2,082

Change in Existing Noise Levels as a Result of Project

Roadway[1]	Segment	CNEL at 50 Feet dBA[2]			
		Existing Without Project	Existing With Project	Change in Noise Level	Potential Significant Impact
Brea Blvd	S Brea Blvd and W Fir St	71.4	71.4	0.0	NO

Notes:
[1] Exterior noise levels calculated at 5 feet above ground level.
[2] Noise levels calculated from centerline of subject roadway.

Table 3 provides the Existing and Existing + Project noise conditions and shows the change in noise level because of the proposed project. As shown in Table 3, there will not be a noticeable increase in traffic noise at 60 feet from the centerline of the subject roadway.

7.1.1 Future Off-Site Traffic Noise Impact

HVAC equipment will be enclosed by the project buildings or be on the roof. As a worst case, if the HVAC equipment is on the roof and unshielded, equipment will be a minimum of 40 feet from the nearest residential receptor. The maximum sound power level of an individual HVAC unit is 76 dBA. This is equivalent to a sound pressure level of 43 dBA Leq at the nearest residential receptor, which is within the residential nighttime stationary noise limit of 50 dBA Leq.

Parking activities will occur in the middle of the site and will be shielded by the buildings and will therefore not exceed the residential nighttime stationary noise limit of 50 dBA Leq.

7.2 Future On-Site Noise Impact

The noise level at balconies and patios facing S Brea Blvd will be 71 dBA CNEL. The noise level at the 620 square foot open space at the southeast corner of the site will be 68 dBA CNEL. This is in the normally unacceptable level for muti-family residential according to the Land Use Compatibility Matrix, and therefore the project must ensure that the interior levels do not exceed 45 dBA CNEL.

7.3 Interior Noise Levels

The future interior noise level was calculated for the sensitive receptor locations using a typical "windows open" and "windows closed" condition. A "windows open" condition assumes 12 dBA of noise attenuation from the exterior noise level. A "windows closed" condition" assumes 20 dBA of noise attenuation from the exterior noise level. Table 4 indicates the first, second, and third-floor interior noise levels for the project site.

Table 4: Future Interior Noise Levels (dBA CNEL)

Location	Roadway Noise Source	Exterior Facade Study Location	Noise Level at Building Facade[1]	Interior Noise Reduction Required to Meet Interior Noise Standard of 45 dBA CNEL	Interior Noise Level w/ Upgraded Residential Windows (STC≥ 31)		STC Rating for Windows Facing Subject Roadway[4]
					Window Open[2]	Windows Closed[3]	
1st Row Units Along S Brea Blvd Property Line	Brea Blvd	1st Floor	71	26	59	45	31
		2nd Floor	71	26	59	45	31
		3rd Floor	71	26	59	45	31

Notes:
[1.] Noise level from Table 3.
[2.] A minimum of 12 dBA noise reduction is assumed with a "windows open" condition.
[3.] A minimum of 20 dBA noise reduction is assumed with a "windows closed" condition.
[4.] Indicates the required STC rating to meet the interior noise standard.

As shown in Table 4, the interior noise level will be 59 dBA CNEL with the windows open and 45 dBA CNEL with the windows closed. **Windows must be STC 31 or higher for first row units facing S Brea Blvd.**

8.0 Construction Noise Impact

The degree of construction noise may vary for different areas of the project site and also vary depending on the construction activities. Noise levels associated with the construction will vary with the different phases of construction. The construction noise and vibration level projections are provided in the sections below.

8.1 Construction Noise

The Environmental Protection Agency (EPA) has compiled data regarding the noise generated characteristics of typical construction activities. The data is presented in Table 5.

Table 5: Typical Construction Noise Levels[1]

Equipment Powered by Internal Combustion Engines

Type	Noise Levels (dBA) at 50 Feet
Earth Moving	
Compactors (Rollers)	73 - 76
Front Loaders	73 - 84
Backhoes	73 - 92
Tractors	75 - 95
Scrapers, Graders	78 - 92
Pavers	85 - 87
Trucks	81 - 94
Materials Handling	
Concrete Mixers	72 - 87
Concrete Pumps	81 - 83
Cranes (Movable)	72 - 86
Cranes (Derrick)	85 - 87
Stationary	
Pumps	68 - 71
Generators	71 - 83
Compressors	75 - 86

Impact Equipment

Type	Noise Levels (dBA) at 50 Feet
Saws	71 - 82
Vibrators	68 - 82

Notes:
[1] Referenced Noise Levels from the Environmental Protection Agency (EPA)

Construction is anticipated to occur during the permissible hours from 7:00 a.m. to 7:00 p.m. according to the City's Municipal Code Section 8.20.070. Construction noise is considered a short-term impact and would be considered significant if construction activities are taken outside the allowable times as described in the City's Municipal Code. Construction noise will have a temporary or periodic increase in the ambient noise level above the existing within the project vicinity. Furthermore, noise reduction measures are provided to further reduce construction noise. The construction noise impact is considered less than significant; however, construction noise level projections are provided.

Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Noise levels are in Table 6. A likely worst-case construction noise scenario assumes equipment operating at a minimum of 15 feet from the nearest sensitive receptor (northwest portion of the site to the closest residences, allowing room for the equipment to operate).

Table 6: Construction Noise Levels at the Northwest Property Edge

Phase	dBA Lmax	dBA Leq
Demo	100.5	79.8
Site Prep	95.5	76.7
Grading	95.5	77.8
Build	94.5	76.8
Paving	94.5	77.5
Arch Coating	88.5	67.2
Notes: Const Equip from CalEEMod		

To ensure that construction activities do not significantly disrupt the adjacent land uses, the noise reduction policies in Section 8.3 should be taken.

8.2 Construction Vibration

Construction activities can produce vibration that may be felt by adjacent land uses. The construction of the proposed project would not require the use of equipment such as pile drivers, which are known to generate substantial construction vibration levels. The primary vibration source during construction may be from a bulldozer. A large bulldozer has a vibration impact of 0.089 inches per second peak particle velocity (PPV) at 25 feet which is perceptible but below any risk to architectural damage.

The fundamental equation used to calculate vibration propagation through average soil conditions and distance is as follows:

$$PPV_{equipment} = PPV_{ref} (100/D_{rec})^{n}$$

Where: PPV_{ref} = reference PPV at 100ft.
D_{rec} = distance from equipment to receiver in ft.
n = 1.1 (the value related to the attenuation rate through ground)

The thresholds from the Caltrans Transportation and Construction Induced Vibration Guidance Manual in Table 7 (below) provides general thresholds and guidelines as to the vibration damage potential from vibratory impacts.

Table 7: Guideline Vibration Damage Potential Threshold Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Source: Table 19, Transportation and Construction Vibration Guidance Manual, Caltrans, Sept. 2013.
Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Table 8 gives approximate vibration levels for particular construction activities. This data provides a reasonable estimate for a wide range of soil conditions.

Table 8: Vibration Source Levels for Construction Equipment[1]

Equipment	Peak Particle Velocity (inches/second) at 25 feet	Approximate Vibration Level LV (dVB) at 25 feet
Pile driver (impact)	1.518 (upper range)	112
	0.644 (typical)	104
Pile driver (sonic)	0.734 upper range	105
	0.170 typical	93
Clam shovel drop (slurry wall)	0.202	94
Hydromill	0.008 in soil	66
(slurry wall)	0.017 in rock	75
Vibratory Roller	0.21	94
Hoe Ram	0.089	87
Large bulldozer	0.089	87
Caisson drill	0.089	87
Loaded trucks	0.076	86
Jackhammer	0.035	79
Small bulldozer	0.003	58

[1] Source: Transit Noise and Vibration Impact Assessment, Federal Transit Administration, May 2006.

At a distance of 15 feet, a large bulldozer would yield a worst-case 0.156 PPV (in/sec) which may be perceptible but sustainably below any risk of damage (0.5 in/sec PPV is the threshold of residential structures). The impact is less than significant, and no mitigation is required.

Brea City Code 20.20.040 does not apply to short-term construction vibration as it is not “inherently and recurrently generated” at the project site.

8.3 Construction Noise Reduction Policies

Construction operations must follow the City's Noise Ordinance, which states that construction, repair or excavation work performed must occur within the permissible hours. To further ensure that construction activities do not disrupt the adjacent land uses, the following policies should be adhered to:

1. Construction shall occur during the hours of 7AM to 7PM.

2. During construction, the contactor shall ensure all construction equipment is equipped with appropriate noise attenuating devices.

3. The contractor should locate equipment staging areas as far as possible, away from the sensitive receptors.

4. Idling equipment shall be turned off when not in use.

5. Equipment shall be maintained so that vehicles and their loads are secured from rattling and banging.

9.0 References

State of California General Plan Guidelines: 1998. Governor's Office of Planning and Research

City of Brea: General Plan Noise Element.

City of Brea: Municipal Code Chapter 8.20.

Caltrans Noise Technical Manual. 2013

Konan Vibration Criteria

TJW Engineering, Inc.: Scoping Agreement for Traffic Impact Analysis – 1845 Oak Road Traffic Impact Analysis, August 2022.

Federal Highway Administration. Noise Barrier Design Handbook. June 2017.

Federal Transit Administration. Transit Noise and Vibration Impact Assessment Manual. September 2018

Appendix A:

Photographs and Field Measurement Data

15-Minute Continuous Noise Measurement Datasheet

Project Name:	Brea Noise
Project: #/Name:	0163-2023-009
Site Address/Location:	West Fir Street & South Br
Date:	10/12/2023
Field Tech/Engineer:	Jason Schuyler/ Claire Pincock

Site Observations:

Temps in the mid 70's F, wind 0-7MPH a sudden gust at the end of NM4 in the last 30s was the only wind that would interfere with any of the readings. Also, note that NM1 & 2 have some jackhammering in their data.

Sound Meter:	XL2, NTI	**SN:**	A2A-08562-E0
Settings:	A-weighted, slow, 1-sec, 15-minute interval		
Site Id:	NM1, NM2, NM3, NM4		

MD ACOUSTICS

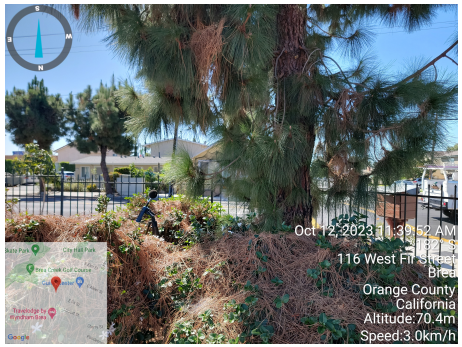
15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name:	Brea Noise
Site Address/Location:	West Fir Street & South Br
Site Id:	NM1, NM2, NM3, NM4

Figure 1: NM1

Figure 2: NM2

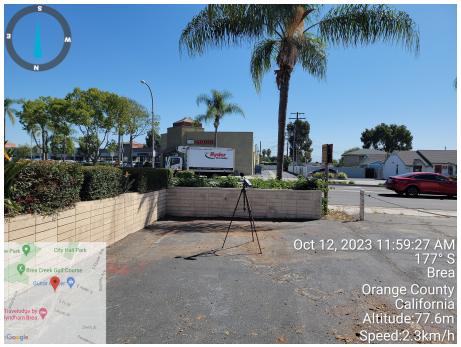
Figure 3: NM3



MD ACOUSTICS

Project Name:	Brea Noise
Site Address/Location:	West Fir Street & South Br
Site Id:	NM1, NM2, NM3, NM4

Figure 4: NM4



15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name: Brea Noise

Site Address/Location: West Fir Street & South Br

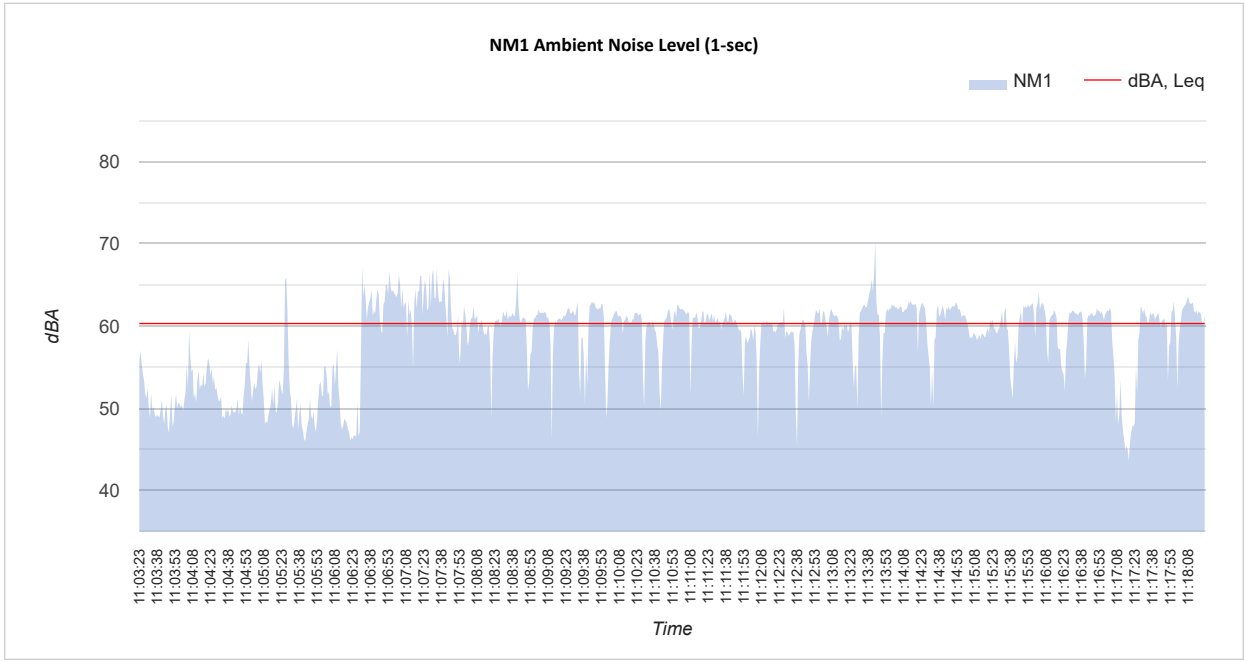
Site Id: NM1, NM2, NM3, NM4

Table 1: Baseline Noise Measurement Summary

Location	Start	Stop	Leq	Lmax	Lmin	L2	L8	L25	L50	L90
NM1	11:03 AM	11:18 AM	60.3	70.0	44.1	65.6	62.8	61.7	60.4	49.7
NM2	11:22 AM	11:37 AM	68.9	79.4	54.1	73.3	71.6	70	68.5	62.3
NM3	11:39 AM	11:54 AM	61.3	83.5	47.8	66.1	61	58.1	56.1	52.4
NM4	11:58 AM	12:13 PM	64.1	72.6	49.5	70.6	69.1	64.8	61.5	56.7

15-Minute Continuous Noise Measurement Datasheet - Cont.

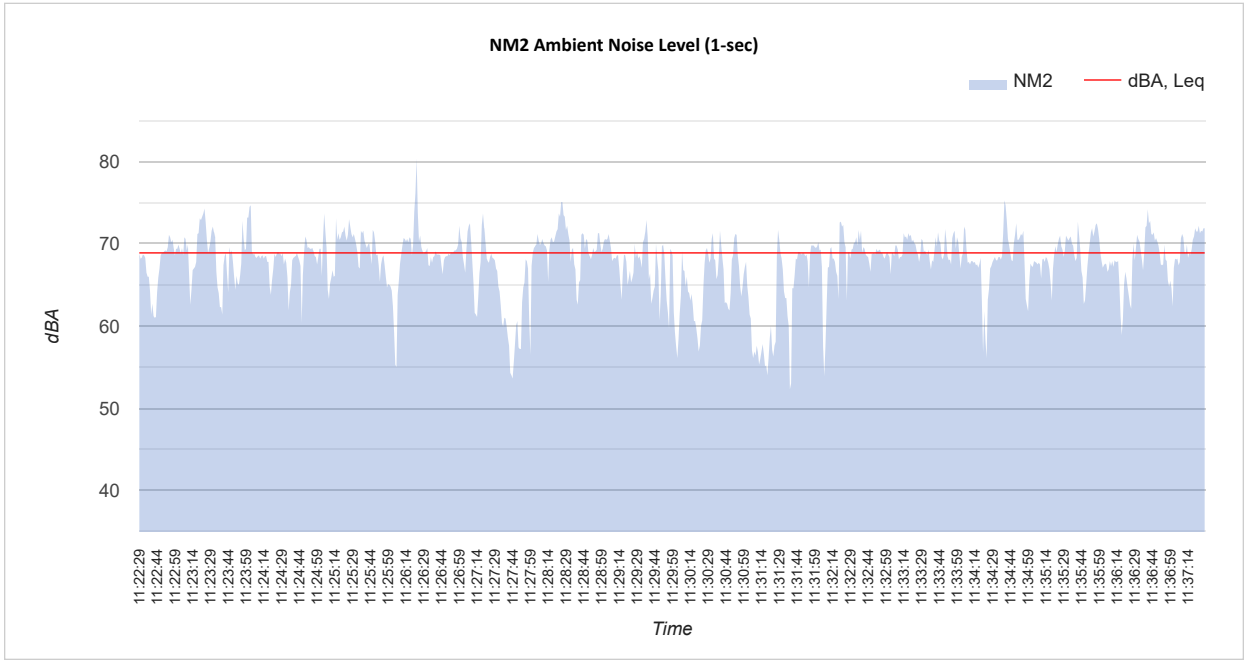
Project Name:	Brea Noise		**Site Topo:**	Buildings 1-2 stories tall site	**Noise Source(s) w/ Distance:**
Site Address/Location:	West Fir Street & South Br		**Meteorological Cond.:**	74F Winds 0-7MPH Sunny	Road and commercial noise
Site Id:	NM1		**Ground Type:**	buildings and asphalt	



MD ACOUSTICS

15-Minute Continuous Noise Measurement Datasheet - Cont.

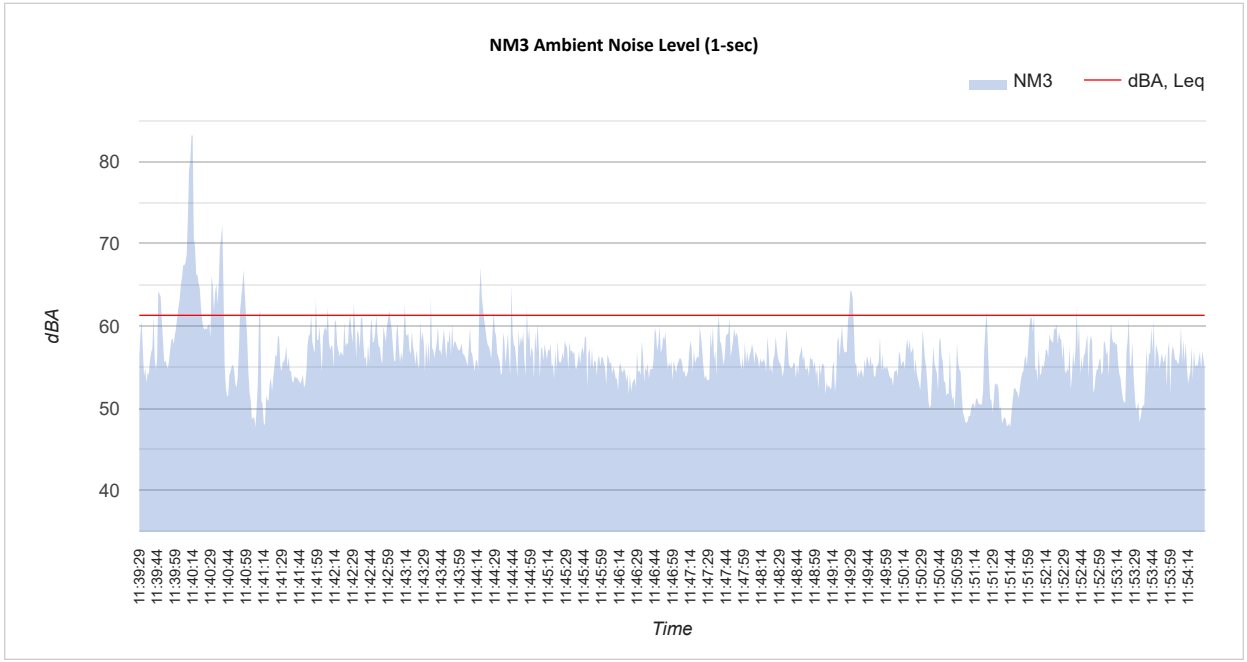
Project Name:	Brea Noise		**Site Topo:**	Buildings 1-2 stories tall site	**Noise Source(s) w/ Distance:**
Site Address/Location:	West Fir Street & South Br		**Meteorological Cond.:**	75F Sunny winds 0-7MPH gusty	Road and commercial noise
Site Id:	NM2		**Ground Type:**	buildings and asphalt	



MD ACOUSTICS

15-Minute Continuous Noise Measurement Datasheet - Cont.

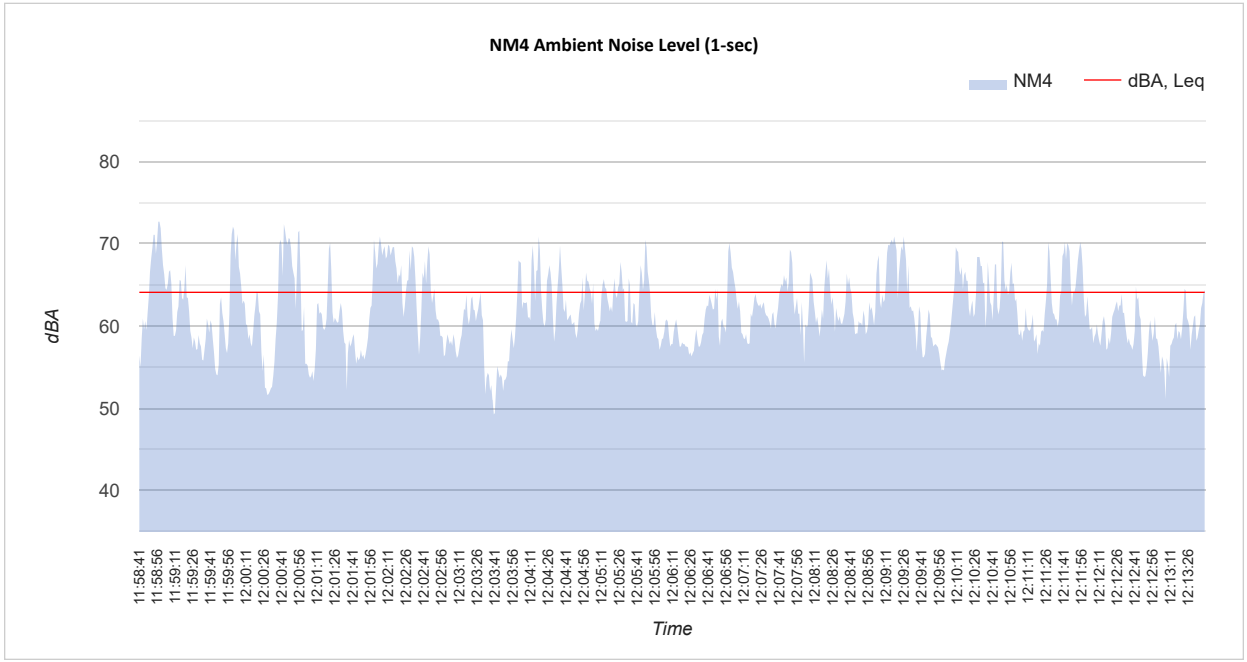
Project Name:	Brea Noise		**Site Topo:**	Buildings 1-2 stories tall site	**Noise Source(s) w/ Distance:**
Site Address/Location:	West Fir Street & South Br		**Meteorological Cond.:**	75F Sunny winds 0-7MPH gusty	Road and commercial noise
Site Id:	NM3		**Ground Type:**	buildings and asphalt	



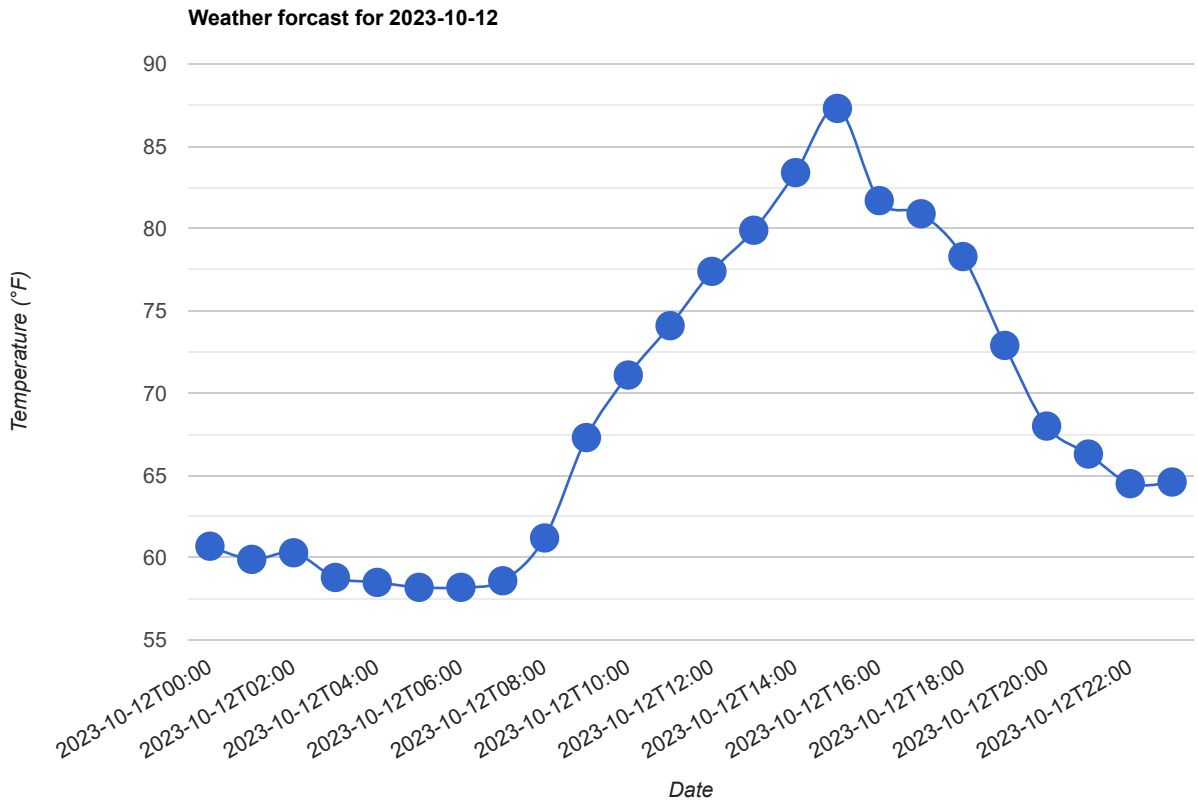
MD ACOUSTICS

15-Minute Continuous Noise Measurement Datasheet - Cont.

Project Name:	Brea Noise		**Site Topo:**	Buildings 1-2 stories tall site	**Noise Source(s) w/ Distance:**
Site Address/Location:	West Fir Street & South Br		**Meteorological Cond.:**	75F Sunny winds 0-7MPH gusty	Road and commercial noise
Site Id:	NM4		**Ground Type:**	buildings and asphalt	



MD ACOUSTICS


Weather forcast for 2023-10-12
90
85
80
75
70
65
60
55
Temperature (°F)
2023-10-12T00:00
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2023-10-12T04:00
2023-10-12T06:00
2023-10-12T08:00
2023-10-12T10:00
2023-10-12T12:00
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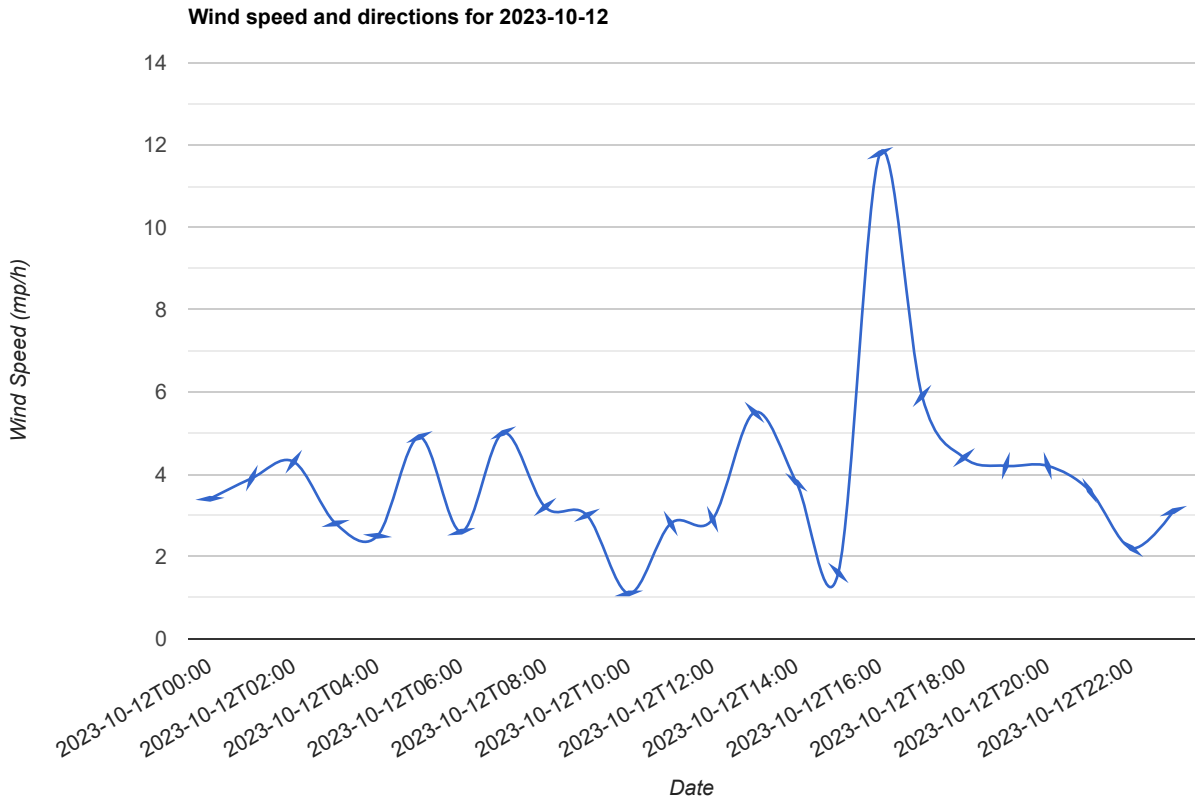
2023-10-12T22:00
Date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14
12
10
8
6
4
2
0
Wind Speed (mp/h)
2023-10-12T00:00
2023-10-12T02:00
2023-10-12T04:00
2023-10-12T06:00
2023-10-12T08:00
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2023-10-12T14:00
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2023-10-12T18:00
2023-10-12T20:00
2023-10-12T22:00
Date

Appendix B:

Traffic Noise Modeling Output

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT: Brea Noise
ROADWAY: Brea Boulevard
LOCATION: 'South Brea Boulevard and West Fir Street

JOB #: 0163-2023-09
DATE: 1-Nov-23
ENGINEER: M.Gyles

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	28,220	
SPEED =	40	
PK HR % =	10	
NEAR LANE/FAR LANE DIS	50	
ROAD ELEVATION =	0.0	
GRADE =	0.0	%
PK HR VOL =	2,822	

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5.0
WALL DISTANCE FROM RECEIVER		50
PAD ELEVATION =		0.5
ROADWAY VIEW:	LF ANGLE=	-90
	RT ANGLE=	90
	DF ANGLE=	180

SITE CONDITIONS

AUTOMOBILES =	10	
MEDIUM TRUCKS =	10	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	10	

WALL INFORMATION

HTH WALL:	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.9753
MEDIUM TRUCK	0.848	0.049	0.103	0.0221
HEAVY TRUCKS	0.865	0.027	0.108	0.0026

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	43.44	- -
MEDIUM TRUCKS	4.0	43.33	- -
HEAVY TRUCKS	8.0	43.37	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	71.0	69.1	67.3	61.3	69.9	70.5
MEDIUM TRUCKS	63.5	62.0	55.6	54.1	62.5	62.8
HEAVY TRUCKS	59.0	57.6	48.6	49.8	58.2	58.3
NOISE LEVELS (dBA)	71.9	70.1	67.6	62.3	70.9	71.4

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	71.0	69.1	67.3	61.3	69.9	70.5
MEDIUM TRUCKS	63.5	62.0	55.6	54.1	62.5	62.8
HEAVY TRUCKS	59.0	57.6	48.6	49.8	58.2	58.3
NOISE LEVELS (dBA)	71.9	70.1	67.6	62.3	70.9	71.4

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	69	217	687	2172
LDN	61	192	608	1924

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT: Brea Noise
ROADWAY: Brea Boulevard
LOCATION: 'South Brea Boulevard and West Fir Street

JOB #: 0163-2023-09
DATE: 1-Nov-23
ENGINEER: M.Gyles

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	28,363	
SPEED =	40	
PK HR % =	10	
NEAR LANE/FAR LANE DIS	50	
ROAD ELEVATION =	0.0	
GRADE =	0.0	%
PK HR VOL =	2,836	

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5.0
WALL DISTANCE FROM RECEIVER		50
PAD ELEVATION =		0.5
ROADWAY VIEW:	LF ANGLE=	-90
	RT ANGLE=	90
	DF ANGLE=	180

SITE CONDITIONS

AUTOMOBILES =	10	
MEDIUM TRUCKS =	10	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	10	

WALL INFORMATION

HTH WALL:	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.9753
MEDIUM TRUCK	0.848	0.049	0.103	0.0221
HEAVY TRUCKS	0.865	0.027	0.108	0.0026

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	43.44	- -
MEDIUM TRUCKS	4.0	43.33	- -
HEAVY TRUCKS	8.0	43.37	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	71.0	69.1	67.3	61.3	69.9	70.5
MEDIUM TRUCKS	63.5	62.0	55.6	54.1	62.6	62.8
HEAVY TRUCKS	59.1	57.6	48.6	49.9	58.2	58.3
NOISE LEVELS (dBA)	71.9	70.1	67.7	62.3	70.9	71.4

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	71.0	69.1	67.3	61.3	69.9	70.5
MEDIUM TRUCKS	63.5	62.0	55.6	54.1	62.6	62.8
HEAVY TRUCKS	59.1	57.6	48.6	49.9	58.2	58.3
NOISE LEVELS (dBA)	71.9	70.1	67.7	62.3	70.9	71.4

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	69	218	690	2183
LDN	61	193	611	1934

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL

PROJECT: Brea Noise
ROADWAY: Brea Boulevard
LOCATION: 'Open Space

JOB #: 0163-2023-09
DATE: 1-Nov-23
ENGINEER: M.Gyles

NOISE INPUT DATA

ROADWAY CONDITIONS

ADT =	28,363	
SPEED =	40	
PK HR % =	10	
NEAR LANE/FAR LANE DIS	50	
ROAD ELEVATION =	0.0	
GRADE =	0.0	%
PK HR VOL =	2,836	

RECEIVER INPUT DATA

RECEIVER DISTANCE =		50
DIST C/L TO WALL =		0
RECEIVER HEIGHT =		5.0
WALL DISTANCE FROM RECEIVER		50
PAD ELEVATION =		0.5
ROADWAY VIEW:	LF ANGLE=	0
	RT ANGLE=	90
	DF ANGLE=	90

SITE CONDITIONS

AUTOMOBILES =	10	
MEDIUM TRUCKS =	10	(10 = HARD SITE, 15 = SOFT SITE)
HEAVY TRUCKS =	10	

WALL INFORMATION

HTH WALL:	0.0	
AMBIENT=	0.0	
BARRIER =	0	(0 = WALL, 1 = BERM)

VEHICLE MIX DATA

VEHICLE TYPE	DAY	EVENING	NIGHT	DAILY
AUTOMOBILES	0.775	0.129	0.096	0.9753
MEDIUM TRUCK	0.848	0.049	0.103	0.0221
HEAVY TRUCKS	0.865	0.027	0.108	0.0026

MISC. VEHICLE INFO

VEHICLE TYPE	HEIGHT	SLE DISTANCE	GRADE ADJUSTMENT
AUTOMOBILES	2.0	43.44	- -
MEDIUM TRUCKS	4.0	43.33	- -
HEAVY TRUCKS	8.0	43.37	0.00

NOISE OUTPUT DATA

NOISE IMPACTS (WITHOUT TOPO OR BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	68.0	66.1	64.3	58.3	66.9	67.5
MEDIUM TRUCKS	60.5	59.0	52.6	51.1	59.5	59.8
HEAVY TRUCKS	56.0	54.6	45.6	46.8	55.2	55.3
NOISE LEVELS (dBA)	68.9	67.1	64.7	59.3	67.9	68.4

NOISE IMPACTS (WITH TOPO AND BARRIER SHIELDING)

VEHICLE TYPE	PK HR LEQ	DAY LEQ	EVEN LEQ	NIGHT LEQ	LDN	CNEL
AUTOMOBILES	68.0	66.1	64.3	58.3	66.9	67.5
MEDIUM TRUCKS	60.5	59.0	52.6	51.1	59.5	59.8
HEAVY TRUCKS	56.0	54.6	45.6	46.8	55.2	55.3
NOISE LEVELS (dBA)	68.9	67.1	64.7	59.3	67.9	68.4

NOISE CONTOUR (FT)				
NOISE LEVELS	70 dBA	65 dBA	60 dBA	55 dBA
CNEL	35	109	345	1092
LDN	31	97	306	967

Appendix C:

Construction Noise Modeling Output

Receptor - Residential properties to the northwest

Construction Phase Equipment Item	# of Items	Item Lmax at 50 feet, dBA[1]	Edge of Site to Receptor, feet	Center of Site to Receptor, feet	Item Usage Percent[1]	Ground Factor[2]	Usage Factor	Receptor Item Lmax, dBA	Recptor. Item Leq, dBA
SITE PREP									
Tractor	1	84	15	110	40	0	0.40	94.5	73.2
Grader	1	85	15	110	40	0	0.40	95.5	74.2
							Log Sum	95.5	76.7
DEMO									
Dozer	1	82	15	110	40	0	0.4	92.5	71.2
Tractor	2	84	15	110	40	0	0.4	94.5	73.2
Concrete Saw	1	90	15	110	20	0	0.2	100.5	76.2
								100.5	79.8
GRADE									
Dozer	1	82	15	110	40	0	0.40	92.5	71.2
Grader	1	85	15	110	40	0	0.40	95.5	74.2
Tractor	1	84	15	110	40	0	0.40	94.5	73.2
								95.5	77.8
BUILD									
Crane	1	81	15	110	16	0	0.16	91.5	66.2
Man lift	2	75	15	110	20	0	0.20	85.5	61.2
Tractor	2	84	15	110	40	0	0.40	94.5	73.2
								94.5	76.8
PAVE									
Paver	1	77	15	110	50	0	0.50	87.5	67.1
Tractor	1	84	15	110	40	0	0.40	94.5	73.2
Concrete Mixer Truck	4	79	15	110	40	0	0.40	89.5	68.2
Roller	1	80	15	110	20	0	0.20	90.5	66.2
								94.5	77.5
ARCH COAT									
Compressor (air)	1	78	15	110	40	0	0.40	88.5	67.2

								88.5	67.2

[1]FHWA Construction Noise Handbook: Table 9.1 RCNM Default Noise Emission Reference Levels and Usage Factors

VIBRATION LEVEL IMPACT

Project:	Brea Noise	Date: 11/1/23
Source:	Large Bulldozer	
Scenario:	Unmitigated	
Location:	15 feet from residential west	
Address:	South Brea Boulevard, Brea, CA	

PPV = PPVref(25/D)^n (in/sec)

DATA INPUT

Equipment = Type	2	Large Bulldozer	INPUT SECTION IN BLUE
PPVref =	0.089	Reference PPV (in/sec) at 25 ft.	
D =	15.00	Distance from Equipment to Receiver (ft)	
n =	1.10	Vibration attenuation rate through the ground	

Note: Based on reference equations from Vibration Guidance Manual, California Department of Transportation, 2006, pgs 38-43.

DATA OUT RESULTS

PPV =	**0.156**	IN/SEC	OUTPUT IN RED

West Fir Street & South Brea Blvd Project

Air Quality, Greenhouse Gas, and Energy Impact Study

City of Brea, CA

Prepared for:

Mr. Patrick Chien
City Ventures
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MD ACOUSTICS
Sound Solutions for Planning and Design

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GLOSSARY OF TERMS

AQMP	Air Quality Management Plan
CAAQS	California Ambient Air Quality Standards
CARB	California Air Resources Board
CEQA	California Environmental Quality Act
CFCs	Chlorofluorocarbons
CH_4	Methane
CNG	Compressed natural gas
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DPM	Diesel particulate matter
GHG	Greenhouse gas
HFCs	Hydrofluorocarbons
LST	Localized Significant Thresholds
$MTCO_2e$	Metric tons of carbon dioxide equivalent
$MMTCO_2e$	Million metric tons of carbon dioxide equivalent
NAAQS	National Ambient Air Quality Standards
NOx	Nitrogen Oxides
NO_2	Nitrogen dioxide
N_2O	Nitrous oxide
O_3	Ozone
PFCs	Perfluorocarbons
PM	Particle matter
PM10	Particles that are less than 10 micrometers in diameter
PM2.5	Particles that are less than 2.5 micrometers in diameter
PMI	Point of maximum impact
PPM	Parts per million
PPB	Parts per billion
RTIP	Regional Transportation Improvement Plan
RTP	Regional Transportation Plan
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SF_6	Sulfur hexafluoride
SIP	State Implementation Plan
SOx	Sulfur Oxides
SRA	Source/Receptor Area
TAC	Toxic air contaminants
VOC	Volatile organic compounds
WRCC	Western Regional Climate Center

1.0 Introduction

1.1 Purpose of Analysis and Study Objectives

This air quality and greenhouse gas (GHG) analysis was prepared to evaluate whether the estimated criteria pollutants and GHG emissions generated from the Project would cause a significant impact to the air resources in the Project area as well as evaluate whether the estimated energy usage by the project would cause a significant impact to the local energy resources. This assessment was conducted within the context of the California Environmental Quality Act (CEQA, California Public Resources Code Sections 21000, et seq.). The assessment is consistent with the methodology and emission factors endorsed by South Coast Air Quality Management District (SCAQMD), California Air Resource Board (CARB), and the United States Environmental Protection Agency (US EPA).

1.2 Project Summary

1.2.1 Site Location

The project site is located at West Fir Street & South Brea Blvd, in the City of Brea, California, as shown in Exhibit A. The project site lot is designated as high-density residential and is zoned Mixed-Use I (MU-I). Land uses surrounding the site include residential to the east and west, and commercial to the north and south.

1.2.2 Project Description

The project consists of a housing development of 29 attached 3-story townhomes and 3 live/work units on 0.99 acres. There will be 64 parking spaces. The site plan used for this project, provided by City Ventures, is shown in Exhibit B.

Construction activities within the Project area will consist of demolition, site preparation, on-site grading, building, paving, and architectural coating. Table 1 summarizes the land use description for the Project Site.

Table 1: Land Use Summary

Land Use	Unit Amount	Size Metric
Townhome	32	Dwelling Units
Parking Lot	64	Spaces

1.2.3 Sensitive Receptors

Sensitive receptors are considered land uses or other types of population groups that are more sensitive to air pollution than others due to their exposure. Sensitive population groups include children, the elderly, the acutely and chronically ill, and those with cardio-respiratory diseases. For CEQA purposes, a sensitive receptor would be a location where a sensitive individual could remain for 24-hours or longer, such as residencies, hospitals, and schools (etc).

The closest existing sensitive receptors (to the site area) are residential land uses located 10 feet to the north of the project site.

1.3 Executive Summary of Findings and Mitigation Measures

The following is a summary of the analysis results:

Construction-Source Emissions
Project construction-source emissions would not exceed applicable regional thresholds of significance established by the SCAQMD. For localized emissions, the Project will not exceed applicable Localized Significance Thresholds (LSTs) established by the SCAQMD.

Project construction-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). As discussed herein, the Project will comply with all applicable SCAQMD construction-source emission reduction rules and guidelines. Project construction source emissions would not cause or substantively contribute to violation of the California Ambient Air Quality Standards (CAAQS) or National Ambient Air Quality Standards (NAAQS).

Established requirements addressing construction equipment operations, and construction material use, storage, and disposal requirements act to minimize odor impacts that may result from construction activities. Moreover, construction-source odor emissions would be temporary, short-term, and intermittent in nature and would not result in persistent impacts that would affect substantial numbers of people. Potential construction-source odor impacts are therefore considered less-than-significant.

Operational-Source Emissions
The Project operational-sourced emissions would not exceed applicable regional thresholds of significance established by the SCAQMD. Project operational-source emissions would not result in or cause a significant localized air quality impact as discussed in the Operations-Related Local Air Quality Impacts section of this report. Additionally, Project-related traffic will not cause or result in carbon dioxide (CO) concentrations exceeding applicable state and/or federal standards (CO "hotspots). Project operational-source emissions would therefore not adversely affect sensitive receptors within the vicinity of the Project.

Project operational-source emissions would not conflict with the Basin Air Quality Management Plan (AQMP). The Project's emissions meet SCAQMD regional thresholds and will not result in a significant cumulative impact. The Project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential operational-source odor impacts are therefore considered less-than-significant.

Project-related GHG emissions meet the SCAQMD draft threshold. Therefore, Project emissions are considered to be less than significant. The Project also complies with the goals of the CARB Scoping Plan, Assembly Bill (AB) 32, Senate Bill (SB) 32, and the City of Brea General Plan.

Neither construction nor operation of the project would result in wasteful, inefficient, or unnecessary consumption of energy, or wasteful use of energy resources. The proposed project does not include any

unusual project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities and is an industrial project that is not proposing any additional features that would require a larger energy demand than other industrial projects of similar scale and configuration

Mitigation Measures

3. Construction Measures

No construction mitigation required.

B. Operational Measures

No operational mitigation required.

Exhibit A

Location Map

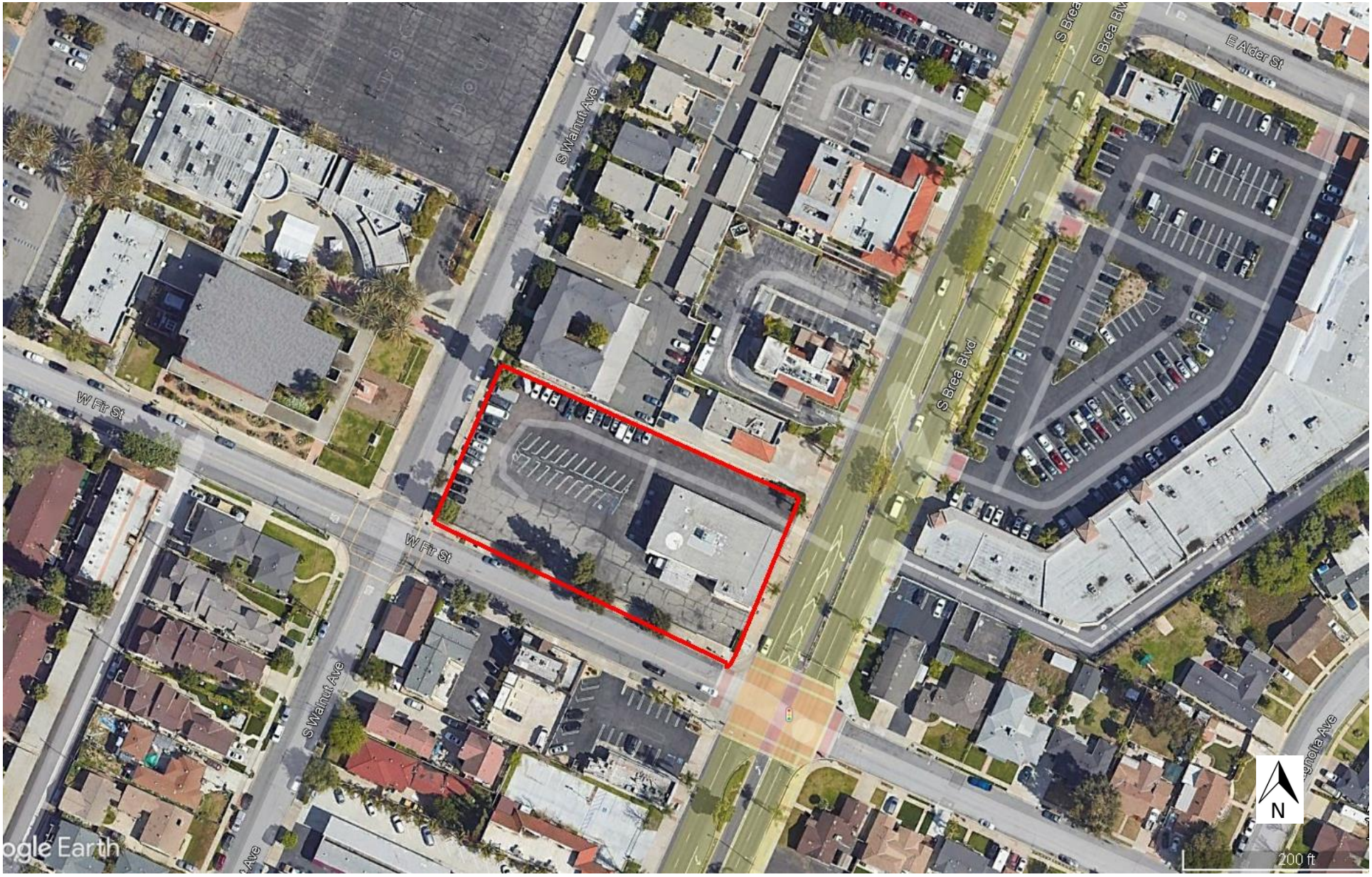
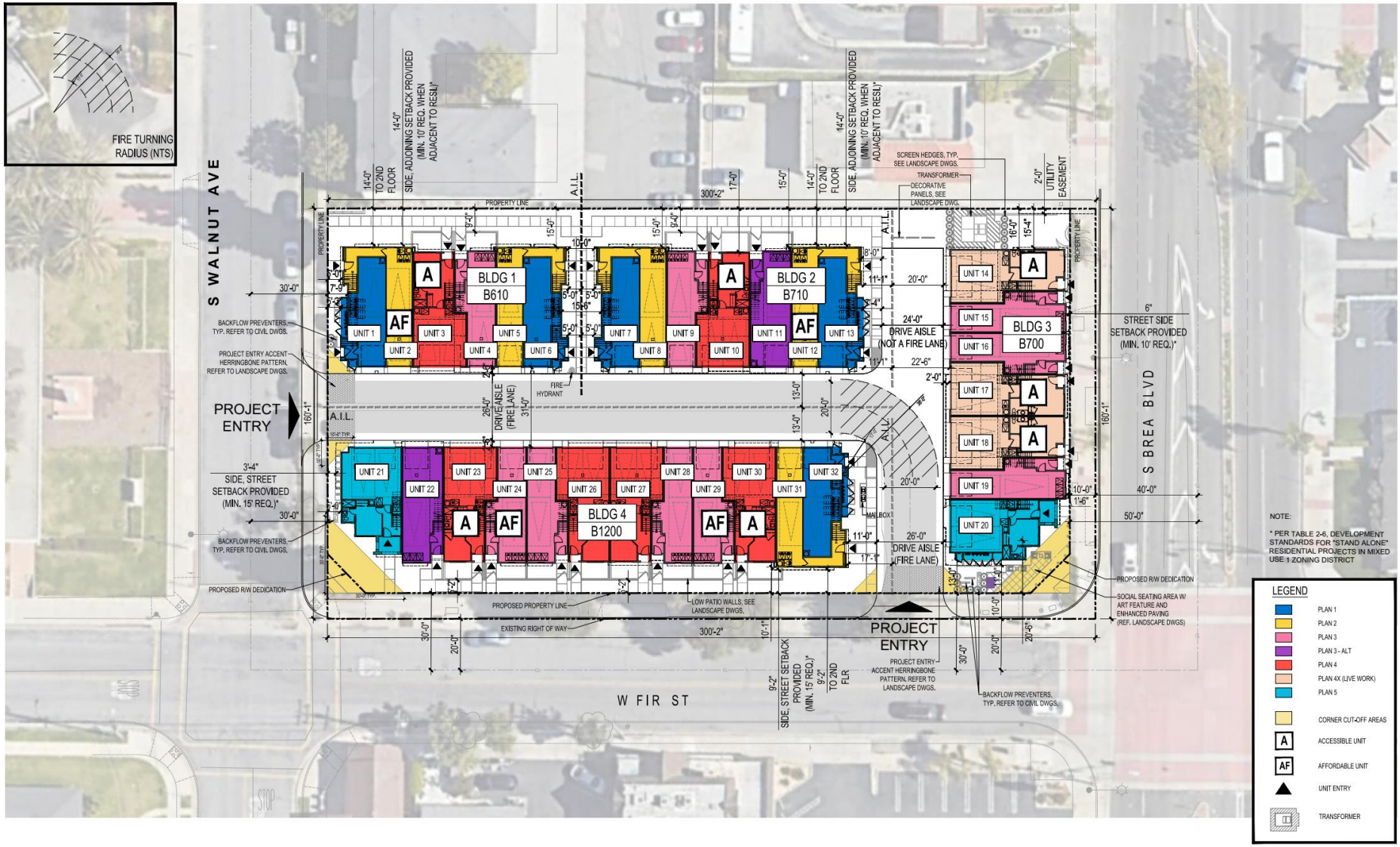


Exhibit B

Site Plan



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CITY VENTURES Building It Forward

685 S. BREA BLVD, BREA CALIFORNIA 92821
BREA AND FIR
BREA, CA # 2023-0485

Plot Date: 6.25.2024
1st Submittal Date: 11.21.2023
2nd Submittal Date: 02.22.2024
3rd Submittal Date: 05.09.2024
4th Submittal Date: 06.11.2024
5th Submittal Date: 06.27.2024

SCALE: 1/16" = 1'-0"

SITE PLAN A1.00

2.0 Regulatory Framework and Background

2.1 Air Quality Regulatory Setting

Air pollutants are regulated at the national, state, and air basin level; each agency has a different level of regulatory responsibility. The United States EPA regulates at the national level. CARB regulates at the state level. SCAQMD regulates at the air basin level.

2.1.1 National and State

The EPA is responsible for global, international, and interstate air pollution issues and policies. The EPA sets national vehicle and stationary source emission standards, oversees approval of all State Implementation Plans, provides research and guidance for air pollution programs, and sets National Air Quality Standards, also known as federal standards. There are six common air pollutants, called criteria pollutants, which were identified from the provisions of the Clean Air Act of 1970.

- Ozone
- Nitrogen Dioxide
- Lead
- Particulate Matter (PM10 and PM2.5)
- Carbon Monoxide
- Particulate Matter
- Sulfur Dioxide

The federal standards were set to protect public health, including that of sensitive individuals; thus, the standards continue to change as more medical research is available regarding the health effects of the criteria pollutants. Primary federal standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health.

A State Implementation Plan is a document prepared by each state describing existing air quality conditions and measures that will be followed to attain and maintain federal standards. The State Implementation Plan for the State of California is administered by CARB, which has overall responsibility for statewide air quality maintenance and air pollution prevention. California's State Implementation Plan incorporates individual federal attainment plans for regional air districts—air district prepares their federal attainment plan, which sent to CARB to be approved and incorporated into the California State Implementation Plan. Federal attainment plans include the technical foundation for understanding air quality (e.g., emission inventories and air quality monitoring), control measures and strategies, and enforcement mechanisms. See http://www.arb.ca.gov/research/aaqs/aaqs.htm for additional information on criteria pollutants and air quality standards.

The federal and state ambient air quality standards are summarized in Table 2 and can also be found at http://www.arb.ca.gov/research/aaqs/aaqs2.pdf.

Table 2: Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentrations[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O3)	1-Hour	0.09 ppm	Ultraviolet Photometry	- -	Same as Primary Standard	Ultraviolet Photometry
	8-Hour	0.070 ppm		0.070 ppm (147 µg/m³)		
Respirable Particulate Matter (PM10)[8]	24-Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µ/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		- -		
Fine Particulate Matter (PM2.5)[8]	24-Hour	- -	- -	35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	12 µg/m³	15 µg/m³	
Carbon Monoxide (CO)	1-Hour	20 ppm (23 µg/m³)	Non-Dispersive Infrared Photometry (NDIR)	35 ppm (40 µg/m³)	- -	Non-Dispersive Infrared Photometry (NDIR)
	8-Hour	9.0 ppm (10 µg/m³)		9 ppm (10 µg/m³)	- -	
Nitrogen Dioxide (NO_2)[9]	1-Hour	0.18 ppm (339 µg/m³)	Gas Phase Chemiluminescence	100 ppb (188 µg/m³)	- -	Gas Phase Chemiluminescence
	Annual Arithmetic Mean	0.030 ppm (357 µg/m³)		0.053 ppm (100 µg/m³)	Same as Primary Standard	
Sulfur Dioxide (SO_2)[10]	1-Hour	0.25 ppm (655 µg/m³)	Ultraviolet Fluorescence	75 ppb (196 µg/m³)	- -	Ultraviolet Fluorescence; Spectrophotometry (Pararosaniline Method)
	3-Hour	- -		- -	0.5 ppm (1300 mg/m³)	
	24-Hour	0.04 ppm (105 µg/m³)		0.14 ppm (for certain areas)[10]	- -	
	Annual Arithmetic Mean	- -		0.130ppm (for certain areas)[10]	- -	
Lead[11,12]	30 Day Average	1.5 µg/m³	Atomic Absorption	- -		
	Calendar Qrtr	- -		1.5 µg/m³ (for certain areas)[12]	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average	- -		0.15 µg/m³		
Visibility Reducing Particles[13]	8-Hour	See footnote 13	Beta Attenuation and Transmittance through Filter Tape	No National Standards		
Sulfates	24-Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1-Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride[11]	24-Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

Notes:

1. California standards for ozone, carbon monoxide, sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

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

4. Any equivalent measurement method which can be shown to the satisfaction of CARB to give equivalent results at or near the level of the air quality standard may be used.

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

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

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

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

10. On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

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

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

13. In 1989, CARB converted the general statewide 10-mile visibility standard to an instrumental equivalent of "extinction of 0.23 per kilometer."

Several pollutants listed in Table 2 are not addressed in this analysis. Analysis of lead is not included in this report because the Project is not anticipated to emit lead. Visibility-reducing particles are not explicitly addressed in this analysis because particulate matter is addressed. The Project is not expected to generate or be exposed to vinyl chloride because proposed Project uses do not utilize the chemical processes that create this pollutant and there are no such uses in the Project vicinity. The proposed Project is not expected to cause exposure to hydrogen sulfide because it would not generate hydrogen sulfide in any substantial quantity.

2.1.2 South Coast Air Quality Management District

The agency for air pollution control for the South Coast Air Basin (basin) is SCAQMD. SCAQMD is responsible for controlling emissions primarily from stationary sources. SCAQMD maintains air quality monitoring stations throughout the basin. SCAQMD, in coordination with the Southern California Association of Governments, is also responsible for developing, updating, and implementing the Air

Quality Management Plan (AQMP) for the basin. An AQMP is a plan prepared and implemented by an air pollution district for a county or region designated as nonattainment of the federal and/or California ambient air quality standards. The term nonattainment area is used to refer to an air basin where one or more ambient air quality standards are exceeded.

Every three (3) years the SCAQMD prepares a new AQMP, updating the previous plan and having a 20-year horizon.

On March 23, 2017, CARB approved the 2016 AQMP. The 2016 AQMP is a regional blueprint for achieving the federal air quality standards and healthful air.

The 2016 AQMP includes both stationary and mobile source strategies to ensure that rapidly approaching attainment deadlines are met, that public health is protected to the maximum extent feasible, and that the region is not faced with burdensome sanctions if the Plan is not approved or if the NAAQS are not met on time. As with every AQMP, a comprehensive analysis of emissions, meteorology, atmospheric chemistry, regional growth projections, and the impact of existing control measures is updated with the latest data and methods. The most significant air quality challenge in the Basin is to reduce nitrogen oxide (Nox) emissions sufficiently to meet the upcoming ozone standard deadlines. The primary goal of the 2016 AQMP is to meet clean air standards and protect public health, including ensuring benefits to environmental justice and disadvantaged communities. Now that the plan has been approved by CARB, it has been forwarded to the U.S. Environmental Protection Agency for its review. If approved by EPA, the plan becomes federally enforceable.

South Coast AQMD adopted the 2022 AQMP on December 2, 2022, to address the attainment of the 2015 8-hour ozone standard (70 ppb) for South Coast Air Basin and Coachella Valley. To meet this standard, the AQMP determined NOx emissions must be reduced by 67% percent more than is required by adopted rules and regulations by 2037. The control strategy for the 2022 AQMP includes aggressive new regulations and the development of incentive programs to support early deployment of advanced technologies. The two key areas for incentive programs are (1) promoting widespread deployment of available zero-emission (ZE) and low NOx technologies and (2) developing new ZE and ultra-low NOx technologies for use in cases where the technology is not currently available. South Coast AQMD will prioritize distribution of incentive funding in environmental justice areas and seek opportunities to focus benefits on the most disadvantaged communities. Cost-effectiveness and affordability will be further considered during the rulemaking or incentive program development process.

South Coast Air Quality Management District Rules

The AQMP for the basin establishes a program of rules and regulations administered by SCAQMD to obtain attainment of the state and federal standards. Some of the rules and regulations that apply to this Project include, but are not limited to, the following:

SCAQMD Rule 402 prohibits a person from discharging from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any

considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

SCAQMD Rule 403 governs emissions of fugitive dust during construction and operation activities. Compliance with this rule is achieved through application of standard Best Management Practices, such as application of water or chemical stabilizers to disturbed soils, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 miles per hour, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph, and establishing a permanent ground cover on finished sites.

Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, Rule 403 requires implementation of dust suppression techniques to prevent fugitive dust from creating a nuisance off site. Applicable suppression techniques are indicated below and include but are not limited to the following:

- Apply nontoxic chemical soil stabilizers according to manufacturers' specifications to all inactive construction areas (previously graded areas in active for 10 days or more).
- Water active sites at least three times daily.
- Cover all trucks hauling dirt, sand, soil, or other loose materials, or maintain at least 2 feet of freeboard in accordance with the requirements of California Vehicle Code (CVC) section 23114.
- Pave construction access roads at least 100 feet onto the site from the main road.
- Reduce traffic speeds on all unpaved roads to 15 mph or less.
- Suspension of all grading activities when wind speeds (including instantaneous wind gusts) exceed 25 mph.
- Bumper strips or similar best management practices shall be provided where vehicles enter and exit the construction site onto paved roads or wash off trucks and any equipment leaving the site each trip.
- Replanting disturbed areas as soon as practical.
- During all construction activities, construction contractors shall sweep on-site and off-site streets if silt is carried to adjacent public thoroughfares, to reduce the amount of particulate matter on public streets.

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

Idling Diesel Vehicle Trucks – Idling for more than 5 minutes in any one location is prohibited within California borders.

Rule 2702. The SCAQMD adopted Rule 2702 on February 6, 2009, which establishes a voluntary air quality investment program from which SCAQMD can collect funds from parties that desire certified GHG emission reductions, pool those funds, and use them to purchase or fund GHG emission reduction projects within two years, unless extended by the Governing Board. Priority will be given to projects that result in co-benefit emission reductions of GHG emissions and criteria or toxic air pollutants within environmental justice areas. Further, this voluntary program may compete with the cap-and-trade program identified for implementation in CARB's Scoping Plan, or a Federal cap and trade program.

2.2 Greenhouse Gas Regulatory Setting

2.2.1 International

Many countries around the globe have made an effort to reduce GHGs since climate change is a global issue.

Intergovernmental Panel on Climate Change. In 1988, the United Nations and the World Meteorological Organization established the Intergovernmental Panel on Climate Change to assess the scientific, technical and socio-economic information relevant to understanding the scientific basis of risk of human-induced climate change, its potential impacts, and options for adaptation and mitigation.

United Nations. The United States participates in the United Nations Framework Convention on Climate Change (UNFCCC) (signed on March 21, 1994). Under the Convention, governments gather and share information on greenhouse gas emissions, national policies, and best practices; launch national strategies for addressing greenhouse gas emissions and adapting to expected impacts, including the provision of financial and technological support to developing countries; and cooperate in preparing for adaptation to the impacts of climate change.

The 2014 UN Climate Change Conference in Lima Peru provided a unique opportunity to engage all countries to assess how developed countries are implementing actions to reduce emissions.

Kyoto Protocol. The Kyoto Protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. It has been estimated that if the commitments outlined in the Kyoto Protocol are met, global GHG emissions could be reduced by an estimated 5 percent from 1990 levels during the first commitment period of 2008 – 2012 (UNFCCC 1997). On December 8, 2012, the Doha Amendment to the Kyoto Protocol was adopted. The amendment includes: New commitments for Annex I Parties to the Kyoto Protocol who agreed to take on commitments in a second commitment period from 2013 – 2020; a revised list of greenhouse gases (GHG) to be reported on by Parties in the second commitment period; and Amendments to several articles of the Kyoto Protocol which specifically referenced issues pertaining to the first commitment period and which needed to be updated for the second commitment period.

2.2.2 National

Greenhouse Gas Endangerment. On December 2, 2009, the EPA announced that GHGs threaten the public health and welfare of the American people. The EPA also states that GHG emissions from on-road

vehicles contribute to that threat. The decision was based on *Massachusetts v. EPA* (Supreme Court Case 05-1120) which argued that GHGs are air pollutants covered by the Clean Air Act and that the EPA has authority to regulate those emissions.

Clean Vehicles. Congress first passed the Corporate Average Fuel Economy law in 1975 to increase the fuel economy of cars and light duty trucks. The law has become more stringent over time. On May 19, 2009, President Obama put in motion a new national policy to increase fuel economy for all new cars and trucks sold in the United States. On April 1, 2010, the EPA and the Department of Transportation's National Highway Safety Administration announced a joint final rule establishing a national program that would reduce greenhouse gas emissions and improve fuel economy for new cars and trucks sold in the United States.

The first phase of the national program would apply to passenger cars, light-duty trucks, and medium-duty passenger vehicles, covering model years 2012 through 2016. They require these vehicles to meet an estimated combined average emissions level of 250 grams of carbon dioxide per mile, equivalent to 35.5 miles per gallon if the automobile industry were to meet this carbon dioxide level solely through fuel economy improvements. Together, these standards would cut carbon dioxide emissions by an estimated 960 million metric tons and 1.8 billion barrels of oil over the lifetime of the vehicles sold under the program (model years 2012-2016). The second phase of the national program would involve proposing new fuel economy and greenhouse gas standards for model years 2017 – 2025 by September 1, 2011.

On October 25, 2010, the EPA and the U.S. Department of Transportation proposed the first national standards to reduce greenhouse gas emissions and improve fuel efficiency of heavy-duty trucks and buses. For combination tractors, the agencies are proposing engine and vehicle standards that begin in the 2014 model year and achieve up to a 20 percent reduction in carbon dioxide emissions and fuel consumption by the 2018 model year. For heavy-duty pickup trucks and vans, the agencies are proposing separate gasoline and diesel truck standards, which phase in starting in the 2014 model year and achieve up to a 10 percent reduction for gasoline vehicles and 15 percent reduction for diesel vehicles by 2018 model year (12 and 17 percent respectively if accounting for air conditioning leakage). Lastly, for vocational vehicles, the agencies are proposing engine and vehicle standards starting in the 2014 model year which would achieve up to a 10 percent reduction in fuel consumption and carbon dioxide emissions by 2018 model year.

Issued by the National Highway Traffic Safety Administration (NHTSA) and EPA in March 2020 (published on April 30, 2020, and effective after June 29, 2020), the Safer Affordable Fuel-Efficient Vehicles Rule would maintain the Corporate Average Fuel Economy (CAFÉ) and CO2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFÉ and CO2 standards for model year 2020 are 43.7 mpg and 204 grams of CO2 per mile for passenger cars and 31.3 mpg and 284 grams of CO2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012. This Rule also excludes CO2- equivalent emission improvements associated

with air conditioning refrigerants and leakage (and, optionally, offsets for nitrous oxide and methane emissions) after model year 2020.[1]

Mandatory Reporting of Greenhouse Gases. On January 1, 2010, the EPA started requiring large emitters of heat-trapping emissions to begin collecting GHG data under a new reporting system. Under the rule, suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of greenhouse gas emissions are required to submit annual reports to the EPA.

Climate Adaption Plan. The EPA Plan identifies priority actions the Agency will take to incorporate considerations of climate change into its programs, policies, rules and operations to ensure they are effective under future climatic conditions. The following link provides more information on the EPA Plan: https://www.epa.gov/arc-x/planning-climate-change-adaptation

2.2.3 California

California Code of Regulations (CCR) Title 24, Part 6. CCR Title 24, Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24) were first established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. Although it was not originally intended to reduce GHG emissions, electricity production by fossil fuels results in GHG emissions and energy efficient buildings require less electricity. Therefore, increased energy efficiency results in decreased GHG emissions.

The Energy Commission adopted 2008 Standards on April 23, 2008, and Building Standards Commission approved them for publication on September 11, 2008. These updates became effective on August 1, 2009. 2013, 2016, and 2019 standards have been approved and became effective July 1, 2014, January 1, 2016, and January 1, 2020, respectively.

California Code of Regulations (CCR) Title 24, Part 11.
All buildings for which an application for a building permit is submitted on or after January 1, 2023 must follow the 2022 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions. The following links provide more information on Title 24, Part 11:
https://www.dgs.ca.gov/BSC/Codes
https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2022-building-energy-efficiency

[1] National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA), 2018. Federal Register / Vol. 83, No. 165 / Friday, August 24, 2018 / Proposed Rules, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks 2018. Available at: https://www.gpo.gov/fdsys/pkg/FR-2018-08-24/pdf/2018-16820.pdf.

California Green Building Standards.
On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. The Housing and Community Development (HCD) updated CALGreen through the 2015 Triennial Code Adoption Cycle, during the 2016 to 2017 fiscal year. During the 2022-2023 fiscal year, the Department of Housing and Community Development (HCD) updated CALGreen through the 2023 Triennial Code Adoption Cycle.

The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings. CCR Title 24, Part 11: California Green Building Standards (Title 24) became effective in 2001 in response to continued efforts to reduce GHG emissions associated with energy consumption. CCR Title 24, Part 11 now require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials. One focus of CCR Title 24, Part 11 is water conservation measures, which reduce GHG emissions by reducing electrical consumption associated with pumping and treating water. CCR Title 24, Part 11 has approximately 52 nonresidential mandatory measures and an additional 130 provisions for optional use. Some key mandatory measures for commercial occupancies include specified parking for clean air vehicles, a 20 percent reduction of potable water use within buildings, a 50 percent construction waste diversion from landfills, use of building finish materials that emit low levels of volatile organic compounds, and commissioning for new, nonresidential buildings over 10,000 square feet.

The CEC estimates that over 30 years the 2022 Energy Code will provide $1.5 billion in consumer benefits and reduce 10 million metric tons of GHG. Changes compared to the 2019 Energy Code include increases to on-site renewable energy generation from solar, increases to electric load flexibility to support grid reliability, reduction of emissions from newly constructed buildings, reduction of air pollution for improved public health, and increased adoption of environmentally beneficial efficient electric technologies.

The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided, they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official. The following link provides more on CalGreen Building Standards:
http://www.bsc.ca.gov/Home/CALGreen.aspx

Executive Order S-3-05. California Governor issued Executive Order S-3-05, GHG Emission, in June 2005, which established the following targets:

- By 2010, California shall reduce greenhouse gas emissions to 2000 levels;
- By 2020, California shall reduce greenhouse gas emissions to 1990 levels; and

- By 2050, California shall reduce greenhouse gas emissions to 80 percent below 1990 levels.

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

Executive Order S-01-07. Executive Order S-1-07 was issued in 2007 and proclaims that the transportation sector is the main source of GHG emissions in the State, since it generates more than 40 percent of the State's GHG emissions. It establishes a goal to reduce the carbon intensity of transportation fuels sold in the State by at least ten percent by 2020. This Order also directs CARB to determine whether this Low Carbon Fuel Standard (LCFS) could be adopted as a discrete early-action measure as part of the effort to meet the mandates in AB 32.

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard and began implementation on January 1, 2011. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. CARB approved some amendments to the LCFS in December 2011, which were implemented on January 1, 2013. In September 2015, the Board approved the re-adoption of the LCFS, which became effective on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted. In 2018, the Board approved amendments to the regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector.

The LCFS is designed to encourage the use of cleaner low-carbon transportation fuels in California, encourage the production of those fuels, and therefore, reduce GHG emissions and decrease petroleum dependence in the transportation sector. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are "back-loaded", with more reductions required in the last five years, than the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

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

Pursuant to the requirements of SB 97 as stated above, on December 30, 2009, the Natural Resources Agency adopted amendments to the state CEQA guidelines that address GHG emissions. The CEQA Guidelines Amendments changed 14 sections of the CEQA Guidelines and incorporate GHG language throughout the Guidelines. However, no GHG emissions thresholds of significance are provided and no specific mitigation measures are identified. The GHG emission reduction amendments went into effect on March 18, 2010, and are summarized below:

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

AB 32. The California State Legislature enacted AB 32, the California Global Warming Solutions Act of 2006. AB 32 requires that greenhouse gases emitted in California be reduced to 1990 levels by the year 2020. "Greenhouse gases" as defined under AB 32 include carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. CARB is the state agency charged with monitoring and regulating sources of greenhouse gases. AB 32 states the following:

> Global warming poses a serious threat to the economic well-being, public health, natural resources, and the environment of California. The potential adverse impacts of global warming include the exacerbation of air quality problems, a reduction in the quality and supply of water to the state from the Sierra snowpack, a rise in sea levels resulting in the displacement of thousands of coastal businesses and residences, damage to marine ecosystems and the natural environment, and an increase in the incidences of infectious diseases, asthma, and other human health-related problems.

The CARB Board approved the 1990 greenhouse gas emissions level of 427 million metric tons of carbon dioxide equivalent (MMTCO2e) on December 6, 2007 (California Air Resources Board 2007). Therefore, emissions generated in California in 2020 are required to be equal to or less than 427 MMTCO2e. Emissions in 2020 in a "business as usual" scenario are estimated to be 596 MMTCO2e.

Under AB 32, CARB published its Final Expanded List of Early Action Measures to Reduce Greenhouse Gas Emissions in California. Discrete early action measures are currently underway or are enforceable by January 1, 2010. CARB has 44 early action measures that apply to the transportation, commercial, forestry, agriculture, cement, oil and gas, fire suppression, fuels, education, energy efficiency, electricity, and waste sectors. Of these early action measures, nine are considered discrete early action measures, as they are regulatory and enforceable by January 1, 2010. CARB estimates that the 44 recommendations are expected to result in reductions of at least 42 MMTCO2e by 2020, representing approximately 25 percent of the 2020 target.

CARB's Climate Change Scoping Plan (Scoping Plan) contains measures designed to reduce the State's emissions to 1990 levels by the year 2020 (California Air Resources Board 2008). The Scoping Plan identifies recommended measures for multiple greenhouse gas emission sectors and the associated emission reductions needed to achieve the year 2020 emissions target—each sector has a different emission reduction target. Most of the measures target the transportation and electricity sectors. As stated in the Scoping Plan, the key elements of the strategy for achieving the 2020 greenhouse gas target include:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards;
- Achieving a statewide renewables energy mix of 33 percent;
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system;
- Establishing targets for transportation-related greenhouse gas emissions for regions throughout California and pursuing policies and incentives to achieve those targets;
- Adopting and implementing measures pursuant to existing State laws and policies, Including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard; and
- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State's long-term commitment to AB 32 implementation.

In addition, the Scoping Plan differentiates between "capped" and "uncapped" strategies. "Capped" strategies are subject to the proposed cap-and-trade program. The Scoping Plan states that the inclusion of these emissions within the cap-and trade program will help ensure that the year 2020 emission targets are met despite some degree of uncertainty in the emission reduction estimates for any individual measure. Implementation of the capped strategies is calculated to achieve a sufficient amount of reductions by 2020 to achieve the emission target contained in AB 32. "Uncapped" strategies that will not be subject to the cap-and-trade emissions caps and requirements are provided as a margin of safety by accounting for additional greenhouse gas emission reductions.[4]

The 2022 Scoping Plan was adopted by CARB in November 2022 and expands upon earlier plans with a target of reducing GHG emissions to 85% below 1990 levels by 2045.

Senate Bill 100. Senate Bill 100 (SB 100) requires 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045. SB 100 was adopted September 2018.

The interim thresholds from prior Senate Bills and Executive Orders would also remain in effect. These include Senate Bill 1078 (SB 1078), which requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) which changed the target date to 2010. Executive Order S-14-08, which was signed on November 2008 and expanded the State's Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

SB 375. Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

The proposed Project is located within the Southern California Association of Governments (SCAG), which has authority to develop the SCS or APS. For the SCAG region, the targets set by CARB are at eight percent below 2005 per capita GHG emissions levels by 2020 and 13 percent below 2005 per capita GHG emissions levels by 2035. On April 4, 2012, SCAG adopted the 2012-2035 Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS), which meets the CARB emission reduction requirements.

On September 3, 2020, SCAG's Regional Council approved and fully adopted the Connect SoCal (2020–2045 Regional Transportation Plan/Sustainable Communities Strategy), and the addendum to the

Connect SoCal Program Environmental Impact Report. Connect SoCal is a long-range visioning plan that builds upon and expands land use and transportation strategies established over several planning cycles to increase mobility options and achieve a more sustainable growth pattern. Connect SoCal outlines more than $638 billion in transportation system investments through 2045. Connect SoCal is supported by a combination of transportation and land use strategies that help the region achieve state greenhouse gas emission reduction goals and federal Clean Air Act requirements, preserve open space areas, improve public health and roadway safety, support our vital goods movement industry and utilize resources more efficiently. By integrating the Forecasted Development Pattern with a suite of financially constrained transportation investments, Connect SoCal can reach the regional target of reducing greenhouse gases, or GHGs, from autos and light-duty trucks by 8 percent per capita by 2020, and 19 percent by 2035 (compared to 2005 levels).

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

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

Executive Order S-13-08. Executive Order S-13-08 indicates that "climate change in California during the next century is expected to shift precipitation patterns, accelerate sea level rise and increase temperatures, thereby posing a serious threat to California's economy, to the health and welfare of its population and to its natural resources." Pursuant to the requirements in the order, the 2009 California Climate Adaptation Strategy (California Natural Resource Agency 2009) was adopted, which is the "… first statewide, multi-sector, region-specific, and information-based climate change in California, identifying and exploring strategies to adapt to climate change, and specifying a direction for future research.

Executive Order B-30-15. Executive Order B-30-15, establishing a new interim statewide greenhouse gas emission reduction target to reduce greenhouse gas emissions to 40 percent below 1990 levels by 2030, was signed by Governor Brown in April 2015.

Executive Order B-29-15. Executive Order B-29-15, mandates a statewide 25% reduction in potable water usage and was signed into law on April 1, 2015.

Executive Order B-37-16. Executive Order B-37-16, continuing the State's adopted water reduction, was signed into law on May 9, 2016. The water reduction builds off the mandatory 25% reduction called for in EO B-29-15.

Executive Order N-79-20. Executive Order N-79-20 was signed into law on September 23, 2020 and mandates 100 percent of in-state sales of new passenger cars and trucks be zero-emission by 2035; 100 percent of medium- and heavy-duty vehicles in the state be zero-emission vehicles by 2045 for all operations where feasible and by 2035 for drayage trucks; and to transition to 100 percent zero-emission off-road vehicles and equipment by 2035 where feasible.

2.2.4 South Coast Air Quality Management District

The Project is within the South Coast Air Basin, which is under the jurisdiction of SCAQMD. SCAQMD Regulation XXVII currently includes three rules:

- The purpose of Rule 2700 is to define terms and post global warming potentials.
- The purpose of Rule 2701, SoCal Climate Solutions Exchange, is to establish a voluntary program to encourage, quantify, and certify voluntary, high quality certified greenhouse gas emission reductions in the SCAQMD.
- Rule 2702, Greenhouse Gas Reduction Program, was adopted on February 6, 2009. The purpose of this rule is to create a Greenhouse Gas Reduction Program for greenhouse gas emission reductions in the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

SCAQMD Threshold Development

The SCAQMD has established recommended significance thresholds for greenhouse gases for local lead agency consideration ("SCAQMD draft local agency threshold"). SCAQMD has published a five-tiered draft GHG threshold which includes a 10,000 metric ton of CO_2e per year for stationary/industrial sources and 3,000 metric tons of CO_2e per year significance threshold for residential/commercial projects (South Coast Air Quality Management District 2010c). Tier 3 is anticipated to be the primary tier by which the SCAQMD will determine significance for projects. The Tier 3 screening level for stationary sources is based on an emission capture rate of 90 percent for all new or modified projects. A 90-precent emission capture rate means that 90 percent of total emissions from all new or modified stationary source projects would be subject to CEQA analysis. The 90-percent capture rate GHG significance screening level in Tier 3 for stationary sources was derived using the SCAQMD's annual Emissions Reporting Program.

The current draft thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the Project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether or not the Project is consistent with a greenhouse gas reduction plan. If a project is consistent with a qualifying local greenhouse gas reduction plan, it does not have significant greenhouse gas emissions.

- Tier 3 consists of screening values, which the lead agency can choose but must be consistent. A project's construction emissions are averaged over 30 years and are added to a project's operational emissions. If a project's emissions are under one of the following screening thresholds, then the project is less than significant:
  - All land use types: 3,000 MTCO2e per year; and
  - Based on land use types: residential is 3,500 MTCO2e per year; commercial is 1,400 MTCO2e per year; and mixed use is 3,000 MTCO2e per year
- Tier 4 has the following options:
  - Option 1: Reduce emissions from business as usual by a certain percentage; this percentage is currently undefined;
  - Option 2: Early implementation of applicable AB 32 Scoping Plan measures;
  - Option 3: Year 2020 target for service populations (SP), which includes residents and employees: 4.8 MTCO2e/SP/year for projects and 6.6 MTCO2e/SP/year for plans; or
  - Option 3, 2035 target: 3.0 MTCO2e/SP/year for projects and 4.1 MTCO2e/SP/year for plans

2.3 Energy Regulatory Setting

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation, the United States Department of Energy, and the United States Environmental Protection Agency are three federal agencies with substantial influence over energy policies and programs. On the state level, the PUC and the California Energy Commissions (CEC) are two agencies with authority over different aspects of energy. Relevant federal and state energy-related laws and plans are summarized below.

2.3.1 Federal Regulations

Corporate Average Fuel Economy (CAFÉ) Standards

First established by the U.S. Congress in 1975, the Corporate Average Fuel Economy (CAFÉ) standards reduce energy consumption by increasing the fuel economy of cars and light trucks. The National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA) jointly administer the CAFÉ standards. The U.S. Congress has specified that CAFÉ standards must be set at the "maximum feasible level" with consideration given for: (1) technological feasibility; (2) economic practicality; (3) effect of other standards on fuel economy; and (4) need for the nation to conserve energy.[2]

Issued by NHTSA and EPA in March 2020 (published on April 30, 2020 and effective after June 29, 2020), the Safer Affordable Fuel-Efficient Vehicles Rule would maintain the CAFÉ and CO2 standards applicable in model year 2020 for model years 2021 through 2026. The estimated CAFÉ and CO2 standards for

[2] https://www.nhtsa.gov/lawsregulations/corporate-average-fuel-economy.

model year 2020 are 43.7 mpg and 204 grams of CO2 per mile for passenger cars and 31.3 mpg and 284 grams of CO2 per mile for light trucks, projecting an overall industry average of 37 mpg, as compared to 46.7 mpg under the standards issued in 2012.[3]

Intermodal Surface transportation Efficiency Act of 1991 (ISTEA)

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) promoted the development of inter-modal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that Metropolitan Planning Organizations (MPOs) were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values guiding transportation decisions.

The Transportation Equity Act of the 21st Century (TEA-21)

The Transportation Equity Act for the 21st Century (TEA-21) was signed into law in 1998 and builds upon the initiatives established in the ISTEA legislation, discussed above. TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs. TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. TEA-21 also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of Intelligent Transportation Systems, to help improve operations and management of transportation systems and vehicle safety.

2.3.2 State Regulations

Integrated Energy Policy Report (IEPR)

Senate Bill 1389 requires the California Energy Commission (CEC) to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the State's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety. The Energy Commission prepares these assessments and associated policy recommendations every two years, with updates in alternate years, as part of the Integrated Energy Policy Report.

[3] National Highway Traffic Safety Administration (NHTSA) and U.S. Environmental Protection Agency (USEPA), 2018. Federal Register / Vol. 83, No. 165 / Friday, August 24, 2018 / Proposed Rules, The Safer Affordable Fuel-Efficient (SAFE) Vehicles Rule for Model Years 2021–2026 Passenger Cars and Light Trucks 2018. Available at: https://www.epa.gov/regulations-emissions-vehicles-and-engines/safer-affordable-fuel-efficient-safe-vehicles-final-rule.

The 2019 Integrated Energy Policy Report (2019 IEPR) was adopted February 20, 2020, and continues to work towards improving electricity, natural gas, and transportation fuel energy use in California. The 2019 IEPR focuses on a variety of topics such as decarbonizing buildings, integrating renewables, energy efficiency, energy equity, integrating renewable energy, updates on Southern California electricity reliability, climate adaptation activities for the energy sector, natural gas assessment, transportation energy demand forecast, and the California Energy Demand Forecast.[4]

The 2020 IEPR was adopted March 23, 2021 and identifies actions the state and others can take to ensure a clean. Affordable, and reliable energy system. In 2020, the IEPR focuses on California's transportation future and the transition to zero-emission vehicles, examines microgrids, lessons learned form a decade of state-supported research, and stakeholder feedback on the potential of microgrids to contribute to a lean and resilient energy system; and reports on California's energy demand outlook, updated to reflect the global pandemic and help plan for a growth in zero-emission plug in electric vehicles.[5]

State of California Energy Plan

The CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators and encouragement of urban designs that reduce vehicle miles traveled and accommodate pedestrian and bicycle access.

California Building Standards Code (Title 24)

California Building Energy Efficiency Standards (Title 24, Part 6)

The California Building Energy Efficiency Standards for Residential and Nonresidential Buildings (California Code of Regulations, Title 24, Part 6) were adopted to ensure that building construction and system design and installation achieve energy efficiency and preserve outdoor and indoor environmental quality. The current California Building Energy Efficiency Standards (Title 24 standards) are the 2019 Title 24 standards, which became effective on January 1, 2020. The 2019 Title 24 standards include efficiency improvements to the lighting and efficiency improvements to the non-residential standards include alignment with the American Society of Heating and Air-Conditioning Engineers.

All buildings for which an application for a building permit is submitted on or after January 1, 2020 must follow the 2019 standards. The 2016 residential standards were estimated to be approximately 28 percent more efficient than the 2013 standards, whereas the 2019 residential standards are estimated

[4] California Energy Commission. Final 2019 Integrated Energy Policy Report. February 20, 2020. https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2019-integrated-energy-policy-report

[5] California Energy Commission. Final 2020 Integrated Energy Policy Report. March 23, 2020. https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2020-integrated-energy-policy-report-update

to be approximately 7 percent more efficient than the 2016 standards. Furthermore, once rooftop solar electricity generation is factored in, 2019 residential standards are estimated to be approximately 53 percent more efficient than the 2016 standards. Under the 2019 standards, nonresidential buildings are estimated to be approximately 30 percent more efficient than the 2016 standards. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas emissions.

California Building Energy Efficiency Standards (Title 24, Part 11)

The 2022 California Green Building Standards Code (California Code of Regulations, Title 24, Part 11), commonly referred to as the CALGreen Code, went into effect on January 1, 2023. The 2023 CALGreen Code includes mandatory measures for non-residential development related to site development; energy efficiency; water efficiency and conservation; material conservation and resource efficiency; and environmental quality.

The CEC estimates that over 30 years the 2022 Energy Code will provide $1.5 billion in consumer benefits and reduce 10 million metric tons of GHG. Changes compared to the 2019 Energy Code include increases to on-site renewable energy generation from solar, increases to electric load flexibility to support grid reliability, reduction of emissions from newly constructed buildings, reduction of air pollution for improved public health, and increased adoption of environmentally beneficial efficient electric technologies.

Senate Bill 100

Senate Bill 100 (SB 100) requires 100 percent of total retail sales of electricity in California to come from eligible renewable energy resources and zero-carbon resources by December 31, 2045. SB 100 was adopted September 2018.

The interim thresholds from prior Senate Bills and Executive Orders would also remain in effect. These include Senate Bill 1078 (SB 1078), which requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20 percent of their supply from renewable sources by 2017. Senate Bill 107 (SB 107) which changed the target date to 2010. Executive Order S-14-08, which was signed on November 2008 and expanded the State's Renewable Energy Standard to 33 percent renewable energy by 2020. Executive Order S-21-09 directed the CARB to adopt regulations by July 31, 2010 to enforce S-14-08. Senate Bill X1-2 codifies the 33 percent renewable energy requirement by 2020.

Senate Bill 350

Senate Bill 350 (SB 350) was signed into law October 7, 2015, SB 350 increases California's renewable electricity procurement goal from 33 percent by 2020 to 50 percent by 2030. This will increase the use of Renewables Portfolio Standard (RPS) eligible resources, including solar, wind, biomass, geothermal, and others. In addition, SB 350 requires the state to double statewide energy efficiency savings in electricity and natural gas end uses by 2030. To help ensure these goals are met and the greenhouse gas emission reductions are realized, large utilities will be required to develop and submit Integrated

Resource Plans (IRPs). These IRPs will detail how each entity will meet their customers resource needs, reduce greenhouse gas emissions and ramp up the deployment of clean energy resources.

Assembly Bill 32

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

Assembly Bill 1493/Pavley Regulations

California Assembly Bill 1493 enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. In 2005, the CARB submitted a "waiver" request to the EPA from a portion of the federal Clean Air Act in order to allow the State to set more stringent tailpipe emission standards for CO_2 and other GHG emissions from passenger vehicles and light duty trucks. On December 19, 2007 the EPA announced that it denied the "waiver" request. On January 21, 2009, CARB submitted a letter to the EPA administrator regarding the State's request to reconsider the waiver denial. The EPA approved the waiver on June 30, 2009.

Executive Order S-1-07/Low Carbon Fuel Standard

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

On April 23, 2009 CARB approved the proposed regulation to implement the low carbon fuel standard and began implementation on January 1, 2011. The low carbon fuel standard is anticipated to reduce GHG emissions by about 16 MMT per year by 2020. CARB approved some amendments to the LCFS in December 2011, which were implemented on January 1, 2013. In September 2015, the Board approved the re-adoption of the LCFS, which became effective on January 1, 2016, to address procedural deficiencies in the way the original regulation was adopted. In 2018, the Board approved amendments to the regulation, which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32, adding new crediting opportunities to promote zero emission vehicle adoption, alternative jet fuel, carbon capture and sequestration, and advanced technologies to achieve deep decarbonization in the transportation sector.

The LCFS is designed to encourage the use of cleaner low-carbon transportation fuels in California, encourage the production of those fuels, and therefore, reduce GHG emissions and decrease petroleum

dependence in the transportation sector. Separate standards are established for gasoline and diesel fuels and the alternative fuels that can replace each. The standards are "back-loaded", with more reductions required in the last five years, than during the first five years. This schedule allows for the development of advanced fuels that are lower in carbon than today's fuels and the market penetration of plug-in hybrid electric vehicles, battery electric vehicles, fuel cell vehicles, and flexible fuel vehicles. It is anticipated that compliance with the low carbon fuel standard will be based on a combination of both lower carbon fuels and more efficient vehicles.

Reformulated gasoline mixed with corn-derived ethanol at ten percent by volume and low sulfur diesel fuel represent the baseline fuels. Lower carbon fuels may be ethanol, biodiesel, renewable diesel, or blends of these fuels with gasoline or diesel as appropriate. Compressed natural gas and liquefied natural gas also may be low carbon fuels. Hydrogen and electricity, when used in fuel cells or electric vehicles are also considered as low carbon fuels for the low carbon fuel standard.

Executive Order N-79-20.

Executive Order N-79-20 was signed into law on September 23, 2020 and mandates 100 percent of in-state sales of new passenger cars and trucks be zero-emission by 2035; 100 percent of medium- and heavy-duty vehicles in the state be zero-emission vehicles by 2045 for all operations where feasible and by 2035 for drayage trucks; and to transition to 100 percent zero-emission off-road vehicles and equipment by 2035 where feasible.

California Air Resources Board

CARB's Advanced Clean Cars Program

Closely associated with the Pavley regulations, the Advanced Clean Cars emissions control program was approved by CARB in 2012. The program combines the control of smog, soot, and GHGs with requirements for greater numbers of zero-emission vehicles for model years 2015–2025. The components of the Advanced Clean Cars program include the Low-Emission Vehicle (LEV) regulations that reduce criteria pollutants and GHG emissions from light- and medium-duty vehicles, and the Zero-Emission Vehicle (ZEV) regulation, which requires manufacturers to produce an increasing number of pure ZEVs (meaning battery electric and fuel cell electric vehicles), with provisions to also produce plug-in hybrid electric vehicles (PHEV) in the 2018 through 2025 model years.[6]

Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling

The Airborne Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling (Title 13, California Code of Regulations, Division 3, Chapter 10, Section 2435) was adopted to reduce public exposure to diesel particulate matter and other air contaminants by limiting the idling of diesel-fueled commercial motor vehicles. This section applies to diesel-fueled commercial motor vehicles with gross

[6] California Air Resources Board, California's Advanced Clean Cars Program, January 18, 2017. www.arb.ca.gov/msprog/acc/acc.htm.

vehicular weight ratings of greater than 10,000 pounds that are or must be licensed for operation on highways. Reducing idling of diesel-fueled commercial motor vehicles reduces the amount of petroleum-based fuel used by the vehicle.

Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen, and other Criteria Pollutants, form In-Use Heavy-Duty Diesel-Fueled Vehicles

The Regulation to Reduce Emissions of Diesel Particulate Matter, Oxides of Nitrogen and other Criteria Pollutants, from In-Use Heavy-Duty Diesel-Fueled Vehicles (Title 13, California Code of Regulations, Division 3, Chapter 1, Section 2025) was adopted to reduce emissions of diesel particulate matter, oxides of nitrogen (NO_X) and other criteria pollutants from in-use diesel-fueled vehicles. This regulation is phased, with full implementation by 2023. The regulation aims to reduce emissions by requiring the installation of diesel soot filters and encouraging the retirement, replacement, or repower of older, dirtier engines with newer emission-controlled models. The newer emission controlled models would use petroleum-based fuel in a more efficient manner.

Sustainable Communities Strategy

The Sustainable Communities and Climate Protection Act of 2008, or Senate Bill 375 (SB 375), coordinates land use planning, regional transportation plans, and funding priorities to help California meet the GHG reduction mandates established in AB 32.

Senate Bill 375 (SB 375) was adopted September 2008 and aligns regional transportation planning efforts, regional GHG emission reduction targets, and land use and housing allocation. SB 375 requires Metropolitan Planning Organizations (MPO) to adopt a sustainable communities strategy (SCS) or alternate planning strategy (APS) that will prescribe land use allocation in that MPOs Regional Transportation Plan (RTP). CARB, in consultation with each MPO, will provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035. These reduction targets will be updated every eight years but can be updated every four years if advancements in emissions technologies affect the reduction strategies to achieve the targets. CARB is also charged with reviewing each MPO's sustainable communities strategy or alternate planning strategy for consistency with its assigned targets.

3.0 Setting

3.1 Existing Physical Setting

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

3.1.1 Local Climate and Meteorology

Dominant airflows provide the driving mechanism for transport and dispersion of air pollution. The mountains surrounding the region form natural horizontal barriers to the dispersion of air contaminants. Air pollution created in the coastal areas and around the Greater Los Angeles area is transported inland until it reaches the mountains where the combination of mountains and inversion layers generally prevent further dispersion. This poor ventilation results in a gradual degradation of air quality from the coastal areas to inland areas. Air stagnation may occur during the early evening and early morning periods of transition between day and nighttime flows. The region also experiences periods of hot, dry winds from the desert, known as Santa Ana winds. If the Santa Ana winds are strong, they can surpass the sea breeze, which blows from the ocean to the land, and carry the suspended dust and pollutants out to the ocean. If the winds are weak, they are opposed by the sea breeze and cause stagnation, resulting in high pollution events.

The annual average temperature varies little throughout much of the basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (°F). With more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas where the Project site is located. The majority of the annual rainfall in the basin occurs between November and April. Summer rainfall is minimal and is generally limited to scattered thunderstorms in the coastal regions and slightly heavier showers in the eastern portion of the basin along the coastal side of the mountains. Year-to-year patterns in rainfall are unpredictable because of fluctuations in the weather.

Temperature inversions limit the vertical depth through which pollution can be mixed. Among the most common temperature inversions in the basin are radiation inversions, which form on clear winter nights when cold air off mountains sink to the valley floor while the air aloft over the valley remains warm. These inversions, in conjunction with calm winds, trap pollutants near the source. Other types of temperature inversions that affect the basin include marine, subsidence, and high-pressure inversions.

Summers are often periods of hazy visibility and occasionally unhealthful air. Strong temperature inversions may occur that limit the vertical depth through which air pollution can be dispersed. Air pollutants concentrate because they cannot rise through the inversion layer and disperse. These inversions are more common and persistent during the summer months. Over time, sunlight produces photochemical reactions within this inversion layer that creates ozone, a particularly harmful air

pollutant. Occasionally, strong thermal convections occur which allows the air pollutants to rise high enough to pass over the mountains and ultimately dilute the smog cloudtrap pollutants such as automobile exhaust near their source. While these inversions may lead to air pollution "hot spots" in heavily developed coastal areas of the basin, there is not enough traffic in inland valleys to cause any winter air pollution problems. Despite light wind conditions, especially at night and in the early morning, winter is generally a period of good air quality in the Project vicinity.

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

The temperature and precipitation levels for the City of Anaheim, the closest monitoring station to the Project site with available meteorological data, are in Table 3. Table 3 shows that August is typically the warmest month and December is typically the coolest month. Rainfall in the Project area varies considerably in both time and space. Almost all the annual rainfall comes from the fringes of mid-latitude storms from late November to early April, with summers being almost completely dry.

Table 3: Meteorological Summary

Month	Temperature (˚F)		Average Precipitation (inches)
	Average High	Average Low	
January	70.0	47.5	3.34
February	70.0	48.2	3.47
March	72.4	50.4	1.86
April	74.7	52.8	0.83
May	77.1	57.3	0.53
June	80.1	60.5	0.15
July	85.2	64.2	0.07
August	87.1	64.5	0.01
September	86.5	62.7	0.10
October	81.2	57.7	0.72
November	75.4	51.8	0.99
December	69.7	46.9	2.02
Annual Average	**77.4**	**55.4**	**14.1**

Notes:
[1] Source: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca0192

3.1.2 Local Air Quality

The SCAQMD is divided into 38 air-monitoring areas with a designated ambient air monitoring station representative of each area. The Project site is located in the City of Brea in the North Orange County (Area 16). The nearest air monitoring station to the Project site with available air quality data is the

Anaheim – Pampas Lane Station (Anaheim Station) located approximately 5.8 miles southwest of the Project site; however, this location does not provide all ambient weather data. Therefore, additional data was pulled from the SCAQMD historical data for the North Orange County (Area 16) for both sulfur dioxide and carbon monoxide to provide the existing levels. Table 4 presents the monitored pollutant levels within the vicinity. However, it should be noted that due to the air monitoring station distance from the Project site, recorded air pollution levels at the air monitoring station reflect with varying degrees of accuracy, local air quality conditions at the Project site.

Table 4: Local Area Air Quality Levels from Local Monitoring Stations

Pollutant (Standard)[2]	Year		
	2020	**2021**	**2022**
Ozone:			
Maximum 1-Hour Concentration (ppm)	0.142	0.089	0.102
Days > CAAQS (0.09 ppm)	**6**	**0**	**1**
Maximum 8-Hour Concentration (ppm)	0.097	0.068	0.076
Days > NAAQS (0.07 ppm)	**15**	**0**	**1**
Days > CAAQS (0.070 ppm)	**16**	**0**	**1**
Carbon Monoxide:			
Maximum 1-Hour Concentration (ppm)	2.1	2.3	-
Days > NAAQS (20 ppm)	0	0	-
Maximum 8-Hour Concentration (ppm)	1.2	1.3	-
Days > NAAQS (9 ppm)	0	0	-
Nitrogen Dioxide:			
Maximum 1-Hour Concentration (ppm)	0.071	0.067	0.053
Days > NAAQS (0.25 ppm)	0	0	0
Sulfur Dioxide:			
Maximum 1-Hour Concentration (ppm)[3]	-	-	-
Days > CAAQS (0.04 ppm)[3]	-	-	-
Inhalable Particulates (PM10):			
Maximum 24-Hour Concentration (ug/m^3)	74.8	63.6	67.0
Days > NAAQS (150 ug/m^3)	0	0	0
Days > CAAQS (50 ug/m^3) [3]	5	1	1
Annual Average (ug/m^3)	30.8	23.4	20.9
Annual > NAAQS (50 ug/m^3)	No	No	No
Annual > CAAQS (20 ug/m^3)	**Yes**	**Yes**	**Yes**
Ultra-Fine Particulates (PM2.5):			
Maximum 24-Hour Concentration (ug/m^3)	60.2	54.4	33.1
Days > NAAQS (35 ug/m^3) [3]	**12**	10	**0**
Annual Average (ug/m^3) [3]	12.2	11.5	9.8
Annual > NAAQS (15 ug/m^3) [3]	No	No	No
Annual > CAAQS (12 ug/m^3) [3]	**Yes**	No	No

[1.] Source: obtained from https://www.aqmd.gov/home/air-quality/air-quality-data-studies/historical-data-by-year and /or https://www.arb.ca.gov/adam/topfour/topfour1.php

[2] CAAQS = California Ambient Air Quality Standard; NAAQS = National Ambient Air Quality Standard; ppm = parts per million

[3] No data available.

The monitoring data presented in Table 4 shows that ozone and particulate matter (PM10 and PM2.5) are the air pollutants of primary concern in the Project area.

Ozone

During the 2020 to 2022 monitoring period, the State 1-hour concentration standard for ozone has been exceeded 6 days in 2020 and 1 day in 2022 at the Anaheim Station. The State 8-hour concentration standard for ozone has been exceeded 16 days in 2020 and 1 day in 2022 at the Anaheim Station. The Federal 8-hour concentration standard for ozone has been exceeded 15 days in 2020 and 1 day in 2022 at the Anaheim Station.

Ozone is a secondary pollutant as it is not directly emitted. Ozone is the result of chemical reactions between other pollutants, most importantly hydrocarbons and NO_2, which occur only in the presence of bright sunlight. Pollutants emitted from upwind cities react during transport downwind to produce the oxidant concentrations experienced in the area. Many areas of the SCAQMD contribute to the ozone levels experienced at the monitoring station, with the more significant areas being those directly upwind.

Carbon Monoxide

CO is another important pollutant that is due mainly to motor vehicles. The North Orange County Area did not record an exceedance of the state or federal 1-hour or 8-hour CO standards for the last three years.

Nitrogen Dioxide

The Anaheim Station did not record an exceedance of the State or Federal NO_2 standards for the last three years.

Sulfur Dioxide

The North Orange County area did not record an exceedance of the State SO_2 standards for the last three years.

Particulate Matter

During the 2020 to 2022 monitoring period, the Anaheim Station recorded between 1 and 5 days of exceedance of the State 24-hour concentration standard for PM10 and the State annual concentration standard for PM10 was exceeded each year. Over the same time period the Federal 24-hour standard for PM10 was not exceeded at the Anaheim Station.

During the 2020 to 2022 monitoring period, the Federal 24-hour standard for PM2.5 was exceeded 12 days in 2020 and 10 days in 2021 at the Anaheim Station and the State annual standard for PM2.5 was exceeded in 2020.

According to the EPA, some people are much more sensitive than others to breathing fine particles (PM10 and PM2.5). People with influenza, chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death due to breathing these fine particles. People with bronchitis can expect aggravated symptoms from breathing in fine particles. Children may

experience decline in lung function due to breathing in PM10 and PM2.5. Other groups considered sensitive are smokers and people who cannot breathe well through their noses. Exercising athletes are also considered sensitive because many breathe through their mouths during exercise.

3.1.3 Attainment Status

The EPA and CARB designate air basins where ambient air quality standards are exceeded as "nonattainment" areas. If standards are met, the area is designated as an "attainment" area. If there is inadequate or inconclusive data to make a definitive attainment designation, they are considered "unclassified." National nonattainment areas are further designated as marginal, moderate, serious, severe, or extreme as a function of deviation from standards. Each standard has a different definition, or 'form' of what constitutes attainment, based on specific air quality statistics. For example, the Federal 8-hour CO standard is not to be exceeded more than once per year; therefore, an area is in attainment of the CO standard if no more than one 8-hour ambient air monitoring values exceeds the threshold per year. In contrast, the federal annual PM2.5 standard is met if the three-year average of the annual average PM2.5 concentration is less than or equal to the standard. Table 5 lists the attainment status for the criteria pollutants in the basin.

Table 5: South Coast Air Basin Attainment Status

Pollutant	Standard[1]	Averaging Time	Designation[2]	Attainment Date[3]
1-Hour Ozone	NAAQS	1979 1-Hour (0.12 ppm)	Nonattainment (Extreme)	2/6/2023 (not attained)[4]
	CAAQS	1-Hour (0.09 ppm)	Nonattainment	N/A
8-Hour Ozone[5]	NAAQS	1997 8-Hour (0.08 ppm)	Nonattainment (Extreme)	6/15/2024
	NAAQS	2008 8-Hour (0.075 ppm)	Nonattainment (Extreme)	7/20/2032
	NAAQS	2015 8-Hour (0.070 ppm)	Nonattainment (Extreme)	8/3/2038
	CAAQS	8-Hour (0.070 ppm)	Nonattainment	Beyond 2032
CO	NAAQS	1-Hour (35 ppm)	Attainment (Maintenance)	6/11/2007 (attained)
	CAAQS	8-Hour (9 ppm)	Attainment	6/11/2007 (attained)
NO_2 [6]	NAAQS	1-Hour (0.1 ppm)	Unclassifiable/Attainment	N/A (attained)
	NAAQS	Annual (0.053 ppm)	Attainment (Maintenance)	9/22/1998 (attained)
	CAAQS	1-hour (0.18 ppm) Annual (0.030 ppm)	Attainment	-
SO_2[7]	NAAQS	1-Hour (75 ppb)	Designations Pending (expect Uncl./Attainment)	N/A (attained)
	NAAQS	24-Hour (0.14 ppm) Annual (0.03 ppm)	Unclassifiable/Attainment	3/19/1979 (attained)
PM10	NAAQS	1987 24-Hour (150 µg/m^3)	Attainment (Maintenance)[8]	7/26/2013 (attained)
	CAAQS	24-Hour (50 µg/m^3) Annual (20 µg/m^3)	Nonattainment	N/A

PM2.5 [9]	NAAQS	2006 24-Hour (35 µg/m^3)	Nonattainment (Serious)	12/31/2019
	NAAQS	1997 Annual (15.0 µg/m^3)	Attainment	8/24/2016
	NAAQS	2021 Annual (12.0 µg/m^3)	Nonattainment (Serious)	12/31/2025
	CAAQS	Annual (12.0 µg/m^3)	Nonattainment	N/A
Lead	NAAQS	3-Months Rolling (0.15 µg/m^3)	Nonattainment (Partial)[10]	12/31/2015

Notes:
Source: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf
[1] NAAQS = National Ambient Air Quality Standards, CAAQS = California Ambient Air Quality Standards
[2] U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable.
[3] A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for attainment demonstration.
[4] 1-hour O3 standard (0.12 ppm) was revoked, effective June 15, 2005; however, the Basin has not attained this standard based on 2008-2010 data and is still subject to anti-backsliding requirements.
[5] 1997 8-hour O3 standard (0.08 ppm) was reduced (0.075 ppm), effective May 27, 2008; the revoked 1997 O3 standard is still subject to anti-backsliding requirements.
[6] New NO2 1-hour standard, effective August 2, 2010; attainment designations January 20, 2012; annual NO2 standard retained.
[7] The 1971 annual and 24-hour SO2 standards were revoked, effective August 23, 2010; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO2 1-hour standard. Area designations are still pending, with Basin expected to be designated Unclassifiable /Attainment.
[8] Annual PM10 standard was revoked, effective December 18, 2006; 24-hour PM10 NAAQS deadline was 12/31/2006; SCAQMD request for attainment redesignation and PM10 maintenance plan was approved by U.S. EPA on June 26, 2013, effective July 26, 2013.
[9] Attainment deadline for the 2006 24-Hour PM2.5 NAAQS (designation effective December 14, 2009) is December 31, 2019 (end of the 10th calendar year after effective date of designations for Serious nonattainment areas). Annual PM2.5 standard was revised on January 15, 2013, effective March 18, 2013, from 15 to 12 µg/m3. Designations effective April 15, 2015, so Serious area attainment deadline is December 31, 2025.
[10] Partial Nonattainment designation – Los Angeles County portion of Basin only for near-source monitors. Expect redesignation to attainment based on current monitoring data.

3.2 Greenhouse Gases

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHG), play a critical role in the Earth's radiation amount by trapping infrared radiation emitted from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO_2), methane (CH_4), ozone, water vapor, nitrous oxide (N_2O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. Emissions of CO_2 and nitrous oxide (NO_2) are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO_2, where CO_2 is stored outside of the

atmosphere, include uptake by vegetation and dissolution into the ocean. Table 6 provides a description of each of the greenhouse gases and their global warming potential.

Additional information is available: https://www.arb.ca.gov/cc/inventory/data/data.htm

Table 6: Description of Greenhouse Gases

Greenhouse Gas	Description and Physical Properties	Sources
Nitrous oxide	Nitrous oxide (N_20),also known as laughing gas is a colorless gas. It has a lifetime of 114 years. Its global warming potential is 298.	Microbial processes in soil and water, fuel combustion, and industrial processes. In addition to agricultural sources, some industrial processes (nylon production, nitric acid production) also emit N_20.
Methane	Methane (CH_4) is a flammable gas and is the main component of natural gas. It has a lifetime of 12 years. Its global warming potential is 25.	A natural source of CH_4 is from the decay of organic matter. Methane is extracted from geological deposits (natural gas fields). Other sources are from the decay of organic material in landfills, fermentation of manure, and cattle farming.
Carbon dioxide	Carbon dioxide (CO_2) is an odorless, colorless, natural greenhouse gas. Carbon dioxide's global warming potential is 1. The concentration in 2005 was 379 parts per million (ppm), which is an increase of about 1.4 ppm per year since 1960.	Natural sources include decomposition of dead organic matter; respiration of bacteria, plants, animals, and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources are from burning coal, oil, natural gas, and wood.
Chlorofluorocarbons	CFCs are nontoxic, nonflammable, insoluble, and chemically unreactive in the troposphere (the level of air at the earth's surface). They are gases formed synthetically by replacing all hydrogen atoms in methane or methane with chlorine and/or fluorine atoms. Global warming potentials range from 3,800 to 8,100.	Chlorofluorocarbons were synthesized in 1928 for use as refrigerants, aerosol propellants, and cleaning solvents. They destroy stratospheric ozone, therefore their production was stopped as required by the Montreal Protocol.
Hydrofluorocarbons	Hydrofluorocarbons (HFCs) are a group of greenhouse gases containing carbon, chlorine, and at least one hydrogen atom. Global warming potentials range from 140 to 11,700.	Hydrofluorocarbons are synthetic manmade chemicals used as a substitute for chlorofluorocarbons in applications such as automobile air conditioners and refrigerants.
Perfluorocarbons	Perfluorocarbons (PFCs) have stable molecular structures and only break down by ultraviolet rays about 60 kilometers above the Earth's surface. They have a lifetime 10,000 to 50,000 years. They have a global warming potential range of 6,200 to 9,500.	Two main sources of perfluorocarbons are primary aluminum production and semiconductor manufacturing.
Sulfur hexafluoride	Sulfur hexafluoride (SF_6) is an inorganic, odorless, colorless, and nontoxic, nonflammable gas. It has a lifetime of 3,200 years. It has a high global warming potential, 23,900.	This gas is manmade and used for insulation in electric power transmission equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

Notes:

1. Sources: Intergovernmental Panel on Climate Change 2014a and Intergovernmental Panel on Climate Change 2014b. https://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html

3.3 Energy

3.3.1 Overview

California's estimated annual energy use as of 2021 included:

- Approximately 277,764 gigawatt hours of electricity; [7]
- Approximately 2,092,612 million cubic feet of natural gas per year[8];and
- Approximately 15.2 billion gallons of transportation fuel (for the year 2018)[9].

As of 2021, the year of most recent data currently available by the United States Energy Information Administration (EIA), energy use in California by demand sector was:

- Approximately 37.8 percent transportation;
- Approximately 23.2 percent industrial;
- Approximately 20.0 percent residential; and
- Approximately 19.0 percent commercial.[10]

California's electricity in-state generation system generates approximately 194,127 gigawatt-hours each year. In 2021, California produced approximately 72 percent of the electricity it uses; the rest was imported from the Pacific Northwest (approximately 12 percent) and the U.S. Southwest (approximately 18 percent). Natural gas is the main source for electricity generation at approximately 50.2 percent of the total in-state electric generation system power as shown in Table 7.

<Table 7, next page>

[7]California Energy Commission. Energy Almanac. Total Electric Generation. [Online] 2020. https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2019-total-system-electric-generation.
[8]Natural Gas Consumption by End Use. U.S. Energy Information Administration. [Online] August 31, 20020. https://www.eia.gov/dnav/ng/ng_cons_sum_dcu_SCA_a.htm.
[9]California Energy Commission. Revised Transportation Energy Demand Forecast 2018-2030. [Online] April 19, 2018. https://www.energy.ca.gov/assessments/
[10]U.S. Energy Information Administration. California Energy Consumption by by End-Use Sector. California State Profile and Energy Estimates. [Online] January 16, 2020 https://www.eia.gov/state/?sid=CA#tabs-2

Table 7: Total Electricity System Power (California 2021)

Fuel Type	California In-State Generation (GWh)	Percent of California In-State Generation	Northwest Imports (GWh)	Southwest Imports (GWh)	Total Imports (GWh)	Percent of Imports	California Power Mix (GWh)	Percent California Power Mix
Coal	303	0.2%	181	7,788	7,969	9.5%	8,272	3.0%
Natural Gas	12,036	6.2%	12,042	1,578	13,620	16.3%	25,656	9.2%
Nuclear	97,431	50.2%	45	7,880	7,925	9.5%	105,365	37.9%
Oil	16,477	8.5%	524	8,756	9,280	11.1%	25,758	9.3%
Other (Petroleum Coke/Waste Heat)	37	0.0%	-	-	-	0.0%	37	0.0%
Large Hydro	382	0.2%	68	15	83	0.1%	465	0.2%
Unspecified Sources of Power	-	0.0%	8,156	10,731	18,887	22.6%	18,887	6.80%
Renewables	67,461	34.8%	11,555	14,317	25,872	30.9%	93,333	33.6%
Biomass	5,381	2.8%	684	26	710	1.1%	6,271	2.3%
Geothermal	11,116	5.7%	192	1906	2,098	2.5%	13,214	4.8%
Somall Hydro	2,531	1.3%	304	1	305	0.4%	2,835	1.0%
Solar	33,260	17.1%	220	5,979	6,199	7.4%	39,458	14.2%
Wind	15,173	7.8%	9,976	6,405	16,381	19.6%	31,555	11.4%
Total	194,127	100.00%	32,572	51,064	83,636	100.0%	277,764	100.00%

Notes:
[1] Source: California Energy Commission. 2021 Total System electric Generation. https://www.energy.ca.gov/data-reports/energy-almanac/california-electricity-data/2021-total-system-electric-generation

A summary of and context for energy consumption and energy demands within the State is presented in "U.S. Energy Information Administration, California State Profile and Energy Estimates, Quick Facts" excerpted below:

- California was the seventh-largest producer of crude oil among the 50 states in 2018, and, as of January 2019, it ranked third in oil refining capacity.
- California is the largest consumer of jet fuel among the 50 states and accounted for one-fifth of the nation's jet fuel consumption in 2018.
- California's total energy consumption is the second-highest in the nation, but, in 2018, the State's per capita energy consumption ranked the fourth-lowest, due in part to its mild climate and its energy efficiency programs.
- In 2018, California ranked first in the nation as a producer of electricity from solar, geothermal, and biomass resources and fourth in the nation in conventional hydroelectric power generation.
- In 2018, large- and small-scale solar PV and solar thermal installations provided 19% of California's net electricity generation[11].

[11] State Profile and Energy Estimates. Independent Statistics and Analysis. [Online] [Cited: January 16, 2020.] http://www.eia.gov/state/?sid=CA#tabs2.

As indicated above, California is one of the nation's leading energy-producing states, and California per capita energy use is among the nation's most efficient. Given the nature of the proposed project, the remainder of this discussion will focus on the three sources of energy that are most relevant to the project—namely, electricity and natural gas for building uses, and transportation fuel for vehicle trips associated with the proposed project.

3.3.2 Electricity and Natural Gas

Electricity would be provided to the project by Southern California Edison (SCE). SCE provides electric power to more than 15 million persons, within a service area encompassing approximately 50,000 square miles.[12] SCE derives electricity from varied energy resources including: fossil fuels, hydroelectric generators, nuclear power plants, geothermal power plants, solar power generation, and wind farms. SCE also purchases from independent power producers and utilities, including out-of-state suppliers.[13] Table 2 identifies SCE's specific proportional shares of electricity sources in 2021.

Table 8: SCE 2021 Power Content Mix

Energy Resources	2021 SDG&E Power Mix
Eligible Renewable[1]	31.4%
Biomass & Biowaste	0.1%
Geothermal	5.7%
Eligible Hydroelectric	0.5%
Solar	14.9%
Wind	10.2%
Coal	0.0%
Large Hydroelectric	2.3%
Natural Gas	22.3%
Nuclear	9.2%
Other	0.2%
Unspecified Sources of power[2]	34.6%
Total	100.0%

Notes:
Source: https://www.sce.com/sites/default/files/custom-files/Web%20files/2021%20Power%20Content%20Label.pdf.
(1) The eligible renewable percentage above does not reflect RPS compliance, which is determined using a different methodology.

[12] https://www.sce.com/about-us/who-we-are/leadership/our-service-territory
[13] California Energy Commission. Utility Energy Supply plans from 2015. https://www.energy.ca.gov/almanac/electricity_data/supply_forms.html

(2) Unspecified sources of power means electricity from transactions that are not traceable to specific generation sources.

Natural gas would be provided to the project by Southern California Gas (SoCalGas). The following summary of natural gas resources and service providers, delivery systems, and associated regulation is excerpted from information provided by the California Public Utilities Commission (CPUC).

The CPUC regulates natural gas utility service for approximately 11 million customers that receive natural gas from Pacific Gas and Electric (PG&E), Southern California Gas (SoCalGas), San Diego Gas & Electric (SDG&E), Southwest Gas, and several smaller investor-owned natural gas utilities. The CPUC also regulates independent storage operators Lodi Gas Storage, Wild Goose Storage, Central Valley Storage and Gill Ranch Storage.

The vast majority of California's natural gas customers are residential and small commercial customers, referred to as "core" customers. Larger volume gas customers, like electric generators and industrial customers, are called "noncore" customers. Although very small in number relative to core customers, noncore customers consume about 65% of the natural gas delivered by the state's natural gas utilities, while core customers consume about 35%.

The PUC regulates the California utilities' natural gas rates and natural gas services, including in-state transportation over the utilities' transmission and distribution pipeline systems, storage, procurement, metering and billing.

Most of the natural gas used in California comes from out-of-state natural gas basins. In 2017, for example, California utility customers received 38% of their natural gas supply from basins located in the U.S. Southwest, 27% from Canada, 27% from the U.S. Rocky Mountain area, and 8% from production located in California."[14]

3.3.3 Transportation Energy Resources

The project would attract additional vehicle trips with resulting consumption of energy resources, predominantly gasoline and diesel fuel. Gasoline (and other vehicle fuels) are commercially-provided commodities and would be available to the project patrons and employees via commercial outlets.

The most recent data available shows the transportation sector emits 38 percent of the total greenhouse gases in the state and about 84 percent of smog-forming oxides of nitrogen (NOx).[15,16] About 28 percent of total United States energy consumption in 2021 was for transporting people and goods from one place

[14]California Public Utilities Commission. Natural Gas and California. http://www.cpuc.ca.gov/natural_gas/
[15]CARB. California Greenhouse Gas Emissions Inventory 2000-2020 – 2022 Edition. https://ww2.arb.ca.gov/ghg-inventory-data

[16]CARB. 2016 SIP Emission Projection Data.
https://www.arb.ca.gov/app/emsinv/2017/emseic1_query.php?F_DIV=-4&F_YR=2012&F_SEASON=A&SP=SIP105ADJ&F_AREA=CA

to another. In 2021, petroleum comprised about 90 percent of all transportation energy use, excluding fuel consumed for aviation and most marine vessels.[17] In 2022, about 134.55 billion gallons (or about 3.20 billion barrels) of finished motor gasoline were consumed in the United States, an average of about 369 million gallons (or about 8.78 million barrels) per day.[18]

[17] US Energy Information Administration. Use of Energy in the United States Explained: Energy Use for Transportation. https://www.eia.gov/energyexplained/?page=us_energy_transportation

[18] https://www.eia.gov/tools/faqs/faq.php?id=23&t=10

4.0 Modeling Parameters and Assumptions

4.1 Construction

Typical emission rates from construction activities were obtained from CalEEMod Version 2022.1.1.20 CalEEMod is a computer model published by the SCAQMD for estimating air pollutant emissions. The CalEEMod program uses the EMFAC2017 computer program to calculate the emission rates specific for Orange County for construction-related employee vehicle trips and the OFFROAD2011 computer program to calculate emission rates for heavy truck operations. EMFAC2017 and OFFROAD2011 are computer programs generated by CARB that calculates composite emission rates for vehicles. Emission rates are reported by the program in grams per trip and grams per mile or grams per running hour. Using CalEEMod, the peak daily air pollutant emissions were calculated and presented below. These emissions represent the highest level of emissions for each of the construction phases in terms of air pollutant emissions.

The analysis assesses the emissions associated with the construction of the proposed Project as indicated in Table 1. Construction is anticipated to begin early 2024. The phases of the construction activities which have been analyzed below are: 1) demolition, 2) site preparation, 3) grading, 4) building, 5) paving, and 6) architectural coating. For details on construction modeling and construction equipment for each phase, please see Appendix A.

The Project will be required to comply with existing SCAQMD rules for the reduction of fugitive dust emissions. SCAQMD Rule 403 establishes these procedures. Compliance with this rule is achieved through application of standard best management practices in construction and operation activities, such as application of water or chemical stabilizers to disturbed soils, managing haul road dust by application of water, covering haul vehicles, restricting vehicle speeds on unpaved roads to 15 mph, sweeping loose dirt from paved site access roadways, cessation of construction activity when winds exceed 25 mph and establishing a permanent, stabilizing ground cover on finished sites. In addition, projects that disturb 50 acres or more of soil or move 5,000 cubic yards of materials per day are required to submit a Fugitive Dust Control Plan or a Large Operation Notification Form to SCAQMD. Based on the size of the Project area (approximately 0.99 acres) and the fact that the Project won't export more than 5,000 cubic yards of material a day a Fugitive Dust Control Plan or Large Operation Notification would not be required.

SCAQMD's Rule 403 minimum requirements require that the application of the best available dust control measures are used for all grading operations and include the application of water or other soil stabilizers in sufficient quantity to prevent the generation of visible dust plumes. Compliance with Rule 403 would require the use of water trucks during all phases where earth moving operations would occur. Compliance with Rule 403 is required. Compliance is shown in the CalEEMod model as application of water three times daily, which is included in the model as a mitigation measure.

4.2 Operations

Operational or long-term emissions occur over the life of the Project. Both mobile and area sources generate operational emissions. Area source emissions arise from consumer product usage, heaters that consume natural gas, gasoline-powered landscape equipment, and architectural coatings (painting). Mobile source emissions from motor vehicles are the largest single long-term source of air pollutants from the operation of the Project. Small amounts of emissions would also occur from area sources such as the consumption of natural gas for heating, from landscaping emissions, and consumer product usage. The operational emissions were estimated using the latest version of CalEEMod.

Mobile Sources
Mobile sources include emissions from the additional vehicle miles generated from the proposed Project. The vehicle trips associated with the proposed Project are based upon the trip generation rates give in the CalEEMod output in Appendix A. The trip generation analysis shows a net trip generation rate of 143 trips per day for the proposed Project.

The program then applies the emission factors for each trip which is provided by the EMFAC2017 model to determine the vehicular traffic pollutant emissions. The CalEEMod default trip lengths were used in this analysis. Please see CalEEMod output comments sections in Appendix A for details.

Area Sources
Area sources include emissions from consumer products, landscape equipment and architectural coatings. Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers, as well as air compressors, generators, and pumps. As specifics were not known about the landscaping equipment fleet, CalEEMod defaults were used to estimate emissions from landscaping equipment.

Per SCAQMD Rule 1113 as amended on June 3, 2011, the architectural coatings that would be applied after January 1, 2014 will be limited to an average of 50 grams per liter or less for buildings and 100 grams per liter or less for parking lot striping. No changes were made to the CalEEMod architectural coating default values.

Per AB 341, at least 75 percent of generated waste will be source reduced, recycled, or composted. This is shown in the CalEEMod model as a mitigation measure; however, it is required.

Energy Usage

2022.1.1.20 CalEEMod defaults were utilized.

4.3 Localized Construction Analysis

The SCAQMD has published a “Fact Sheet for Applying CalEEMod to Localized Significance Thresholds” (South Coast Air Quality Management District 2011b). CalEEMod calculates construction emissions based on the number of equipment hours and the maximum daily disturbance activity possible for each piece of equipment. In order to compare CalEEMod reported emissions against the localized significance

threshold lookup tables, the CEQA document should contain in its project design features or its mitigation measures the following parameters:

1. The off-road equipment list (including type of equipment, horsepower, and hours of operation) assumed for the day of construction activity with maximum emissions.
2. The maximum number of acres disturbed on the peak day.
3. Any emission control devices added onto off-road equipment.
4. Specific dust suppression techniques used on the day of construction activity with maximum emissions.

The construction equipment showing the equipment associated with the maximum area of disturbance is shown in Table 9.

Table 9: Construction Equipment Assumptions[1]

Activity	Equipment	Number	Acres/8hr-day	Total Acres
Demolition	Rubber Tired Dozers	1	0.5	0.5
	Tractors/Loaders/Backhoes	2	0.5	1.0
Total Per Phase				**1.5**
Site Preparation	Graders	1	0.5	0.5
	Tractors/Loaders/Backhoes	1	0.5	0.5
Total Per Phase				**1.0**
Grading	Graders	1	0.5	0.5
	Rubber Tired Dozers	1	0.5	0.5
	Tractors/Loaders/Backhoes	1	0.5	0.5
Total Per Phase				**1.5**

Notes:
[1] Source: South Coast AQMD, Fact Sheet for Applying CalEEMod to Localized Significance Thresholds. http://www.aqmd.gov/docs/default-source/ceqa/handbook/localized-significance-thresholds/caleemod-guidance.pdf?sfvrsn=2

As shown in Table 9, the maximum number of acres disturbed in a day would be 1.5 acres during demolition and grading.

The local air quality emissions from construction were analyzed using the SCAQMD's Mass Rate Localized Significant Threshold Look-up Tables and the methodology described in Localized Significance Threshold Methodology, prepared by SCAQMD, revised July 2008. The Look-up Tables were developed by the SCAQMD in order to readily determine if the daily emissions of CO, NOx, PM10, and PM2.5 from the proposed Project could result in a significant impact to the local air quality. The emission thresholds were based on the North Orange County source receptor area (SRA 16) and a disturbance of one acre per day at a distance of 25 meters (82 feet).

4.4 Localized Operational Analysis

For operational emissions, the screening tables for a disturbance area of one acre per day and a distance of 25 meters were used to determine significance. The tables were compared to the Project's onsite operational emissions.

5.0 Thresholds of Significance

5.1 Air Quality Thresholds of Significance

5.1.1 CEQA Guidelines for Air Quality

The CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on air quality, the type, level, and impact of emissions generated by the project must be evaluated.

The following air quality significance thresholds are contained in Appendix G of the CEQA Guidelines. A significant impact would occur if the project would:

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

b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable national or state ambient air quality standard;

c) Expose sensitive receptors to substantial pollutant concentrations; or

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

While the final determination of whether a project is significant is within the purview of the Lead Agency pursuant to Section 15064(b) of the CEQA Guidelines, SCAQMD recommends that its quantitative air pollution thresholds be used to determine the significance of project emissions. If the Lead Agency finds that the project has the potential to exceed these air pollution thresholds, the project should be considered to have significant air quality impacts. There are daily emission thresholds for construction and operation of a proposed project in the basin.

5.1.2 Regional Significance Thresholds for Construction Emissions

The following CEQA significance thresholds for construction emissions are established for the Basin:

- 75 pounds per day (lbs/day) of VOC
- 100 lbs/day of NO_x
- 550 lbs/day of CO
- 150 lbs/day of PM10
- 55 lbs/day of PM2.5
- 150 lbs/day of SO_2

Projects in the basin with construction-related emissions that exceed any of the emission thresholds are considered to be significant under SCAQMD guidelines.

5.1.3 Regional Significance Thresholds for Operational Emissions

The daily operational emissions significance thresholds for the basin are as follows:

- 55 pounds per day (lbs/day) of VOC
- 55 lbs/day of NO_x
- 550 lbs/day of CO
- 150 lbs/day of PM10
- 55 lbs/day of PM2.5
- 150 lbs/day of SO_2

Local Microscale Concentration Standards The significance of localized project impacts under CEQA depends on whether ambient CO levels in the vicinity of the project are above or below State and federal CO standards. If ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a State or federal standard, project emissions are considered significant if they increase 1-hour CO concentrations by 1.0 ppm or more or 8-hour CO concentrations by 0.45 ppm or more. The following are applicable local emission concentration standards for CO:

- California State 1-hour CO standard of 20.0 ppm
- California State 8-hour CO standard of 9.0 ppm

5.1.4 Thresholds for Localized Significance

Project-related construction air emissions may have the potential to exceed the State and Federal air quality standards in the project vicinity, even though these pollutant emissions may not be significant enough to create a regional impact to the South Coast Air Basin. In order to assess local air quality impacts the SCAQMD has developed Localized Significant Thresholds (LSTs) to assess the project-related air emissions in the project vicinity. The SCAQMD has also provided Final Localized Significant Threshold Methodology (LST Methodology), June 2003, which details the methodology to analyze local air emission impacts. The Localized Significant Threshold Methodology found that the primary emissions of concern are NO2, CO, PM10, and PM2.5.

The emission thresholds were calculated based on the North Orange County source receptor area (SRA 16) and a disturbance of one acre per day at a distance of 25 meters (82 feet), for construction.

5.2 Greenhouse Gas Thresholds of Significance

5.2.1 CEQA Guidelines for Greenhouse Gas

CEQA Guidelines define a significant effect on the environment as "a substantial, or potentially substantial, adverse change in the environment." To determine if a project would have a significant impact on greenhouse gases, the type, level, and impact of emissions generated by the project must be evaluated.

The following greenhouse gas significance thresholds are contained in Appendix G of the CEQA Guidelines, which were amendments adopted into the Guidelines on March 18, 2010, pursuant to SB 97. A significant impact would occur if the project would:

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

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

However, despite this, currently neither the CEQA statutes, OPR guidelines, nor the draft proposed changes to the CEQA Guidelines prescribe thresholds of significance or a particular methodology for performing an impact analysis; as with most environmental topics, significance criteria are left to the judgment and discretion of the Lead Agency. As previously discussed (Section 2.2.4 of this report), SCAQMD has drafted interim thresholds. The screening threshold of 3,000 MTCO2e per year for all land uses was used in this analysis.

5.3 Toxic Air Contaminants

The threshold for toxic air contaminants (TACs) has a maximum incremental cancer risk of 10 per million and a non-cancer (acute and chronic) hazard index of 1.0 or greater. An exceedance to these values would be considered a significant impact.

6.0 Air Quality Emissions Impact

6.1 Construction Air Quality Emissions Impact

The latest version of CalEEMod was used to estimate the onsite and offsite construction emissions. The emissions incorporate Rule 402 and 403. Rule 402 and 403 (fugitive dust) are not considered mitigation measures as the Project by default is required to incorporate these rules during construction.

6.1.1 Regional Construction Emissions

The construction emissions for the Project would not exceed the SCAQMD's daily emission thresholds at the regional level as demonstrated in Table 10 and therefore would be considered less than significant.

Table 10: Regional Significance - Construction Emissions (pounds/day)

Activity	Pollutant Emissions (pounds/day)					
	VOC	NOx	CO	SO_2	PM10	PM2.5
Demolition						
On-Site[2]	0.51	4.69	5.79	0.01	1.06	0.31
Off-Site[3]	0.05	0.99	0.92	0.00	0.33	0.09
Total	**0.56**	**5.68**	**6.71**	**0.01**	**1.39**	**0.40**
Site Preparation						
On-Site[2]	0.50	4.60	5.56	0.01	0.45	0.24
Off-Site[3]	0.02	0.02	0.26	0.00	0.07	0.02
Total	**0.52**	**4.62**	**5.82**	**0.01**	**0.51**	**0.26**
Grading						
On-Site[2]	1.19	11.39	10.73	0.02	2.64	1.50
Off-Site[3]	0.47	28.51	12.49	0.14	6.03	1.88
Total	**1.65**	**39.90**	**23.21**	**0.16**	**8.67**	**3.38**
Building Construction						
On-Site[2]	0.56	5.60	6.98	0.01	0.26	0.23
Off-Site[3]	0.09	0.21	1.44	0.00	0.33	0.08
Total	**0.65**	**5.80**	**8.42**	**0.01**	**0.59**	**0.31**
Paving						
On-Site[2]	0.77	4.52	5.32	0.01	0.21	0.19
Off-Site[3]	0.07	0.24	1.14	0.00	0.27	0.07
Total	**0.84**	**4.76**	**6.46**	**0.01**	**0.49**	**0.26**
Architectural Coating						
On-Site[2]	54.04	0.91	1.15	0.00	0.03	0.03
Off-Site[3]	0.02	0.02	0.28	0.00	0.06	0.01
Total	**54.06**	**0.93**	**1.42**	**0.00**	**0.09**	**0.04**
Total of overlapping phases[4]	**55.55**	**11.50**	**16.31**	**0.02**	**1.16**	**0.62**
SCAQMD Thresholds	75	100	550	150	150	55
Exceeds Thresholds	No	No	No	No	No	No

Notes:
[1] Source: CalEEMod Version 2022.1.1.20
[2] On-site emissions from equipment operated on-site that is not operated on public roads
[3] Off-site emissions from equipment operated on public roads.
[4] Construction, architectural coatings and paving phases may overlap.

6.1.2 Localized Construction Emissions

The data provided in Table 11 shows that none of the analyzed criteria pollutants would exceed the local emissions thresholds at the nearest sensitive receptors. Therefore, a less than significant local air quality impact would occur from construction of the proposed Project.

Table 11: Localized Significance – Construction

Phase	On-Site Pollutant Emissions (pounds/day)[1]			
	NOx	CO	PM10	PM2.5
Demolition	4.69	5.79	1.06	0.31
Site Preparation	4.60	5.56	0.45	0.24
Grading	11.39	10.73	2.64	1.50
Building Construction	5.60	6.98	0.26	0.23
Paving	4.52	5.32	0.21	0.19
Architectural Coating	0.91	1.15	0.03	0.03
Total of overlapping phases	11.03	13.45	0.50	0.46
SCAQMD Threshold for 25 meters (82 feet) or less[2]	**103**	**522**	**4**	**3**
Exceeds Threshold?	No	No	No	No

Notes:
[1] Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for one acre in North Orange County Source Receptor Area (SRA 16). Project will disturb a maximum of 1 acre per day (see Table 7).
[2] The nearest sensitive receptor is located adjacent to the north of the property line; therefore, the 25-meter threshold has been used.

6.1.3 Construction-Related Human Health Impacts

Regarding health effects related to criteria pollutant emissions, the applicable significance thresholds are established for regional compliance with the state and federal ambient air quality standards, which are intended to protect public health from both acute and long-term health impacts, depending on the potential effects of the pollutant. Because regional and local emissions of criteria pollutants during construction of the Project would be below the applicable thresholds, it would not contribute to long-term health impacts related to nonattainment of the ambient air quality standards. Therefore, significant adverse acute health impacts as a result of Project construction are not anticipated.

6.1.4 Construction-Related Toxic Air Contaminant Impact

The greatest potential for toxic air contaminant emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed Project. The Office of Environmental Health Hazard Assessment (OEHHA) has issued the Air Toxic Hot Spots Program Risk Assessment Guidelines and Guidance Manual for the Preparation of Health Risk Assessments, February 2015 to provide a description of the algorithms, recommended exposure variates, cancer and noncancer health values, and the air modeling protocols needed to perform a health risk assessment (HRA) under the Air Toxics Hot Spots Information and Assessment Act of 1987. Hazard identification includes identifying all substances that are evaluated for cancer risk and/or non-cancer acute, 8-hour, and chronic health impacts. In addition, identifying any multi-pathway substances that present a cancer risk or chronic non-cancer hazard via non-inhalation routes of exposure.

Given the relatively limited number of heavy-duty construction equipment and construction schedule, the proposed Project would not result in a long-term substantial source of toxic air containment emissions and corresponding individual cancer risk. Furthermore, construction-based particulate matter (PM) emissions (including diesel exhaust emissions) do not exceed any local or regional thresholds. Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed Project.

6.2 Operational Air Quality Emissions Impact

6.2.1 Regional Operational Emissions

The operations-related criteria air quality impacts created by the proposed Project have been analyzed through the use of CalEEMod model. The operating emissions were based on year 2024, which is the anticipated opening year for the Project. The summer and winter emissions created by the proposed Project's long-term operations were calculated and the highest emissions from either summer or winter are summarized in Table 12.

Table 12: Regional Significance - Unmitigated Operational Emissions (lbs/day)

Activity	Pollutant Emissions (pounds/day)[1]					
	VOC	NOx	CO	SO2	PM10	PM2.5
Area Sources[2]	1.74	0.02	1.81	0.00	0.00	0.00
Energy Usage[3]	0.01	0.09	0.04	0.00	0.01	0.01
Mobile Sources[4]	0.49	0.41	4.20	0.01	0.93	0.24
Total Emissions	**2.24**	**0.52**	**6.04**	**0.01**	**0.94**	**0.25**
SCAQMD Thresholds	**55**	**55**	**550**	**150**	**150**	**55**
Exceeds Threshold?	No	No	No	No	No	No

Notes:
[1] Source: CalEEMod Version 2022.1.1.20
[2] Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
[3] Energy usage consists of emissions from on-site natural gas usage.
[4] Mobile sources consist of emissions from vehicles and road dust.

Table 12 provides the Project's unmitigated operational emissions. Table 12 shows that the Project does not exceed the SCAQMD daily emission threshold and regional operational emissions are considered to be less than significant.

6.2.2 Localized Operational Emissions

Table 13 shows the calculated emissions for the proposed operational activities compared with appropriate LSTs. The LST analysis only includes on-site sources; however, the CalEEMod software outputs do not separate on-site and off-site emissions for mobile sources. For a worst-case scenario assessment, the emissions shown in Table 13 include all on-site Project-related stationary sources and

10% of the Project-related new mobile sources.[19] This percentage is an estimate of the amount of Project-related new vehicle traffic that will occur on-site.

Table 13: Localized Significance - Unmitigated Operational Emissions

On-Site Emission Source	On-Site Pollutant Emissions (pounds/day)[1]			
	NOx	CO	PM10	PM2.5
Area Sources[2]	0.02	1.81	0.00	0.00
Energy Usage[3]	0.09	0.04	0.01	0.01
On-Site Vehicle Emissions[4]	0.04	0.42	0.09	0.02
Total Emissions	**0.15**	**2.27**	**0.10**	**0.03**
SCAQMD Threshold for 25 meters (82 feet)[5]	**103**	**522**	**1**	**1**
Exceeds Threshold?	No	No	No	No

Notes:
[1] Source: Calculated from CalEEMod and SCAQMD's Mass Rate Look-up Tables for one acre in North Orange County Source Receptor Area (SRA 16). Project is approximately 0.99 acres.
[2] Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
[3] Energy usage consists of emissions from generation of electricity and on-site natural gas usage.
[4] On-site vehicular emissions based on 1/10 of the gross vehicular emissions and road dust.
[5] The nearest sensitive receptor is located adjacent to the north of the property line; therefore, the 25-meter threshold has been used.

6.2.3 Operations-Related Human Health Impacts

As stated previously, regarding health effects related to criteria pollutant emissions, the applicable significance thresholds are established for regional compliance with the state and federal ambient air quality standards, which are intended to protect public health from both acute and long-term health impacts, depending on the potential effects of the pollutant. Because regional and local emissions of criteria pollutants during operation of the Project would be below the applicable thresholds, it would not contribute to long-term health impacts related to nonattainment of the ambient air quality standards. Therefore, significant adverse acute health impacts as a result of Project operation are not anticipated.

6.3 CO Hot Spot Emissions

CO is the pollutant of major concern along roadways because the most notable source of CO is motor vehicles. For this reason, CO concentrations are usually indicative of the local air quality generated by a roadway network and are used as an indicator of potential local air quality impacts. Local air quality impacts can be assessed by comparing future without and with Project CO levels to the State and Federal CO standards which were presented in above in Section 5.0.

[19] The project site is approximately 0.06 miles in length at its longest point; therefore the on-site mobile source emissions represent approximately 1/115th of the shortest CalEEMod default distance of 6.9 miles. Therefore, to be conservative, 1/10th the distance (dividing the mobile source emissions by 10) was used to represent the portion of the overall mobile source emissions that would occur on-site.

To determine if the proposed Project could cause emission levels in excess of the CO standards discussed above in Section 5.0, a sensitivity analysis is typically conducted to determine the potential for CO "hot spots" at a number of intersections in the general Project vicinity. Because of reduced speeds and vehicle queuing, "hot spots" potentially can occur at high traffic volume intersections with a Level of Service E or worse.

Micro-scale air quality emissions have traditionally been analyzed in environmental documents where the air basin was a non-attainment area for CO. However, the SCAQMD has demonstrated in the CO attainment redesignation request to EPA that there are no "hot spots" anywhere in the air basin, even at intersections with much higher volumes, much worse congestion, and much higher background CO levels than anywhere in Orange County. If the worst-case intersections in the air basin have no "hot spot" potential, any local impacts will be below thresholds.

The Project-specific trip generation analysis showed that the Project is only anticipated to generate 143 daily vehicle trips. The 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan) showed that an intersection which has a daily traffic volume of approximately 100,000 vehicles per day would not violate the CO standard. The volume of traffic at Project buildout would be well below 100,000 vehicles and below the necessary volume to even get close to causing a violation of the CO standard. Therefore, no CO "hot spot" modeling was performed and no significant long-term air quality impact is anticipated to local air quality with the on-going use of the proposed Project.

6.4 Odors

Potential sources that may emit odors during construction activities include the application of materials such as asphalt pavement. The objectionable odors that may be produced during the construction process are of short-term in nature and the odor emissions are expected cease upon the drying or hardening of the odor producing materials. Diesel exhaust and VOCs would be emitted during construction of the Project, which are objectionable to some; however, emissions would disperse rapidly from the Project site and therefore should not reach an objectionable level at the nearest sensitive receptors. Due to the short-term nature and limited amounts of odor producing materials being utilized, no significant impact related to odors would occur during construction of the proposed Project.

The SCAQMD recommends that odor impacts be addressed in a qualitative manner. Such an analysis shall determine whether the Project would result in excessive nuisance odors, as defined under the California Code of Regulations and Section 41700 of the California Health and Safety Code, and thus would constitute a public nuisance related to air quality.

Potential sources that may emit odors during the on-going operations of the proposed Project would include odor emissions from vehicles and trash storage areas. Due to the distance of the nearest receptors from the Project site and through compliance with SCAQMD's Rule 402 no significant impact related to odors would occur during the on-going operations of the proposed Project.

6.5 Cumulative Regional Air Quality Impacts

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel well out of the local area. Therefore, from an air quality standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered, would cover an even larger area. Accordingly, the cumulative analysis for the Project's air quality must be generic by nature.

The Project area is out of attainment for both ozone and PM10 particulate matter. Construction and operation of cumulative projects will further degrade the local air quality, as well as the air quality of the South Coast Air Basin. The greatest cumulative impact on the quality of regional air cell will be the incremental addition of pollutants mainly from increased traffic from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Air quality will be temporarily degraded during construction activities that occur separately or simultaneously. However, in accordance with the SCAQMD methodology, projects that do not exceed the SCAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact. The Project does not exceed any of the thresholds of significance and therefore is considered less than significant.

6.6 Air Quality Compliance

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

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

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

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

(2) Whether the Project will exceed the assumptions in the AQMP in 2022 or increments based on the year of Project buildout and phase.

Both of these criteria are evaluated in the following sections.

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

Based on the air quality modeling analysis contained in this Air Analysis in Section 6, neither short-term construction impacts, nor long-term operations will result in significant impacts based on the SCAQMD regional and local thresholds of significance.

Therefore, the proposed Project is not projected to contribute to the exceedance of any air pollutant concentration standards and is found to be consistent with the AQMP for the first criterion.

B. Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed Project with the assumptions in the AQMP. The emphasis of this criterion is to ensure that the analyses conducted for the proposed Project are based on the same forecasts as the AQMP. The 2020-2045 Regional Transportation/Sustainable Communities Strategy, prepared by SCAG, 2020, includes chapters on: the challenges in a changing region, creating a plan for our future, and the road to greater mobility and sustainable growth. These chapters currently respond directly to federal and state requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA. For this Project, the City of Brea General Plan defines the assumptions that are represented in the AQMP.

The City of Brea Zoning map classifies the land use designation of the site as high-density residential. The proposed project is a multifamily residential development. Therefore, it is not anticipated that the Project would exceed the AQMP assumptions for the Project site and is found to be consistent with the AQMP for the second criterion.

Based on the above, the proposed Project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur.

7.0 Greenhouse Gas Impact Analysis

7.1 Construction Greenhouse Gas Emissions Impact

The greenhouse gas emissions from Project construction equipment and worker vehicles are shown in Table 14. The emissions are from all phases of construction. The total construction emissions amortized over a period of 30 years are estimated at 3.77 metric tons of CO_2e per year. Annual CalEEMod output calculations are provided in Appendix A.

Table 14: Construction Greenhouse Gas Emissions

Activity	Emissions ($MTCO_2e$)[1]
2024	113.16
Total	113.16
Averaged over 30 years[2]	3.77

Notes:
1. MTCO2e=metric tons of carbon dioxide equivalents (includes carbon dioxide, methane and nitrous oxide).
2. The emissions are averaged over 30 years because the average is added to the operational emissions, pursuant to SCAQMD.
* CalEEMod output (Appendix A)

7.2 Operational Greenhouse Gas Emissions Impact

Operational emissions occur over the life of the Project. The operational emissions for the Project are 225.65 metric tons of CO_2e per year (see Table 15). Furthermore, as shown in Table 15, the Project's total emissions (with incorporation of construction related GHG emissions) would be 229.42 metric tons of CO_2e per year. These emissions do not exceed the SCAQMD screening threshold of 3,000 metric tons of CO_2e per year. Therefore, the Project's GHG emissions are considered to be less than significant.

Table 15: Opening Year Unmitigated Project-Related Greenhouse Gas Emissions

	Greenhouse Gas Emissions (Metric Tons/Year)[1]					
Category	**Bio-CO2**	**NonBio-CO_2**	**CO_2**	**CH_4**	**N_2O**	**CO_2e**
Area Sources[2]	0.00	0.55	0.55	0.00	0.00	0.55
Energy Usage[3]	0.00	51.44	51.44	0.00	0.00	51.61
Mobile Sources[4]	0.00	159.96	159.96	0.01	0.01	162.43
Solid Waste[5]	2.10	0.00	2.10	0.21	0.00	7.36
Water[6]	0.38	1.97	2.35	0.04	0.00	3.61
Refrigerants	0.00	0.00	0.00	0.00	0.00	0.08
Construction[7]	0.00	3.71	3.71	0.00	0.00	3.77
Total Emissions	2.48	217.63	220.11	0.26	0.01	**229.42**
SCAQMD Draft Screening Threshold						**3,000**
Exceeds Threshold?						**No**

Notes:
[1] Source: CalEEMod Version 2022.1.1.20
[2] Area sources consist of GHG emissions from consumer products, architectural coatings, and landscape equipment.
[3] Energy usage consist of GHG emissions from electricity and natural gas usage.
[4] Mobile sources consist of GHG emissions from vehicles.
[5] Solid waste includes the CO_2 and CH_4 emissions created from the solid waste placed in landfills.

[6] Water includes GHG emissions from electricity used for transport of water and processing of wastewater.
[7] Construction GHG emissions based on a 30-year amortization rate.

7.3 Greenhouse Gas Plan Consistency

The proposed Project would have the potential to conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases.

Consistency with Executive Orders S-03-05 and B-30-15

Executive Orders S-3-05 and B-30-15 are orders from the State's Executive Branch for the purpose of reducing GHG emissions. These strategies call for developing more efficient land-use patterns to match population increases, workforce, and socioeconomic needs for the full spectrum of the population. The project includes elements of smart land use as it is well-served by transportation infrastructure and near public transit.

Although the project's emissions level in 2050 cannot be reliably quantified, statewide efforts are underway to facilitate the State's achievement of that goal and it is reasonable to expect the project's emissions profile to decline as the regulatory initiatives identified by ARB in the First Update are implemented, and other technological innovations occur. As such, given the reasonably anticipated decline in project emissions once fully constructed and operational, the project is consistent with the Executive Order's horizon-year goal. Therefore, the project is consistent with Executive Orders S-3-05 and B-30-15.

Consistency with AB32 Scoping Plan

The ARB Board approved a Climate Change Scoping Plan in December 2008. The Scoping Plan outlines the State's strategy to achieve the 2020 greenhouse gas emissions limit. The Scoping Plan "proposes a comprehensive set of actions designed to reduce overall greenhouse gas emissions in California, improve our environment, reduce our dependence on oil, diversify our energy sources, save energy, create new jobs, and enhance public health" (California Air Resources Board 2008). The measures in the Scoping Plan have been in place since 2012.

This Scoping Plan calls for an "ambitious but achievable" reduction in California's greenhouse gas emissions, cutting approximately 30 percent from business-as-usual emission levels projected for 2020, or about 10 percent from today's levels. In May 2014, the CARB released its *First Update to the Climate Change Scoping Plan* (CARB 2014). This *Update* identifies the next steps for California's leadership on climate change. In November 2017, the CARB released the 2017 Scoping Plan. This Scoping Plan incorporates, coordinates, and leverages many existing and ongoing efforts and identifies new policies and actions to accomplish the State's climate goals, and includes a description of a suite of specific actions to meet the State's 2030 GHG limit. The 2017 Scoping Plan builds upon the successful framework established by the Initial Scoping Plan and First Update, while identifying new, technologically feasible, and cost-effective strategies to ensure that California meets its GHG reduction targets.

As the latest, 2017 Scoping Plan builds upon previous versions, project consistency with applicable strategies of both the 2008 and 2017 Plan are assessed in Table 16. As shown in Table 16, the project is consistent with the applicable strategies within the Scoping Plan.

Table 16: Project Consistency with CARB Scoping Plan Policies and Measures[1]

2008 Scoping Plan Measures to Reduce Greenhouse Gas Emissions	Project Compliance with Measure
California Light-Duty Vehicle Greenhouse Gas Standards – Implement adopted standards and planned second phase of the program. Align zero-emission vehicle, alternative and renewable fuel and vehicle technology programs with long-term climate change goals.	Consistent. These are CARB enforced standards; vehicles that access the project that are required to comply with the standards will comply with the strategy.
Energy Efficiency – Maximize energy efficiency building and appliance standards; pursue additional efficiency including new technologies, policy, and implementation mechanisms. Pursue comparable investment in energy efficiency from all retail providers of electricity in California.	Consistent. The project will be compliant with the current Title 24 standards.
Low Carbon Fuel Standard – Develop and adopt the Low Carbon Fuel Standard.	Consistent. These are CARB enforced standards; vehicles that access the project that are required to comply with the standards will comply with the strategy.
Vehicle Efficiency Measures – Implement light-duty vehicle efficiency measures.	Consistent. These are CARB enforced standards; vehicles that access the project that are required to comply with the standards will comply with the strategy.
Medium/Heavy-Duty Vehicles – Adopt medium and heavy-duty vehicle efficiency measures.	Consistent. These are CARB enforced standards; vehicles that access the project that are required to comply with the standards will comply with the strategy.
Green Building Strategy – Expand the use of green building practices to reduce the carbon footprint of California's new and existing inventory of buildings.	Consistent. The California Green Building Standards Code (proposed Part 11, Title 24) was adopted as part of the California Building Standards Code in the CCR. Part 11 establishes voluntary standards, that are mandatory in the 2019 edition of the Code, on planning and design for sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and internal air contaminants. The project will be subject to these mandatory standards.
High Global Warming Potential Gases – Adopt measures to reduce high global warming potential gases.	Consistent. CARB identified five measures that reduce HFC emissions from vehicular and commercial refrigeration systems; vehicles that access the project that are required to comply with the measures will comply with the strategy.
Recycling and Waste – Reduce methane emissions at landfills. Increase waste diversion, composting, and commercial recycling. Move toward zero-waste.	Consistent. The state is currently developing a regulation to reduce methane emissions from municipal solid waste landfills. The project will be required to comply with City programs, such as City's recycling and waste reduction program, which

	comply, with the 75 percent reduction required by 2020 per AB 341.
Water – Continue efficiency programs and use cleaner energy sources to move and treat water.	Consistent. The project will comply with all applicable City ordinances and CAL Green requirements.

2017 Scoping Plan Recommended Actions to Reduce Greenhouse Gas Emissions	Project Compliance with Recommended Action
Implement Mobile Source Strategy: Further increase GHG stringency on all light-duty vehicles beyond existing Advanced Clean Car regulations.	Consistent. These are CARB enforced standards; vehicles that access the project that are required to comply with the standards will comply with the strategy.
Implement Mobile Source Strategy: At least 1.5 million zero emission and plug-in hybrid light-duty electric vehicles by 2025 and at least 4.2 million zero emission and plug-in hybrid light-duty electric vehicles by 2030.	Consistent. These are CARB enforced standards; vehicles that access the project that are required to comply with the standards will comply with the strategy.
Implement Mobile Source Strategy: Innovative Clean Transit: Transition to a suite of to-be-determined innovative clean transit options. Assumed 20 percent of new urban buses purchased beginning in 2018 will be zero emission buses with the penetration of zero-emission technology ramped up to 100 percent of new sales in 2030. Also, new natural gas buses, starting in 2018, and diesel buses, starting in 2020, meet the optional heavy-duty low-NOX standard.	Consistent. These are CARB enforced standards; vehicles that access the project that are required to comply with the standards will comply with the strategy.
Implement Mobile Source Strategy: Last Mile Delivery: New regulation that would result in the use of low NOX or cleaner engines and the deployment of increasing numbers of zero-emission trucks primarily for class 3-7 last mile delivery trucks in California. This measure assumes ZEVs comprise 2.5 percent of new Class 3–7 truck sales in local fleets starting in 2020, increasing to 10 percent in 2025 and remaining flat through 2030.	Consistent. These are CARB enforced standards; vehicles that access the project that are required to comply with the standards will comply with the strategy.
Implement SB 350 by 2030: Establish annual targets for statewide energy efficiency savings and demand reduction that will achieve a cumulative doubling of statewide energy efficiency savings in electricity and natural gas end uses by 2030.	Consistent. The project will be compliant with the current Title 24 standards.
By 2019, develop regulations and programs to support organic waste landfill reduction goals in the SLCP and SB 1383.	Consistent. The project will be required to comply with City programs, such as City's recycling and waste reduction program, which comply, with the 75 percent reduction required by 2020 per AB 341.
Notes: [1] Source: CARB Scoping Plan (2008 and 2017)	

Consistency with SCAG's 2020-2045 RTP/SCS

At the regional level, the 2020-2045 RTP and Sustainable Communities Strategy represent the region's Climate Action Plan that defines strategies for reducing GHGs. In order to assess the project's potential to conflict with the RTP/SCS, this section analyzes the project's land use profile for consistency with those in the Sustainable Communities Strategy. Generally, projects are considered consistent with the provisions and general policies of applicable City and regional land use plans and regulations, such as

SCAG's Sustainable Communities Strategy, if they are compatible with the general intent of the plans and would not preclude the attainment of their primary goals.

Table 17 demonstrates the project's consistency with the Actions and Strategies set forth in the 2020-2045 RTP/SCS. As shown in Table 17, the project would be consistent with the GHG reduction related actions and strategies contained in the 2020-2045 RTP/SCS.

Table 17: Project Consistency with SCAG 2020-2045 RTP/SCS[1]

Actions and Strategies	Responsible Party(ies)	Consistency Analysis
Land Use Strategies		
Reflect the changing population and demands, including combating gentrification and displacement, by increasing housing supply at a variety of affordability levels.	Local Jurisdictions	Consistent. The proposed project is a residential development on a currently vacant site; therefore, it will not displace existing housing.
Focus new growth around transit.	Local Jurisdictions	Consistent. The proposed project is a residential development that would be consistent with the 2020 RTP/SCS focus on growing near transit facilities.
Plan for growth around livable corridors, including growth on the Livable Corridors network.	SCAG, Local Jurisdictions	Consistent. The proposed project is a residential development that would be consistent with the 2020 RTP/SCS focus on growing along the 2,980 miles of Livable Corridors in the region.
Provide more options for short trips through Neighborhood Mobility Areas and Complete Communities.	SCAG, Local Jurisdictions	Consistent. The proposed project would help further jobs/housing balance objectives. The proposed project is also consistent with the Complete Communities initiative that focuses on creation of mixed-use districts in growth areas.
Support local sustainability planning, including developing sustainable planning and design policies, sustainable zoning codes, and Climate Action Plans.	Local Jurisdictions	Not Applicable. This strategy calls on local governments to adopt General Plan updates, zoning codes, and Climate Action Plans to further sustainable communities. The proposed project would not interfere with such policymaking and would be consistent with those policy objectives.
Protect natural and farmlands, including developing conservation strategies.	SCAG, Local Jurisdictions	Consistent. The proposed project is a residential development in an existing residential community that would help reduce demand for growth in urbanizing areas that threaten green fields and open spaces.
Transportation Strategies		
Preserve our existing transportation system.	SCAG, County Transportation Commissions, Local Jurisdictions	Not Applicable. This strategy calls on investing in the maintenance of our existing transportation system. The proposed project would not interfere with such policymaking.
Manage congestion through programs like the Congestion Management Program, Transportation	County Transportation	Consistent. The proposed project is a residential development that will minimize

Demand Management, and Transportation Systems Management strategies.	Commissions, Local Jurisdictions	congestion impacts on the region because of its proximity to public transit and general density of population and jobs.
Promote safety and security in the transportation system.	SCAG, County Transportation Commissions, Local Jurisdictions	Not Applicable. This strategy aims to improve the safety of the transportation system and protect users from security threats. The proposed project would not interfere with such policymaking.
Complete our transit, passenger rail, active transportation, highways and arterials, regional express lanes goods movement, and airport ground transportation systems.	SCAG, County Transportation Commissions, Local Jurisdictions	Not Applicable. This strategy calls for transportation planning partners to implement major capital and operational projects that are designed to address regional growth. The proposed project would not interfere with this larger goal of investing in the transportation system.
Technological Innovation and 21st Century Transportation		
Promote zero-emissions vehicles.	SCAG, Local Jurisdictions	Consistent. While this action/strategy is not necessarily applicable on a project-specific basis, the City's Building Code requires the proposed building to provide conduit for on-site electric vehicle charging stalls, which the project is to provide in the proposed parking garage.
Promote neighborhood electric vehicles.	SCAG, Local Jurisdictions	Consistent. While this action/strategy is not necessarily applicable on a project-specific basis, the City's Building Code requires the proposed building to provide conduit for on-site electric vehicle charging stalls, which the project is to provide in the proposed parking garage.
Implement shared mobility programs.	SCAG, Local Jurisdictions	Not Applicable. This strategy is designed to integrate new technologies for last-mile and alternative transportation programs. The proposed project would not interfere with these emerging programs.

Notes:
[1] Source: Southern California Association of Governments; 2020–2045 RTP/SCS, May 2020.

7.4 Cumulative Regional Greenhouse Gas Impacts

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of emissions is from mobile sources, which travel well out of the local area. Therefore, from a greenhouse gas standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered, would cover an even larger area. Accordingly, the cumulative analysis for the Project's greenhouse gas impacts must be generic by nature.

Construction and operation of cumulative projects will add to greenhouse gas emissions. The greatest cumulative impact will be the incremental addition of pollutants mainly from increased traffic from

residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Greenhouse gas emissions will temporarily increase during construction activities that occur separately or simultaneously. However, in accordance with the SCAQMD methodology, projects that do not exceed the SCAQMD criteria or can be mitigated to less than criteria levels are not significant and do not add to the overall cumulative impact. The Project does not exceed any of the thresholds of significance and therefore is considered less than significant.

8.0 Energy Analysis

Information from the CalEEMod 2022.1.1.20 Daily and Annual Outputs contained in the air quality and greenhouse gas analyses above was utilized for this analysis. The CalEEMod outputs detail Project related construction equipment, transportation energy demands, and facility energy demands.

8.1 Construction Energy Demand

8.1.1 Construction Equipment Electricity Usage Estimates

Electrical service will be provided by Southern California Edison (SCE). Based on the 2017 National Construction Estimator, Richard Pray (2017)[20], the typical power cost per 1,000 square feet of building construction per month is estimated to be $2.32. The Project plans to develop the site with 68,000 square feet of new residential development over the course of approximately 6 months. Based on Table 18, the total power cost of the on-site electricity usage during the construction of the proposed Project is estimated to be approximately $946.56. As shown in Table 18, the total electricity usage from Project construction related activities is estimated to be approximately 17,210 kWh.[21]

Table 18: Project Construction Power Cost and Electricity Usage

Power Cost (per 1,000 square foot of building per month of construction)	Total Building Size (1,000 Square Foot)[1]	Construction Duration (months)	Total Project Construction Power Cost
$2.32	68	6	$946.56

Cost per kWh	Total Project Construction Electricity Usage (kWh)
$0.06	17,210

* Assumes the Project will be under the GS-1 General Service rate under SCE.

8.1.2 Construction Equipment Fuel Estimates

Using the CalEEMod data input, the Project's construction phase would consume electricity and fossil fuels as a single energy demand, that is, once construction is completed their use would cease. CARB's 2017 Emissions Factors Tables show that on average aggregate fuel consumption (gasoline and diesel

[20] Pray, Richard. 2017 National Construction Estimator. Carlsbad: Craftsman Book Company, 2017.
[21] LADWP's Small Commercial & Multi-Family Service (A-1) is approximately $0.06 per kWh of electricity Southern California Edison (SCE). Rates & Pricing Choices: General Service/Industrial Rates. https://library.sce.com/content/dam/sce-doclib/public/regulatory/historical/electric/2020/schedules/general-service-&-industrial-rates/ELECTRIC_SCHEDULES_GS-1_2020.pdf

fuel) would be approximately 18.5 hp-hr-gal.[22] As presented in Table 19 below, Project construction activities would consume an estimated 5,200 gallons of diesel fuel.

Table 19: Construction Equipment Fuel Consumption Estimates

Phase	Number of Days	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor	HP hrs/ day	Total Fuel Consumption (gal diesel fuel)[1]
Demolition	10	Concrete/Industrial Saws	1	8	33	0.73	193	104
	10	Rubber Tired Dozers	1	1	367	0.41	150	81
	10	Tractors/Loaders/Backhoes	2	6	84	0.37	373	202
Site Preparation	1	Graders	1	8	148	0.41	485	26
	1	Tractors/Loaders/Backhoes	1	8	84	0.37	249	13
Grading	2	Graders	1	6	148	0.41	364	39
	2	Rubber Tired Dozers	1	6	367	0.4	881	95
	2	Tractors/Loaders/Backhoes	1	7	84	0.37	218	24
Building Construction	100	Cranes	1	4	367	0.29	426	2,301
	100	Forklifts	2	6	82	0.2	197	1,064
	100	Tractors/Loaders/Backhoes	2	8	46	0.37	272	1,472
Paving	5	Cement and Mortar Mixers	4	6	10	0.56	134	36
	5	Pavers	1	7	81	0.42	238	64
	5	Rollers	1	7	36	0.38	96	26
	5	Tractors/Loaders/Backhoes	1	7	46	0.37	119	32
Architectural Coating	8	Air Compressors	1	6	37	0.48	107	46
CONSTRUCTION FUEL DEMAND (gallons of diesel fuel)								**5,200**

Notes:
[1]Using Carl Moyer Guidelines Table D-21 Fuel consumption rate factors (bhp-hr/gal) for engines less than 750 hp.
(Source: https://www.arb.ca.gov/msprog/moyer/guidelines/2017gl/2017_gl_appendix_d.pdf)

8.1.3 Construction Worker Fuel Estimates

It is assumed that all construction worker trips are from light duty autos (LDA) along area roadways. With respect to estimated VMT, the construction worker trips would generate an estimated 45,202 VMT. Vehicle fuel efficiencies for construction workers were estimated in the air quality and greenhouse gas analysis using information generated using CARB's EMFAC model (see Appendix B for details). Table 20 shows that an estimated 1,460 gallons of fuel would be consumed for construction worker trips.

[22] Aggregate fuel consumption rate for all equipment was estimated at 18.5 hp-hr/day (from CARB's 2017 Emissions Factors Tables and fuel consumption rate factors as shown in Table D-21 of the Moyer Guidelines: https://ww2.arb.ca.gov/sites/default/files/classic/msprog/moyer/guidelines/2017/2017_cmpgl.pdf.

Table 20: Construction Worker Fuel Consumption Estimates

Phase	Number of Days	Worker Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Demolition	10	10	18.5	1,850	30.95	60
Site Preparation	1	5	18.5	93	30.95	3
Grading	2	7.5	18.5	278	30.95	9
Building Construction	100	23.04	18.5	42,624	30.95	1,377
Paving	5	17.5	18.5	1,619	30.95	52
Architectural Coating	8	4.608	18.5	682	30.95	22
Total Construction Worker Fuel Consumption						**1,460**

Notes:
[1]Assumptions for the worker trip length and vehicle miles traveled are consistent with CalEEMod 2022.1.1.20 defaults.

8.1.4 Construction Vendor/Hauling Fuel Estimates

Tables 21 and 22 show the estimated fuel consumption for vendor and hauling during building construction and architectural coating. With respect to estimated VMT, the vendor and hauling trips would generate an estimated 16,244 VMT. For the architectural coatings it is assumed that the contractors would be responsible for bringing coatings and equipment with them in their light duty vehicles.[23] Tables 21 and 22 show that an estimated 2,261 gallons of fuel would be consumed for vendor and hauling trips.

Table 21: Construction Vendor Fuel Consumption Estimates (MHD Trucks)[1]

Phase	Number of Days	Vendor Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Demolition	10	0	10.2	0	9.22	0
Site Preparation	1	0	10.2	0	9.22	0
Grading	2	0	10.2	0	9.22	0
Building Construction	100	3.4208	10.2	3,489	9.22	378
Paving	5	5	10.2	255	9.22	28
Architectural Coating	8	0	10.2	0	9.22	0
Total Vendor Fuel Consumption						**406**

Notes:
[1] Assumptions for the vendor trip length and vehicle miles traveled are consistent with CalEEMod 2022.1.1.20 defaults.

[23] Vendors delivering construction material or hauling debris from the site during grading would use medium to heavy duty vehicles with an average fuel consumption of 9.22 mpg for medium heavy-duty trucks and 6.74 mpg for heavy heavy-duty trucks (see Appendix B for details).

Table 22: Construction Hauling Fuel Consumption Estimates (HHD Trucks)[1]

Phase	Number of Days	Hauling Trips/Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Demolition	10	10.4	20	2,080	6.74	309
Site Preparation	1	0	20	0	6.74	0
Grading	2	312.5	20	12,500	6.74	1,855
Building Construction	100	0	20	0	6.74	0
Paving	5	0	20	0	6.74	0
Architectural Coating	8	0	20	0	6.74	0
Total Construction Hauling Fuel Consumption						**1,855**

Notes:
[1]Assumptions for the hauling trip length and vehicle miles traveled are consistent with CalEEMod 2022.1.1.20 defaults.

8.1.5 Construction Energy Efficiency/Conservation Measures

Construction equipment used over the approximately 6-month construction phase would conform to CARB regulations and California emissions standards and is evidence of related fuel efficiencies. In addition, the CARB Airborne Toxic Control Measure limits idling times of construction vehicles to no more than five minutes, thereby minimizing unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Furthermore, the Project has been designed in compliance with California's Energy Efficiency Standards and 2022 CALGreen Standards.

Construction of the proposed residential development would require the typical use of energy resources. There are no unusual Project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies). Equipment employed in construction of the Project would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

8.2 Operational Energy Demand

Energy consumption in support of or related to Project operations would include transportation energy demands (energy consumed by employee and patron vehicles accessing the Project site) and facilities energy demands (energy consumed by building operations and site maintenance activities).

8.2.1 Transportation Fuel Consumption

The largest source of operational energy use would be vehicle operation of customers. The site is located in an urban area. Using the CalEEMod output, it is assumed that an average trip for autos were assumed to be 16.6 miles, light trucks were assumed to travel an average of 6.9 miles, and 3- 4-axle trucks were

assumed to travel an average of 8.4 miles[24]. To show a worst-case analysis, as the proposed Project is a residential project, it was assumed that vehicles would operate 365 days per year. Table 23 shows the worst-case estimated annual fuel consumption for all classes of vehicles from autos to heavy-heavy trucks.[25] Table 23 shows that an estimated 23,664 gallons of fuel would be consumed per year for the operation of the proposed Project.

Table 23: Estimated Vehicle Operations Fuel Consumption

Vehicle Type	Vehicle Mix	Number of Vehicles	Average Trip (miles)[1]	Daily VMT	Average Fuel Economy (mpg)	Total Gallons per Day	Total Annual Fuel Consumption (gallons)
Light Auto	Automobile	79.8	16.6	1,325	31.82	41.65	15,201
Light Truck	Automobile	8.3	6.9	57	27.16	2.10	768
Light Truck	Automobile	25.5	6.9	176	25.6	6.87	2,509
Medium Truck	Automobile	20.2	6.9	139	20.81	6.68	2,439
Light Heavy Truck	2-Axle Truck	3.9	8.4	33	13.81	2.36	862
Light Heavy Truck 10,000 lbs +	2-Axle Truck	1.0	8.4	9	14.18	0.62	227
Medium Heavy Truck	3-Axle Truck	1.7	8.4	14	9.58	1.51	552
Heavy Heavy Truck	4-Axle Truck	2.6	8.4	22	7.14	3.03	1,107
Total		143	--	1,775	--	64.83	--
Total Annual Fuel Consumption							**23,664**

Notes:
[1] The trip generation assessment, the Project is to generate 143 total net new trips. Default CalEEMod vehicle fleet mix utilized.
[1]Based on the size of the site and relative location, trips were assumed to be local rather than regional.

Trip generation generated by the proposed Project are consistent with other similar residential uses of similar scale and configuration as reflected in the trip generation analysis. That is, the proposed Project does not propose uses or operations that would inherently result in excessive and wasteful vehicle trips, nor associated excess and wasteful vehicle energy consumption. Therefore, Project transportation energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

8.2.2 Facility Energy Demands (Electricity and Natural Gas)

The annual natural gas and electricity demands were provided per the CalEEMod output and are provided in Table 24.

[24] CalEEMod default distance for H-W (home-work) or C-W (commercial-work) is 16.6 miles; 6.9 miles for H-S (home-shop) or C-C (commercial-customer); and 8.4 miles for H-O (home-other) or C-O (commercial-other).
[25] Average fuel economy based on aggregate mileage calculated in EMFAC 2017 for opening year (2023). See Appendix B for EMFAC output.

Table 24: Project Unmitigated Annual Operational Energy Demand Summary[1]

Natural Gas Demand	kBTU/year
Apartments	355,419
Total	355,419
Electricity Demand	**kWh/year**
Apartments	117,307
Parking Lot	17,706
Total	135,013

Notes:
[1]Taken from the CalEEMod 2022.1.1.20 annual output.

As shown in Table 24, the estimated electricity demand for the proposed Project is approximately 135,013 kWh per year. In 2022, the residential sector of the County of Orange consumed approximately 7,830 million kWh of electricity.[26] In addition, the estimated natural gas consumption for the proposed Project is approximately 355,419 kBTU per year. In 2022, the residential sector of the County of Orange consumed approximately 352 million therms of gas.[27] Therefore, the increase in both electricity and natural gas demand from the proposed Project is insignificant compared to the County's 2022 demand.

8.3 Renewable Energy and Energy Efficiency Plan Consistency

Regarding federal transportation regulations, the Project site is located in an already developed area. Access to/from the Project site is from existing roads. These roads are already in place so the Project would not interfere with, nor otherwise obstruct intermodal transportation plans or projects that may be proposed pursuant to the ISTEA because SCAG is not planning for intermodal facilities in the Project area.

Regarding the State's Energy Plan and compliance with Title 24 CCR energy efficiency standards, the applicant is required to comply with the California Green Building Standard Code requirements for energy efficient buildings and appliances as well as utility energy efficiency programs implemented by the SCE and Southern California Gas Company.

Regarding the State's Renewable Energy Portfolio Standards, the Project would be required to meet or exceed the energy standards established in the California Green Building Standards Code, Title 24, Part 11 (CALGreen). CalGreen Standards require that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant-emitting finish materials.

[26] California Energy Commission, Electricity Consumption by County. https://ecdms.energy.ca.gov/elecbycounty.aspx
[27] California Energy Commission, Gas Consumption by County. http://ecdms.energy.ca.gov/gasbycounty.aspx

8.4 Cumulative Regional Energy Impacts

Cumulative projects include local development as well as general growth within the project area. However, as with most development, the greatest source of energy usage is from mobile sources, which travel well out of the local area. Therefore, from an energy standpoint, the cumulative analysis would extend beyond any local projects and when wind patterns are considered, would cover an even larger area. Accordingly, the cumulative analysis for the Project's energy must be generic by nature.

The greatest cumulative impact on the regional energy usage will be from increased traffic from residential, commercial, and industrial development and the use of heavy equipment and trucks associated with the construction of these projects. Energy usage will temporarily increase during construction activities that occur separately or simultaneously. However, as the Project's natural gas and electricity usage will both be under 0.01% of the County of Orange's 2022 usage, the Project is considered less than significant.

9.0 References

The following references were used in the preparing this analysis.

California Air Pollution Control Officers Association
2009 Health Risk Assessments for Proposed Land Use Projects

California Air Resources Board
2008 Resolution 08-43

2008 Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act

2008 ARB Recommended Interim Risk Management Policy for Inhalation-Based Residential Cancer Risk – Frequently Asked Questions

2008 Climate Change Scoping Plan, a framework for change.

2011 Supplement to the AB 32 Scoping Plan Functional Equivalent Document

2013 Revised Emission Factors for Gasoline Marketing Operations at California Gasoline Dispensing Facilities

2014 First Update to the Climate Change Scoping Plan, Building on the Framework Pursuant to AB32, the California Global Warming Solutions Act of 2006. May.

2018 Historical Air Quality, Top 4 Summary

Governor's Office of Planning and Research
2008 CEQA and Climate: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review

2009 CEQA Guideline Sections to be Added or Amended

Office of Environmental Health Hazard Assessment
2015 Air Toxics Hot Spots Program Risk Assessment Guidelines

South Coast Air Quality Management District
1993 CEQA Air Quality Handbook

2005 Rule 403 Fugitive Dust

2007 2007 Air Quality Management Plan

2008 Final Localized Significance Threshold Methodology, Revised

2011 Appendix A Calculation Details for CalEEMod

2012 Final 2012 Air Quality Management Plan

2016 Final 2016 Air Quality Management Plan

Appendix A:

CalEEMod Emission Output

Brea Multifamily Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Brea Multifamily
Construction Start Date	1/1/2024
Operational Year	2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	1.80
Precipitation (days)	21.2
Location	33.90993836187988, -117.90415212021543
County	Orange
City	Brea
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5782
EDFZ	7
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.20

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description

Apartments High Rise	32.0	Dwelling Unit	0.52	68,000	0.00	—	95.0	—
Parking Lot	0.46	Acre	0.46	0.00	0.00	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

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

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	54.1	5.80	8.42	0.01	0.26	0.33	0.59	0.24	0.08	0.31	—	1,728	1,728	0.06	0.04	1.58	1,742
Mit.	54.1	5.80	8.42	0.01	0.26	0.33	0.59	0.24	0.08	0.31	—	1,728	1,728	0.06	0.04	1.58	1,742
% Reduced	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.65	39.9	23.2	0.16	0.81	11.2	12.0	0.77	4.19	4.96	—	23,990	23,990	1.84	3.55	1.21	25,096
Mit.	1.65	39.9	23.2	0.16	0.81	7.86	8.67	0.77	2.62	3.38	—	23,990	23,990	1.84	3.55	1.21	25,096
% Reduced	—	—	—	—	—	30%	28%	—	38%	32%	—	—	—	—	—	—	—

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.40	2.07	2.72	< 0.005	0.08	0.19	0.27	0.08	0.05	0.13	—	672	672	0.03	0.03	0.33	684
Mit.	1.40	2.07	2.72	< 0.005	0.08	0.17	0.25	0.08	0.04	0.12	—	672	672	0.03	0.03	0.33	684
% Reduced	—	—	—	—	—	10%	7%	—	17%	7%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.26	0.38	0.50	< 0.005	0.02	0.03	0.05	0.01	0.01	0.02	—	111	111	0.01	0.01	0.06	113
Mit.	0.26	0.38	0.50	< 0.005	0.02	0.03	0.05	0.01	0.01	0.02	—	111	111	0.01	0.01	0.06	113
% Reduced	—	—	—	—	—	10%	7%	—	17%	7%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

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

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	54.1	5.80	8.42	0.01	0.26	0.33	0.59	0.24	0.08	0.31	—	1,728	1,728	0.06	0.04	1.58	1,742
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.65	39.9	23.2	0.16	0.81	11.2	12.0	0.77	4.19	4.96	—	23,990	23,990	1.84	3.55	1.21	25,096
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.40	2.07	2.72	< 0.005	0.08	0.19	0.27	0.08	0.05	0.13	—	672	672	0.03	0.03	0.33	684
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.26	0.38	0.50	< 0.005	0.02	0.03	0.05	0.01	0.01	0.02	—	111	111	0.01	0.01	0.06	113

2.3. Construction Emissions by Year, Mitigated

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

Year	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	54.1	5.80	8.42	0.01	0.26	0.33	0.59	0.24	0.08	0.31	—	1,728	1,728	0.06	0.04	1.58	1,742
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.65	39.9	23.2	0.16	0.81	7.86	8.67	0.77	2.62	3.38	—	23,990	23,990	1.84	3.55	1.21	25,096
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	1.40	2.07	2.72	< 0.005	0.08	0.17	0.25	0.08	0.04	0.12	—	672	672	0.03	0.03	0.33	684
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.26	0.38	0.50	< 0.005	0.02	0.03	0.05	0.01	0.01	0.02	—	111	111	0.01	0.01	0.06	113

2.4. Operations Emissions Compared Against Thresholds

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

Un/Mit.	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.24	0.49	6.04	0.01	0.01	0.92	0.94	0.01	0.23	0.25	15.0	1,366	1,381	1.58	0.05	4.74	1,439
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.07	0.50	3.94	0.01	0.01	0.92	0.94	0.01	0.23	0.25	15.0	1,320	1,335	1.58	0.05	0.60	1,390
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Unmit.	2.16	0.50	5.11	0.01	0.01	0.87	0.89	0.01	0.22	0.24	15.0	1,292	1,307	1.58	0.05	2.25	1,363
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.39	0.09	0.93	< 0.005	< 0.005	0.16	0.16	< 0.005	0.04	0.04	2.48	214	216	0.26	0.01	0.37	226

2.5. Operations Emissions by Sector, Unmitigated

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

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.49	0.38	4.20	0.01	0.01	0.92	0.93	0.01	0.23	0.24	—	1,038	1,038	0.05	0.04	4.25	1,056
Area	1.74	0.02	1.81	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.85	4.85	< 0.005	< 0.005	—	4.87
Energy	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	311	311	0.02	< 0.005	—	312
Water	—	—	—	—	—	—	—	—	—	—	2.30	11.9	14.2	0.24	0.01	—	21.8
Waste	—	—	—	—	—	—	—	—	—	—	12.7	0.00	12.7	1.27	0.00	—	44.4
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.49	0.49
Total	2.24	0.49	6.04	0.01	0.01	0.92	0.94	0.01	0.23	0.25	15.0	1,366	1,381	1.58	0.05	4.74	1,439
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.49	0.41	3.90	0.01	0.01	0.92	0.93	0.01	0.23	0.24	—	998	998	0.05	0.04	0.11	1,012
Area	1.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	311	311	0.02	< 0.005	—	312
Water	—	—	—	—	—	—	—	—	—	—	2.30	11.9	14.2	0.24	0.01	—	21.8
Waste	—	—	—	—	—	—	—	—	—	—	12.7	0.00	12.7	1.27	0.00	—	44.4
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.49	0.49
Total	2.07	0.50	3.94	0.01	0.01	0.92	0.94	0.01	0.23	0.25	15.0	1,320	1,335	1.58	0.05	0.60	1,390

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.46	0.40	3.83	0.01	0.01	0.87	0.88	0.01	0.22	0.23	—	966	966	0.05	0.04	1.76	981
Area	1.69	0.01	1.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.32	3.32	< 0.005	< 0.005	—	3.34
Energy	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	311	311	0.02	< 0.005	—	312
Water	—	—	—	—	—	—	—	—	—	—	2.30	11.9	14.2	0.24	0.01	—	21.8
Waste	—	—	—	—	—	—	—	—	—	—	12.7	0.00	12.7	1.27	0.00	—	44.4
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.49	0.49
Total	2.16	0.50	5.11	0.01	0.01	0.87	0.89	0.01	0.22	0.24	15.0	1,292	1,307	1.58	0.05	2.25	1,363
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.08	0.07	0.70	< 0.005	< 0.005	0.16	0.16	< 0.005	0.04	0.04	—	160	160	0.01	0.01	0.29	162
Area	0.31	< 0.005	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.55	0.55	< 0.005	< 0.005	—	0.55
Energy	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	51.4	51.4	< 0.005	< 0.005	—	51.6
Water	—	—	—	—	—	—	—	—	—	—	0.38	1.97	2.35	0.04	< 0.005	—	3.61
Waste	—	—	—	—	—	—	—	—	—	—	2.10	0.00	2.10	0.21	0.00	—	7.36
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Total	0.39	0.09	0.93	< 0.005	< 0.005	0.16	0.16	< 0.005	0.04	0.04	2.48	214	216	0.26	0.01	0.37	226

2.6. Operations Emissions by Sector, Mitigated

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

Sector	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.49	0.38	4.20	0.01	0.01	0.92	0.93	0.01	0.23	0.24	—	1,038	1,038	0.05	0.04	4.25	1,056
Area	1.74	0.02	1.81	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.85	4.85	< 0.005	< 0.005	—	4.87
Energy	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	311	311	0.02	< 0.005	—	312
Water	—	—	—	—	—	—	—	—	—	—	2.30	11.9	14.2	0.24	0.01	—	21.8

Waste	—	—	—	—	—	—	—	—	—	—	12.7	0.00	12.7	1.27	0.00	—	44.4
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.49	0.49
Total	2.24	0.49	6.04	0.01	0.01	0.92	0.94	0.01	0.23	0.25	15.0	1,366	1,381	1.58	0.05	4.74	1,439
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.49	0.41	3.90	0.01	0.01	0.92	0.93	0.01	0.23	0.24	—	998	998	0.05	0.04	0.11	1,012
Area	1.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Energy	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	311	311	0.02	< 0.005	—	312
Water	—	—	—	—	—	—	—	—	—	—	2.30	11.9	14.2	0.24	0.01	—	21.8
Waste	—	—	—	—	—	—	—	—	—	—	12.7	0.00	12.7	1.27	0.00	—	44.4
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.49	0.49
Total	2.07	0.50	3.94	0.01	0.01	0.92	0.94	0.01	0.23	0.25	15.0	1,320	1,335	1.58	0.05	0.60	1,390
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.46	0.40	3.83	0.01	0.01	0.87	0.88	0.01	0.22	0.23	—	966	966	0.05	0.04	1.76	981
Area	1.69	0.01	1.24	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.32	3.32	< 0.005	< 0.005	—	3.34
Energy	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	311	311	0.02	< 0.005	—	312
Water	—	—	—	—	—	—	—	—	—	—	2.30	11.9	14.2	0.24	0.01	—	21.8
Waste	—	—	—	—	—	—	—	—	—	—	12.7	0.00	12.7	1.27	0.00	—	44.4
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.49	0.49
Total	2.16	0.50	5.11	0.01	0.01	0.87	0.89	0.01	0.22	0.24	15.0	1,292	1,307	1.58	0.05	2.25	1,363
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.08	0.07	0.70	< 0.005	< 0.005	0.16	0.16	< 0.005	0.04	0.04	—	160	160	0.01	0.01	0.29	162
Area	0.31	< 0.005	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.55	0.55	< 0.005	< 0.005	—	0.55
Energy	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	51.4	51.4	< 0.005	< 0.005	—	51.6
Water	—	—	—	—	—	—	—	—	—	—	0.38	1.97	2.35	0.04	< 0.005	—	3.61
Waste	—	—	—	—	—	—	—	—	—	—	2.10	0.00	2.10	0.21	0.00	—	7.36
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08

Total	0.39	0.09	0.93	< 0.005	< 0.005	0.16	0.16	< 0.005	0.04	0.04	2.48	214	216	0.26	0.01	0.37	226

3. Construction Emissions Details

3.1. Demolition (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.51	4.69	5.79	0.01	0.19	—	0.19	0.17	—	0.17	—	852	852	0.03	0.01	—	855
Demolition	—	—	—	—	—	0.88	0.88	—	0.13	0.13	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.13	0.16	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	23.3	23.3	< 0.005	< 0.005	—	23.4
Demolition	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.87	3.87	< 0.005	< 0.005	—	3.88

Demolition	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.04	0.52	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	129	129	< 0.005	< 0.005	0.01	130
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.95	0.40	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	738	738	0.06	0.12	0.04	775
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.58	3.58	< 0.005	< 0.005	0.01	3.63
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.2	20.2	< 0.005	< 0.005	0.02	21.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.59	0.59	< 0.005	< 0.005	< 0.005	0.60
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.35	3.35	< 0.005	< 0.005	< 0.005	3.52

3.2. Demolition (2024) - Mitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.51	4.69	5.79	0.01	0.19	—	0.19	0.17	—	0.17	—	852	852	0.03	0.01	—	855
Demolition	—	—	—	—	—	0.88	0.88	—	0.13	0.13	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.13	0.16	< 0.005	0.01	—	0.01	< 0.005	—	< 0.005	—	23.3	23.3	< 0.005	< 0.005	—	23.4
Demolition	—	—	—	—	—	0.02	0.02	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	3.87	3.87	< 0.005	< 0.005	—	3.88
Demolition	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.04	0.04	0.52	0.00	0.00	0.13	0.13	0.00	0.03	0.03	—	129	129	< 0.005	< 0.005	0.01	130
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	0.95	0.40	< 0.005	0.01	0.19	0.20	0.01	0.05	0.06	—	738	738	0.06	0.12	0.04	775
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.58	3.58	< 0.005	< 0.005	0.01	3.63
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.2	20.2	< 0.005	< 0.005	0.02	21.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.59	0.59	< 0.005	< 0.005	< 0.005	0.60
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.35	3.35	< 0.005	< 0.005	< 0.005	3.52

3.3. Site Preparation (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	4.60	5.56	0.01	0.24	—	0.24	0.22	—	0.22	—	858	858	0.03	0.01	—	861
Dust From Material Movement	—	—	—	—	—	0.53	0.53	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.35	2.35	< 0.005	< 0.005	—	2.36
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.39	0.39	< 0.005	< 0.005	—	0.39
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.26	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	64.5	64.5	< 0.005	< 0.005	0.01	65.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.18
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.4. Site Preparation (2024) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50	4.60	5.56	0.01	0.24	—	0.24	0.22	—	0.22	—	858	858	0.03	0.01	—	861
Dust From Material Movement	—	—	—	—	—	0.21	0.21	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.02	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.35	2.35	< 0.005	< 0.005	—	2.36
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.39	0.39	< 0.005	< 0.005	—	0.39
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.26	0.00	0.00	0.07	0.07	0.00	0.02	0.02	—	64.5	64.5	< 0.005	< 0.005	0.01	65.2
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.18	0.18	< 0.005	< 0.005	< 0.005	0.18
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.03	0.03	< 0.005	< 0.005	< 0.005	0.03
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.5. Grading (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.19	11.4	10.7	0.02	0.53	—	0.53	0.49	—	0.49	—	1,713	1,713	0.07	0.01	—	1,719
Dust From Material Movement	—	—	—	—	—	5.40	5.40	—	2.58	2.58	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.39	9.39	< 0.005	< 0.005	—	9.42
Dust From Material Movement	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.55	1.55	< 0.005	< 0.005	—	1.56

Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.39	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	96.7	96.7	< 0.005	< 0.005	0.01	97.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.44	28.5	12.1	0.14	0.28	5.66	5.93	0.28	1.59	1.86	—	22,180	22,180	1.77	3.53	1.20	23,279
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.54
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.16	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	122	122	0.01	0.02	0.11	128
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.1	20.1	< 0.005	< 0.005	0.02	21.1

3.6. Grading (2024) - Mitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.19	11.4	10.7	0.02	0.53	—	0.53	0.49	—	0.49	—	1,713	1,713	0.07	0.01	—	1,719
Dust From Material Movement	—	—	—	—	—	2.11	2.11	—	1.01	1.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	0.06	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	9.39	9.39	< 0.005	< 0.005	—	9.42
Dust From Material Movement	—	—	—	—	—	0.01	0.01	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.55	1.55	< 0.005	< 0.005	—	1.56
Dust From Material Movement	—	—	—	—	—	< 0.005	< 0.005	—	< 0.005	< 0.005	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03	0.03	0.39	0.00	0.00	0.10	0.10	0.00	0.02	0.02	—	96.7	96.7	< 0.005	< 0.005	0.01	97.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.44	28.5	12.1	0.14	0.28	5.66	5.93	0.28	1.59	1.86	—	22,180	22,180	1.77	3.53	1.20	23,279
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.54	0.54	< 0.005	< 0.005	< 0.005	0.54
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.16	0.07	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	122	122	0.01	0.02	0.11	128
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.09	0.09	< 0.005	< 0.005	< 0.005	0.09
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	0.03	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	20.1	20.1	< 0.005	< 0.005	0.02	21.1

3.7. Building Construction (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	5.60	6.98	0.01	0.26	—	0.26	0.23	—	0.23	—	1,305	1,305	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	5.60	6.98	0.01	0.26	—	0.26	0.23	—	0.23	—	1,305	1,305	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	1.53	1.91	< 0.005	0.07	—	0.07	0.06	—	0.06	—	357	357	0.01	< 0.005	—	359
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.28	0.35	< 0.005	0.01	—	0.01	0.01	—	0.01	—	59.2	59.2	< 0.005	< 0.005	—	59.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.09	1.39	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	312	312	< 0.005	0.01	1.28	317
Vendor	< 0.005	0.12	0.06	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	111	111	0.01	0.02	0.30	116
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.10	1.19	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	297	297	< 0.005	0.01	0.03	301
Vendor	< 0.005	0.12	0.06	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	111	111	0.01	0.02	0.01	116
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.02	0.03	0.34	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	82.5	82.5	< 0.005	< 0.005	0.15	83.6
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.4	30.4	< 0.005	< 0.005	0.04	31.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.7	13.7	< 0.005	< 0.005	0.03	13.8
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.03	5.03	< 0.005	< 0.005	0.01	5.25
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.8. Building Construction (2024) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	5.60	6.98	0.01	0.26	—	0.26	0.23	—	0.23	—	1,305	1,305	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.56	5.60	6.98	0.01	0.26	—	0.26	0.23	—	0.23	—	1,305	1,305	0.05	0.01	—	1,309
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.15	1.53	1.91	< 0.005	0.07	—	0.07	0.06	—	0.06	—	357	357	0.01	< 0.005	—	359

Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03	0.28	0.35	< 0.005	0.01	—	0.01	0.01	—	0.01	—	59.2	59.2	< 0.005	< 0.005	—	59.4
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.09	1.39	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	312	312	< 0.005	0.01	1.28	317
Vendor	< 0.005	0.12	0.06	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	111	111	0.01	0.02	0.30	116
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08	0.10	1.19	0.00	0.00	0.30	0.30	0.00	0.07	0.07	—	297	297	< 0.005	0.01	0.03	301
Vendor	< 0.005	0.12	0.06	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	111	111	0.01	0.02	0.01	116
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.03	0.34	0.00	0.00	0.08	0.08	0.00	0.02	0.02	—	82.5	82.5	< 0.005	< 0.005	0.15	83.6
Vendor	< 0.005	0.03	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	30.4	30.4	< 0.005	< 0.005	0.04	31.7
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	0.01	0.06	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	13.7	13.7	< 0.005	< 0.005	0.03	13.8
Vendor	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	5.03	5.03	< 0.005	< 0.005	0.01	5.25
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.9. Paving (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	4.52	5.32	0.01	0.21	—	0.21	0.19	—	0.19	—	823	823	0.03	0.01	—	826
Paving	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.3	11.3	< 0.005	< 0.005	—	11.3
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.87	1.87	< 0.005	< 0.005	—	1.87
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.06	0.07	1.05	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	237	237	< 0.005	0.01	0.97	241
Vendor	< 0.005	0.17	0.09	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	162	162	0.01	0.02	0.44	169
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.13	3.13	< 0.005	< 0.005	0.01	3.18
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.22	2.22	< 0.005	< 0.005	< 0.005	2.32
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.52	0.52	< 0.005	< 0.005	< 0.005	0.53
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.37	0.37	< 0.005	< 0.005	< 0.005	0.38
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.10. Paving (2024) - Mitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.53	4.52	5.32	0.01	0.21	—	0.21	0.19	—	0.19	—	823	823	0.03	0.01	—	826
Paving	0.24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01	0.06	0.07	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	11.3	11.3	< 0.005	< 0.005	—	11.3
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.01	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	1.87	1.87	< 0.005	< 0.005	—	1.87
Paving	< 0.005	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.07	1.05	0.00	0.00	0.23	0.23	0.00	0.05	0.05	—	237	237	< 0.005	0.01	0.97	241
Vendor	< 0.005	0.17	0.09	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	162	162	0.01	0.02	0.44	169
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	3.13	3.13	< 0.005	< 0.005	0.01	3.18
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.22	2.22	< 0.005	< 0.005	< 0.005	2.32
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.52	0.52	< 0.005	< 0.005	< 0.005	0.53
Vendor	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	0.37	0.37	< 0.005	< 0.005	< 0.005	0.38
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.11. Architectural Coating (2024) - Unmitigated

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

Location	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	53.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.93	2.93	< 0.005	< 0.005	—	2.94
Architectural Coatings	1.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.48	0.48	< 0.005	< 0.005	—	0.49
Architectural Coatings	0.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02	0.02	0.28	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	62.5	62.5	< 0.005	< 0.005	0.26	63.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.32	1.32	< 0.005	< 0.005	< 0.005	1.34
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.22	0.22	< 0.005	< 0.005	< 0.005	0.22
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

3.12. Architectural Coating (2024) - Mitigated

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

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

Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14	0.91	1.15	< 0.005	0.03	—	0.03	0.03	—	0.03	—	134	134	0.01	< 0.005	—	134
Architectural Coatings	53.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	0.02	0.03	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	2.93	2.93	< 0.005	< 0.005	—	2.94
Architectural Coatings	1.18	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.48	0.48	< 0.005	< 0.005	—	0.49
Architectural Coatings	0.22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.02	0.02	0.28	0.00	0.00	0.06	0.06	0.00	0.01	0.01	—	62.5	62.5	< 0.005	< 0.005	0.26	63.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	0.01	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	1.32	1.32	< 0.005	< 0.005	< 0.005	1.34
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.00	0.00	< 0.005	< 0.005	0.00	< 0.005	< 0.005	—	0.22	0.22	< 0.005	< 0.005	< 0.005	0.22
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	0.49	0.38	4.20	0.01	0.01	0.92	0.93	0.01	0.23	0.24	—	1,038	1,038	0.05	0.04	4.25	1,056

Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.49	0.38	4.20	0.01	0.01	0.92	0.93	0.01	0.23	0.24	—	1,038	1,038	0.05	0.04	4.25	1,056
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	0.49	0.41	3.90	0.01	0.01	0.92	0.93	0.01	0.23	0.24	—	998	998	0.05	0.04	0.11	1,012
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.49	0.41	3.90	0.01	0.01	0.92	0.93	0.01	0.23	0.24	—	998	998	0.05	0.04	0.11	1,012
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	0.08	0.07	0.70	< 0.005	< 0.005	0.16	0.16	< 0.005	0.04	0.04	—	160	160	0.01	0.01	0.29	162
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.08	0.07	0.70	< 0.005	< 0.005	0.16	0.16	< 0.005	0.04	0.04	—	160	160	0.01	0.01	0.29	162

4.1.2. Mitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	0.49	0.38	4.20	0.01	0.01	0.92	0.93	0.01	0.23	0.24	—	1,038	1,038	0.05	0.04	4.25	1,056
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.49	0.38	4.20	0.01	0.01	0.92	0.93	0.01	0.23	0.24	—	1,038	1,038	0.05	0.04	4.25	1,056

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	0.49	0.41	3.90	0.01	0.01	0.92	0.93	0.01	0.23	0.24	—	998	998	0.05	0.04	0.11	1,012
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.49	0.41	3.90	0.01	0.01	0.92	0.93	0.01	0.23	0.24	—	998	998	0.05	0.04	0.11	1,012
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	0.08	0.07	0.70	< 0.005	< 0.005	0.16	0.16	< 0.005	0.04	0.04	—	160	160	0.01	0.01	0.29	162
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.08	0.07	0.70	< 0.005	< 0.005	0.16	0.16	< 0.005	0.04	0.04	—	160	160	0.01	0.01	0.29	162

4.2. Energy

4.2.1. Electricity Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	—	171	171	0.01	< 0.005	—	172
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	25.8	25.8	< 0.005	< 0.005	—	25.9
Total	—	—	—	—	—	—	—	—	—	—	—	197	197	0.01	< 0.005	—	198

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	—	171	171	0.01	< 0.005	—	172
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	25.8	25.8	< 0.005	< 0.005	—	25.9
Total	—	—	—	—	—	—	—	—	—	—	—	197	197	0.01	< 0.005	—	198
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	—	28.3	28.3	< 0.005	< 0.005	—	28.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	4.27	4.27	< 0.005	< 0.005	—	4.29
Total	—	—	—	—	—	—	—	—	—	—	—	32.6	32.6	< 0.005	< 0.005	—	32.7

4.2.2. Electricity Emissions By Land Use - Mitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	—	171	171	0.01	< 0.005	—	172
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	25.8	25.8	< 0.005	< 0.005	—	25.9
Total	—	—	—	—	—	—	—	—	—	—	—	197	197	0.01	< 0.005	—	198
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments	—	—	—	—	—	—	—	—	—	—	—	171	171	0.01	< 0.005	—	172
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	25.8	25.8	< 0.005	< 0.005	—	25.9
Total	—	—	—	—	—	—	—	—	—	—	—	197	197	0.01	< 0.005	—	198
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	—	28.3	28.3	< 0.005	< 0.005	—	28.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	4.27	4.27	< 0.005	< 0.005	—	4.29
Total	—	—	—	—	—	—	—	—	—	—	—	32.6	32.6	< 0.005	< 0.005	—	32.7

4.2.3. Natural Gas Emissions By Land Use - Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	114	114	0.01	< 0.005	—	114
Parking Lot	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	114	114	0.01	< 0.005	—	114
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	114	114	0.01	< 0.005	—	114
Parking Lot	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00

Total	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	114	114	0.01	< 0.005	—	114
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.9	18.9	< 0.005	< 0.005	—	18.9
Parking Lot	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.9	18.9	< 0.005	< 0.005	—	18.9

4.2.4. Natural Gas Emissions By Land Use - Mitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	114	114	0.01	< 0.005	—	114
Parking Lot	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	114	114	0.01	< 0.005	—	114
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	114	114	0.01	< 0.005	—	114
Parking Lot	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	0.01	0.09	0.04	< 0.005	0.01	—	0.01	0.01	—	0.01	—	114	114	0.01	< 0.005	—	114
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.9	18.9	< 0.005	< 0.005	—	18.9
Parking Lot	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	—	0.00	—	0.00	0.00	0.00	0.00	—	0.00
Total	< 0.005	0.02	0.01	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	18.9	18.9	< 0.005	< 0.005	—	18.9

4.3. Area Emissions by Source

4.3.1. Unmitigated

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

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.17	0.02	1.81	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.85	4.85	< 0.005	< 0.005	—	4.87
Total	1.74	0.02	1.81	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.85	4.85	< 0.005	< 0.005	—	4.87
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	1.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02	< 0.005	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.55	0.55	< 0.005	< 0.005	—	0.55
Total	0.31	< 0.005	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.55	0.55	< 0.005	< 0.005	—	0.55

4.3.2. Mitigated

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

Source	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	1.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.17	0.02	1.81	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.85	4.85	< 0.005	< 0.005	—	4.87
Total	1.74	0.02	1.81	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	4.85	4.85	< 0.005	< 0.005	—	4.87
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Consumer Products	1.46	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.12	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	1.57	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Consumer Products	0.27	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.02	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.02	< 0.005	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.55	0.55	< 0.005	< 0.005	—	0.55
Total	0.31	< 0.005	0.23	< 0.005	< 0.005	—	< 0.005	< 0.005	—	< 0.005	—	0.55	0.55	< 0.005	< 0.005	—	0.55

4.4. Water Emissions by Land Use

4.4.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	2.30	11.9	14.2	0.24	0.01	—	21.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	2.30	11.9	14.2	0.24	0.01	—	21.8

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	2.30	11.9	14.2	0.24	0.01	—	21.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	2.30	11.9	14.2	0.24	0.01	—	21.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	0.38	1.97	2.35	0.04	< 0.005	—	3.61
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.38	1.97	2.35	0.04	< 0.005	—	3.61

4.4.2. Mitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	2.30	11.9	14.2	0.24	0.01	—	21.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	2.30	11.9	14.2	0.24	0.01	—	21.8
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Apartments	—	—	—	—	—	—	—	—	—	—	2.30	11.9	14.2	0.24	0.01	—	21.8
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	2.30	11.9	14.2	0.24	0.01	—	21.8
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	0.38	1.97	2.35	0.04	< 0.005	—	3.61
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	0.38	1.97	2.35	0.04	< 0.005	—	3.61

4.5. Waste Emissions by Land Use

4.5.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	12.7	0.00	12.7	1.27	0.00	—	44.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	12.7	0.00	12.7	1.27	0.00	—	44.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	12.7	0.00	12.7	1.27	0.00	—	44.4

Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	12.7	0.00	12.7	1.27	0.00	—	44.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	2.10	0.00	2.10	0.21	0.00	—	7.36
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	2.10	0.00	2.10	0.21	0.00	—	7.36

4.5.2. Mitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	12.7	0.00	12.7	1.27	0.00	—	44.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	12.7	0.00	12.7	1.27	0.00	—	44.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	12.7	0.00	12.7	1.27	0.00	—	44.4
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	12.7	0.00	12.7	1.27	0.00	—	44.4

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	2.10	0.00	2.10	0.21	0.00	—	7.36
Parking Lot	—	—	—	—	—	—	—	—	—	—	0.00	0.00	0.00	0.00	0.00	—	0.00
Total	—	—	—	—	—	—	—	—	—	—	2.10	0.00	2.10	0.21	0.00	—	7.36

4.6. Refrigerant Emissions by Land Use

4.6.1. Unmitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.49	0.49
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.49	0.49
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.49	0.49
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.49	0.49
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08

4.6.2. Mitigated

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

Land Use	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.49	0.49
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.49	0.49
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.49	0.49
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.49	0.49
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments High Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.08	0.08

4.7. Offroad Emissions By Equipment Type

4.7.1. Unmitigated

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

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

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.7.2. Mitigated

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

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

4.8. Stationary Emissions By Equipment Type

4.8.1. Unmitigated

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

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

4.8.2. Mitigated

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

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

4.9. User Defined Emissions By Equipment Type

4.9.1. Unmitigated

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

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

4.9.2. Mitigated

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

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

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

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

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

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

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

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

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

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

Species	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

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

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

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

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

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

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

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

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

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Demolition	Demolition	1/1/2024	1/15/2024	5.00	10.0	—
Site Preparation	Site Preparation	1/16/2024	1/17/2024	5.00	1.00	—
Grading	Grading	1/18/2024	1/20/2024	5.00	2.00	—
Building Construction	Building Construction	1/21/2024	6/9/2024	5.00	100	—
Paving	Paving	6/10/2024	6/17/2024	5.00	5.00	—
Architectural Coating	Architectural Coating	6/18/2024	6/27/2024	5.00	8.00	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73

Demolition	Rubber Tired Dozers	Diesel	Average	1.00	1.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2.00	6.00	84.0	0.37
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	6.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	6.00	367	0.40
Grading	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	4.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	6.00	82.0	0.20
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	2.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	7.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backhoes	Diesel	Average	1.00	7.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Demolition	Concrete/Industrial Saws	Diesel	Average	1.00	8.00	33.0	0.73
Demolition	Rubber Tired Dozers	Diesel	Average	1.00	1.00	367	0.40
Demolition	Tractors/Loaders/Backhoes	Diesel	Average	2.00	6.00	84.0	0.37
Site Preparation	Graders	Diesel	Average	1.00	8.00	148	0.41

Site Preparation	Tractors/Loaders/Backh	Diesel	Average	1.00	8.00	84.0	0.37
Grading	Graders	Diesel	Average	1.00	6.00	148	0.41
Grading	Rubber Tired Dozers	Diesel	Average	1.00	6.00	367	0.40
Grading	Tractors/Loaders/Backh oes	Diesel	Average	1.00	7.00	84.0	0.37
Building Construction	Cranes	Diesel	Average	1.00	4.00	367	0.29
Building Construction	Forklifts	Diesel	Average	2.00	6.00	82.0	0.20
Building Construction	Tractors/Loaders/Backh oes	Diesel	Average	2.00	8.00	84.0	0.37
Paving	Cement and Mortar Mixers	Diesel	Average	4.00	6.00	10.0	0.56
Paving	Pavers	Diesel	Average	1.00	7.00	81.0	0.42
Paving	Rollers	Diesel	Average	1.00	7.00	36.0	0.38
Paving	Tractors/Loaders/Backh oes	Diesel	Average	1.00	7.00	84.0	0.37
Architectural Coating	Air Compressors	Diesel	Average	1.00	6.00	37.0	0.48

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	10.0	18.5	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	10.4	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT

Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	7.50	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	313	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	23.0	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	3.42	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	18.5	LDA,LDT1,LDT2
Paving	Vendor	5.00	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.61	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	—	—	—	—
Demolition	Worker	10.0	18.5	LDA,LDT1,LDT2

Demolition	Vendor	—	10.2	HHDT,MHDT
Demolition	Hauling	10.4	20.0	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	—	—	—	—
Site Preparation	Worker	5.00	18.5	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2	HHDT,MHDT
Site Preparation	Hauling	0.00	20.0	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	—	—	—	—
Grading	Worker	7.50	18.5	LDA,LDT1,LDT2
Grading	Vendor	—	10.2	HHDT,MHDT
Grading	Hauling	313	20.0	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	—	—	—	—
Building Construction	Worker	23.0	18.5	LDA,LDT1,LDT2
Building Construction	Vendor	3.42	10.2	HHDT,MHDT
Building Construction	Hauling	0.00	20.0	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	—	—	—	—
Paving	Worker	17.5	18.5	LDA,LDT1,LDT2
Paving	Vendor	5.00	10.2	HHDT,MHDT
Paving	Hauling	0.00	20.0	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	—	—	—	—
Architectural Coating	Worker	4.61	18.5	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2	HHDT,MHDT
Architectural Coating	Hauling	0.00	20.0	HHDT

Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	137,700	45,900	0.00	0.00	1,213

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (cy)	Material Exported (cy)	Acres Graded (acres)	Material Demolished (Building Square Footage)	Acres Paved (acres)
Demolition	0.00	0.00	0.00	9,000	—
Site Preparation	—	—	0.50	0.00	—
Grading	—	5,000	1.50	0.00	—
Paving	0.00	0.00	0.00	0.00	0.46

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
Apartments High Rise	—	0%
Parking Lot	0.46	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

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

5.9. Operational Mobile Sources

5.9.1. Unmitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments High Rise	142	145	115	50,675	1,283	1,306	1,035	456,656
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Apartments High Rise	142	145	115	50,675	1,283	1,306	1,035	456,656
Parking Lot	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5.10. Operational Area Sources

5.10.1. Hearths

5.10.1.1. Unmitigated

5.10.1.2. Mitigated

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
137700	45,900	0.00	0.00	1,213

5.10.3. Landscape Equipment

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

5.10.4. Landscape Equipment - Mitigated

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

5.11. Operational Energy Consumption

5.11.1. Unmitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments High Rise	117,307	532	0.0330	0.0040	355,419
Parking Lot	17,706	532	0.0330	0.0040	0.00

5.11.2. Mitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments High Rise	117,307	532	0.0330	0.0040	355,419
Parking Lot	17,706	532	0.0330	0.0040	0.00

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments High Rise	1,200,821	0.00
Parking Lot	0.00	0.00

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments High Rise	1,200,821	0.00
Parking Lot	0.00	0.00

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments High Rise	23.6	—
Parking Lot	0.00	—

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments High Rise	23.6	—
Parking Lot	0.00	—

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

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

5.14.2. Mitigated

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

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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

5.15.2. Mitigated

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

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

Equipment Type	Fuel Type	Number per Day	Hours per Day	Hours per Year	Horsepower	Load Factor

5.16.2. Process Boilers

Equipment Type	Fuel Type	Number	Boiler Rating (MMBtu/hr)	Daily Heat Input (MMBtu/day)	Annual Heat Input (MMBtu/yr)

5.17. User Defined

Equipment Type	Fuel Type

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	12.3	annual days of extreme heat
Extreme Precipitation	5.15	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.59	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters
Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score

Temperature and Extreme Heat	1	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	0	0	N/A
Wildfire	1	0	0	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	1	1	1	2
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	1	1	1	2
Wildfire	1	1	1	2
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	57.0
AQ-PM	82.7
AQ-DPM	72.2
Drinking Water	93.7
Lead Risk Housing	64.3
Pesticides	0.00
Toxic Releases	98.5
Traffic	70.0
Effect Indicators	—
CleanUp Sites	72.9
Groundwater	2.11
Haz Waste Facilities/Generators	92.0
Impaired Water Bodies	0.00
Solid Waste	87.9
Sensitive Population	—
Asthma	21.4
Cardio-vascular	25.2
Low Birth Weights	29.0
Socioeconomic Factor Indicators	—

Education	46.8
Housing	31.2
Linguistic	38.1
Poverty	25.7
Unemployment	23.8

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	61.00346465
Employed	73.4377005
Median HI	70.61465418
Education	—
Bachelor's or higher	64.6862569
High school enrollment	100
Preschool enrollment	80.67496471
Transportation	—
Auto Access	70.20402926
Active commuting	51.04581034
Social	—
2-parent households	69.02348261
Voting	63.01809316
Neighborhood	—
Alcohol availability	39.95893751
Park access	81.35506224
Retail density	84.84537405

Supermarket access	52.8551264
Tree canopy	39.71512896
Housing	—
Homeownership	50.03208007
Housing habitability	50.34004876
Low-inc homeowner severe housing cost burden	23.91890158
Low-inc renter severe housing cost burden	55.25471577
Uncrowded housing	39.26600796
Health Outcomes	—
Insured adults	37.80315668
Arthritis	5.4
Asthma ER Admissions	81.6
High Blood Pressure	9.4
Cancer (excluding skin)	6.6
Asthma	37.3
Coronary Heart Disease	5.2
Chronic Obstructive Pulmonary Disease	10.5
Diagnosed Diabetes	40.6
Life Expectancy at Birth	58.6
Cognitively Disabled	87.2
Physically Disabled	88.8
Heart Attack ER Admissions	72.4
Mental Health Not Good	50.5
Chronic Kidney Disease	14.8
Obesity	62.5
Pedestrian Injuries	19.6
Physical Health Not Good	37.9

Stroke	13.0
Health Risk Behaviors	—
Binge Drinking	68.3
Current Smoker	48.5
No Leisure Time for Physical Activity	45.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	26.6
Elderly	60.0
English Speaking	73.1
Foreign-born	31.4
Outdoor Workers	66.0
Climate Change Adaptive Capacity	—
Impervious Surface Cover	50.4
Traffic Density	66.5
Traffic Access	51.4
Other Indices	—
Hardship	48.7
Other Decision Support	—
2016 Voting	83.4

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	44.0
Healthy Places Index Score for Project Location (b)	70.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No

Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Per site plan
Operations: Hearths	No hearths

Appendix B:

EMFAC2017 Output

Source: EMFAC2017 (v1.0.3) Emissions Inventory
Region Type: Air District
Region: South Coast AQMD
Calendar Year: 2023
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption

Region	Calendar Y	Vehicle Cat	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel Consumption	Fuel Consumption	Total Fuel Consumption	VMT	Total VMT	Miles Per Gallon	Vehicle Class
South Coas	2023	HHDT	Aggregate	Aggregate	Gasoline	75.10442936	8265.097	1502.689	1.936286145	1936.286145	1913466.474	8265.097	13656273.03	7.14	**HHD**
South Coas	2023	HHDT	Aggregate	Aggregate	Diesel	109818.6753	13648008	1133618	1911.530188	1911530.188		13648008			
South Coas	2023	LDA	Aggregate	Aggregate	Gasoline	6635002.295	2.53E+08	31352477	7971.24403	7971244.03	8020635.698	2.53E+08	255180358.3	31.82	**LDA**
South Coas	2023	LDA	Aggregate	Aggregate	Diesel	62492.97958	2469816	297086.6	49.3916685	49391.6685		2469816			
South Coas	2023	LDA	Aggregate	Aggregate	Electricity	150700.3971	6237106	751566	0	0		6237106			
South Coas	2023	LDT1	Aggregate	Aggregate	Gasoline	758467.6481	27812996	3504563	1023.913006	1023913.006	1024279.466	27812996	27821405.09	27.16	**LDT1**
South Coas	2023	LDT1	Aggregate	Aggregate	Diesel	360.7799144	8408.618	1256.88	0.366459477	366.4594769		8408.618			
South Coas	2023	LDT1	Aggregate	Aggregate	Electricity	7122.93373	303507.5	35798.19	0	0		303507.5			
South Coas	2023	LDT2	Aggregate	Aggregate	Gasoline	2285150.139	85272416	10723315	3338.798312	3338798.312	3356536.438	85272416	85922778.34	25.60	**LDT2**
South Coas	2023	LDT2	Aggregate	Aggregate	Diesel	15594.68309	650362.8	76635.83	17.73812611	17738.12611		650362.8			
South Coas	2023	LDT2	Aggregate	Aggregate	Electricity	28809.63735	917592.8	145405.4	0	0		917592.8			
South Coas	2023	LHDT1	Aggregate	Aggregate	Gasoline	174910.3847	6216643	2605904	583.3851736	583385.1736	811563.1022	6216643	11211395.79	13.81	**LHDT1**
South Coas	2023	LHDT1	Aggregate	Aggregate	Diesel	125545.0822	4994753	1579199	228.1779285	228177.9285		4994753			
South Coas	2023	LHDT2	Aggregate	Aggregate	Gasoline	30102.75324	1034569	448486.2	111.5753864	111575.3864	209423.5025	1034569	2969599.008	14.18	**LHDT2**
South Coas	2023	LHDT2	Aggregate	Aggregate	Diesel	50003.13116	1935030	628976.5	97.84811618	97848.11618		1935030			
South Coas	2023	MCY	Aggregate	Aggregate	Gasoline	305044.5141	2104624	610089	57.849018	57849.018	57849.018	2104624	2104623.657	36.38	**MCY**
South Coas	2023	MDV	Aggregate	Aggregate	Gasoline	1589862.703	55684188	7354860	2693.883526	2693883.526	2744536.341	55684188	57109879.73	20.81	**MDV**
South Coas	2023	MDV	Aggregate	Aggregate	Diesel	36128.1019	1425691	176566.9	50.65281491	50652.81491		1425691			
South Coas	2023	MDV	Aggregate	Aggregate	Electricity	16376.67653	537591.7	83475.95	0	0		537591.7			
South Coas	2023	MH	Aggregate	Aggregate	Gasoline	34679.50542	330042.9	3469.338	63.26295123	63262.95123	74893.26955	330042.9	454344.9436	6.07	**MH**
South Coas	2023	MH	Aggregate	Aggregate	Diesel	13122.69387	124302	1312.269	11.63031832	11630.31832		124302			
South Coas	2023	MHDT	Aggregate	Aggregate	Gasoline	25624.3151	1363694	512691.3	265.2060557	265206.0557	989975.6425	1363694	9484317.768	9.58	**MHDT**
South Coas	2023	MHDT	Aggregate	Aggregate	Diesel	122124.488	8120623	1221858	724.7695868	724769.5868		8120623			
South Coas	2023	OBUS	Aggregate	Aggregate	Gasoline	5955.291639	245774	119153.5	48.07750689	48077.50689	86265.88761	245774	579743.8353	6.72	**OBUS**
South Coas	2023	OBUS	Aggregate	Aggregate	Diesel	4286.940093	333969.8	41558.29	38.18838072	38188.38072		333969.8			
South Coas	2023	SBUS	Aggregate	Aggregate	Gasoline	2783.643068	112189.6	11134.57	12.19474692	12194.74692	39638.85935	112189.6	323043.5203	8.15	**SBUS**
South Coas	2023	SBUS	Aggregate	Aggregate	Diesel	6671.825716	210853.9	76991.94	27.44411242	27444.11242		210853.9			
South Coas	2023	UBUS	Aggregate	Aggregate	Gasoline	957.7686184	89782.63	3831.074	17.62416327	17624.16327	17863.66378	89782.63	91199.2533	5.11	**UBUS**
South Coas	2023	UBUS	Aggregate	Aggregate	Diesel	13.00046095	1416.622	52.00184	0.239500509	239.5005093		1416.622			
South Coas	2023	UBUS	Aggregate	Aggregate	Electricity	16.11693886	1320.163	64.46776	0			1320.163			

PLN-2023-00081

County of Orange/Santa Ana Region Priority Project

Preliminary Water Quality Management Plan (WQMP)

Project Name:

South Brea Townhomes

TRACT NO. 19315
PLN-2023-00081
685 BREA BOULEVARD, CITY OF BREA, CA 92821

Prepared for:

McCulloch Family Trust
15105 Tacuba Drive
La Mirada, CA 90638
(714)366-4991

Prepared by:

Kimley-Horn and Associates, Inc.
1100 W Town and Country Road, Suite 700
Orange, CA 926868
(714) 939-1030

Prepared: February 2024
Revised: June 2024

PLN-2023-00081

County of Orange/Santa Ana Region Priority Project

Preliminary Water Quality Management Plan (WQMP)

Project Name:

685 Brea

TRACT NO. 19315
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Prepared: February 2024
Revised: June 2024

Project Owner's Certification			
Planning Application No. (If applicable)	PLN-2023-00081	Grading Permit No.	
Tract/Parcel Map and Lot(s) No.	OC23-47961 TR-19315	Building Permit No.	
Address of Project Site and APN 284-282-06			685 Brea Boulevard, City of Brea, CA 92821

This Water Quality Management Plan (WQMP) has been prepared for McCulloch Family Trust by Kimley-Horn and Associates, Inc. The WQMP is intended to comply with the requirements of the County of Orange NPDES Stormwater Program requiring the preparation of the plan.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan , including the ongoing operation and maintenance of all best management practices (BMPs), and will ensure that this plan is amended as appropriate to reflect up-to-date conditions on the site consistent with the current Orange County Drainage Area Management Plan (DAMP) and the intent of the non-point source NPDES Permit for Waste Discharge Requirements for the County of Orange, Orange County Flood Control District and the incorporated Cities of Orange County within the Santa Ana Region. Once the undersigned transfers its interest in the property, its successors-in-interest shall bear the aforementioned responsibility to implement and amend the WQMP. An appropriate number of approved and signed copies of this document shall be available on the subject site in perpetuity.

Owner: McCulloch Family Trust			
Company	McCulloch Family Trust		
Address	15105 Tacuba Drive		
Email	N/A		
Telephone #	(714)366-4991		
I understand my responsibility to implement the provisions of this WQMP including the ongoing operation and maintenance of the best management practices (BMPs) described herein.			
Owner Signature	DocuSigned by: Jackson Graham McCulloch, Jr.	Date	5/9/2024 | 12:52:37 PDT

Jackson Graham McCulloch, Jr.

Preparer (Engineer): Jason Marechal			
Title	Project Manager	PE Registration #	63164
Company	Kimley-Horn and Associates, Inc.		
Address	1100 Town and Country Road, Suite 700		
Email	jason.marechal@kimley-horn.com		
Telephone #	(714) 705-1305		
I hereby certify that this Water Quality Management Plan is in compliance with, and meets the requirements set forth in, Order No. R8-2009-0030/NPDES No. CAS618030, of the Santa Ana Regional Water Quality Control Board.			
Preparer Signature		Date	05/9/24
Place Stamp Here			

Contents

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Appendices

Attachment A.....303d List Of Impaired Water Bodies
Attachment B..... County Soils And Rainfall Maps
Attachment C.....Geotechnical Report
Attachment D..... Groundwater Feasibility
Attachment E .....Calculations
Attachment F ..... Education Materials
Attachment G..... O&M Plan
Attachment H.....Conceptual WQMP Site Plan
Attachment I .....BMP Summary and WQMP Correspondence
Attachment J .....Transfer of Responsibility

Section I Permit(s) and Water Quality Conditions of Approval or Issuance

Provide discretionary or grading/building permit information and water quality conditions of approval, or permit issuance, applied to the project. If conditions are unknown, please request applicable conditions from staff. Refer to Section 2.1 in the Technical Guidance Document (TGD) available on the OC Planning website (*ocplanning.net*).

Project Infomation			
Permit/Application No. (If applicable)	PLN-2023-00081	Grading or Building Permit No. (If applicable)	
Address of Project Site (or Tract Map and Lot Number if no address) and APN	685 Brea Boulevard, City of Brea, CA 92821 APN: 284-282-06		
Water Quality Conditions of Approval or Issuance			
Water Quality Conditions of Approval or Issuance applied to this project. (Please list verbatim.)	Conditions of approval shall be provided upon approval of PQMP and entitlement package. The project is subject to the water quality conditions set forth by City of Brea Municipal code (13.32.030 Control of Urban Runoff) All new development and significant redevelopment projects comply with the requirements of DAMP.		
Conceptual WQMP			
Was a Conceptual Water Quality Management Plan previously approved for this project?	This report serves are the Preliminary WQMP for the project.		

Watershed-Based Plan Conditions	
Provide applicable conditions from watershed - based plans including WIHMPs and TMDLS.	There are no approved WIHMPs where the project resides. The applicable TMDLs affecting the receiving waterbodies are shown from Table 2.4 "Summary of the Status of TMDLs for Waterbodies in Region 8 and 9 of the TGD the following pollutant affect Upper Newport Bay: Bacteria indicators/pathogens (implementation phase; Metals (technical TMDLs); Nutrients (implementation phase); Pesticides (technical TMDL's); and Turbidity / Siltation (implementation phase). The State Water Resources Control Board trash amendments requires full capture of trash. TMDLS: Coyote Creek: Cooper, Lead, Zinc, Dissolved, Indicator Bacteria, Selenium San Gabriel River: Dioxin, Nickel, Oxygen Dissolved

Section II Project Description

II.1 Project Description

Provide a detailed project description including:

- Project areas;
- Land uses;
- Land cover;
- Design elements;
- A general description not broken down by drainage management areas (DMAs).

Include attributes relevant to determining applicable source controls. *Refer to Section 2.2 in the Technical Guidance Document (TGD) for information that must be included in the project description.*

<table>
<tr><th colspan="5">Description of Proposed Project</th></tr>
<tr><td>Development Category (From Model WQMP, Table 7.11-2; or -3):</td><td colspan="4">8. All significant redevelopment projects, where significant redevelopment is defined as the addition or replacement of 5,000 or more square feet of impervious surface on an already developed site. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of the facility, or emergency redevelopment activity required to protect public health and safety. If the redevelopment results in the addition or replacement of less than 50 percent of the impervious area on-site and the existing development was not subject to WQMP requirement, the numeric sizing criteria discussed in Section 7.II-2.0 only applies to the addition or replacement area. If the addition or replacement accounts for 50 percent or more of the impervious area, the Project WQMP requirements apply to the entire development.

The project redevelopment is over 50% of the impervious area, and the project WQMP is subject to the entire project.</td></tr>
<tr><td>Project Area (ft2): 4312440</td><td colspan="3">Number of Dwelling Units: 32</td><td>SIC Code: _____</td></tr>
<tr><td rowspan="2">Project Area</td><td colspan="2">Pervious</td><td colspan="2">Impervious</td></tr>
<tr><td>Area (acres or sq ft)</td><td>Percentage</td><td>Area (acres or sq ft)</td><td>Percentage</td></tr>
<tr><td>Pre-Project Conditions</td><td>0</td><td>0%</td><td>0.99 acres</td><td>100%</td></tr>
</table>

Post-Project Conditions	0.10	10%	0.890 Acre	90%
Drainage Patterns/Connections	The existing drainage pattern flows from the north east to the south west portion of the site. All existing drainage flows offsite and isn't captured or treated. The proposed drainage pattern will have inlets throughout the site that are treated through proprietary modular wetland systems and connected to the existing storm drain system.			
Narrative Project Description: (Use as much space as necessary.)	The 685 Brea Project (South Brea Townhomes) is in the City of Brea in Orange County, California. Anaheim. The Project includes 0.99 gross acres of land associated with the parcel, situated in the southern portion of the City. The Project is located south of Imperial Highway, and is bounded by Brea Boulevard, Walnut, and Fir Street. In the existing condition, the site has one commercial building and an entirely paved parking area. 32 residential units are proposed for the Project replacing land previously zoned for mixed use. A homeowners association will be formed to maintain the services for the development including the onsite storm drain system, inlets, and BMPs. The city of Brea owns and maintains an extensive network of storm drain infrastructure, primarily storm drain mains, manholes, and catch basins, throughout the city of Brea. The City of Brea will maintain the existing offsite storm drains within the public ROW. Portions of the city drain toward Brea Creek, Coyote Creek, and San Gabriel River. The project site with have individual waste bins located in each townhome, and a trash truck will pick up waste from each individual home. Landscape maintenance will occur, creating expected pollutants, of sediment, nutrients, pathogens, and pesticides. Each townhome will have garages, and the expected vehicles will create oil and grease on site. The community facility includes a lounge area at the south east portion of the site. Trash at this location will be maintained by the HOA and be picked up by the waste department along with trash pick up for each individual townhome.			

II.2 Potential Stormwater Pollutants

Determine and list expected stormwater pollutants based on land uses and site activities. Refer to Section 2.2.2 and Table 2.1 in the Technical Guidance Document (TGD) for guidance.

Pollutants of Concern			
Pollutant	**Check One for each: E=Expected to be of concern**	**N=Not Expected to be of concern**	**Additional Information and Comments**
Suspended-Solid/ Sediment	E ☒	N ☐	Expected for Landscape Onsite
Nutrients	E ☒	N ☐	Expected for Landscape Onsite
Heavy Metals	E ☐	N ☒	No Outdoor Storage/Metal Roofs Anticipated
Pathogens (Bacteria/Virus)	E ☒	N ☐	Expected for Landscape Onsite
Pesticides	E ☒	N ☐	
Oil and Grease	E ☒	N ☐	
Toxic Organic Compounds	E ☐	N ☒	Not Expected to be Utilized in Residential Project
Trash and Debris	E ☒	N ☐	Expected to be of Concern as a Residential Project

II.3 Hydrologic Conditions of Concern

Determine if streams located downstream from the project area are potentially susceptible to hydromodification impacts. *Refer to Section 2.2.3.1 in the Technical Guidance Document (TGD) for North Orange County or Section 2.2.3.2 for South Orange County.*

☐ No – Show map

☒ Yes – Describe applicable hydrologic conditions of concern below. *Refer to Section 2.2.3 in the Technical Guidance Document (TGD).*

The project down stream of Brea Creek, an Earth channel, Coyote Creek, and the San Gabriel River. The hydraulic analysis is performed to show that the proposed project stays within the 5% allowable increase in flow rate for the project to maintain current conditions. The existing 2 year peak flow rate is 1.69 cfs at 6.07min time of concentration and the proposed 2 year peak flow is 1.60 cfs with 6.95min time of concentration.

II.4 Post Development Drainage Characteristics

Describe post development drainage characteristics. *Refer to Section 2.2.4 in the Technical Guidance Document (TGD).*

In the proposed condition, the site consists of 32 units that will drain to the proposed drainage system on site. The site drains through various drain structures that discharge to the public storm drain system. Storm water runoff will drain to two proprietary biofiltration BMPs. Biofiltration BMPs will treat low flows and allow high flows to bypass.

The site has one proposed storm water discharge point.

DA 1 : Approximately 0.33 acres of the site along the east and south property lines drains to various inlets and are treated through proprietary biofiltration BMP. No project offsite flow run on and project offsite runoff is anticipated.

DA 2: Approximately 0.66 acres of the site along the north property line drains to various inlets and are treated through proprietary biofiltration BMPs. No project offsite flow run on and project offsite runoff is anticipated.

II.5 Property Ownership/Management

Describe property ownership/management. *Refer to Section 2.2.5 in the Technical Guidance Document (TGD).*

McCulloch Family Trust is the owner of the site. No infrastructure will be transferred to a public agency. Homeowner association is applicable. The homeowner association will maintain the private onsite storm drain, BMPs and on-site inlets.

Section III Site Description

III.1 Physical Setting

Fill out table with relevant information. *Refer to Section 2.3.1 in the Technical Guidance Document (TGD).*

Name of Planned Community/Planning Area (if applicable)	N/A
Location/Address	685 S Brea Blvd, Brea, CA 92821
General Plan Land Use Designation	Mixed Use
Zoning	MU-1
Acreage of Project Site	0.99
Predominant Soil Type	C

III.2 Site Characteristics

Fill out table with relevant information and include information regarding BMP sizing, suitability, and feasibility, as applicable. *Refer to Section 2.3.2 in the Technical Guidance Document (TGD).*

Site Characteristics	
Precipitation Zone	0.90
Topography	Relatively flat site with site draining from the East side adjacent to South Brea Boulevard draining West off-site to the corner of South Walnut Avenue and West Fir Street.

Drainage Patterns/Connections	The site sheet flows from the easterly side to the west off-site to the corner of South Walnut Ave and West Fir Street via surface flow.
Soil Type, Geology, and Infiltration Properties	Soil Type C.
Hydrogeologic (Groundwater) Conditions	No Groundwater
Geotechnical Conditions (relevant to infiltration)	Insufficient Infiltration. 2 infiltration tests were performed with a tested infiltration rate of 0.4 in/hr. With the Worksheet H safety factor of 4.5, the design infiltration rate would be 0.09 in/hr, which would be too low for adequate infiltration design.
Off-Site Drainage	No offsite drainage will enter the site.
Utility and Infrastructure Information	Existing public storm drain within Fir Street south of the Project Site.

III.3 Watershed Description

Fill out table with relevant information and include information regarding BMP sizing, suitability, and feasibility, as applicable. *Refer to Section 2.3.3 in the Technical Guidance Document (TGD).*

Receiving Waters	Brea Creek, Coyote Creek, San Gabriel River
303(d) Listed Impairments	Coyote Creek: Iron, Malathion, pH, Toxicity, Indicator Bacteria San Gabriel River: Copper, Indicator Bacteria
Applicable TMDLs	Coyote Creek: Cooper, Lead, Zinc, Dissolved, Indicator Bacteria, Selenium San Gabriel River: Dioxin, Nickel, Oxygen Dissolved
Pollutants of Concern for the Project	Suspended Solids/ Sediment, Nutrients, Pathogens, and Trash and Debris.
Environmentally Sensitive and Special Biological Significant Areas	The project suite is not located 200 feet or adjacent to an Environmentally Sensitive Area (ESA) or an Area of Special Biological Significance.

Section IV Best Management Practices (BMPs)

IV. 1 Project Performance Criteria

Describe project performance criteria. Several steps must be followed in order to determine what performance criteria will apply to a project. These steps include:

- If the project has an approved WIHMP or equivalent, then any watershed specific criteria must be used and the project can evaluate participation in the approved regional or sub-regional opportunities. (Please ask your assigned planner or plan checker regarding whether your project is part of an approved WIHMP or equivalent.)
- Determine applicable hydromodification control performance criteria. *Refer to Section 7.II-2.4.2.2 of the Model WQMP.*
- Determine applicable LID performance criteria. *Refer to Section 7.II-2.4.3 of the Model WQMP.*
- Determine applicable treatment control BMP performance criteria. *Refer to Section 7.II-3.2.2 of the Model WQMP.*
- Calculate the LID design storm capture volume for the project. *Refer to Section 7.II-2.4.3 of the Model WQMP.*

(NOC Permit Area only) Is there an approved WIHMP or equivalent for the project area that includes more stringent LID feasibility criteria or if there are opportunities identified for implementing LID on regional or sub-regional basis?	YES ☐	NO ☒
If yes, describe WIHMP feasibility criteria or regional/sub-regional LID opportunities.		

Project Performance Criteria	
If HCOC exists, list applicable hydromodification control performance criteria (Section 7.II-2.4.2.2 in MWQMP)	• Time of concentration of post-development runoff for the two-year storm event is not less than that for the predevelopment condition by more than five percent.[1] [1] The North County Permit (Order R8-2009-0030), as adopted, provides the option of reducing Tc to less than the existing condition Tc (within 5 percent) as part of the primary and preferred option for mitigating HCOCs. However, a longer Tc is generally associated with natural conditions than urban conditions, and a longer Tc nearly universally results in lower concern for hydromodification impacts. In addition, it is not physically possible for a project to implement BMPs consistent with LID provisions of the permit without substantially increasing the Tc of the site. The use of retention BMPs results in water not discharged under design conditions, while the use of biotreatment BMPs general results in water not immediately discharged. Therefore, it would not generally be possible to mitigate HCOCs using the primary option for compliance described above while complying with LID requirements. This TGD therefore interprets this provision such that increases in Tc would be acceptable and reduction in Tc of more than 5 percent would not be acceptable. This interpretation is consistent with the overall goal of the permit to protect receiving waters from stormwater impacts to the maximum extent practicable.
List applicable LID performance criteria (Section 7.II-2.4.3 from MWQMP)	Priority projects must infiltrate, harvest and use, evapotranspire, or biotreat / biofilter, the 85th percentile, 24-hour storm event (Design Capture Volume)
List applicable treatment control BMP performance criteria (Section 7.II-3.2.2 from MWQMP)	If not feasible to meet the LID performance criteria though retention and / or biotreatment provided on-site or at a sub-regional / regional scale, then treatment control BMPs shall be provided on-site or off-site prior to discharge to waters of the US. Sizing of treatment control BMP(s) shall be based on either the unmet volume after claiming applicable water quality credits, if appropriate (see Section 7.II-3.1 Water Quality Credits) and as calculated in TGD Appendix VI. If treatment control BMPs can treat all the remaining unmet volume and have a medium to high effectiveness for reducing the primary POCs, the project is in compliance; a waiver application and participation in an alternative program is not required.

Calculate LID design storm capture volume for Project.	Q=CIA C = (0.75x0.8+.15) =0.825 I=.23 DMA 1: A=0.33 AC Q=0.063 CFS DMA 2: A=0.66 AC Q=0.125 CFS DA 1 DCV: 894 CF DA 2 DCV: 1790 CF See appendix for Worksheet B Calculations.

IV.2. Site Design and Drainage

Describe site design and drainage including

- A narrative of site design practices utilized or rationale for not using practices;
- A narrative of how site is designed to allow BMPs to be incorporated to the MEP
- A table of DMA characteristics and list of LID BMPs proposed in each DMA.
- Reference to the WQMP "BMP Exhibit."
- Calculation of Design Capture Volume (DCV) for each drainage area.
- A listing of GIS coordinates for LID and Treatment Control BMPs.

Refer to Section 2.4.2 in the Technical Guidance Document (TGD).

Two modular wetlands are sized to capture all the flow coming from the Q=CIA.

Proprietary Biotreatment							
Area	% Impervious	C	I (in/hr)	A (acres)	Q (cfs)	Selected Modular Wetland	Modular Wetland Allowable Q
DA-1	90.0%	0.825	0.23	0.333	0.063	MWS-L-4-8	0.115
DA-2	90.0%	0.825	0.23	0.66	0.125	MWS-L-4-13	0.144

Full trash capture units will be installed across the site at each inlet sized for 1 year rational method analysis. The total peak flow of the proposed site is 1.33 CFS, with the southeast inlet taking the largest proportion of the flow (33% Q) or 0.44 CFS. The full trash capture FloGuard+ Inlet Filter units, referred from the certified full capture system listed by the State Water Resource Control Board,will be used in the 12x12" configuration (0.4 CFS treatment flow) and 18"x18" configuration (0.7 CFS treatment flow)

DA 1 will have:

- (5) 12"x12" FGP-12F rated for 0.4 CFS
- (1) 18"x18" FGP-18F rated for 0.7 CFS

DA 2 will have

- (7) 12"x12" FGP-12F rated for 0.4 CFS
- (2) 18"x18" FGP-18F rated for 0.7 CFS

Impervious area dispersion (e.g. roof top disconnection): The overall project density and hardscape/landscape design is incompatible with typical rooftop disconnection. Proprietary biofiltration BMPs with some evapotranspiration benefits are proposed.

Street trees (canopy interception): Limited canopy coverage is proposed on-site. The potential reduction of treatment area is not accounted for in the BMP sizing.

Residential rain barrels (not actively managed): This does not apply to large multifamily sites.

Green roofs/Brown roofs: Green roofs are not feasible in this construction type

Blue roofs: Blue roofs are not feasible in this consturction type.

Impervious area reduction (e.g. permeable pavers, site design): Due to the overall site density, impervious area reduction is not proposed. Proprietary biofiltration BMPs with some evapotranspiration benefits are proposed.

HSC's will not be calculated as part of this project design. Proprietary biotreatment will be used as described in Section IV.3.4.

IV.3 LID BMP Selection and Project Conformance Analysis

Each sub-section below documents that the proposed design features conform to the applicable project performance criteria via check boxes, tables, calculations, narratives, and/or references to worksheets. Refer to Section 2.4.2.3 in the Technical Guidance Document (TGD) for selecting LID BMPs and Section 2.4.3 in the Technical Guidance Document (TGD) for conducting conformance analysis with project performance criteria.

IV.3.1 Hydrologic Source Controls (HSCs)

If required HSCs are included, fill out applicable check box forms. If the retention criteria are otherwise met with other LID BMPs, include a statement indicating HSCs not required.

Name	Included?
Localized on-lot infiltration	☐
Impervious area dispersion (e.g. roof top disconnection)	☐
Street trees (canopy interception)	☐

Residential rain barrels (not actively managed)	☐
Green roofs/Brown roofs	☐
Blue roofs	☐
Impervious area reduction (e.g. permeable pavers, site design)	☐
Other: Proprietary Biotreatment	☒
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐
Other:	☐

IV.3.2 Infiltration BMPs

Identify infiltration BMPs to be used in project. If design volume cannot be met, state why.

Name	Included?
Bioretention without underdrains	☐
Rain gardens	☐
Porous landscaping	☐
Infiltration planters	☐
Retention swales	☐
Infiltration trenches	☐
Infiltration basins	☐
Drywells	☐
Subsurface infiltration galleries	☐
French drains	☐
Permeable asphalt	☐
Permeable concrete	☐
Permeable concrete pavers	☐
Other:	☐
Other:	☐

Show calculations below to demonstrate if the LID Design Strom Capture Volume can be met with infiltration BMPs. If not, document how much can be met with infiltration and document why it is not feasible to meet the full volume with infiltration BMPs.

From Worksheet H in the appendix, the infiltration rate after safety factor is 0.09 in/hr, which will be too low to infiltrate with the Project soil. Flow based treatment will be used instead.

IV.3.3 Evapotranspiration, Rainwater Harvesting BMPs

If the full Design Storm Capture Volume cannot be met with infiltration BMPs, describe any evapotranspiration and/or rainwater harvesting BMPs included.

Name	Included?
All HSCs; See Section IV.3.1	☐
Surface-based infiltration BMPs	☐
Biotreatment BMPs	☐
Above-ground cisterns and basins	☐
Underground detention	☐
Other:	☐
Other:	☐
Other:	☐

Show calculations below to demonstrate if the LID Design Storm Capture Volume can be met with evapotranspiration and/or rainwater harvesting BMPs in combination with infiltration BMPs. If not, document below how much can be met with either infiltration BMPs, evapotranspiration, rainwater harvesting BMPs, or a combination, and document why it is not feasible to meet the full volume with these BMP categories.

Per worksheet J, water harvesting is infeasible for both irrigation and toilet flushing demand.

IV.3.4 Biotreatment BMPs

If the full Design Storm Capture Volume cannot be met with infiltration BMPs, and/or evapotranspiration and rainwater harvesting BMPs, describe biotreatment BMPs included. Include sections for selection, suitability, sizing, and infeasibility, as applicable.

Name	Included?
Bioretention with underdrains	☐
Stormwater planter boxes with underdrains	☐
Rain gardens with underdrains	☐
Constructed wetlands	☐
Vegetated swales	☐
Vegetated filter strips	☐
Proprietary vegetated biotreatment systems	☒
Wet extended detention basin	☐
Dry extended detention basins	☐
Other:	☐
Other:	☐

Show calculations below to demonstrate if the LID Design Storm Capture Volume can be met with infiltration, evapotranspiration, rainwater harvesting and/or biotreatment BMPs. If not, document how much can be met with either infiltration BMPs, evapotranspiration, rainwater harvesting BMPs, or a combination, and document why it is not feasible to meet the full volume with these BMP categories.

Two modular wetlands are sized to capture all the flow coming from the Q=CIA. Worksheet D attached in the attachments.

Proprietary Biotreatment							
Area	% Impervious	C	I (in/ hr)	A (acres)	Q (cfs)	Selected Modular Wetland	Modular Wetland Allowable Q
DA-1	90.0%	0.825	0.23	0.33	0.063	MWS-L-4-8	0.115
DA-2	90.0%	0.825	0.23	0.66	0.125	MWS-L-4-13	0.115

IV.3.5 Hydromodification Control BMPs

Describe hydromodification control BMPs. *See Section 5 of the Technical Guidance Document (TGD).* Include sections for selection, suitability, sizing, and infeasibility, as applicable. Detail compliance with Prior Conditions of Approval (if applicable).

Hydromodification Control BMPs	
BMP Name	**BMP Description**

IV.3.6 Regional/Sub-Regional LID BMPs

Describe regional/sub-regional LID BMPs in which the project will participate. *Refer to Section 7.II-2.4.3.2 of the Model WQMP.*

Regional/Sub-Regional LID BMPs

IV.3.7 Treatment Control BMPs

Treatment control BMPs can only be considered if the project conformance analysis indicates that it is not feasible to retain the full design capture volume with LID BMPs. Describe treatment control BMPs including sections for selection, sizing, and infeasibility, as applicable.

Treatment Control BMPs	
BMP Name	**BMP Description**
FloGard+ Standard Catch Basin Insert Filter	Fabric Filters will be placed under each grate inlet onsite. These filters will capture total suspended solids and sized for the 1 year rational method analysis flows. Supporting calculations are provided in the appendix.

IV.3.8 Non-structural Source Control BMPs

Fill out non-structural source control check box forms or provide a brief narrative explaining if non-structural source controls were not used.

Non-Structural Source Control BMPs				
Identifier	Name	Check One		If not applicable, state brief reason
		Included	Not Applicable	
N1	Education for Property Owners, Tenants and Occupants	☒	☐	
N2	Activity Restrictions	☒	☐	
N3	Common Area Landscape Management	☒	☐	
N4	BMP Maintenance	☒	☐	
N5	Title 22 CCR Compliance (How development will comply)	☐	☒	No Hazardous waste will be handled on-site.
N6	Local Industrial Permit Compliance	☐	☒	No Hazardous waste will be handled on-site.
N7	Spill Contingency Plan	☐	☒	No Hazardous waste will be handled on-site.
N8	Underground Storage Tank Compliance	☐	☒	No Hazardous waste will be handled on-site.
N9	Hazardous Materials Disclosure Compliance	☐	☒	No Hazardous waste will be handled on-site.
N10	Uniform Fire Code Implementation	☐	☒	No Hazardous waste will be handled on-site.
N11	Common Area Litter Control	☒	☐	
N12	Employee Training	☒	☐	
N13	Housekeeping of Loading Docks	☐	☒	Loading docks are not proposed.
N14	Common Area Catch Basin Inspection	☒	☐	

N15	Street Sweeping Private Streets and Parking Lots	☒	☐	
N16	Retail Gasoline Outlets	☐	☒	Fueling stations are not proposed.

IV.3.9 Structural Source Control BMPs

Fill out structural source control check box forms or provide a brief narrative explaining if structural source controls were not used.

Structural Source Control BMPs				
Identifier	Name	Check One		If not applicable, state brief reason
		Included	Not Applicable	
S1	Provide storm drain system stenciling and signage	☒	☐	
S2	Design and construct outdoor material storage areas to reduce pollution introduction	☐	☒	Outdoor material storage areas are not proposed.
S3	Design and construct trash and waste storage areas to reduce pollution introduction	☒	☐	Trash will be in each individual trash bins.
S4	Use efficient irrigation systems & landscape design, water conservation, smart controllers, and source control	☒	☐	
S5	Protect slopes and channels and provide energy dissipation	☐	☒	There are no slopes or channels along the project site.
	Incorporate requirements applicable to individual priority project categories (from SDRWQCB NPDES Permit)	☐	☒	Project is in North OC.
S6	Dock areas	☐	☒	No dock areas
S7	Maintenance bays	☐	☒	No maintenance bays proposed.
S8	Vehicle wash areas	☐	☒	No proposed Vehicle wash areas.
S9	Outdoor processing areas	☐	☒	No proposed outdoor processing areas.
S10	Equipment wash areas	☐	☒	No proposed equipment wash areas.
S11	Fueling areas	☐	☒	No proposed fueling stations.

S12	Hillside landscaping	☐	☒	No proposed hillside landscaping on this project.
S13	Wash water control for food preparation areas	☐	☒	No proposed food preparation areas on-site.
S14	Community car wash racks	☐	☒	No proposed car wash area.

IV.4 Alternative Compliance Plan (If Applicable)

Describe an alternative compliance plan (if applicable). Include alternative compliance obligations (i.e., gallons, pounds) and describe proposed alternative compliance measures. *Refer to Section 7.II 3.0 in the WQMP.*

IV.4.1 Water Quality Credits

Determine if water quality credits are applicable for the project. *Refer to Section 3.1 of the Model WQMP for description of credits and Appendix VI of the Technical Guidance Document (TGD) for calculation methods for applying water quality credits.*

Description of Proposed Project		
Project Types that Qualify for Water Quality Credits (Select all that apply):		
☐ Redevelopment projects that reduce the overall impervious footprint of the project site.	☐ Brownfield redevelopment, meaning redevelopment, expansion, or reuse of real property which may be complicated by the presence or potential presence of hazardous substances, pollutants or contaminants, and which have the potential to contribute to adverse ground or surface WQ if not redeveloped.	☐ Higher density development projects which include two distinct categories (credits can only be taken for one category): those with more than seven units per acre of development (lower credit allowance); vertical density developments, for example, those with a Floor to Area Ratio (FAR) of 2 or those having more than 18 units per acre (greater credit allowance).
☐ Mixed use development, such as a combination of residential, commercial, industrial, office, institutional, or other land uses which incorporate design principles that can demonstrate environmental benefits that would not be realized through single use projects (e.g. reduced vehicle trip traffic with the potential to reduce sources of water or air pollution).	☐ Transit-oriented developments, such as a mixed use residential or commercial area designed to maximize access to public transportation; similar to above criterion, but where the development center is within one half mile of a mass transit center (e.g. bus, rail, light rail or commuter train station). Such projects would not be able to take credit for both categories, but may have greater credit assigned	☐ Redevelopment projects in an established historic district, historic preservation area, or similar significant city area including core City Center areas (to be defined through mapping).

☐Developments with dedication of undeveloped portions to parks, preservation areas and other pervious uses.	☐ Developments in a city center area.	☐ Developments in historic districts or historic preservation areas.	☐ Live-work developments, a variety of developments designed to support residential and vocational needs together – similar to criteria to mixed use development; would not be able to take credit for both categories.	☐In-fill projects, the conversion of empty lots and other underused spaces into more beneficially used spaces, such as residential or commercial areas.
Calculation of Water Quality Credits (if applicable)				

IV.4.2 Alternative Compliance Plan Information

Describe an alternative compliance plan (if applicable). Include alternative compliance obligations (i.e., gallons, pounds) and describe proposed alternative compliance measures. *Refer to Section 7.II 3.0 in the Model WQMP.*

Section V Inspection/Maintenance Responsibility for BMPs

Fill out information in table below. Prepare and attach an Operation and Maintenance Plan. Identify the funding mechanism through which BMPs will be maintained. Inspection and maintenance records must be kept for a minimum of five years for inspection by the regulatory agencies. *Refer to Section 7.II 4.0 in the Model WQMP.*

BMP Inspection/Maintenance			
BMP	**Reponsible Party(s)**	**Inspection/ Maintenance Activities Required**	**Minimum Frequency of Activities**
N1. Education for Property Owners, Tenants and Occupants	McCulloch Family Trust Future HOA	Educational material shall be provided to all employees and tenants.	Upon Tenant Occupancy, Annually Thereafter
N2. Activity Restriction	McCulloch Family Trust Future HOA	The owner shall develop activity restrictions to minimize the threat of hazardous waste or contamination into the storm drainage system. Car washing is not allowed on-site at any time.	Daily
N3. Common Area Landscape Management	McCulloch Family Trust Future HOA	Training on landscape management consistent with County Water Conservation Resolution or City equivalent, plus Management	Weekly

		Guidelines for Fertilizers (DAMP Section 5.5) shall be conducted for all new field landscape maintenance personnel.	
N4. BMP Maintenance	McCulloch Family Trust Future HOA	Maintenance of BMPs implemented at the project site shall be performed at the frequency prescribed in this WQMP. (See Attachment G Operations and Maintenance Manual)	Bi-Annual
N11. Common Area Litter Control	McCulloch Family Trust Future HOA	Litter patrol, violations investigation, reporting and other litter control activities shall be performed in conjunction with maintenance activities.	Daily
N12. Employee Training	McCulloch Family Trust Future HOA	Education programs shall be implemented as they apply to future employees and training of current employees.	Yearly for all employees and within 6 months of hire date for new employees.
N14. Common Area Catch Basin Inspection	McCulloch Family Trust Future HOA	Maintain and inspect catch basins for obstructions and/or build up.	Twice a month to remove debris and after every major storm event

		Inspect catch basin stenciling	
N15. Street Sweeping Private Streets	McCulloch Family Trust Future HOA	Streets and parking area within the project shall be swept at a minimum frequency of once a month.	Biweekly
S1 Provide Storm Drain System Stencilling and Signage	McCulloch Family Trust Future HOA	All proposed inlets shall be marked with the appropriate "No Dumping. Drains to Ocean." Stencil. The stencils must be repainted when they becomes illegible, but at a minimum once every five years.	Yearly
S3. Design and Construct Outdoor Material Storage Areas to Reduce Pollutant Introduction	McCulloch Family Trust Future HOA	All receptacles shall have solid lids and kept closed at all times. Trash receptacles shall be placed on a paved area. Sweep trash area at least once per week. Maintain area clean of trash and debris.	Weekly
S4. Use Efficient Irrigation Systems & Landscape Design	McCulloch Family Trust Future HOA	Verify that landscape design continues to function properly by	Monthly

		correctly adjusting to eliminate overspray to hardscape areas, and to verify that irrigation timing and cycle lengths are adjusted in accordance with water demands, given time of year, and day or night time temperatures.	
Bio-7: Proprietary Biotreatment (Modular Wetland System)	McCulloch Family Trust Future HOA	Remove trash from screening device, trim vegetation	Annual. Check MWS condition and maintain per procedure in O&M Appendix.
Full Trash Capture BMP (Fabric Filter)	McCulloch Family Trust Future HOA	Remove trash from screening device	Two days after each rain event.

Section VI BMP Exhibit (Site Plan)

VI.1 BMP Exhibit (Site Plan)

Include a BMP Exhibit (Site Plan), at a size no less than 24" by 36," which includes the following minimum information:

- Insert in the title block (lower right hand corner) of BMP Exhibit: the WQMP Number (assigned by staff) and the grading/building or Planning Application permit numbers
- Project location (address, tract/lot number(s), etc.)
- Site boundary
- Land uses and land covers, as applicable
- Suitability/feasibility constraints
- Structural BMP locations
- Drainage delineations and flow information
- Delineate the area being treated by each structural BMP
- GIS coordinates for LID and Treatment Control BMPs
- Drainage connections
- BMP details
- Preparer name and stamp

Please do not include any areas outside of the project area or any information not related to drainage or water quality. The approved BMP Exhibit (Site Plan) shall be submitted as a plan sheet on all grading and building plan sets submitted for plan check review and approval. The BMP Exhibit shall be at the same size as the rest of the plan sheets in the submittal and shall have an approval stamp and signature prior to plan check submittal.

VI.2 Submittal and Recordation of Water Quality Management Plan

Following approval of the Final Project-Specific WQMP, three copies of the approved WQMP (including BMP Exhibit, Operations and Maintenance (O&M) Plan, and Appendices) shall be submitted. In addition, these documents shall be submitted in a PDF format.

Each approved WQMP (including BMP Exhibit, Operations and Maintenance (O&M) Plan, and Appendices) shall be recorded in the Orange County Clerk-Recorder's Office, prior to close-out of grading and/or building permit. Educational Materials are not required to be included.

Section VII Educational Materials

Refer to the Orange County Stormwater Program (ocwatersheds.com) for a library of materials available. Please only attach the educational materials specifically applicable to this project. Other materials specific to the project may be included as well and must be attached.

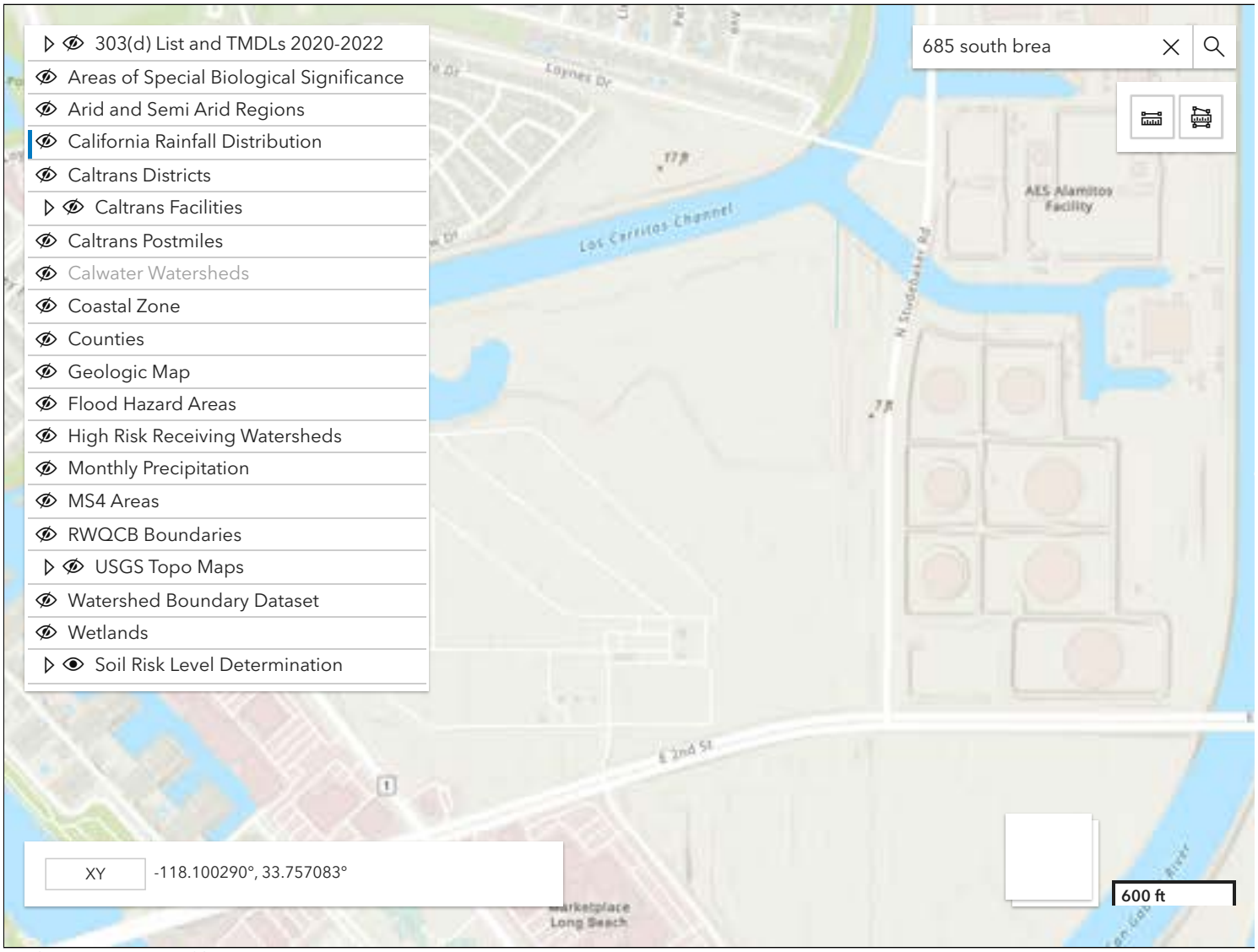
Education Materials			
Residential Material (http://www.ocwatersheds.com)	Check If Applicable	Business Material (http://www.ocwatersheds.com)	Check If Applicable
The Ocean Begins at Your Front Door	☒	Tips for the Automotive Industry	☐
Tips for Car Wash Fund-raisers	☐	Tips for Using Concrete and Mortar	☐
Tips for the Home Mechanic	☐	Tips for the Food Service Industry	☐
Homeowners Guide for Sustainable Water Use	☒	Proper Maintenance Practices for Your Business	☒
Household Tips	☒	Other Material	Check If Attached
Proper Disposal of Household Hazardous Waste	☒		
Recycle at Your Local Used Oil Collection Center (North County)	☒		☐
Recycle at Your Local Used Oil Collection Center (Central County)	☐		☐
Recycle at Your Local Used Oil Collection Center (South County)	☐		☐
Tips for Maintaining a Septic Tank System	☐		☐
Responsible Pest Control	☒		☐
Sewer Spill	☐		☐
Tips for the Home Improvement Projects	☒		☐
Tips for Horse Care	☐		☐
Tips for Landscaping and Gardening	☒		☐
Tips for Pet Care	☒		☐
Tips for Pool Maintenance	☐		☐
Tips for Residential Pool, Landscape and Hardscape Drains	☐		☐
Tips for Projects Using Paint	☒		☐

ATTACHMENT A

303d LIST OF IMPAIRED WATER BODIES

Caltrans Water Quality Planning Tool

The Water Quality Planning Tool was created to help planners and designers comply with environmental permits. It uses a map interface to find information based on a project's location. **This application is being updated for digital accessibility and will continue to function while updates are in progress.**



Caltrans Postmiles

County: Orange Route:

Watershed Information

CALWATER WATERSHED

Hydrologic Unit	SAN GABRIEL RIVER	Hydrologic Area	Lower San Gabriel	Hydrologic Sub-Area #	405.15
Hydrologic Sub-Area Name	Central (Split)	Planning Watershed	4405150000	HSA Area (acres)	80235
Latitude, Longitude	33.76288, -118.09781				

WATERSHED BOUNDARY DATASET

Watershed	Lower San Gabriel River	Subwatershed	Coyote Creek-San Gabriel River	Hydrologic Unit Code	180701060506
Average Annual Precipitation (inches)	13.64				

TMDLs & 303(d) Listed Water Bodies (2020 - 2022 List)

Key: Water body on 303(d) list Water body with a TMDL

Name	Pollutant	Size	Sources	Status
Alamitos Bay	Indicator Bacteria	327.52 acres	A Source Unknown	TMDL required
Alamitos Bay	Oxygen, Dissolved	327.52 acres	A Source Unknown	TMDL required
Artesia-Norwalk Drain	Indicator Bacteria	2.52 miles	A Source Unknown	Being addressed with USEPA approved TMDL
Artesia-Norwalk Drain	Selenium	2.52 miles	A Source Unknown	TMDL required
Colorado Lagoon	Chlordane	16.67 acres	A Source Unknown	Being addressed with USEPA approved TMDL
Colorado Lagoon	DDT (Dichlorodiphenyltrichloroethane)	16.67 acres	A Source Unknown	Being addressed with USEPA approved TMDL
Colorado Lagoon	Dieldrin	16.67 acres	A Source Unknown	Being addressed with USEPA approved TMDL
Colorado Lagoon	Indicator Bacteria	16.67 acres	A Source Unknown	TMDL required
Colorado Lagoon	Lead	16.67 acres	A Source Unknown	Being addressed with USEPA approved TMDL
Colorado Lagoon	PAHs (Polycyclic Aromatic Hydrocarbons)	16.67 acres	A Source Unknown	Being addressed with USEPA approved TMDL
Colorado Lagoon	PCBs (Polychlorinated biphenyls)	16.67 acres	A Source Unknown	Being addressed with USEPA approved TMDL
Colorado Lagoon	Toxicity	16.67 acres	A Source Unknown	Being addressed with USEPA approved TMDL
Colorado Lagoon	Zinc	16.67 acres	A Source Unknown	Being addressed with USEPA approved TMDL
Coyote Creek	Copper, Dissolved	14.27 miles	A Source Unknown	Being addressed with USEPA approved TMDL
Coyote Creek	Indicator Bacteria	14.27 miles	A Source Unknown	Being addressed with USEPA approved TMDL
Coyote Creek	Iron	14.27 miles	A Source Unknown	TMDL required
Coyote Creek	Malathion	14.27 miles	A Source Unknown	TMDL required
Coyote Creek	pH	14.27 miles	A Source Unknown	TMDL required
Coyote Creek	Toxicity	14.27 miles	A Source Unknown	TMDL required
Coyote Creek, North Fork	Indicator Bacteria	5.02 miles	A Source Unknown	Being addressed with USEPA approved TMDL
Coyote Creek, North Fork	Selenium	5.02 miles	A Source Unknown	TMDL required
El Dorado Lakes	Algae	29.36 acres	A Source Unknown	Being addressed with USEPA approved TMDL
El Dorado Lakes	Ammonia	29.36 acres	A Source Unknown	Being addressed with USEPA approved TMDL
El Dorado Lakes	Copper	29.36 acres	A Source Unknown	Being addressed with USEPA approved TMDL
El Dorado Lakes	Eutrophic	29.36 acres	A Source Unknown	Being addressed with USEPA approved TMDL
El Dorado Lakes	Lead	29.36 acres	A Source Unknown	Being addressed with USEPA approved TMDL
El Dorado Lakes	Mercury (tissue)	29.36 acres	A Source Unknown	Being addressed with USEPA approved TMDL
El Dorado Lakes	pH	29.36 acres	A Source Unknown	Being addressed with USEPA approved TMDL
Long Beach City Beach	Indicator Bacteria	4.58 miles	A Source Unknown	Being addressed with USEPA approved TMDL
Los Cerritos Channel	Ammonia	30.5 acres	A Source Unknown	TMDL required
Los Cerritos Channel	Bis(2ethylhexyl)phthalate (DEHP)	30.5 acres	A Source Unknown	TMDL required
Los Cerritos Channel	Chlordane (sediment)	30.5 acres	A Source Unknown	TMDL required
Los Cerritos Channel	Copper	30.5 acres	A Source Unknown	TMDL required
Los Cerritos Channel	Indicator Bacteria	30.5 acres	A Source Unknown	TMDL required
Los Cerritos Channel	Lead	30.5 acres	A Source Unknown	TMDL required
Los Cerritos Channel	pH	30.5 acres	A Source Unknown	TMDL required
Los Cerritos Channel	Trash	30.5 acres	A Source Unknown	TMDL required
Los Cerritos Channel	Zinc	30.5 acres	A Source Unknown	TMDL required
San Gabriel River Estuary	Copper	3.41 miles	A Source Unknown	Being addressed with USEPA approved TMDL
San Gabriel River Estuary	Dioxin	3.41 miles	A Source Unknown	TMDL required
San Gabriel River Estuary	Indicator Bacteria	3.41 miles	A Source Unknown	Being addressed with USEPA approved TMDL
San Gabriel River Estuary	Nickel	3.41 miles	A Source Unknown	TMDL required
San Gabriel River Estuary	Oxygen, Dissolved	3.41 miles	A Source Unknown	TMDL required
San Gabriel River Reach 1 (Estuary to Firestone)	pH	6.35 miles	A Source Unknown	TMDL required

San Gabriel River Reach 1 (Estuary to Firestone)	Temperature, water	6.35	miles	A Source Unknown	TMDL required
San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam	Cyanide	10.6	miles	A Source Unknown	TMDL required
San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam	Lead	10.6	miles	Nonpoint Source Point Source	Being addressed with USEPA approved TMDL
San Gabriel River Reach 2 (Firestone to Whittier Narrows Dam	Temperature, water	10.6	miles	A Source Unknown	TMDL required
San Gabriel River Reach 3 (Whittier Narrows to Ramona)	Indicator Bacteria	6.11	miles	A Source Unknown	Being addressed with USEPA approved TMDL
San Pedro Bay Near/Off Shore Zones	Chlordane	8172.85	acres	A Source Unknown	Being addressed with USEPA approved TMDL
San Pedro Bay Near/Off Shore Zones	PCBs (Polychlorinated biphenyls)	8172.85	acres	A Source Unknown	Being addressed with USEPA approved TMDL
San Pedro Bay Near/Off Shore Zones	Total DDT (sum of 4,4'- and 2,4'- isomers of DDT, DDE, and DDD)	8172.85	acres	A Source Unknown	Being addressed with USEPA approved TMDL
San Pedro Bay Near/Off Shore Zones	Toxicity	8172.85	acres	A Source Unknown	Being addressed with USEPA approved TMDL

Water Quality Objectives

The following waterbodies are in or near HSA 405.15. Click on the waterbody to get information on water quality objectives and beneficial uses

Waterbody Name	Beneficial Uses	Sediment-Sensitive Waterbody
Alamitos Bay	COMM, EST, IND, MAR, NAV, RARE, REC1, REC2, SHELL, WET, WILD	False
Alamitos Bay - Long Beach Mariina - Public Beach Areas	AGR	False
Alamitos Bay - Long Beach Marina	COMM, MAR, RARE, REC1, REC2, SHELL	False
Alamitos Bay - Long Beach Marina - All Other Areas	COMM, MAR, RARE, REC1, REC2, SHELL	False
Alamitos Bay - Long Beach Marina - Public Beach Areas	COMM, MAR, NAV, RARE, REC1, REC2, SPWN	False
Alamitos Bay - Los Cerritos Channel Estuary	COMM, EST, IND, MAR, MIGR, NAV, RARE, REC1, REC2, SHELL, SPWN, WILD	False
Alamitos Bay - Los Cerritos Wetlands	COMM, EST, MIGR, NAV, RARE, REC1, REC2, SHELL, SPWN, WET, WILD	False
Alamitos Bay - Los Cerritos Wetlands	AGR, AQUA, MUN, PROC	False
Alamitos Bay - San Gabriel River Estuary	COMM, EST, IND, MAR, MIGR, NAV, RARE, REC1, REC2, SHELL, SPWN, WILD	False
Alhambra Wash	GWR, MUN, RARE, REC1, REC2, WARM, WILD	False
All other minor San Gabriel Mountain streams tributary to San Gabriel Valley	ALL	False
Arcadia Wash (lower)	GWR, MUN, REC1, REC2, WARM, WILD	False
Arroyo Seco S. of Devil's Gates. (L)	MUN, REC1, REC2, WARM, WILD	False
Ballona Creek	MUN, REC1, REC2, WARM, WILD	False
Bell Canyon Creek	GWR, MUN, REC1, REC2, WARM, WILD	False
Big Dalton Canyon Creek	GWR, MUN, REC1, REC2, WARM, WET, WILD	False
Big Dalton Dam and Reservoir	GWR, MUN, REC1, REC2, WARM, WILD	False
Big Dalton Wash	GWR, MUN, REC1, REC2, WARM, WILD	False
Bixby Slough and Harbor Lake	MUN, RARE, REC1, REC2, WARM, WET, WILD	False
Bradbury Canyon Creek	GWR, MUN, REC1, REC2, WARM, WILD	False
Cabrillo Beach	COMM, MAR, MIGR, NAV, REC1, REC2, SHELL, SPWN, WILD	False
Colorado Lagoon	COMM, REC1, REC2, SHELL, WARM, WILD	False
Compton Creek	GWR, MUN, REC1, REC2, WARM, WET, WILD	False
Coyote Creek (within Santa Ana Regional boundary) - San Gabriel River Drainage	MUN, REC1, REC2, WARM, WILD	False
Coyote Creek to Estuary	IND, MUN, PROC, RARE, REC1, REC2, WARM, WILD	False
Dockweiler Beach	COMM, IND, MAR, NAV, REC1, REC2, SPWN, WILD	False
Dominguez Channel Estuary	COMM, EST, MAR, MIGR, NAV, RARE, REC1, REC2, SPWN, WILD	False
Dominguez Channel to Estuary	MUN, RARE, REC1, REC2, WARM, WILD	False
Eaton Wash	GWR, MUN, REC1, REC2, WARM, WILD	False
Echo Lake	MUN, REC1, REC2, WARM, WILD	False
El Dorado Lakes	MUN, REC1, REC2, WARM, WET, WILD	False
Elysian Reservoir	IND, MUN, PROC, REC1, REC2, WARM, WILD	False
Encino Reservoir	IND, MUN, PROC, REC1, REC2, WARM, WILD	False
Hermosa Beach	COMM, MAR, NAV, REC1, REC2, SHELL, SPWN, WILD	False
Ivanhoe Reservoir	IND, MUN, PROC, REC1, REC2, WARM, WILD	False
King Harbor	AGR, AQUA, MUN, PROC	False
LA - Long Beach Harbor - All Other Inner Areas	COMM, IND, MAR, NAV, RARE, REC1, REC2, SHELL	False
LA - Long Beach Harbor - Dominguez Channel Estuary	COMM, EST, MAR, MIGR, NAV, RARE, REC1, REC2, SPWN, WILD	False

LA - Long Beach Harbor - Los Angeles River Estuary	COMM, EST, IND, MAR, MIGR, NAV, RARE, REC1, REC2, SHELL, SPWN, WET, WILD	False
LA - Long Beach Harbor - Marinas	COMM, IND, MAR, NAV, RARE, REC1, REC2, SHELL	False
LA - Long Beach Harbor - Outer Harbor	COMM, MAR, NAV, RARE, REC1, REC2, SHELL	False
LA - Long Beach Harbor - Public Beach Areas	COMM, MAR, NAV, RARE, REC1, REC2, SHELL, SPWN, WILD	False
Legg Lake	COLD, GWR, MUN, REC1, REC2, WARM, WET, WILD	False
Lincoln Park Lake	MUN, REC1, REC2, WARM, WILD	False
Little Dalton Canyon Creek	GWR, MUN, REC1, REC2, WARM, WET, WILD	False
Little Dalton Wash	GWR, MUN, REC1, REC2, WARM, WILD	False
Long Beach	COMM, MAR, MIGR, NAV, REC1, REC2, SHELL, SPWN, WILD	False
Los Angeles River	GWR, IND, MUN, REC1, REC2, WARM, WILD	False
Los Angeles River Estuary	COMM, EST, IND, MAR, MIGR, NAV, RARE, REC1, REC2, SHELL, SPWN, WET, WILD	False
Los Angeles River to Estuary	GWR, IND, MAR, MIGR, MUN, PROC, RARE, REC1, REC2, SHELL, SPWN, WARM, WILD	False
Los Cerritos Channel Estuary	COMM, EST, IND, MAR, MIGR, NAV, RARE, REC1, REC2, SHELL, SPWN, WILD	False
Los Cerritos Channel to Estuary	MUN, REC1, REC2, WARM, WILD	False
Los Cerritos Wetlands	COMM, EST, MIGR, NAV, RARE, REC1, REC2, SHELL, SPWN, WET, WILD	False
Madrona Marsh	REC1, REC2, WARM, WET, WILD	False
Manhattan Beach	COMM, MAR, NAV, REC1, REC2, SHELL, SPWN, WILD	False
Marine Stadium	COMM, MAR, RARE, REC1, REC2, SHELL	False
Marshall Creek and Wash	GWR, MUN, REC1, REC2, WARM, WILD	False
Monrovia Canyon Creek	GWR, MUN, REC1, REC2, WARM, WET, WILD	False
Mystic Canyon	GWR, MUN, REC1, REC2, WARM, WILD	False
Offshore Zone - Water between Nearshore Zone and Limit of State Waters	COMM, IND, MAR, MUN, NAV, RARE, REC1, REC2, SPWN, WILD	False
Puddingstone Wash	GWR, MUN, REC1, REC2, WARM, WILD	False
Puente Creek	GWR, MUN, REC1, REC2, WARM, WILD	False
Redondo Beach	COMM, IND, MAR, MIGR, NAV, RARE, REC1, REC2, SHELL, SPWN, WILD	False
Rio Hondo	GWR, MUN, RARE, REC1, REC2, WARM, WET, WILD	False
Rio Hondo below Spreading Grounds	GWR, MUN, REC1, REC2, WARM, WILD	False
Rio Hondo to Spreading Grounds	GWR, MUN, REC1, REC2, WARM, WILD	False
Rubio Wash	GWR, MUN, RARE, REC1, REC2, WARM, WILD	False
San Dimas Wash (lower)	GWR, MUN, RARE, REC1, REC2, WARM, WILD	False
San Gabriel River	AGR, COLD, GWR, IND, MUN, PROC, RARE, REC1, REC2, WARM, WILD	False
San Gabriel River Estuary	COMM, EST, IND, MAR, MIGR, NAV, RARE, REC1, REC2, SHELL, SPWN, WILD	False
San Gabriel River, Firestone Blvd-Estuary	MUN, REC1, REC2, WARM, WILD	False
San Gabriel River, Whittier N-Firestone	GWR, IND, MUN, PROC, RARE, REC1, REC2, WARM, WILD	False
San Jose Creek	GWR, MUN, REC1, REC2, WARM, WILD	False
Santa Anita Wash (lower)	GWR, MUN, RARE, REC1, REC2, WARM, WILD	False
Santa Fe Flood Control Basin	GWR, MUN, REC1, REC2, WARM, WET, WILD	False
Sawpit Canyon Creek	GWR, MUN, RARE, REC1, REC2, WARM, WILD	False
Sawpit Dam and Reservoir	GWR, MUN, REC1, REC2, WARM, WILD	False
Sawpit Wash	GWR, MUN, REC1, REC2, WARM, WILD	False
Silver Lake Reservoir	IND, MUN, PROC, REC1, REC2, WARM, WILD	False
Sims Pond	MUN, REC1, REC2, WARM, WET, WILD	False
Spinks Canyon Creek	GWR, MUN, REC1, REC2, WARM, WILD	False
Streams of Palos Verdes	GWR, MUN, RARE, REC1, REC2, WARM, WILD	False
Tidal Prism of San Gabriel River - River Mouth to Marina Drive	COMM, EST, IND, MAR, RARE, REC1, REC2, SHELL, WILD	False
Torrance Beach	COMM, MAR, MIGR, NAV, REC1, REC2, SHELL, SPWN, WILD	False
Walnut Creek Wash	GWR, MUN, REC1, REC2, WARM, WET, WILD	False
Whittier Narrows Flood Control Basin	GWR, MUN, RARE, REC1, REC2, WARM, WILD	False

Caltrans Facilities

MAINTENANCE STATIONS

Name	Address
Florence	10903 Florence Avenue
Bellflower	10147 Flora Vista Street
Cerritos	16949 Studebaker Road

FREEWAYS AND HIGHWAYS

Route	Length (miles)
1	4
5	8.9
19	8.4

Willow Street Electrical Crew 5510 E Willow Street	22	1.5
	39	0.9
	72	7.1
	91	6.9
	105	3.2
	164	0.3
	405	5.8
	605	15.9

PARK & RIDE LOTS

Name	District	County	Route	Post Mile
LAKEWOOD-WEST LOT	7	LA	5	8.355
LAKEWOOD BLVD	7	LA	105	R15.7
I - 105 TERMINATION	7	LA	105	R17.905
MCDONALD DOUGLAS	7	LA	405	3.3

REST AREAS

Name	District	County	Route	Post Mile

Additional Information

Help for the Water Quality Planning Tool

Precipitation Frequency data from NOAA ATLAS 14

TMDL information from the SWRCB

Construction General Permit information from the SWRCB

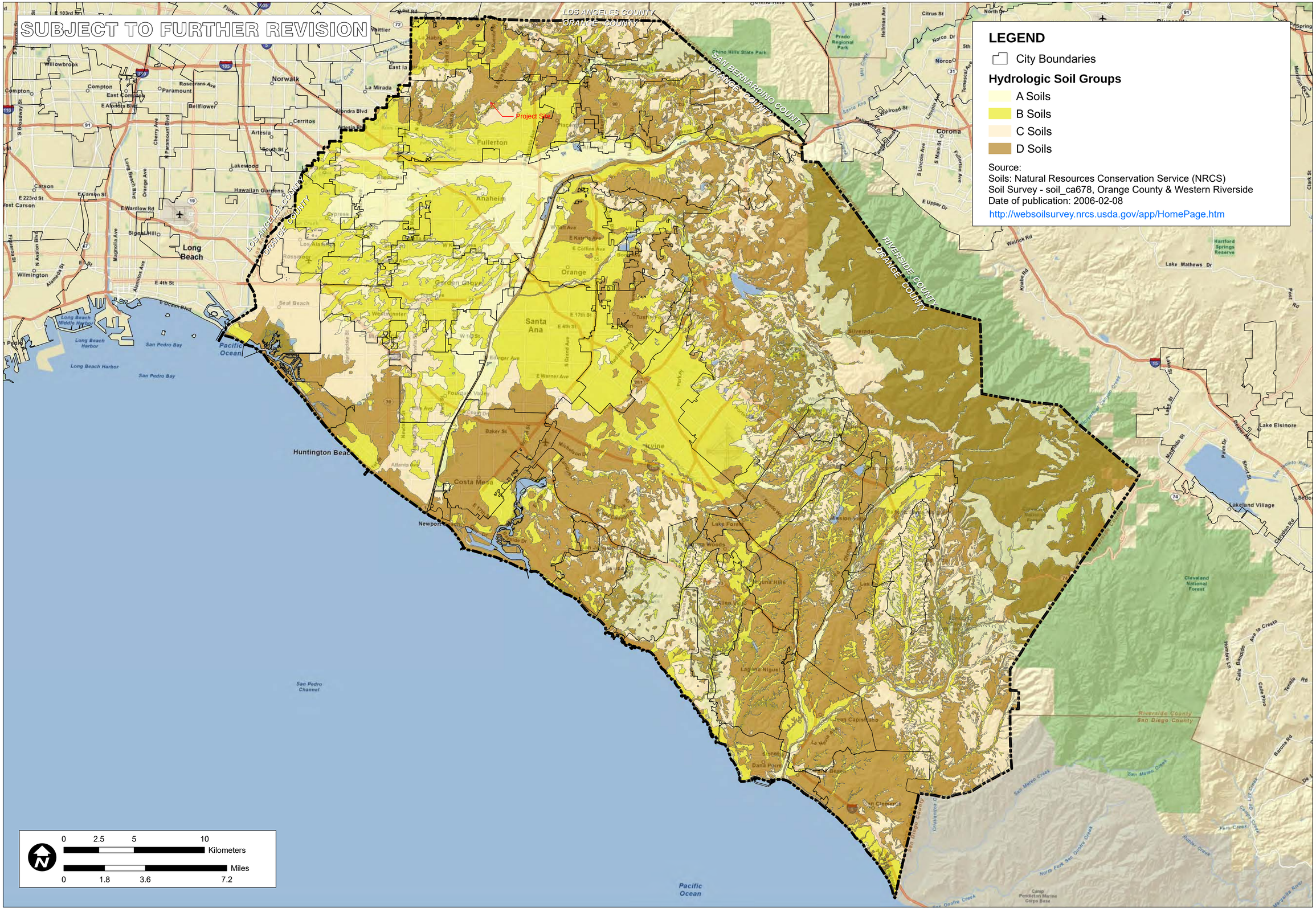
Groundwater Depth information from the California Department of Water Resouces

R Factor erosivity calculations

ATTACHMENT B

COUNTY SOILS AND RAINFALL MAPS

SUBJECT TO FURTHER REVISION



LEGEND

City Boundaries

Hydrologic Soil Groups

- A Soils
- B Soils
- C Soils
- D Soils

Source:
Soils: Natural Resources Conservation Service (NRCS)
Soil Survey - soil_ca678, Orange County & Western Riverside
Date of publication: 2006-02-08
http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

0 2.5 5 10 Kilometers

0 1.8 3.6 7.2 Miles

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TITLE

NRCS HYDROLOGIC SOILS GROUPS

ORANGE COUNTY INFILTRATION STUDY

JOB

ORANGE CO. CA

SCALE	1" = 1.8 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	9526-E

PACE
Advanced Water Engineering

FIGURE

XVI-2a

SUBJECT TO FURTHER REVISION

LEGEND

City Boundaries

Hydrologic Soil Groups

D Soils

Source:
D Soils: Natural Resources Conservation Service (NRCS)
Soil Survey - soil_ca678, Orange County & Western Riverside
Date of publication: 2006-02-08

http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm

Project Site

LOS ANGELES COUNTY
ORANGE COUNTY
SAN BERNARDINO COUNTY
RIVERSIDE COUNTY

0 2.5 5 10 Kilometers
0 1.8 3.6 7.2 Miles

TITLE
HYDROLOGIC SOIL GROUP
TYPE D NRCS SOIL SURVEY

JOB
ORANGE CO.
INFILTRATION STUDY
CA

SCALE	1" = 1.8 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	9526-E

PACE
Advanced Water Engineering

FIGURE
XVI-2b

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Susceptibility

Potential Areas of Erosion, Habitat, & Physical Structure Susceptibility

Channel Type

- Earth (Unstable)
- Earth (Stabilized)
- Stabilized

Tidel Influence

- <= Mean High Water Line (4.28')

Water Body

- Basin
- Lake
- Reservoir

Other Lands

- Airport/Military

Los Angeles County

Santa River Watershed

Anaheim Bay-Huntington Harbor Watershed

Newport Bay-Newport Coastal Streams Watershed

Humble Reservoir

Orange County

Valencia Reservoir

Fullerton Reservoir

Loftus Diversion Channel

Desilting Basin

Brea Creek Reservior

Fullerton Reservoir

Fullerton Reservoir

Hillcrest Park Reservoir

Fullerton Airport

Miller Retarding Basin

La Jolla Recharge Basin

Kraemer Basin

Placentia Retarding Basin

Raymond Retarding Basin

Gilbert Retarding Basin

Crescent Retarding Basin

Cypress Retarding Basin

Channel in Retarding Basin

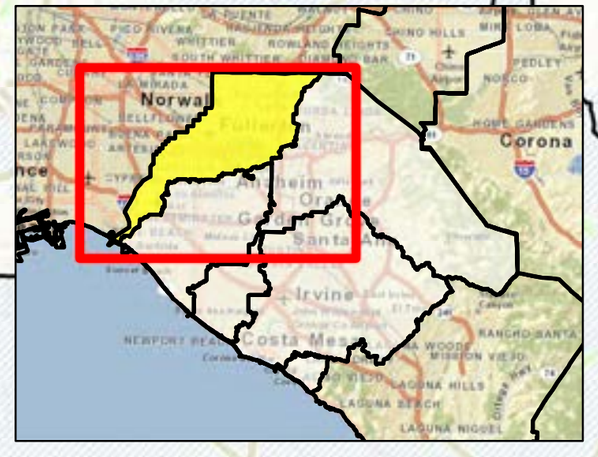
Rossmoor Retarding Basin

Los Alamitos Naval Air Station

Los Alamitos Retarding Basin

Seal Beach Naval Weapons Station

0 8,000 16,000 Feet



TITLE: SUSCEPTIBILITY ANALYIS
SAN GABRIEL-COYOTE CREEK

ORANGE COUNTY WATERSHED MASTER PLANNING

ORANGE CO. CA

JOB

SCALE	1" = 8000'
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	04/30/10
JOB NO.	9526-E

PACE
Advanced Water Engineering

1

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ATTACHMENT C

GEOTECHNICAL REPORT

ALTA CALIFORNIA
GEOTECHNICAL INC.

170 North Maple Street, Suite 108
Corona, CA 92880
www.altageotechnical.com

CITY VENTURES
3121 Michelson Drive, Suite 150
Irvine, California 92606

October 25, 2023
Project No. 1-0501

Attention: Mr. Patrick Chien

Subject: **GEOTECHNICAL INVESTIGATION**
APN: 284-282-06
685 S. Brea Boulevard
City of Brea, County of Orange, California

References: See Appendix A

Dear Mr. Chien:

Alta California Geotechnical, Inc. (Alta) is pleased to present this geotechnical investigation for the proposed development of APN 284-282-06, located at 685 S. Brea Boulevard in the City of Brea, County of Orange, California. This report is based on a recent subsurface investigation conducted by Alta, laboratory testing, and a review of the referenced reports.

Alta's review of the data indicates that the proposed development is feasible, from a geotechnical perspective, provided that the recommendations presented in this report are incorporated into the grading and improvement plans and implemented during site development.

Included in this report are:

- Discussion of the site geotechnical conditions.
- Recommendations for remedial and site grading, including unsuitable soil removals.
- Geotechnical site construction recommendations.
- Foundation design parameters.

If you have any questions or should you require any additional information, please contact the undersigned at (951) 509-7090. Alta appreciates the opportunity to provide geotechnical consulting services for your project.

Sincerely,
Alta California Geotechnical, Inc.

YOUSSEF HIJAZI
Engineering Geology Associate

Reviewed By:

SCOTT A. GRAY/RGE 2857
Reg. Exp.: 12-31-24
Registered Geotechnical Engineer
President

THOMAS J. MCCARTHY/CEG 2080
Reg. Exp.: 9-30-25
Certified Engineering Geologist
Vice President

Distribution: (1) Addressee

YH:SAG:TJM: eg:-1-0501, October 25, 2022 (Geo Investigation, 685 S Brea Blvd, Brea)

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APPENDIX C: LABORATORY TESTING
APPENDIX D: EARTHWORK SPECIFICATIONS
APPENDIX E: GRADING DETAILS

1.0 INTRODUCTION

This report presents Alta's findings, conclusions, and geotechnical recommendations for the proposed development located at 685 S. Brea Boulevard in the City of Brea, County of Orange, California.

1.1 Purpose

The purpose of this report is to examine the existing onsite geotechnical conditions and assess their impacts on the proposed development of the property as depicted on the enclosed site plan (Figure 1). This report is suitable for use in developing grading plans and engineer's cost estimates.

1.2 Scope of Work

Alta's *Scope of Work* for this geotechnical investigation included the following:

- Reviewing the referenced reports and air photos (Appendix A).
- Site geologic mapping.
- Excavating, logging, and sampling five (5) hollow-stem auger borings to a maximum depth of 26.0-feet below the ground surface (bgs) (Appendix B).
- Conducting laboratory testing on samples obtained during our investigation (Appendix C).
- Performing an infiltration study with two (2) additional borings to 10.0-ft. bgs to provide an assessment of the infiltration characteristics of the onsite soils and their impact on storm water disposal.
- Evaluating engineering geologic and geotechnical engineering data, including laboratory data, to develop recommendations for site remedial grading including specialized grading techniques for unsuitable soil removals along the property boundary, import soil, foundations and utilities.
- Preparing this report and accompanying exhibits.

1.3 Report Limitations

The conclusions and recommendations presented in this report are based on the field and laboratory information generated during this investigation, and a review of the referenced reports. The information contained in this report is intended to be used for development of grading plans and preliminary construction cost estimates.

2.0 PROJECT DESCRIPTION

2.1 Site Location and Background

The rectangular-shaped, approximately ±0.98-acre, site is relatively flat and consists of a paved parking lot and a single commercial structure. The site is bounded to the north by existing residential/commercial developments, to the west by Walnut Avenue, to the south by W. Fir Street, and to the east by S. Brea Blvd.

Historic aerial photographs are available as far back as 1953 and indicate that the site was originally utilized for agricultural purposes. By 1963, the existing structures were constructed and by 1972, the parking lot was paved. The site has remained relatively unchanged since that time (Historic Aerials, 2023).

2.2 Proposed Development

Alta anticipates that the existing structures will be demolished, and conventional cut-and-fill grading techniques will be used to develop the site with multi-family residential structures. This grading will support wood-frame construction with shallow foundations and reinforced concrete slabs-on-grade, and associated improvements.

3.0 SITE INVESTIGATION

3.1 Investigation and Laboratory Testing

Alta conducted a subsurface investigation on September 28th, 2023, consisting of the excavation, logging and select sampling of five (5) hollow-stem auger

borings up to a maximum depth of 26.0 feet, and the installation of two (2) 10.0-ft. deep wells for infiltration testing. The locations of the exploratory excavations are shown on enclosed Figure 1 and the boring logs are presented in Appendix B.

Laboratory testing was performed on bulk and ring samples obtained during the field investigation. A brief description of the laboratory test procedures and the test results are presented in Appendix C.

3.2 Infiltration Testing

It is Alta's understanding that the project may utilize infiltration systems for storm water disposal. Details of the system are not known at this time.

Infiltration testing was undertaken using two (2) borings to 10.0-ft. bgs (P-1, P-2). The testing was performed in general accordance with the County of Orange Technical Guidance Document. The testing wells were presoaked at least 24 hours prior to testing. During testing, the water level readings were recorded every 30 minutes until the readings stabilized.

The data was then adjusted to provide an infiltration rate utilizing the Porchet Method. The resulting infiltration rates are presented in Table 3-1. The results do not include a factor of safety. Recommendations for infiltration BMP design are presented in Section 6.2.

Table 3-1 Summary of Infiltration Testing (No Factor of Safety)		
Test Designation	P-1	P-2
Approximate Depth of Test	10.0 ft	10.0 ft
Final Time Interval	10 minutes	10 minutes
Radius of Test Hole	4 inches	4 inches
Tested Infiltration Rate	0.4	0.4

4.0 GEOLOGIC CONDITIONS

4.1 Geologic and Geomorphic Setting

Regionally, the subject site is located in the Peninsular Ranges geomorphic province, which characterizes the southwest portion of southern California where right lateral major active fault zones predominately trend northwest-southeast. The Peninsular Ranges province is composed of plutonic and metamorphic rock, with lesser amounts of Tertiary volcanic and sedimentary rock, Quaternary drainage in-fills and sedimentary veneers.

4.2 Stratigraphy

Based on our literature review and subsurface investigation, the site is underlain by old alluvium (Dibblee, 2001). The geologic unit is briefly described below.

4.2.1 Old Alluvium (map symbol Qoa)

The old alluvium unit observed at the site consists of dark brown to brown sand, silty sand, and clayey sand in slightly moist and medium dense to dense and stiff to very stiff condition. The unit was logged to a depth of 26.0-ft. below the ground surface.

4.3 Geologic Structure

4.3.1 Tectonic Framework

Jennings (1985) defined eight structural provinces within California that have been classified by predominant regional fault trends and similar fold structure. These provinces are in turn divided into blocks and sub-blocks that are defined by "major Quaternary faults." These blocks and sub-blocks exhibit similar structural features. Within this framework, the subject site is located within Structural Province I, which is controlled by the dominant northwest trend of the San Andreas Fault and is divided into two blocks, the Coast Range Block and the Peninsular Range Block. The Peninsular Range Block, on which this site is located, is characterized by a series of parallel, northwest trending faults that exhibit right lateral dip-slip movement. These faults are terminated by the Transverse Range block to the north and extend southward into the Baja Peninsula. These northwest trending faults divide the Peninsular Range block into eight sub-blocks. The site is located on the northeast portion of the Santa Ana Sub-block, one of the eight sub-blocks, which is bound on the east by the Elsinore fault zone and on the west by the Newport-Inglewood fault zone.

4.3.2 Regionally Mapped Active Faults

Several large, active fault systems including the Elsinore-Whittier, Newport-Inglewood, and the San Andreas occur in the region surrounding the site. These fault systems have been studied extensively and in a large part control the geologic structure of southern California.

4.3.3 Geologic Structure

Based upon our site investigation and literature review, the alluvial sediments are of Quaternary age, and are not folded or faulted.

4.4 Groundwater

Groundwater was not encountered to a depth of 26 feet below the ground surface. The most recent groundwater data taken from the three nearest groundwater wells, located within approximately one and a half miles from the site, was recorded in 2000 and indicates groundwater was greater than 132 feet deep at that time (CDWR, 2023).

4.5 Earthquake Hazards

The subject site is located in southern California, which is a tectonically active area. The type and magnitude of seismic hazards affecting a site are dependent on the distance to the causative fault and the intensity and magnitude of the seismic event. The seismic hazard may be primary, such as surface rupture and/or ground shaking, or secondary, such as liquefaction and/or ground lurching.

4.5.1 Local and Regional Faulting

The site is located on the northeast portion of the Santa Ana sub-block, where the Puente Hills, Elsinore, San Jose, Chino, San Joaquin Hills, and Newport-Inglewood faults surround the site approximately 1.8, 2.3, 9.0, 11.8, 14.9 and 15.4 miles away, respectively.

4.5.2 Surface Rupture

Active faults are not known to exist within the project and a review of Special Publication 42 indicates the site is not within a California State designated earthquake fault zone (CGS, 2018). Accordingly, the potential for fault surface rupture on the subject site is very low.

4.5.3 Seismicity

Ground shaking hazards caused by earthquakes along other active regional faults do exist. The 2022 California Building Code requires use-modified spectral accelerations and velocities for most structural designs. Seismic design parameters using soil profile types identified in the 2022 California Building Code are presented in Section 7.3.

4.5.4 Liquefaction

Seismic agitation of relatively loose saturated sands, silty sands, and some silts can result in a buildup of pore pressure. If the pore pressure exceeds the overburden stresses, a temporary quick condition known as liquefaction can occur. Liquefaction effects can manifest in several ways including: 1) loss of bearing; 2) lateral spread; 3) dynamic settlement; and 4) flow failure. Lateral spreading has typically been the most damaging mode of failure.

In general, the more recent that a sediment has been deposited, the more likely it will be susceptible to liquefaction. Other factors that must

be considered are: groundwater, confining stresses, relative density, and the intensity and duration of seismically-induced ground shaking.

Groundwater was not encountered during our subsurface investigation to a depth of 26 feet below the ground surface. The site is not located in a liquefaction zone per the seismic hazard map (CGS, 1997).

Based on the depth to groundwater and density of the old alluvium, it is our opinion that the potential for liquefaction to occur onsite is considered remote.

4.5.5 Dry Sand Settlement

Dry sand settlement is the process of non-uniform settlement of the ground surface during a seismic event. Based on our subsurface investigation and our removal/recompaction recommendations, the potential for dry sand settlement is anticipated to be low and within foundation design tolerances. Design dynamic settlement parameters are presented in Table 7-1.

5.0 ENGINEERING PROPERTIES AND ANALYSIS

5.1 Materials Properties

Presented herein is a general discussion of the engineering properties of the onsite materials that will be encountered during construction of the proposed project. Descriptions of the soil (Unified Soil Classification System) are presented on the boring logs in Appendix B.

5.1.1 Excavation Characteristics

Based on the data provided from the subsurface investigations, it is our opinion that the onsite materials possess favorable excavation characteristics such that conventional earth moving equipment can be utilized.

5.1.2 Compressibility

The upper portions of the old alluvium onsite are considered compressible and unsuitable to support the proposed improvements. Recommended removal depths are presented in Section 6.1.2.

5.1.3 Moisture

The upper portions of the old alluvium that will require removal and recompaction as discussed in Section 6.1.2 are typically slightly above or just under-optimum in moisture content.

5.1.4 Hydro-Consolidation

Hydro-consolidation is the effect of introducing water into soil that is prone to collapse. Upon loading and initial wetting, the soil structure and apparent strength are altered resulting in almost immediate settlement. That settlement can have adverse impacts on engineered structures, particularly in areas where it is manifested differentially. Differential settlements are typically associated with differential wetting, irregularities in the subsurface soil conditions, or irregular loading patterns.

Based on our laboratory testing (Appendix C), there is minimal potential for hydro-collapse in the alluvium onsite at the depths tested.

5.1.5 Expansion Potential

Expansion index testing was performed on samples taken during our subsurface investigation. Based on the results, it is anticipated that the

majority of materials onsite are “very low” to “medium” in expansion potential (0≤EI≤90, Appendix C) when tested per ASTM D: 4829.

5.1.6 Earthwork Adjustments

The values presented in Table 5-1 are deemed appropriate for estimating purposes and may be used in an effort to balance earthwork quantities. As is the case with every project, contingencies should be made to adjust the earthwork balance when grading is in-progress and actual conditions are better defined.

TABLE 5-1
Earthwork Adjustment Factors

Geologic Unit	Adjustment Factor Range	Average
Old Alluvium	Shrink 4% to 8%	6%

5.1.7 Chemical Analyses

Chemical testing was performed on samples of material underlying the proposed site. Soluble sulfate test results indicate that the soluble sulfate concentrations of the soils tested are classified as negligible (Category S0) per ACI 318-14.

Negligible chloride levels were detected in the onsite soils. Based on laboratory results of soluble sulfate, chloride, and pH testing as presented in Appendix C, the onsite soils are classified as “non-corrosive” to buried metals and concrete (Caltrans, 2022). Additional discussions on corrosion are presented in Section 7.9. Corrosion tests results are presented in Appendix C.

5.2 Engineering Analysis

Presented below is a general discussion of the engineering analysis methods that were utilized to develop the conclusions and recommendations presented in this report.

5.2.1 Bearing Capacity and Lateral Earth Pressures

Ultimate bearing capacity values were obtained using the graphs and formula presented in NAVFAC DM-7.1. Allowable bearing was determined by applying a factor of safety of at least 3 to the ultimate bearing capacity. Static lateral earth pressures were calculated using Rankine methods for active and passive cases. If it is desired to use Coulomb forces, a separate analysis specific to the application can be conducted.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on Alta's findings during our subsurface investigation, the laboratory test results, and our staff's previous experience in the area, it is Alta's opinion that the development of the site is feasible from a geotechnical perspective. Presented below are recommendations that should be incorporated into site development and construction plans.

6.1 Remedial Grading Recommendations

All grading shall be accomplished under the observation and testing of the project geotechnical consultant in accordance with the recommendations contained herein and the City of Brea criteria.

6.1.1 Site Preparation

Significant amounts of vegetation, all construction debris, and all other deleterious materials are unsuitable as structural fill material and should be disposed of offsite prior to commencing grading/construction. Any

septic tanks, seepage pits or wells should be abandoned per the County of Orange Department of Health Services.

Existing concrete should be removed prior to the placement of engineered fill. The demolished concrete may be incorporated into compacted, engineered fills after it is crushed to a maximum size of six (6) inches. Prior to placement as engineered fill any protruding steel rebar should be cut from the concrete pieces and disposed of offsite.

Existing asphaltic concrete should be removed prior to the placement of engineered fill. From a geotechnical perspective, this material may be incorporated into compacted, engineered fills after it is crushed to a maximum size of six (6) inches. The crushed asphalt should not be placed under residential structures, but rather, it can be placed in approved non-residential areas, such as streets, parking areas or open space. These recommendations should be verified by the environmental consultant.

6.1.2 Unsuitable Soil Removals

The upper portions of the old alluvium are compressible and as such, are not suitable to support the proposed structures. Therefore, it is anticipated that, on average, the upper three (3) to five (5) feet of existing soils will require removal and recompaction, extending at a 1:1 projection horizontally outside the structures. This recommended removal combined with the foundation recommendations presented in Section 7.1 should provide suitable support for the proposed development.

Footings should be underlain by a minimum of two (2) feet of compacted fill. Thus, for areas where unsuitable soil removals do not provide the minimum depth of compacted fill, or where design grades and/or

remedial grading activities create cut/fill transitions, the cut and shallow fill portions of the building pad should be over-excavated during grading and replaced with compacted fill.

The Project Geotechnical Consultant should observe the removal bottom prior to placing fill. If unsuitable soils are exposed upon the completion of the removals recommended above, additional removals may be required.

For fill areas in streets, in general, a minimum removal and recompaction of the upper two (2) feet is recommended. For cuts greater than two (2) feet in street areas, removals are not required. For cuts less than two (2) feet, the two (2) foot removal and recompaction applies.

Material removed as part of the unsuitable soil removals can be used as artificial fill, provided it is free of deleterious materials.

6.2 General Earthwork Recommendations

6.2.1 Compaction Standards

All fill and processed natural ground shall be compacted to a minimum relative compaction of 90 percent, as determined by ASTM Test Method: D-1557. Fill material should be moisture conditioned to optimum moisture or above, and as generally discussed in Alta's Earthwork Specification Section presented in Appendix D. Compaction shall be achieved with the use of sheepsfoot rollers or similar kneading type equipment. Mixing and moisture conditioning will be required in order to achieve the recommended moisture conditions.

6.2.2 Groundwater/Seepage

It is anticipated that groundwater will not be encountered during construction. It is possible that perched water conditions could be encountered depending on the time of year construction occurs.

6.2.3 Documentation of Removals

All removal/over-excavation bottoms should be observed and approved by the project Geotechnical Consultant prior to fill placement. Consideration should be given to surveying the removal bottoms and undercuts after approval by the geotechnical consultant and prior to the placement of fill. Staking should be provided in order to verify undercut locations and depths.

6.2.4 Treatment of Removal Bottoms

At the completion of removals/over-excavation, the exposed removal bottom should be ripped to a minimum depth of eight (8) inches, moisture-conditioned to above optimum moisture content and compacted in-place to the project standards.

6.2.5 Fill Placement

After removals, scarification, and compaction of in-place materials are completed, additional fill may be placed. Fill should be placed in eight-inch bulk maximum lifts, moisture conditioned to optimum moisture content or above, compacted and tested as grading/construction progresses until final grades are attained.

6.2.6 Fill Placement

The moisture content of the upper in-situ soils varies, however some of these soils are under-optimum, as shown on the boring logs in Appendix B. Most soils will require mixing prior to placement as compacted fill.

6.2.7 Mixing

Mixing of materials may be necessary to prevent layering of different soil types and/or different moisture contents. The mixing should be accomplished prior to and as part of compaction of each fill lift.

6.2.8 Import Soils

Import soils, if necessary, should consist of clean, low expansive, structural quality, compactable materials similar to the on-site soils and should be free of trash, debris, or other objectionable materials. The project Geotechnical Consultant should be notified not less than 72 hours in advance of the locations of any soils proposed for import. Import sources should be sampled, tested, and approved by the project Geotechnical Consultant at the source prior to the importation of the soils to the site. The project Civil Engineer should include these requirements on plans and specifications for the project.

6.2.9 Utility Trenches

6.2.9.1 Excavation

Utility trenches should be supported, either by laying back excavations or shoring, in accordance with applicable OSHA standards. In general, existing site soils are classified as Soil Type “B” and "C" per OSHA standards. Upon completion of the recommended removals and recompaction, the artificial fill will be classified as Soil Type "B". The Project Geotechnical Consulting should be consulted if geologic conditions vary from what is presented in this report.

6.2.9.2 Backfill

Trench backfill should be compacted to at least 90 percent of maximum dry density as determined by ASTM D-1557. Onsite soils will not be suitable for use as bedding material but will be suitable for use in backfill provided oversized materials are removed. No surcharge loads should be imposed above excavations. This includes spoil piles, lumber, concrete trucks, or other construction materials and equipment. Drainage above excavations should be directed away from the banks. Care should be taken to avoid saturation of the soils. Compaction should be accomplished by mechanical means. Jetting of native soils will not be acceptable.

Under-slab trenches should also be compacted to project specifications. If select granular backfill (SE > 30) is used, compaction by flooding will be acceptable.

6.2.10 Backcut Stability

Temporary backcuts, if required during unsuitable soil removals, should be made no steeper than 1:1 without review and approval of the geotechnical consultant. Flatter backcuts may be necessary where geologic conditions dictate and where minimum width dimensions are to be maintained.

Care should be taken during remedial grading operations in order to minimize risk of failure. Should failure occur, complete removal of the disturbed material will be required.

In consideration of the inherent instability created by temporary construction backcuts for removals, it is imperative that grading schedules are coordinated to minimize the unsupported exposure time of these excavations. Once started, these excavations and subsequent fill operations should be maintained to completion without intervening delays imposed by avoidable circumstances. In cases where five-day workweeks comprise a normal schedule, grading should be planned to avoid exposing at-grade or near-grade excavations through a non-work weekend. Where improvements may be affected by temporary instability, either on or offsite, further restrictions such as slot cutting, extending workdays, implementing weekend schedules, and/or other requirements considered critical to serving specific circumstances may be imposed.

6.3 Storm Water Infiltration Systems

From a geotechnical perspective, allowing storm water to infiltrate the onsite soil in concentrated areas increases the potential for settlement, liquefaction, and water-related damage to structures/improvements, such as wet slabs or pumping subgrade, and should be avoided where possible. If infiltration systems are required on this site, care should be taken in designing systems that control the storm water as much as possible.

Preliminary infiltration testing was conducted at the site as part of this investigation, and the methodology is discussed in 3.2. The resulting infiltration rates for P-1 and P-2 were calculated to be 0.4-inches per hour. The results do not include a factor of safety.

Groundwater was not encountered during our investigation to a depth of 26.0 feet below-ground-surface. The Project Geotechnical Consultant should review the final WQMP design prior to construction.

6.4 Boundary Conditions

The site is bounded to the north by residential/commercial developments, to the west by Walnut Street, to the east by S. Brea Blvd, and to the south by W. Fir Street. Construction of retaining/screen walls along these boundaries may require additional geotechnical recommendations concerning unsuitable soil removals and foundation design parameters. Boundary conditions for the project should be reviewed by the Project Geotechnical Consultant as the design progresses.

7.0 DESIGN CONSIDERATIONS

7.1 Structural Design

It is anticipated that multi-story wood-framed residential structures with slab on-grade and shallow foundations will be constructed. Upon the completion of rough grading, finish grade samples should be collected and tested in order to provide specific recommendations as they relate to individual building pads. These test results and corresponding design recommendations should be presented in a final rough grading report. Final slab and foundation design recommendations should be made based upon specific structure sitings, loading conditions, and as-graded soil conditions.

It is anticipated that the majority of onsite soils will possess “very low” to “medium” expansion potential when tested in general accordance with ASTM Test Method D: 4829. For budgeting purposes, the following foundation design requirements for a range of potential expansion characteristics are presented.

7.1.1 Foundation Design

Foundations may be preliminary designed based on the values presented in Table 7-1 below.

Table 7-1
Foundation Design Parameters*

Allowable Bearing	2000 lbs/ft^2 (assuming a minimum embedment depth and width of 12 inches)
Lateral Bearing	250 lbs/ft^2 at a depth of 12 inches plus 250 lbs/ft^2 for each additional 12 inches of embedment to a maximum of 2000 lbs/ft^2.
Sliding Coefficient	0.30
Settlement	Static Settlement - 0.5 inches in 40 feet Dynamic Settlement - 0.5 inches in 40 feet

*These values may be increased as allowed by Code to resist transient loads such as wind or seismic. Building code and structural design considerations may govern depth and reinforcement requirements and should be evaluated.

7.1.2 Conventional Foundation Systems

Based on the onsite soils conditions and information supplied by the 2022 CBC, conventional foundation systems may be designed in accordance with Tables 7-1 and 7-2.

TABLE 7-2 CONVENTIONAL FOUNDATION DESIGN PARAMETERS		
Expansion Potential	***Very Low to Low***	***Medium***
Soil Category	I	II
Design Plasticity Index	10	20
Minimum Footing Embedment	12 inches*	18 inches*
*The minimum footing embedments presented herein are based on expansion indexes. The structural engineer should determine minimum embedments based on the number of floors supported by the footings, the structural loading, and the requirements of the latest California Building Code.		
Minimum Footing Width	12-inches-The structural engineer should determine the minimum footing width based on loading and the latest California Building Code.	15-inches-The structural engineer should determine the minimum footing width based on loading and the latest California Building Code.
Footing Reinforcement	No. 4 rebar, one (1) on top, one (1) on bottom	No. 4 rebar, two (2) on top, two (2) on bottom
Slab Thickness	4 inches (actual)	4 inches (actual)
Slab Reinforcement	No. 3 rebar spaced 18 inches on center, each way	No. 3 rebar spaced 15 inches on center, each way
Under-Slab Requirement	See Section 7.2	
Slab Subgrade Moisture	Minimum of 110 percent of optimum moisture to a depth of 12 inches prior to placing concrete.	Minimum of 120 percent of optimum moisture to a depth of 12 inches prior to placing concrete.
Footing Embedment Adjacent to Swales and Slopes	If exterior footings adjacent to drainage swales are to exist within five (5) feet horizontally of the swale, the footing should be embedded sufficiently to assure embedment below the swale bottom is maintained. Footings adjacent to slopes should be embedded such that at least five- (5) feet is provided horizontally from edge of the footing to the face of the slope.	
Garages	A grade beam reinforced continuously with the garage footings shall be constructed across the garage entrance, tying together the ends of the perimeter footings and between individual spread footings. This grade beam should be embedded at the same depth as the adjacent perimeter footings. A thickened slab, separated by a cold joint from the garage beam, should be provided at the garage entrance. Minimum dimensions of the thickened edge shall be six (6) inches deep. Footing depth, width and reinforcement should be the same as the structure. Slab thickness, reinforcement and under-slab treatment should be the same as the structure.	

7.1.3 Post-Tensioned Slabs/Foundation Design Recommendations

Post-tensioned slabs for the project may be designed utilizing the parameters presented in Tables 7-1 and 7-3. The parameters presented herein are based on methodology provided in the Design of Post-Tensioned Slabs-On-Ground, Third Edition, by the Post-Tensioning Institute, in accordance with the 2022 CBC.

TABLE 7-3
POST-TENSION SLAB DESIGN PARAMETERS

Category	Expansion Potential	Minimum Embedment*	Edge Lift		Center Lift	
			Em (ft)	Ym (inch)	Em (ft)	Ym (inch)
I	Very Low to Low	12 inches*	5.7	0.24	9.0	0.11
II	Medium	18 inches*	5.0	1.10	9.0	0.46
Slab Subgrade Moisture						
Category I	Minimum 110% of optimum moisture to a depth of 12 inches prior to pouring concrete					
Category II	Minimum 120% of optimum moisture to a depth of 12 inches prior to pouring concrete					
Embedment* The minimum footing embedments presented herein are based on expansion indexes. The structural engineer should determine minimum embedments based on the number of floors supported by the footings, the structural loading, and the requirements of the latest California Building Code.						
Moisture Barrier A moisture barrier should be provided in accordance with the recommendations presented in Section 7.2						
The parameters presented herein are based on procedures presented in the Design of Post-Tensioned Slabs-On-Ground, Third Edition. No corrections for vertical barriers at the edge of the slab, or for adjacent vegetation have been assumed. The design parameters are based on a Constant Suction Value of 3.9 pF.						

7.2 Moisture Barrier

A moisture and vapor retarding system should be placed below the slabs-on-grade in portions of the structure considered to be moisture sensitive and should be capable of effectively preventing the migration of water and reducing the transmission of water vapor to acceptable levels. Historically, a 10-mil plastic membrane, such as Visqueen, placed between two to four inches of clean sand, has been used for this purpose. The use of this system or other systems can be

considered, at the discretion of the designer, provided the system reduces the vapor transmission rates to acceptable levels.

7.3 Seismic Design

The site classes were determined based on the referenced reports and published geologic maps in the area in general conformance with Chapter 20 of ASCE 7-16. Based on the density of the underlying soils, a Site Class of D (shear wave velocity of 259 m/s) was selected. The seismic design parameters were calculated using a program based on the USGS website and ASCE 7-16 procedures. It is our understanding that based on the proposed structures, code allows or the use of an alternate method to calculate SD1, assuming the structure has a fundamental period that does not exceed 0.5s. The resulting values are presented in Table 7-4. If the structures have fundamental periods exceeding 0.5s, then a site-specific strong motion analysis shall be performed.

TABLE 7-4 Seismic Ground Motion Values 2022 CBC and ASCE 7-16	
Parameter	*Value*
Site Class	D
Site Latitude	33.9102
Site Longitude	-117.9044
Spectral Response Acceleration Parameter, S_S	1.768
Spectral Response Acceleration Parameter, S_1	0.622
Site Coefficient, F_a	1.0
Site Coefficient, F_v	1.7
MCE Spectral Response Acceleration Parameter, S_{MS}	1.768
MCE Spectral Response Acceleration Parameter, S_{M1}	1.057
Design Spectral Response Acceleration Parameter, S_{DS}	1.179
Design Spectral Response Acceleration Parameter, S_{D1}	0.705
Peak Ground Acceleration, PGA_M	0.84

7.4 Fence Walls

Block walls, if used, should be embedded a minimum of 2 feet below the lowest adjacent grade. Construction joints (not more than 20 feet apart) should be included in the block wall construction.

7.5 Footing Excavations

Soils from the footing excavations should not be placed in slab-on-grade areas unless properly compacted and tested. The excavations should be cleaned of all loose/sloughed materials and be neatly trimmed at the time of concrete placement. The Project Geotechnical Consultant should observe the footing excavations prior to the placement of concrete to determine that the excavations are founded in suitably compacted material.

7.6 Retaining Walls

Retaining walls built on-grade should be founded on engineered fill and should be backfilled with granular soils that allow for drainage behind the wall. Foundations may be designed in accordance with the recommendations presented in Table 7-1, above. Unrestrained walls, free to horizontally move 0.0005H (for dense cohesionless backfill), may be designed to resist lateral pressures imposed by a fluid with a unit weight determined in accordance with the Table 7-5 below. The table also presents design parameters for restrained (at-rest) retaining walls. These parameters may be used to design retaining walls that may be considered as restrained due to the method of construction or location (corner sections of unrestrained retaining walls).

TABLE 7-5
Equivalent Fluid Pressures for 90% Compacted Fill (Select Material)

Backfill	Active Pressure (psf/ft)	At-Rest Pressure (psf/ft)
Level	35	55

Per the requirements of the 2019 CBC, the seismic force acting on the retaining walls with backfill exceeding 6-feet in height may be resolved utilizing the formula $17H^2$ lb/lineal ft (H=height of the wall). This force acts at approximately 0.6H above the base of the wall. The seismic value can be converted as required by the retaining wall engineer. Retaining walls should be designed in general accordance with Section 1807A.2 of the 2019 CBC.

- Restrained retaining walls should be designed for “at-rest” conditions.
- The design loads presented in the above table are to be applied on the retaining wall in a horizontal fashion and as such friction between wall and retained soils should not be allowed in the retaining wall analyses.
- Additional allowances should be made in the retaining wall design to account for the influence of construction loads, temporary loads, and possible nearby structural footing loads.

- Select backfill should be granular, structural quality backfill with a Sand Equivalent of 20 or better and an ASCE Expansion Index of 20 or less. The backfill must encompass the full active wedge area. The upper one foot of backfill should be comprised of native on-site soils (see Plate A).
- The wall design should include waterproofing (where appropriate) and backdrains or weep holes for relieving possible hydrostatic pressures. The backdrain should be comprised of a 4-inch perforated PVC pipe in a 1 ft. by 1 ft., ¾-inch gravel matrix, wrapped with a geofabric. The backdrain should be installed with a minimum gradient of 2 percent and should be outletted to an appropriate location. For subterranean walls this may include drainage by sump pumps.
- No backfill should be placed against concrete until minimum design strengths are achieved.

It should be noted that the allowable bearing and lateral bearing values presented in Table 7-1 are based on level conditions at the toe. Modified design parameters can be presented for retaining walls with sloping condition at the toe. Other conditions should be evaluated on a case-by-case basis.

7.7 Exterior Slabs and Walkways

Exterior concrete slabs and walkways should be designed and constructed in consideration of the following recommendations.

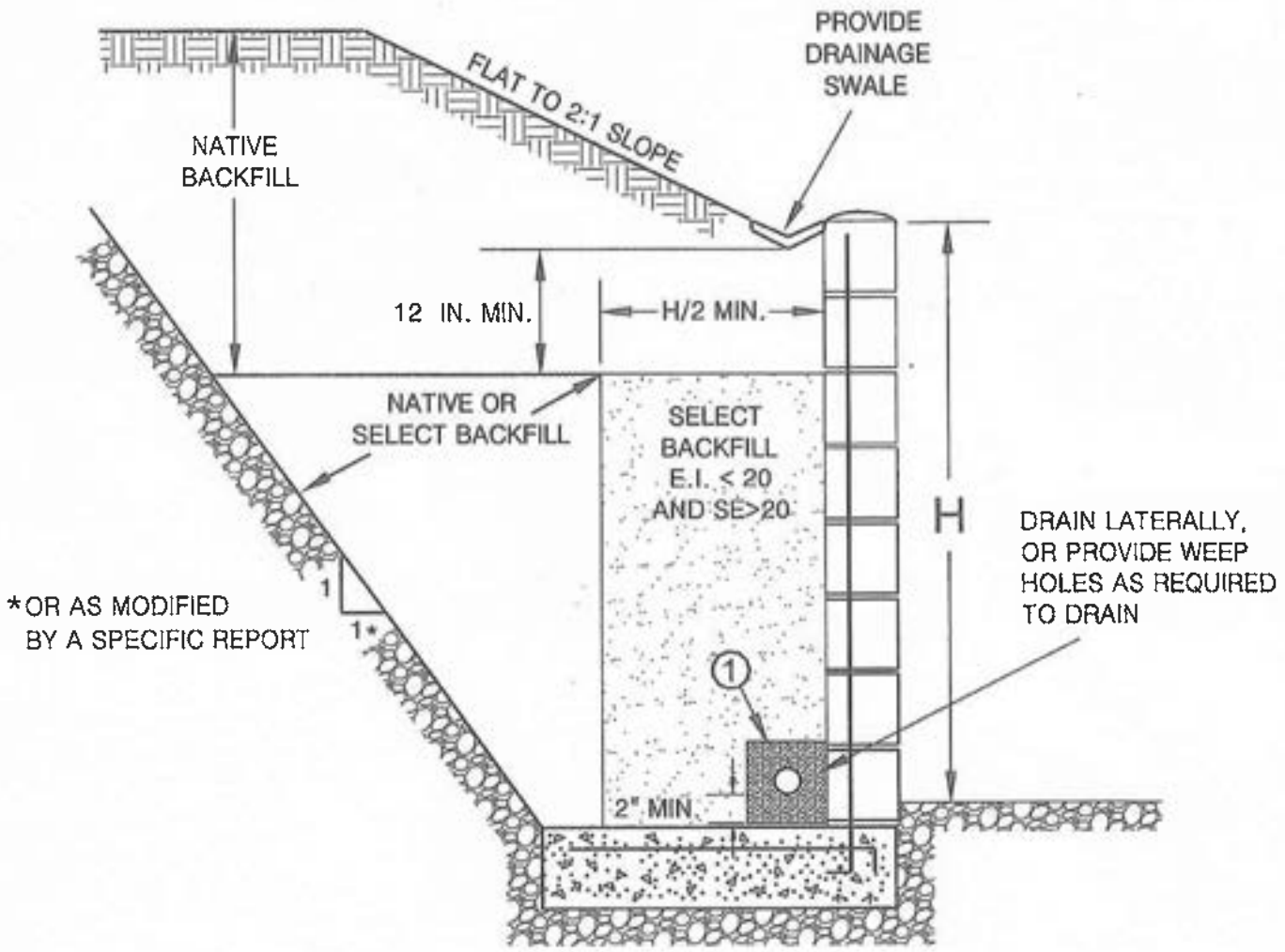
7.7.1 Subgrade Compaction

The subgrade below exterior concrete slabs should be compacted to a minimum of 90 percent relative compaction as determined by ASTM Test Method: D 1557.

7.7.2 Subgrade Moisture

The subgrade below concrete slabs should be moisture conditioned to a minimum of 110 percent of optimum moisture prior to concrete placement for low expansive soils and 120 percent of optimum moisture prior to concrete placement for medium expansive soils.

RETAINING WALL BACKFILL DETAIL



①

PIPE: 4-INCH PERFORATED PVC, SCHEDULE 40, SDR35 OR APPROVED ALTERNATE MINIMUM 8 PERFORATIONS (1/4-IN. DIA.) PER LINEAL FT. IN BOTTOM HALF OF PIPE

ROCK: MINIMUM VOLUME OF 1 CU. FT. OF 3/4-IN. MAX. ROCK PER. LINEAL FOOT OF PIPE, OR APPROVED ALTERNATE

FILTER FABRIC: MIRAFI 140 FILTER FABRIC OR APPROVED EQUIVALENT

7.7.3 Concrete Slab Thickness

Concrete flatwork and driveways should be designed utilizing four-inch minimum thickness.

7.7.4 Concrete Slab Reinforcement

Utilization of reinforcement for flatwork and driveways is subject to a cost/benefit analysis. Reinforcement will decrease the amount of cracking that may occur in flatwork, however, planning for occasional repairs may be more cost effective. Utilizing closely spaced control joints is likely more cost-effective than utilizing reinforcement. The majority of the soils onsite are classified as very low to medium in expansion potential. Consideration should be given to reinforcing flatwork with irregular (non-square/rectangular) shapes or flatwork underlain by medium expansive soils. Reinforcement may consist of 6x6 W1.4/W1.4 welded wire mesh or an equivalent section of rebar.

7.7.5 Control Joints

Weakened plane joints should be installed on walkways at intervals of approximately eight feet (maximum) or less. Exterior slabs should be designed to withstand shrinkage of the concrete.

7.8 Concrete Design

As stated in Section 5.1.7, negligible concentrations of sulfates were detected in the onsite soils (Class S0). Therefore, the use of sulfate resistant concrete is not required per ACI 318-14 at this time. Post-grading conditions should be evaluated, and final recommendations made at that time.

7.9 Corrosion

Based on preliminary testing, the onsite soils are not considered corrosive to buried metal objects per Caltrans standards. Buried ferrous metals should be protected against the effects of corrosive soils in accordance with the

manufacturer's recommendations. Typical measures may include using non-corrosive backfill, protective coatings, wrapping, plastic pipes, or a combination of these methods. A corrosion engineer should be consulted if specific design recommendations are required by the improvement designer.

Per ACI 318-14, an exposure class of C1 would be applicable to metals encased in concrete (rebar in footings) due to being exposed to moisture from surrounding soils. Per Table 19.3.2.1 of ACI 318-14, the requirements for concrete with an exposure class of C1 are a minimum compressive strength of 2500 psi and a maximum water-soluble chloride ion content in concrete of 0.30 (percent by weight of cement).

7.10 Pavement Design

Pavement sections for the proposed streets shall be designed based on laboratory testing conducted on samples taken from the soil subgrade. Preliminarily, based on an assumed R-Value of 15, the pavement may be designed utilizing the sections presented in Table 7-6. These sections should be verified upon the completion of grading, based on R-Value testing. The ultimate pavement section design for public streets is under the City of Brea's purview.

Table 7-6
Preliminary Pavement Sections

Traffic Index	Pavement Section Options OR	
5.0	3-inch AC on 8-inch AB	4-inch AC on 6-inch AB
5.5	3-inch AC on 10-inch AB	4-inch AC on 8-inch AB
6.0	3.5-inch AC on 10.5-inch AB	4-inch AC on 9.5-inch AB
AC-Asphalt Concrete AB-Caltrans Class II Base		

Construction of the streets should be accomplished in accordance with the current criteria of the City of Brea. Prior to the placement of base material, the subgrade should be suitably moisture conditioned, processed and compacted to

a minimum 95 percent of the laboratory maximum density (ASTM: D 1557) to at least twelve (12) inches below subgrade. After subgrade compaction, the exposed grade should then be "proof"-rolled with heavy equipment to ensure the grade does not "pump" and is verified as non-yielding. Aggregate base material should be placed on the compacted subgrade and compacted in-place to a minimum 95 percent of the laboratory standard obtained per ASTM: D 1557.

7.11 Site Drainage

Positive drainage away from the proposed structures should be provided and maintained. Roof, pad, and lot drainage should be collected and directed away from the structures toward approved disposal areas through drainage terraces, gutters, down drains, and other devices. Design fine grade elevations should be maintained through the life of the structure or if design fine grade elevations are altered, adequate area drains should be installed in order to provide rapid discharge of water, away from structures.

8.0 LOT MAINTENANCE

Ongoing maintenance of the improvements is essential to the long-term performance of structures. The following recommendations should be implemented.

8.1 Lot Drainage

Roof, pad, and lot drainage should be collected and directed away from structures and slopes and toward approved disposal areas. Design fine grade elevations should be maintained throughout the life of the structure or if design fine grade elevations are altered, adequate area drains should be installed in order to provide rapid discharge of water, away from structures and slopes. Owners should be made aware that they are responsible for maintenance and cleaning of all drainage terraces, down drains, and other devices that have been installed to promote structure and slope stability.

8.2 Burrowing Animals

Owners should undertake a program for the elimination of burrowing animals.

9.0 FUTURE PLAN REVIEWS

This report represents a geotechnical review of the site. As the project design for the project progresses, site specific geologic and geotechnical issues should be considered in the design and construction of the project. Consequently, future plan reviews may be necessary. These reviews may include reviews of:

- Grading Plans
- Foundation Plans
- Utility Plans

These plans should be forwarded to the project Geotechnical Consultant for review.

10.0 CLOSURE

10.1 Geotechnical Review

For the purposes of this report, multiple working hypotheses were established for the project, utilizing the available data and the most probable model is used for the analysis. Future information collected during the proposed grading operations is intended to evaluate the hypothesis and as such, some of the assumptions summarized in this report may need to be changed. Some modifications of the grading recommendations may become necessary, should the conditions encountered in the field differ from the conditions hypothesized in this report.

Plans and sections of the project specifications should be reviewed by Alta to evaluate conformance with the intent of the recommendations contained in this report. If the project description or final design varies from that described in herein, Alta must be consulted regarding the applicability of the recommendations contained herein and whether any changes are required. Alta

accepts no liability for any use of its recommendations if the project description or final design varies and Alta is not consulted regarding the alterations.

10.2 Limitations

This report is based on the following: 1) the project as presented on the attached plan; 2) the information obtained from Alta's laboratory testing included herein; and 3) from the information presented in the referenced reports. The findings and recommendations are based on the results of the subsurface investigation, laboratory testing, and office analysis combined with an interpolation and extrapolation of conditions between and beyond the subsurface excavation locations. However, the materials adjacent to or beneath those observed may have different characteristics than those observed, and no precise representations are made as to the quality or extent of the materials not observed. The results reflect an interpretation of the direct evidence obtained. Work performed by Alta has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of the geotechnical profession currently practicing in the same locality under similar conditions. No other representation, either expressed or implied, and no warranty or guarantee is included or intended.

The recommendations presented in this report are based on the assumption that an appropriate level of field review will be provided by a geotechnical consultant who is familiar with the design and site geologic conditions. That field review shall be sufficient to confirm that geotechnical and geologic conditions exposed during grading are consistent with the geologic representations and corresponding recommendations presented in this report.

The conclusions and recommendations included in this report are applicable to the specific design of this project as discussed in this report. They have no applicability to any other project or to any other location and any and all subsequent users accept any and all liability resulting from any use or reuse of the data, opinions, and recommendations without the prior written consent of Alta.

Alta has no responsibility for construction means, methods, techniques, sequences, procedures, safety precautions, programs in connection with the construction, acts or omissions of the CONTRACTOR or any other person performing any of the construction, or for the failure of any of them to carry out the construction in accordance with the final design drawings and specifications.

APPENDIX A

REFERENCES

APPENDIX A

Selected References

1. California Code of Regulations, 2022, California Building Code, Title 24, Part 2, Volume 2, Based on the 2022 International Building Code, Effective Date January 1, 2020.
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APPENDIX B

Subsurface Investigation

APPENDIX B

Subsurface Investigation

Alta's subsurface investigation consisted of excavating, logging, and sampling five (5) hollow-stem auger borings. Details of the subsurface investigation are presented in Table B. The approximate location of the exploratory excavation is shown on the accompanying Plate 1 and the Geotechnical Logs are attached.

TABLE B
SURFACE INVESTIGATION DETAILS

Equipment	Range of Depths	Sampling Methods	Sample Locations
Hollow-stem auger	Up to 26.0 feet	1. Bulk 2. Ring Samples	1. Bulk-Select Depths 2. Rings-Every 2.5 feet or 5 Feet

UNIFIED SOIL CLASSIFICATION SYSTEM

Major Divisions		grf	ltr	Description
Coarse Grained Soils: More than 50% retained on No. 200 sieve	Gravel and Gravelly Soils: More than 50% of coarse fraction retained on No. 4 sieve		GW	Well-graded gravels or gravel sand mixtures, little or no fines
			GP	Poorly-graded gravels or gravel sand mixture, little or no fines
			GM	Silty gravels, gravel-sand-silt mixtures
			GC	Clayey gravels, gravel-sand-clay mixtures
	Sand and Sandy Soils: More than 50% of coarse fraction passes on No. 4 sieve		SW	Well-graded sands or gravelly sands, little or no fines
			SP	Poorly-graded sands or gravelly sands, little or no fines
			SM	Silty sands, sand-silt mixtures
			SC	Clayey sands, and-clay mixtures

Major Divisions		grf	ltr	
Fine Grained Soils: More than 50% passes on No. 200 sieve	Silts And Clays LL,<50		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands or clayey silts with slight plasticity
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
			OL	Organic silts and organic silt-clays of low plasticity
	Silts And Clays LL,<50		MH	Inorganic silts, micaceous or diatomaceous fine or silty soils, elastic silts
			VH	Inorganic clays of high plasticity, fat clays
			OH	Organic clays of medium to high plasticity
Highly Organic Soils			PT	Peat and other highly organic soils

BOUNDARY CLASSIFICATION: Soils possessing characteristics of two groups are designated by combinations of group symbols.

PARTICLE SIZE LIMITS

U.S. STANDARD SERIES SIEVE				CLEAR SQUARE SIEVE OPENINGS		
200	40	10	4	3/4"	3"	12"

Silts and Clays	Sand			Gravel		Cobbles	Boulders
	Fine	Medium	Coarse	Fine	Coarse		

RELATIVE DENSITY

Sands and Gravels	Blows/Foot (SPT)
Very Loose	<4
Loose	4-10
Medium Dense	11-30
Dense	31-50
Very Dense	>50

CONSISTENCY CLASSIFICATION

Silts and Clays	Criteria
Very Soft	Thumb penetrates soil >1 in.
Soft	Thumb penetrates soil 1 in.
Firm	Thumb penetrates soil 1/4 in.
Stiff	Readily indented with thumbnail
Very Stiff	Thumbnail will not indent soil

HARDNESS

Bedrock
Soft
Moderately Hard
Hard
Very Hard

LABORATORY TESTS

Symbol	Test
DS	Direct Shear
DSR	Direct Shear (Remolded)
CON	
SA	Sieve Analysis
MAX	Maximum Density
RV	Resistance (R) Value
EI	Expansion Index
SE	Sand Equivalent
AL	Atterberg Limits
CHEM	Chemical Analysis
HY	Hydrometer Analysis

SOIL MOISTURE

Increasing Visual Moisture Content

Dry - Dry to touch

Moist - Damp, but no visible free water

wet - Visible free water

SIZE PROPORTIONS

Trace - <5%

Few - 5 to 10%

Some - 15 to 25%

KEY TO EXPLORATORY BORING LOGS

ALTA CALIFORNIA GEOTECHNICAL INC.

PLATE B

GEOTECHNICAL BORING LOG

PROJECT NO.	1-0501	PROJECT NAME	685 S Brea Blvd		
DATE STARTED	9/28/23	GROUND ELEV.	342	BORING DESIG.	B-1
DATE FINISHED	9/28/23	GW DEPTH (FT)		LOGGED BY	YH
DRILLER	2R	DRIVE WT.	140 lbs	NOTE	
TYPE OF DRILL RIG	8" Hollow Stem	DROP	30 in		

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
					CL	**ASPHALT**, 3' asphaltic concrete on native soil **OLD ALLUVIUM** (Qoa): SANDY CLAY, very fine to fine grained, dark brown, very stiff, slightly moist				
	340	R	54				14.1	119	96	
5		R	60		SC	@5.0 ft. CLAYEY SAND, very fine to fine grained, brown, very dense, slightly moist, trace carbonates	11.0	126	92	CON, HY
	335									
10		R	73				13.5	114	79	
	330									
15		R	27/50 for 5				17.5	111	95	
	325									
20		R	29		SM	@20.0 ft. SAND, very fine to fine grained, brown, medium dense, slightly moist, trace clay	12.4	114	72	
	320									
25		R	32/50 for 5.5			@25.0 trace orange mottling	15.3	103	67	
						TOTAL DEPTH 26.0 FEET GROUNDWATER NOT ENCOUNTERED NO CAVING OBSERVED				

SAMPLE TYPES:
- R RING (DRIVE) SAMPLE
- S SPT (SPLIT SPOON) SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

Alta California Geotechnical, Inc.

P.N. 1-0501 PLATE B-1

GEOTECHNICAL BORING LOG

PROJECT NO.	1-0501	PROJECT NAME	685 S Brea Blvd		
DATE STARTED	9/28/23	GROUND ELEV.	342	BORING DESIG.	B-2
DATE FINISHED	9/28/23	GW DEPTH (FT)		LOGGED BY	YH
DRILLER	2R	DRIVE WT.	140 lbs	NOTE	
TYPE OF DRILL RIG	8" Hollow Stem	DROP	30 in		

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
0					CL	**ASPHALT**, 3' asphaltic concrete on native soil **OLD ALLUVIUM** (Qoa): CLAY, dark brown, very stiff, slightly moist				
	340	R	36				15.8	108	79	
5		R	72				13.4	118	88	MAX DEN, EI, HY, PH, SULF, CHLO
	335									
10		R	50		CL	@10.0 ft. SILTY CLAY, brown, very stiff, slightly moist	13.4	115	81	
	330									
15		R	51				18.7	107	91	
	325									
20		R	24		SM	@20.0 ft. SAND, very fine to fine grained, brown, medium dense, slightly moist	11.4	107	55	
	320									
25		R	58		CL	@25.0 ft. SANDY CLAY, very fine to fine grained, green/brown, very stiff, slightly moist	13.6	118	90	
						TOTAL DEPTH 26.0 FEET GROUNDWATER NOT ENCOUNTERED NO CAVING OBSERVED				

SAMPLE TYPES:
- R RING (DRIVE) SAMPLE
- S SPT (SPLIT SPOON) SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

Alta California Geotechnical, Inc.

P.N. 1-0501 PLATE B-2

GEOTECHNICAL BORING LOG

PROJECT NO.	1-0501	PROJECT NAME	685 S Brea Blvd		
DATE STARTED	9/28/23	GROUND ELEV.	342	BORING DESIG.	B-3
DATE FINISHED	9/28/23	GW DEPTH (FT)		LOGGED BY	YH
DRILLER	2R	DRIVE WT.	140 lbs	NOTE	
TYPE OF DRILL RIG	8" Hollow Stem	DROP	30 in		

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
					CL	**ASPHALT**, 3' asphaltic concrete on native soil				
						OLD ALLUVIUM (Qoa): SANDY CLAY, very fine to fine grained, dark brown, very stiff, slightly moist, pinhole pores				
	340	R	53				12.4	117	80	
5		R	22/50 for 5.5			@5.0 ft. red/brown	10.7	122	79	
	335									
10		R	40			@10.0 ft. brown	17.0	110	90	
	330									
15		R	75			@15.0 ft. brown	14.5	112	81	
	325									
20		R	22		SC	@20.0 ft. CLAYEY SAND, very fine to fine grained, brown, medium dense, slightly moist, some carbonates	12.5	118	83	
	320									
25		R	66		SM	@25.0 ft. SAND, fine to medium grained, brown, dense, slightly moist, trace pebbles	6.9	100	28	
						TOTAL DEPTH 26.0 FEET GROUNDWATER NOT ENCOUNTERED NO CAVING OBSERVED				

SAMPLE TYPES:
- R RING (DRIVE) SAMPLE
- S SPT (SPLIT SPOON) SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

Alta California Geotechnical, Inc.

P.N. 1-0501 PLATE B-3

GEOTECHNICAL BORING LOG

PROJECT NO.	1-0501	PROJECT NAME	685 S Brea Blvd		
DATE STARTED	9/28/23	GROUND ELEV.	342	BORING DESIG.	B-4
DATE FINISHED	9/28/23	GW DEPTH (FT)		LOGGED BY	YH
DRILLER	2R	DRIVE WT.	140 lbs	NOTE	
TYPE OF DRILL RIG	8" Hollow Stem	DROP	30 in		

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
					CL	**ASPHALT**, 3' asphaltic concrete on native soil				
	340	R	71			**OLD ALLUVIUM** (Qoa): SANDY CLAY, very fine to fine grained, dark brown, very stiff, slightly moist	11.7	118	77	
5		R	79		CL	@5.0 ft. SANDY CLAY, very fine to fine grained, brown, very stiff, slightly moist, trace carbonates	10.8	118	71	
	335									
10		R	31			@10.0 ft. very stiff	20.1	103	88	CON, HY
	330									
15		R	14/35/55 for 5			@15.0 ft. some carbonates	15.1	112	84	
	325									
20		R	59		SM	@20.0 ft. SILTY SAND, very fine to fine grained, brown, dense, slightly moist, some carbonates, trace pebbles	15.9	108	79	
	320									
25		R	21/50 for 5		SM	@25.0 ft. SAND, very fine to fine grained, gray, dense, slightly moist	2.2			
						TOTAL DEPTH 26.0 FEET GROUNDWATER NOT ENCOUNTERED NO CAVING OBSERVED				

SAMPLE TYPES:
- R RING (DRIVE) SAMPLE
- S SPT (SPLIT SPOON) SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

Alta California Geotechnical, Inc.

P.N. 1-0501 PLATE B-4

GEOTECHNICAL BORING LOG

PROJECT NO.	1-0501	PROJECT NAME	685 S Brea Blvd		
DATE STARTED	9/28/23	GROUND ELEV.	342	BORING DESIG.	B-5
DATE FINISHED	9/28/23	GW DEPTH (FT)		LOGGED BY	YH
DRILLER	2R	DRIVE WT.	140 lbs	NOTE	
TYPE OF DRILL RIG	8" Hollow Stem	DROP	30 in		

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
0					SC	**ASPHALT**, 3' asphaltic concrete on native soil				
						OLD ALLUVIUM (Qoa): CLAYEY SAND, very fine to fine grained, brown, medium dense, slightly moist, pinhole pores				
	340	R	52				9.3	125	76	
5		R	76			@5.0 ft. trace pebbles, trace orange mottling	10.4	118	69	MAX DEN, EI, HY, PH, SULF, CHLO
	335									
10		R	77		CL	@10.0 ft. SANDY CLAY, very fine to fine grained, brown, very stiff, slightly moist	14.1	117	90	
	330									
15		R	96			@15.0 ft. trace pebbles	15.1	114	89	
	325									
20		R	21/ 50 for 5.5		SM	@20.0 ft. SAND, very fine to fine grained, brown, dense, slightly moist, trace carbonates, trace pebbles	4.8	107	23	
	320									
25		R	30/50 for 5.5			@25.0 ft. trace orange mottling	13.1	110	69	
						TOTAL DEPTH 26.0 FEET GROUNDWATER NOT ENCOUNTERED NO CAVING OBSERVED				

SAMPLE TYPES:
- R RING (DRIVE) SAMPLE
- S SPT (SPLIT SPOON) SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

Alta California Geotechnical, Inc.

P.N. 1-0501 PLATE B-5

GEOTECHNICAL BORING LOG

PROJECT NO.	1-0501	PROJECT NAME	685 S Brea Blvd		
DATE STARTED	9/28/23	GROUND ELEV.	342	BORING DESIG.	P-1
DATE FINISHED	9/28/23	GW DEPTH (FT)		LOGGED BY	YH
DRILLER	2R	DRIVE WT.	140 lbs	NOTE	
TYPE OF DRILL RIG	8" Hollow Stem	DROP	30 in		

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
0	340				CL	**ASPHALT**, 3' asphaltic concrete on native soil **OLD ALLUVIUM** (Qoa): SANDY CLAY, very fine to fine grained, dark brown, stiff, slightly moist				
5	335				SC	@5.0 ft. CLAYEY SAND, very fine to fine grained, brown, medium dense, slightly moist, trace carbonates				
10	330				CL	@10.0 ft. SANDY CLAY, very fine to fine grained, brown, very stiff, slightly moist				
						TOTAL DEPTH: 10.0 FEET NO GROUNDWATER ENCOUNTERED NO CAVING OBSERVED				
15	325									
20	320									
25										

SAMPLE TYPES:
- R RING (DRIVE) SAMPLE
- S SPT (SPLIT SPOON) SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

Alta California Geotechnical, Inc.

P.N. 1-0501 PLATE B-6

GEOTECHNICAL BORING LOG

PROJECT NO.	1-0501	PROJECT NAME	685 S Brea Blvd		
DATE STARTED	9/28/23	GROUND ELEV.	342	BORING DESIG.	P-2
DATE FINISHED	9/28/23	GW DEPTH (FT)		LOGGED BY	YH
DRILLER	2R	DRIVE WT.	140 lbs	NOTE	
TYPE OF DRILL RIG	8" Hollow Stem	DROP	30 in		

DEPTH (Feet)	ELEV	SAMPLE TYPE	BLOWS	LITHOLOGY	GROUP SYMBOL	GEOTECHNICAL DESCRIPTION	MOISTURE CONT (%)	DRY (pcf) DENSITY	SAT-URATION (%)	OTHER TESTS
0	340				CL	**ASPHALT**, 3' asphaltic concrete on native soil **OLD ALLUVIUM** (Qoa): CLAYEY SAND, very fine to fine grained, brown, medium dense, slightly moist				
5	335									
10					SC	@10.0 ft. SANDY CLAY, very fine to fine grained, brown, very stiff, slightly moist				
	330					TOTAL DEPTH: 10.0 FEET NO GROUNDWATER ENCOUNTERED NO CAVING OBSERVED				
15	325									
20	320									
25										

SAMPLE TYPES:
- R RING (DRIVE) SAMPLE
- S SPT (SPLIT SPOON) SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE

GROUNDWATER
SEEPAGE
J: JOINTING C: CONTACT
B: BEDDING F: FAULT
S: SHEAR RS: RUPTURE SURFACE

Alta California Geotechnical, Inc.

P.N. 1-0501 PLATE B-7

APPENDIX C

Laboratory Testing

LABORATORY TESTING

The following laboratory tests were performed on a representative sample in accordance with the applicable latest standards or methods from the ASTM, California Building Code (CBC) and California Department of Transportation.

Classification

Soils were classified with respect to the Unified Soil Classification System (USCS) in accordance with ASTM D-2487 and D-2488.

Particle Size Analysis

Modified hydrometer testing was conducted to aid in classification of the soil. The results of the particle size analysis are presented in Table C.

Maximum Density/Optimum Moisture

The maximum dry density and optimum moisture content of one representative bulk sample were evaluated in accordance with ASTM D-1557. The results are summarized in Table C.

Expansion Index Tests

One (1) expansion index test was performed to evaluate the expansion potential of typical on-site soil. Testing was carried out in general conformance with ASTM Test Method D-4829. The results are presented in Table C.

Consolidation Tests

Consolidation testing was performed on two (2) relatively "undisturbed" soil sample at its natural moisture content in accordance with procedures outlined in ASTM D-2435. The samples were placed in a consolidometer and loads were applied incrementally in geometric progression. The samples (2.42-inches in diameter and 1-inch in height) were permitted to consolidate under each load increment until the slope of the characteristic linear secondary compression portion of the thickness versus log of time plot was apparent. The percent consolidation for each load cycle was recorded as the ratio of the amount of vertical

compression to the original 1-inch height. The consolidation test results are shown on Plate C-1 and C-2.

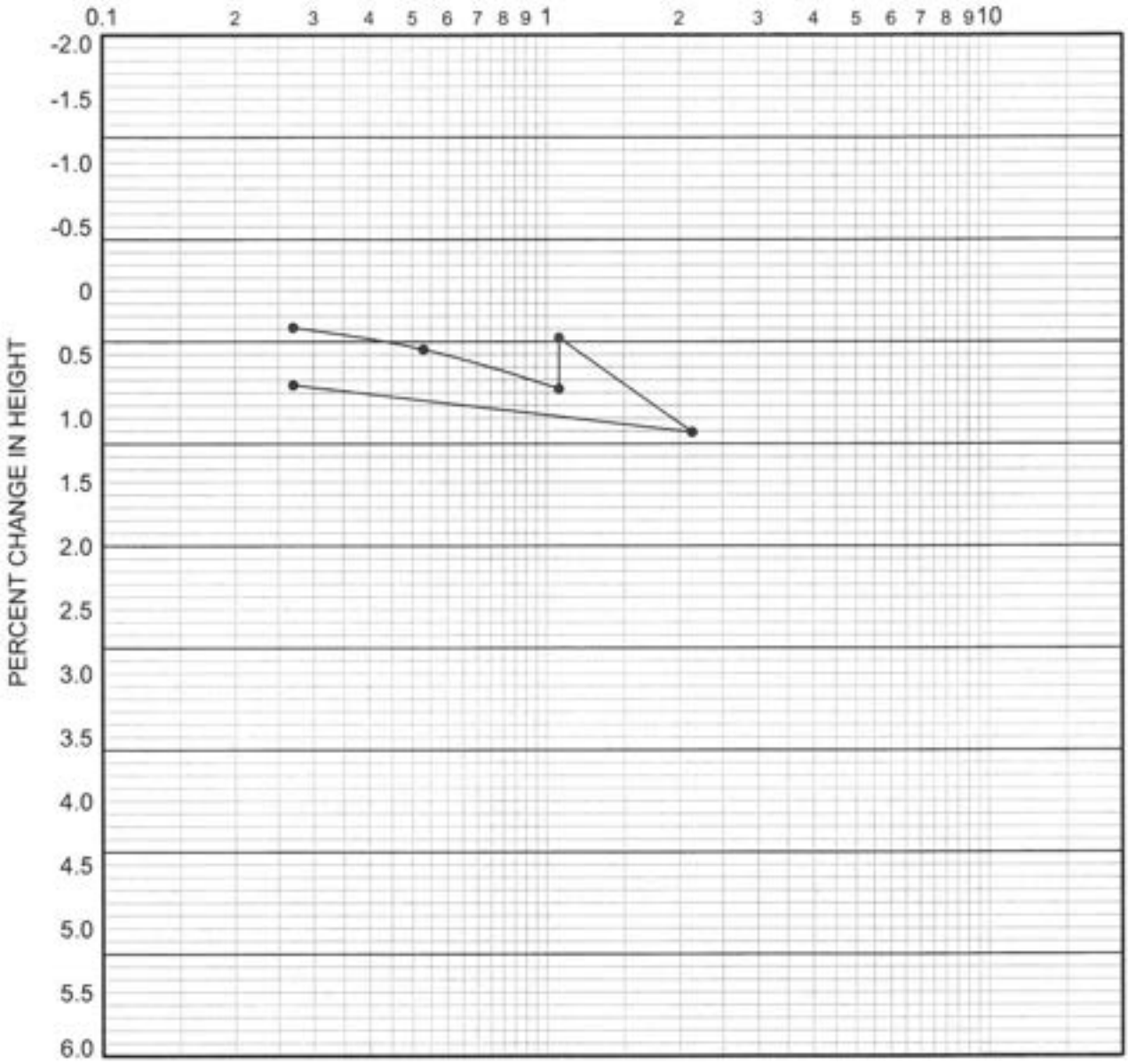
Chemical Analyses

Chemical testing was performed on one select samples by Alta. The results of these tests (sulfate content, resistivity, chloride content and pH) are presented on Table C.

TABLE C
SUMMARY OF LABORATORY TEST DATA
P.N. 1-0501

BORING	DEPTH (FEET)	SOIL DESCRIPTION	GROUP SYMBOL	MAXIMUM DENSITY (PCF)	OPTIMUM MOISTURE CONTENT (%)	DIRECT SHEAR	PLUS NO.4 SEIVE (plus 4.76mm) (%)	SAND (4.76mm-0.075mm) (%)	SILT (0.075mm-0.005mm) (%)	CLAY (minus 0.005mm) (%)	EXPANSION INDEX UBC 18-2	CONSOL	OTHER TESTS REMARKS
B-1	5	Clayey Sand (Qoa)	SC				1	67	18	14		SEE PLATE C-1	
B-2	5	Sandy Clay (Qoa)	CL	123.5	10.0		0	49	1	50	58		Chlor: 85ppm, pH: 8.3, Sulf: 0.026%
B-4	10	Sandy Clay (Qoa)	CL				0	37	13	50		SEE PLATE C-2	
B-5	5	Clayey Sand (Qoa)	SC	127.0	9.3		3	77	10	10	12		Chlor: 125 ppm, pH: 8.2, Sulf: 0.015%

COMPRESSIVE STRESS IN TSF



boring	depth (ft.)	dry density (pcf)	in situ moist. (%)	in situ satur. (%)	-200 sieve (%)	group symbol	typical names
B-1	5.0	126	11.0	92	32	SC	Clayey Sand (Qoa)

REMARKS: WATER ADDED AT 1.07 TSF

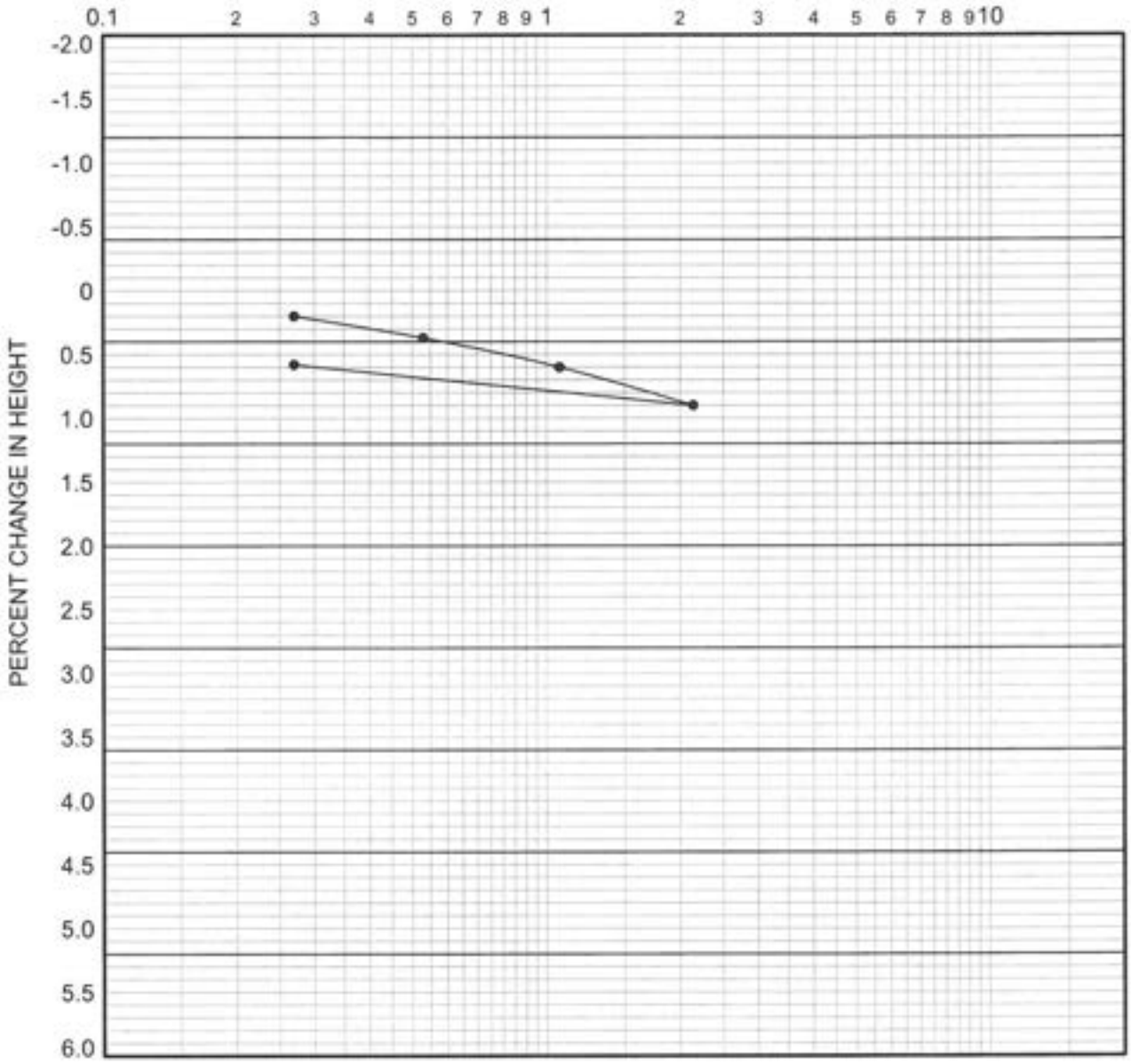
CONSOLIDATION CURVE

Alta California Geotechnical, Inc.

P.N. 1-0501

PLATE C-1

COMPRESSIVE STRESS IN TSF



boring	depth (ft.)	dry density (pcf)	in situ moist. (%)	in situ satur. (%)	-200 sieve (%)	group symbol	typical names
B-4	10.0	103	20.1	88	63	CL	Sandy Clay (Qoa)

REMARKS: WATER ADDED AT 1.07 TSF

CONSOLIDATION CURVE

Alta California Geotechnical, Inc.

P.N. 1-0501

PLATE C-2

APPENDIX D

Earthwork Specifications

ALTA CALIFORNIA GEOTECHNICAL, INC.
EARTHWORK SPECIFICATIONS

These specifications present the generally accepted standards and minimum earthwork requirements for the development of the project. These specifications shall be the project guidelines for earthwork except where specifically superseded in preliminary geology and soils reports, grading plan review reports or by the prevailing grading codes or ordinances of the controlling agency.

A. GENERAL

1. The Contractor shall be responsible for the satisfactory completion of all earthwork in accordance with the project plans and specifications.

2. The project Geotechnical Engineer and Engineering Geologist, or their representatives, shall provide observation and testing services, and Geotechnical consultation for the duration of the project.

3. All clearing, grubbing, stripping and site preparation for the project shall be accomplished by the Contractor to the satisfaction of the Geotechnical Engineer/Engineering Geologist.

4. It is the Contractor's responsibility to prepare the ground surface to receive fill to the satisfaction of the Geotechnical Engineer and to place, spread, mix, moisture condition, and compact the fill in accordance with the job specifications and as required by the Geotechnical Engineer. The Contractor shall also remove all material considered by the Geotechnical Engineer to be unsuitable for use in the construction of engineered fills.

5. The Contractor shall have suitable and sufficient equipment in operation to handle the amount of fill being placed. When necessary, equipment will be shut down temporarily in order to permit the proper preparation of fills.

B. PREPARATION OF FILL AREAS

1. Excessive vegetation and all deleterious material should be disposed of offsite as required by the Geotechnical Engineer.

   Existing fill, soil, alluvium or rock materials determined by the Geotechnical Engineer as being unsuitable for placement in compacted fills shall be removed and hauled from the site. Where applicable, the Contractor may obtain the

approval of the Soils Engineer and the controlling authorities for the project to dispose of the above described materials, or a portion thereof, in designated areas onsite.

After removal of the deleterious materials have been accomplished, earth materials deemed unsuitable in their natural, in-place condition, shall be removed as recommended by the Geotechnical Engineer/Engineering Geologist.

2. Upon achieving a suitable bottom for fill placement, the exposed removal bottom shall be disced or bladed by the Contractor to the satisfaction of the Geotechnical Engineer. The prepared ground surfaces shall then be brought to the specified moisture content mixed as required, and compacted and tested as specified. In localities where it is necessary to obtain the approval of the controlling agency prior to placing fill, it will be the Contractor's responsibility to contact the proper authorities to visit the site.

3. Any underground structure such as cesspools, cisterns, mining shafts, tunnels, septic tanks, wells, pipelines or other structures not located prior to grading are to be removed or treated in a manner prescribed by the Geotechnical Engineer and/or the controlling agency for the project.

C. ENGINEERED FILLS

1. Any material imported or excavated on the property may be utilized as fill, provided the material has been determined to be suitable by the Geotechnical Engineer. Deleterious materials shall be removed from the fill as directed by the Geotechnical Engineer.

2. Rock or rock fragments less than twelve inches in the largest dimension may be utilized in the fill, provided they are not placed in concentrated pockets and the distribution of the rocks is approved by the Geotechnical Engineer.

3. Rocks greater than twelve inches in the largest dimension shall be taken offsite, or placed in accordance with the recommendations of the Geotechnical Engineer in areas designated as suitable for rock disposal.

4. All materials to be used as fill, shall be tested in the laboratory by the Geotechnical Engineer. Proposed import materials shall be approved by the Geotechnical Engineer 48 hours prior to importation.

5. The fill materials shall be placed by the Contractor in lifts, that when compacted, shall not exceed six inches. Each lift shall be spread evenly and shall be

thoroughly mixed to achieve a near uniform moisture condition and a uniform blend of materials.

All compaction shall be achieved at or above the optimum moisture content, as determined by the applicable laboratory standard. The Contractor will be notified if the fill materials are too wet or too dry to achieve the required compaction standard.

6. When the moisture content of the fill material is below the limit specified by the Geotechnical Engineer, water shall be added and the materials shall be blended until a uniform moisture content, within specified limits, is achieved. When the moisture content of the fill material is above the limits specified by the Geotechnical Engineer, the fill materials shall be aerated by discing, blading, mixed with dryer fill materials, or other satisfactory methods until the moisture content is within the specified limits.

7. Each fill lift shall be compacted to the minimum project standards, in compliance with the testing methods specified by the controlling governmental agency, and in accordance with recommendations of the Geotechnical Engineer.

   In the absence of specific recommendations by the Geotechnical Engineer to the contrary, the compaction standard shall be the most recent version of ASTM:D 1557.

8. Where a slope receiving fill exceeds a ratio of five-horizontal to one-vertical, the fill shall be keyed and benched through all unsuitable materials into sound bedrock or firm material, in accordance with the recommendations and approval of the Geotechnical Engineer.

9. Side hill fills shall have a minimum key width of 15 feet into bedrock or firm materials, unless otherwise specified in the soil report and approved by the Geotechnical Engineer in the field.

10. Drainage terraces and subdrainage devices shall be constructed in compliance with the ordinances of the controlling governmental agency and/or with the recommendations of the Geotechnical Engineer and Engineering Geologist.

11. The Contractor shall be required to maintain the specified minimum relative compaction out to the finish slope face of fill slopes, buttresses, and stabilization fills as directed by the Geotechnical Engineer and/or the governing agency for the project. This may be achieved by either overbuilding the slope and cutting

back to the compacted core; by direct compaction of the slope face with suitable equipment; or by any other procedure which produces the required result.

12. The fill portion of fill-over-cut slopes shall be properly keyed into rock or firm material; and the fill area shall be stripped of all soil or unsuitable materials prior to placing fill.

    The design cut portion of the slope should be made first and evaluated for suitability by the Engineering Geologist prior to placement of fill in the keyway above the cut slope.

13. Pad areas in cut or natural ground shall be approved by the Geotechnical Engineer. Finished surfaces of these pads may require scarification and recompaction, or over excavation as determined by the Geotechnical Engineer.

D. CUT SLOPES

1. The Engineering Geologist shall observe all cut slopes and shall be notified by the Contractor when cut slopes are to be started.

2. If, during the course of grading, unforeseen adverse or potentially adverse geologic conditions are encountered, the Engineering Geologist and Soil Engineer shall investigate, analyze and make recommendations to remediate these problems.

3. Non-erodible interceptor swales shall be placed at the top of cut slopes that face the same direction as the superjacent, prevailing drainage.

4. Unless otherwise specified in specific geotechnical reports, no cut slopes shall be excavated higher or steeper than that allowed by the ordinances of controlling governmental agencies.

5. Drainage terraces shall be constructed in compliance with the ordinances of the controlling governmental agencies, and/or in accordance with the recommendations of the Geotechnical Engineer or Engineering Geologist.

E. GRADING CONTROL

1. Fill placement shall be observed and tested by the Geotechnical Engineer and/or his representative during grading.

   Field density tests shall be made by the Geotechnical Engineer and/or his representative to evaluate the compaction and moisture compliance of each fill lift. Density tests shall be conducted at intervals not to exceed two feet of fill

height. Where sheepsfoot rollers are used, the fill may be disturbed to a depth of several inches. Density determinations shall be taken in the compacted material below the disturbed surface at a depth determined by the Geotechnical Engineer or his representative.

2. Where tests indicate that the density of any layer of fill, or portion thereof, is below the required relative compaction, or improper moisture content is in evidence, that particular layer or portion thereof shall be reworked until the required density and/or moisture content has been attained. Additional fills shall not be placed over an area until the previous lift of fill has been tested and found to meet the density and moisture requirements for the project and the previous lift is approved by the Geotechnical Engineer.

3. When grading activities are interrupted by heavy rains, fill operations shall not be resumed until field observations and tests by the Geotechnical Engineer indicate the moisture content and density of the fill are within the specified limits.

4. During construction, the Contractor shall properly grade all surfaces to maintain good drainage and prevent the ponding of water. The Contractor shall take remedial action to control surface water and to prevent erosion of graded areas until such time as a permanent drainage and erosion devices have been installed.

5. Observation and testing by the Geotechnical Engineer and/or his representative shall be conducted during filling and compacting operations in order that he will be able to state in his opinion that all cut and filled areas are graded in accordance with the approved specifications.

6. Upon the completion of grading activities and after the Geotechnical Engineer and Engineering Geologist have finished their observations of the work, final reports shall be submitted. No further excavation or fill placement shall be undertaken without prior notification of the Geotechnical Engineer and/or Engineering Geologist.

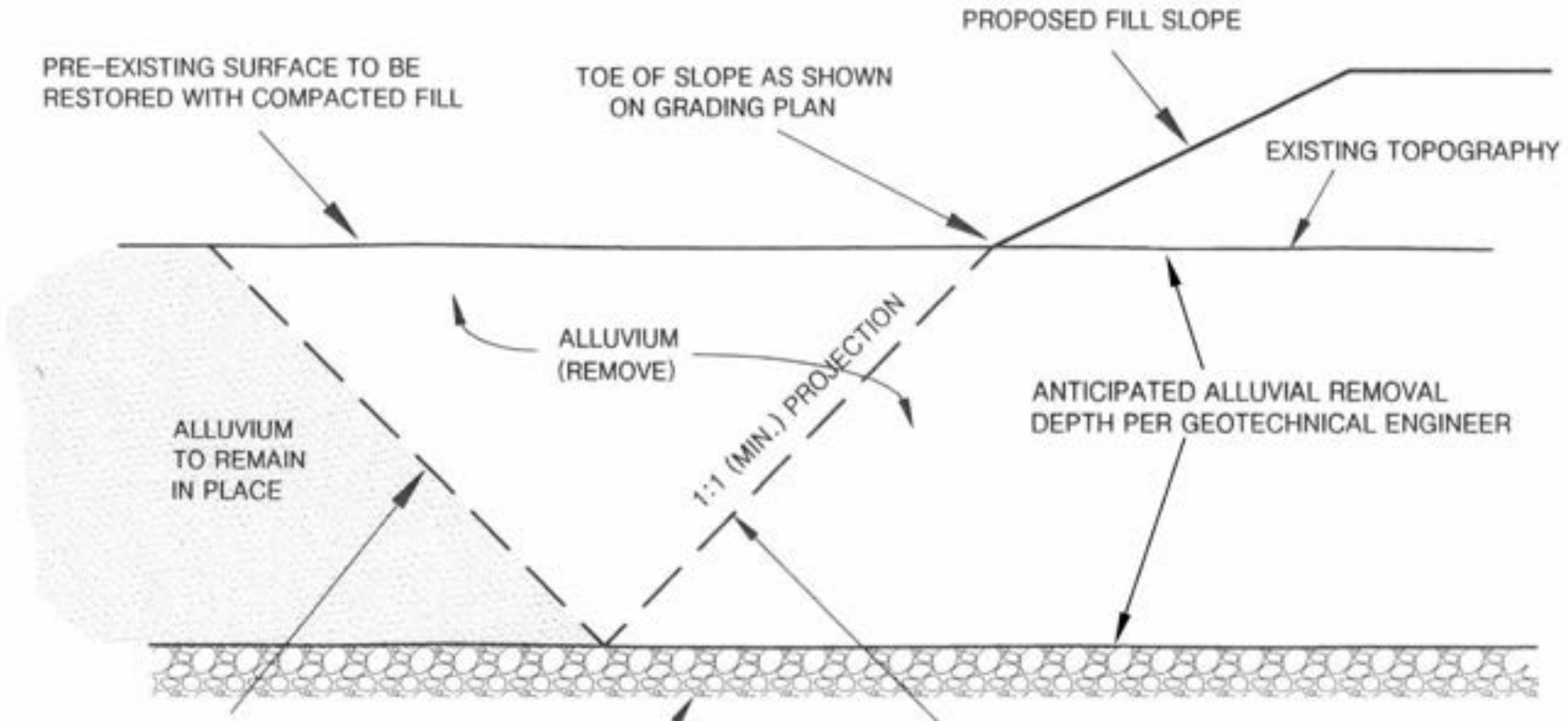
F. FINISHED SLOPES

All finished cut and fill slopes shall be planted and irrigated and/or protected from erosion in accordance with the project specifications, governing agencies, and/or as recommended by a landscape architect.

APPENDIX E

Grading Details

DETAIL FOR FILL SLOPE TOEING OUT ON FLAT ALLUVIATED CANYON

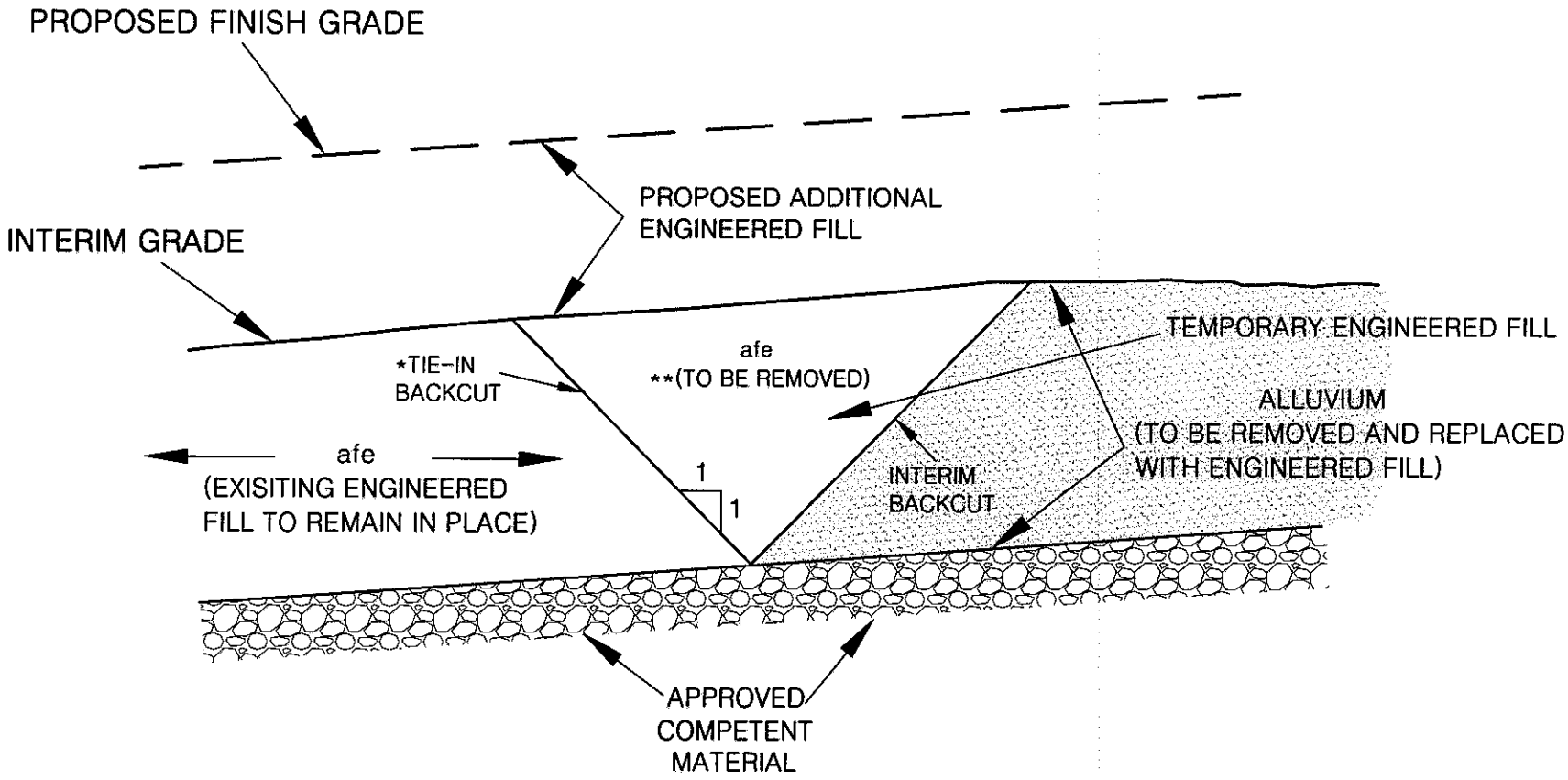


ALTA CALIFORNIA GEOTECHNICAL, INC.
VER. 3/12

PLATE G-1

PATH:C:\Users\Jnks\Desktop\Drafting\GRADING DETAILS\G-1.dwg

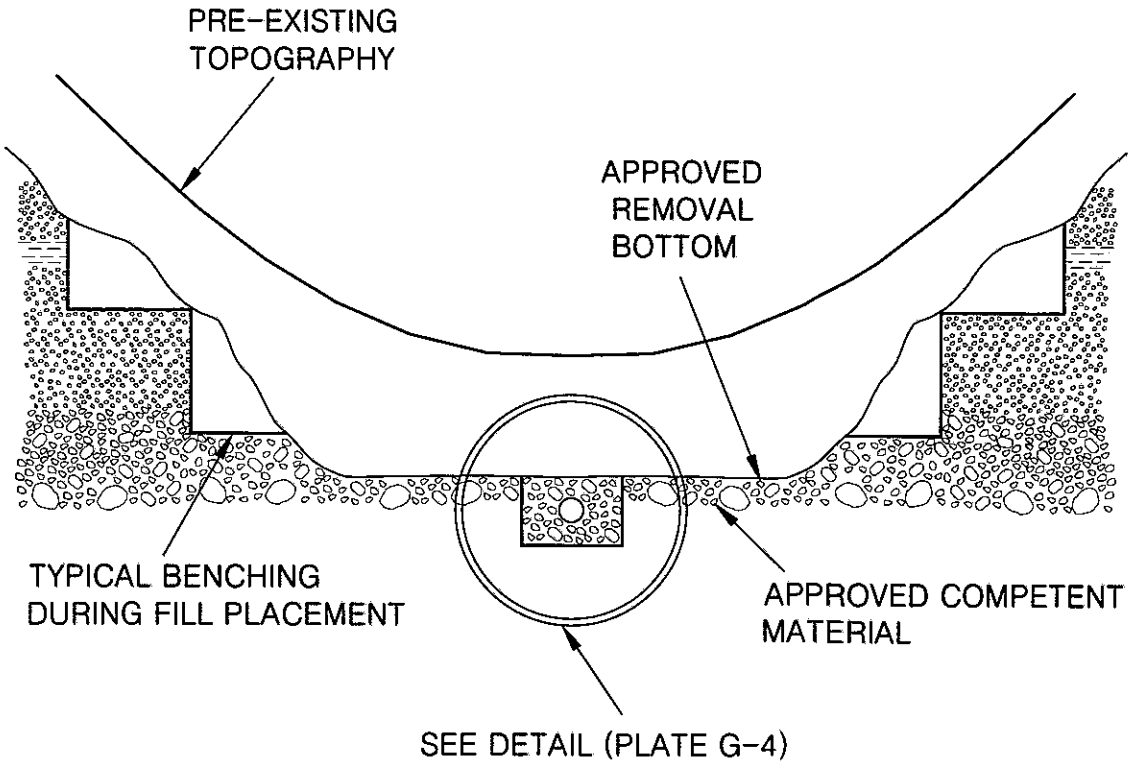
REMOVAL ADJACENT TO EXISTING FILL



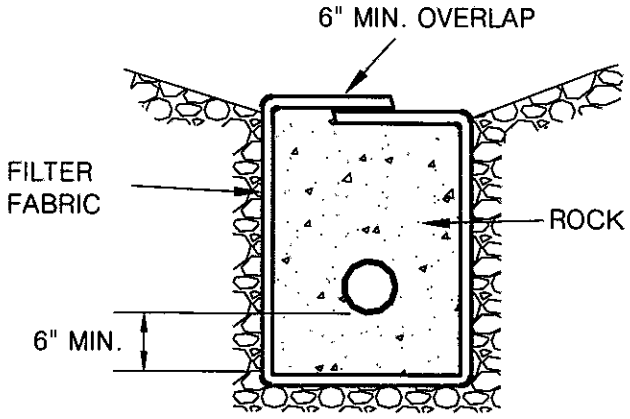
*INITIATE 1:1 TIE-IN BACKCUT TO INTERCEPT TOE OF INTERIM BACKCUT

**AS PART OF TIE-IN FOR ADDITIONAL ENGINEERED FILL

CANYON SUBDRAIN



CANYON SUBDRAIN DETAIL



PERFORATED PIPE SURROUNDED WITH ROCK AND FILTER FABRIC

ROCK: MIN. VOLUME OF 9 CU.FT. PER LINEAR FT. OF 3/4 IN. MAX. ROCK

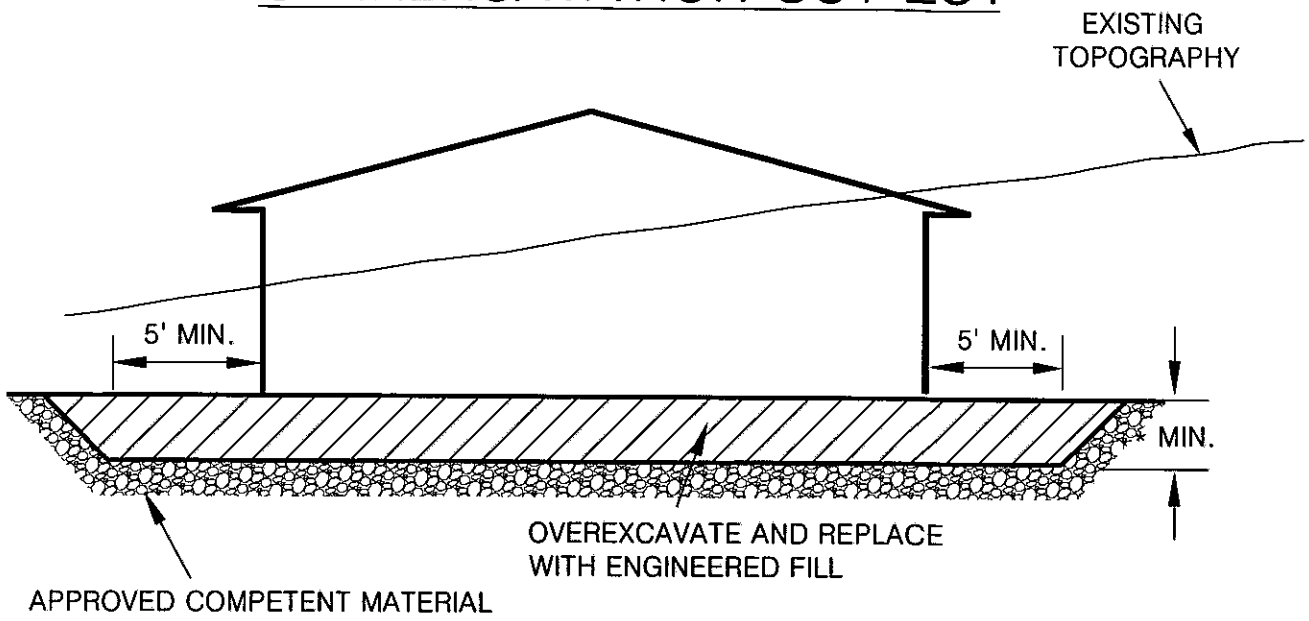
PIPE: 6 IN. ABS OR PVC PIPE WITH A MINIMUM OF 8 PERFORATIONS (1/4-IN. DIA.) PER LINEAL FT. IN BOTTOM HALF OF PIPE ASTM D2751, SDR 35, OR ASTM D3034 OR ASTM D1527, SCHD. 40 ASTM D1785, SCHD. 40

FILTER FABRIC: MIRAFI 140 FILTER FABRIC OR APPROVED EQUIVALENT

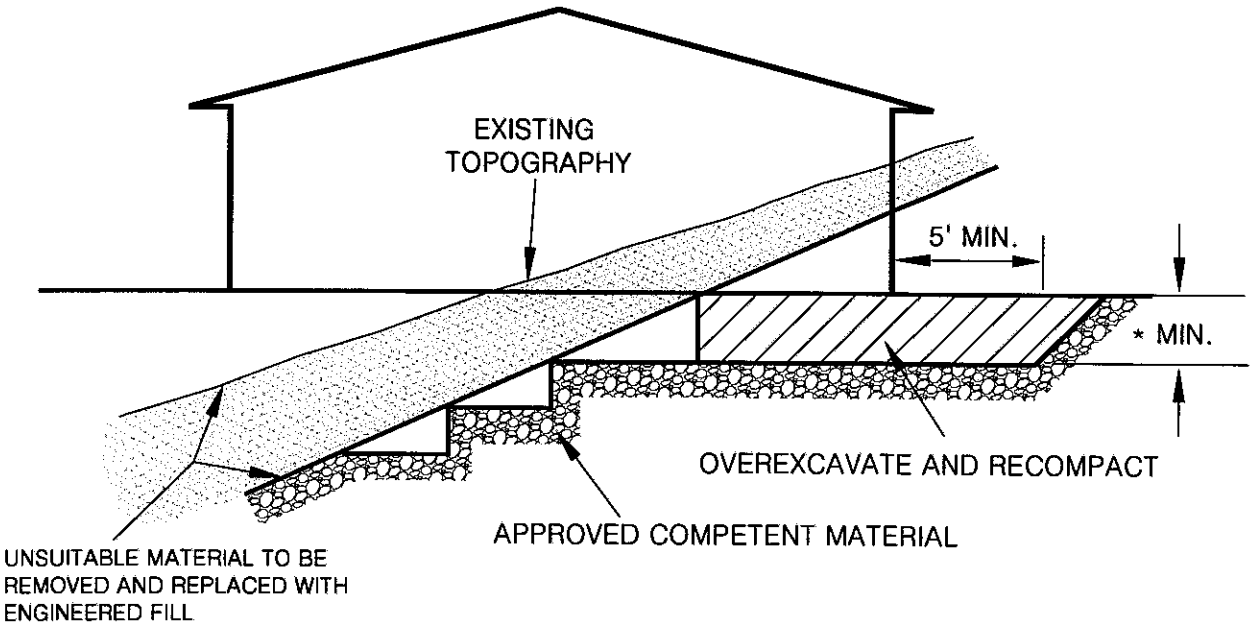
NOTES:

1. FOR CONTINUOUS RUN IN EXCESS OF 500. FT USE 8 IN. DIA. PIPE
2. ENGINEERED FILL PLACED BELOW DRAINS SHALL BE COMPACTED TO 93% OF THE LABORATORY MAXIMUM DRY DENSITY (ASTM:D1557)

OVEREXCAVATION CUT LOT



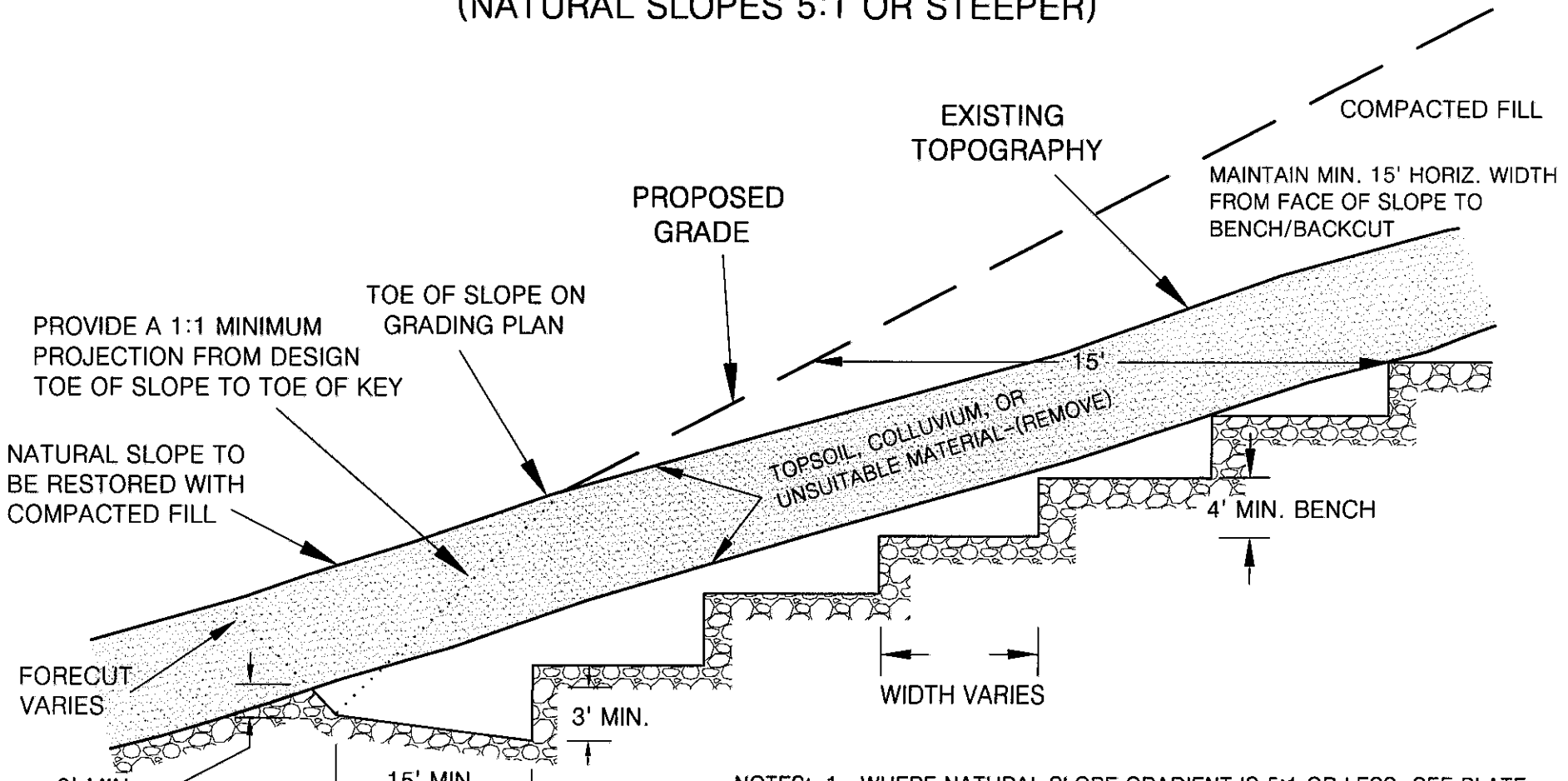
CUT-FILL LOT (TRANSITION)



*NOTE ALL BUILDING PADS SHALL BE OVER EXCAVATED TO A MINIMUM OF 1/3 OF THE MAXIMUM DEPTH OF FILL BELOW THE BUILDING PAD TO A MAXIMUM OF 17 FEET (SEE PLATE G-16)

SIDE HILL SLOPE FILL DETAIL

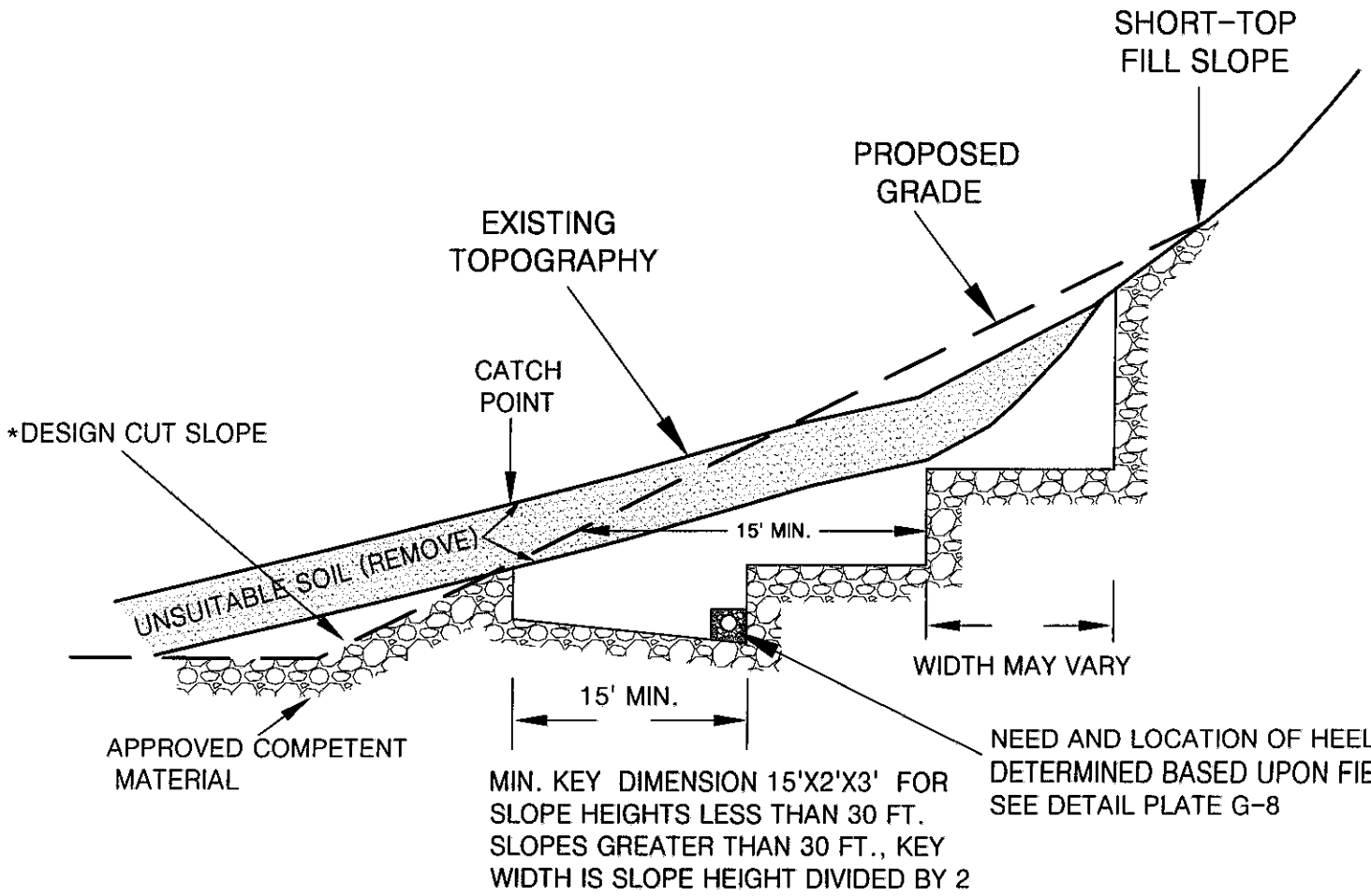
(NATURAL SLOPES 5:1 OR STEEPER)



NOTES:

1. WHERE NATURAL SLOPE GRADIENT IS 5:1 OR LESS, SEE PLATE G-1. WHERE THE NATURAL SLOPE APPROACHES OR EXCEEDS THE DESIGN SLOPE RATIO, SPECIAL RECOMMENDATIONS WILL BE PROVIDED BY THE GEOTECHNICAL ENGINEER.
2. THE NEED FOR AND PLACEMENT OF DRAINS WILL BE DETERMINED BY THE GEOTECHNICAL ENGINEER OR GEOLOGIST BASED UPON EXPOSED FIELD CONDITIONS.

FILL OVER CUT SLOPE DETAIL



*THE CUT PORTION OF THE SLOPE SHOULD BE EXCAVATED AND EVALUATED BY THE ENGINEERING GEOLOGIST/GEOTECHNICAL ENGINEER PRIOR TO CONSTRUCTING THE FILL SLOPE

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VER. 1/18

PLATE G-7

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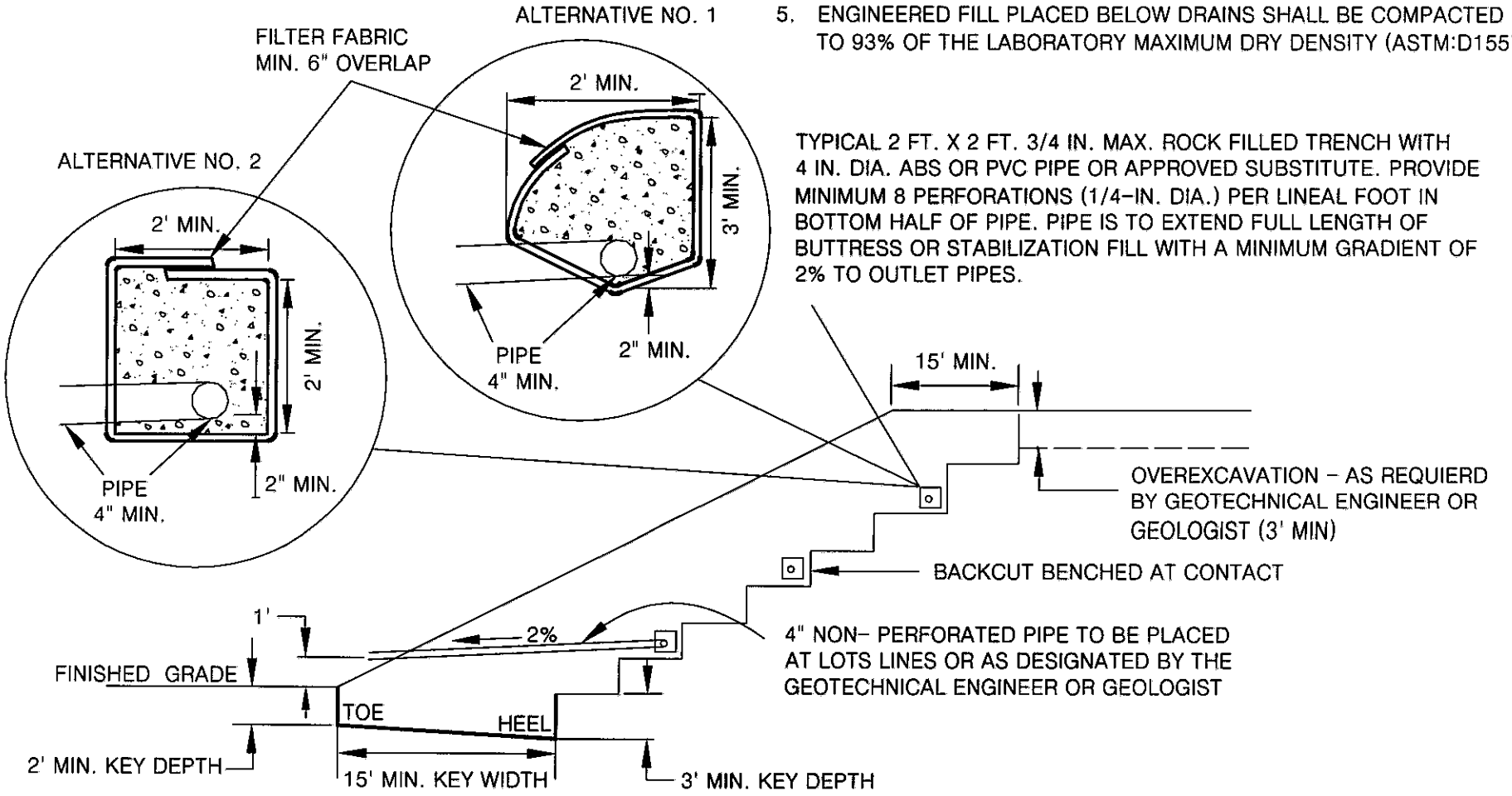
STABILIZATION/BUTTRESS FILL BACKDRAIN

NOTE:

1. ASTM D2751, SDR 35, OR ASTM D3034 OR ASTM D1527, SCHD. 40 ASTM D1785, SCHD. 40
2. SOLID PIPE OUTLETS TO BE PROVIDED EVERY 100 FT. AND JOINED TO PERFORATED BACKDRAIN PIPE WITH "L" OR "T"s. MIN. 2% GRADIENT.
3. GRAVEL TRENCH TO BE FILLED WITH 3/4 IN. MAXIMUM ROCK
4. THE NECESSITY FOR UPPER TIER BACKDRAINS SHALL BE DETERMINED IN THE FIELD BY THE GEOTECHNICAL ENGINEER OR GEOLOGIST. UPPER TIER OUTLETS SHOULD DRAIN INTO PAVED TERRACE DRAINS.
5. ENGINEERED FILL PLACED BELOW DRAINS SHALL BE COMPACTED TO 93% OF THE LABORATORY MAXIMUM DRY DENSITY (ASTM:D1557)



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VER. 3/12

PLATE G-8

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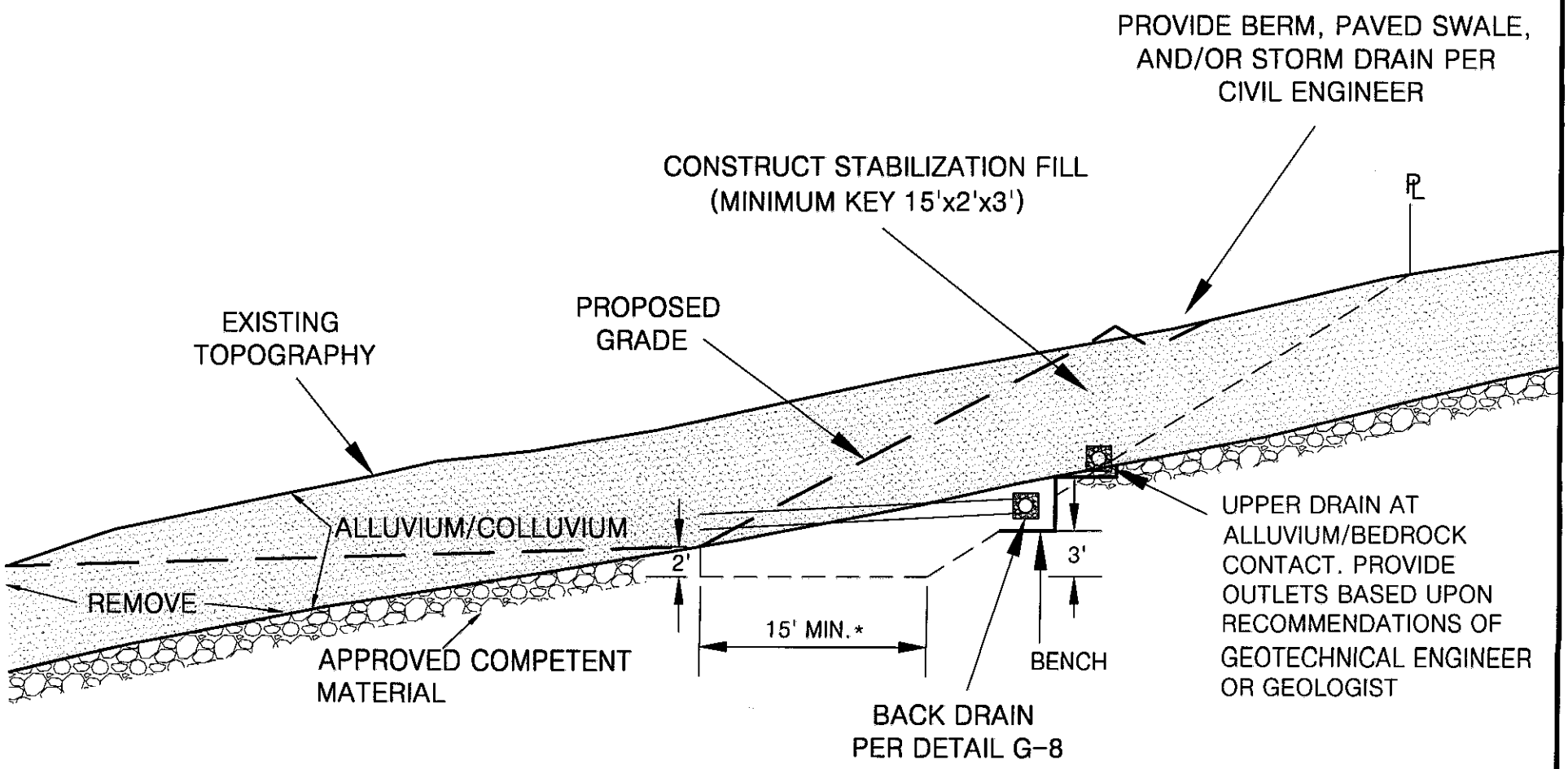
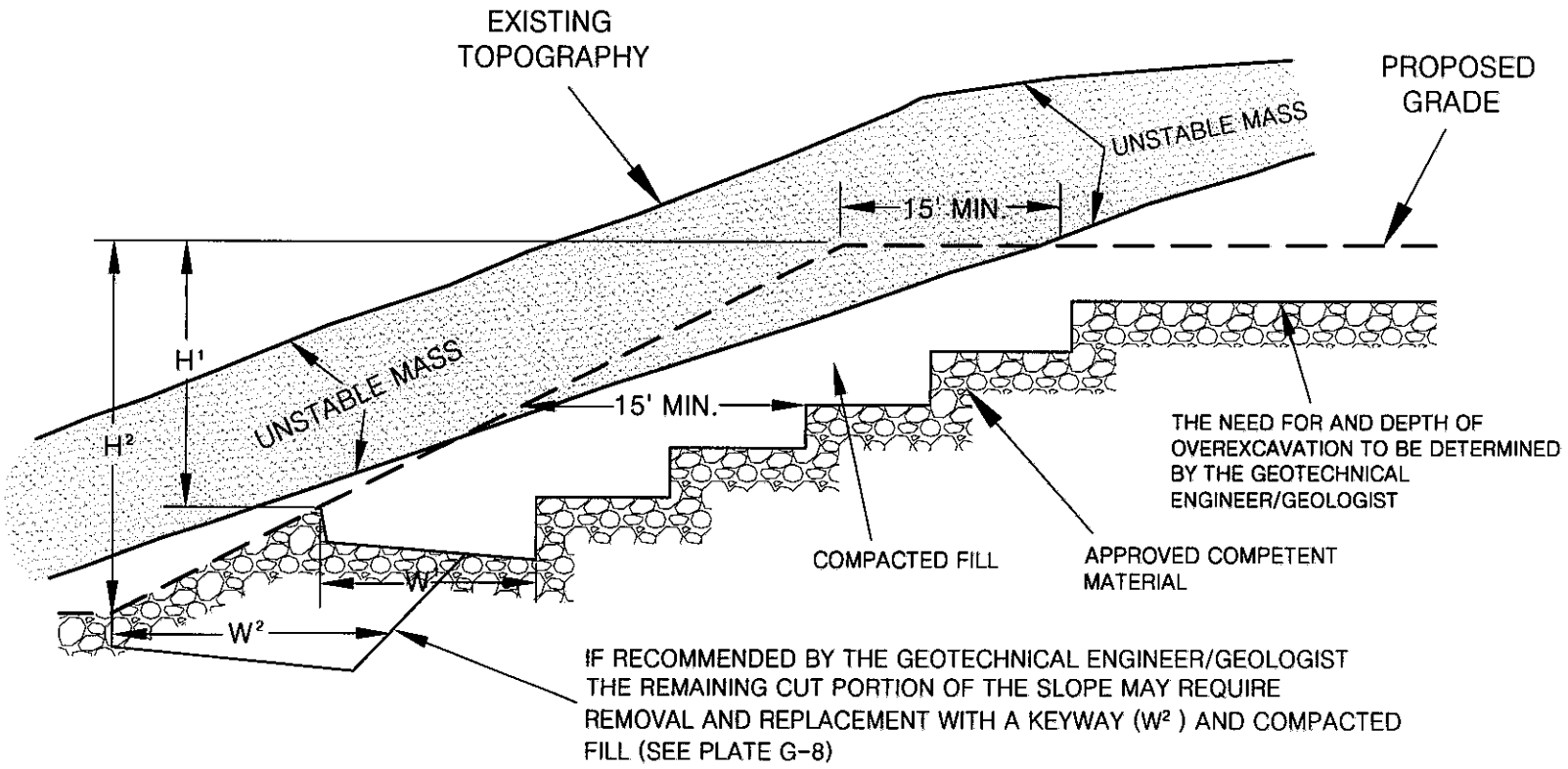
STABILIZATION FILL

(UPSLOPE ALLUVIATED AREA)



* FOR SLOPE HEIGHTS LESS THAN 30 FT. SLOPES GREATER THAN 30 FT., KEY WIDTH IS SLOPE HEIGHT DIVIDED BY 2

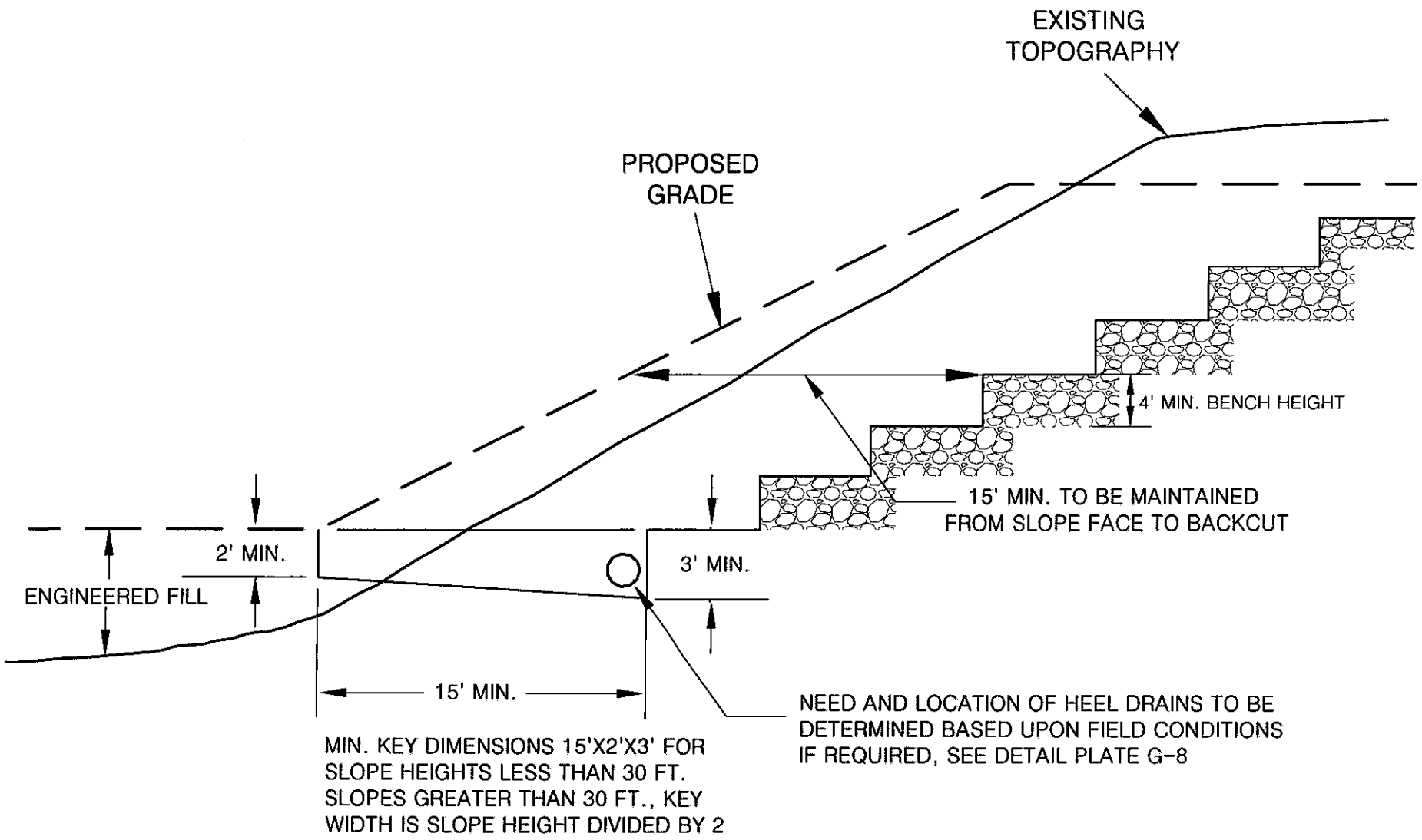
SELECTIVE GRADING DETAIL FOR STABILIZATION FILL
UNSTABLE MATERIAL EXPOSED IN PORTION OF CUT SLOPE



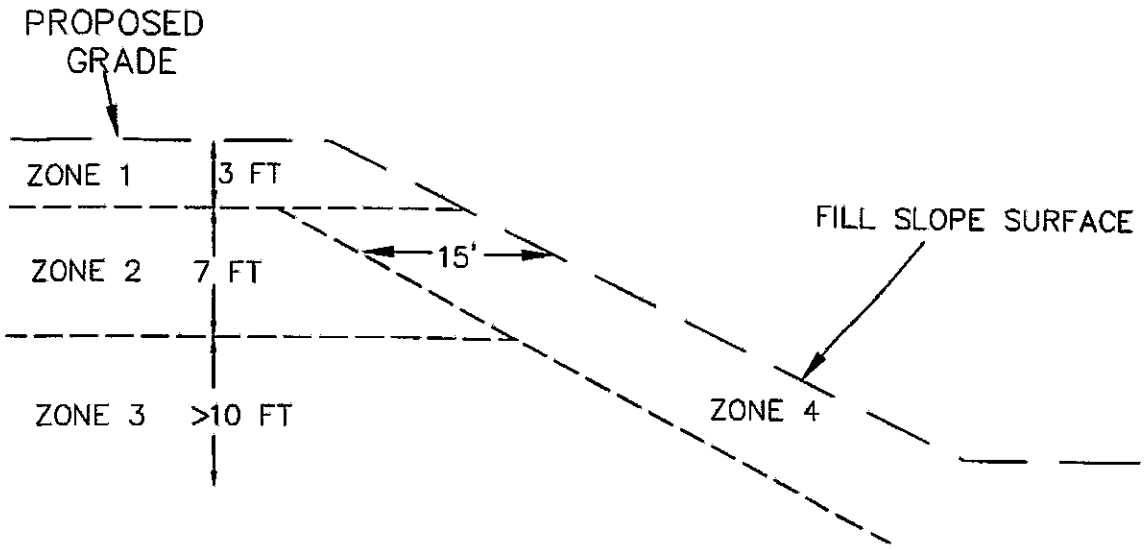
NOTES: 1. BACKDRAINS ARE NOT REQUIRED UNLESS SPECIFIED.

2. "W" SHALL BE EQUIPMENT WIDTH (15') FOR SLOPE HEIGHT LESS THAN 25 FEET. FOR SLOPES GREATER THAN 25 FEET, "W" SHALL BE DETERMINED BY THE PROJECT GEOTECHNICAL ENGINEER/GEOLOGIST. AT NO TIME SHALL "W" BE LESS THAN H/2.

SKIN FILL SLOPE OVER NATURAL GROUND



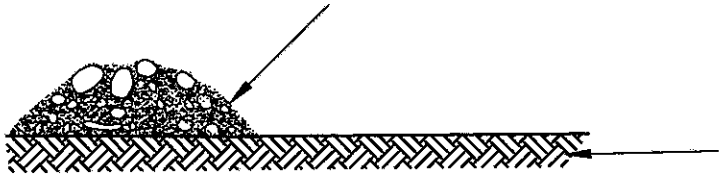
DETAIL FOR MAXIMUM PARTICLE DIMENSION



ZONE	DEPTH	PARTICLE MAX. DIMENSION	PLACEMENT METHOD
1	0-3 ft.	≤1.0 ft.	STANDARD OR CONVENTIONAL COMPACTION METHODS (SEE EARTHWORK SPECIFICATIONS)
2	3-10 ft.	≤2.0 ft.	ROCK BLANKETS (SEE PLATE G-13)
3	>10 ft.	≤8.0 ft.	ROCK BLANKETS (PLATE G-13) ROCK WINDROW (PLATE G-14) INDIVIDUAL ROCK BURIED (PLATE G-15)
4	15 HORIZONTAL FEET FROM FILL SLOPE FACE	≤1.0 ft.	STANDARD OR CONVENTIONAL COMPACTION METHODS (SEE EARTHWORK SPECIFICATIONS)

ROCK BLANKET DETAILS

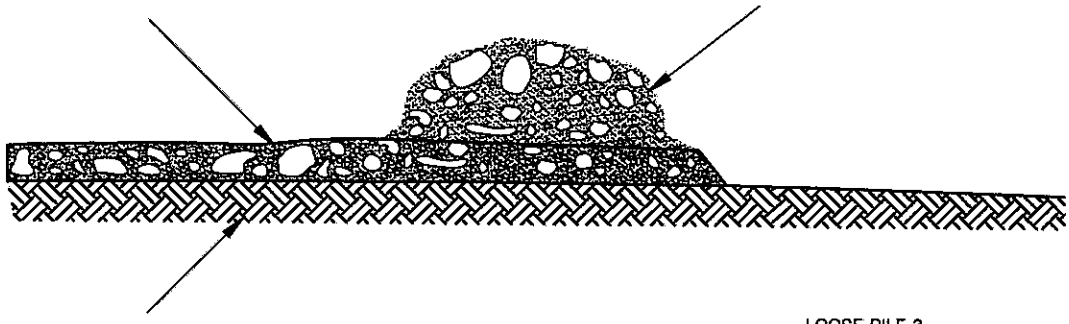
LOOSE PILE 1
LOOSE, DUMPED ROCK, GRAVEL AND SAND MIXTURE REMOVE FRAGMENTS LARGER THAT 2 FEET FOR ISOLATED BURIAL (PLATE G-15) OR WINDROW (PLATE G-10)



APPROVED BOTTOM, OR TOP OF PREVIOUSLY APPROVED BLANKET FILL

COMPACT PILE 1
SPREAD LOOSE PILE FORWARD WITH HEAVY TRACKED DOZER (D-8 OR LARGER). HEAVILY WATER, TRACK, AND APPLY ADDITIONAL SAND AND GRAVEL AS NECESSARY TO FILL VOIDS AND CREATE A DENSE MATRIX OF ROCK, COBBLES, GRAVEL AND SAND (2 FOOT MAXIMUM THICKNESS)

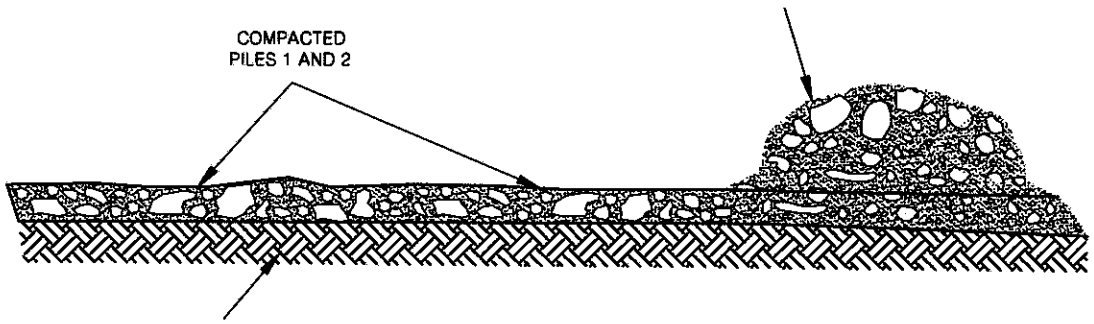
LOOSE PILE 2
DUMP SUCCESSIVE PILES OF LOOSE ROCK, GRAVEL AND SAND MIXTURE ON FORWARD EDGE OF PREVIOUSLY COMPACTED LIFT WITH TRUCKS AND/OR SCRAPERS. USE PREVIOUS LIFT TO ACCESS AND FURTHER COMPACT PILE 1.



APPROVED BOTTOM, OR TOP OF PREVIOUSLY APPROVED BLANKET FILL

LOOSE PILE 3
DUMP SUCCESSIVE PILES OF LOOSE ROCK, GRAVEL AND SAND MIXTURE ON FORWARD EDGE OF PREVIOUSLY COMPACTED LIFT WITH TRUCKS AND/OR SCRAPERS. USE PREVIOUS LIFT TO ACCESS AND FURTHER COMPACT EXISTING BLANKET.

COMPACTED PILES 1 AND 2

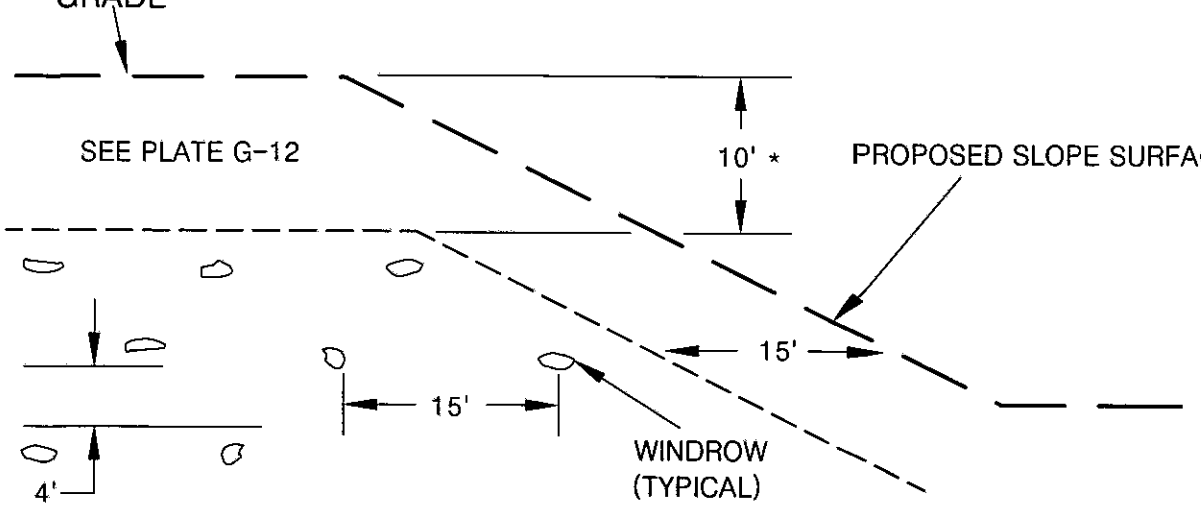


APPROVED BOTTOM, OR TOP OF PREVIOUSLY APPROVED BLANKET FILL

OBSERVATION TESTING AND APPROVAL PROCEDURES

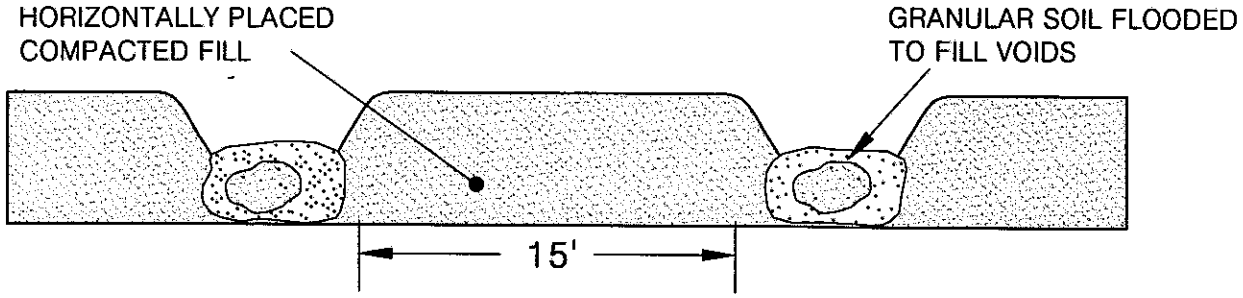
OBSERVE EQUIPMENT. SCRAPERS AND TRUCKS SHOULD BE FULLY SUPPORTED ON BLANKET WITHOUT SIGNIFICANT YIELDING. EXCAVATE TEST/OBSERVATION PITS TO CONFIRM EXISTENCE OF MIXTURE OF VARIOUS PARTICLE SIZES, WITHOUT SIGNIFICANT VOIDS, AND FORMING A DENSE, COMPACTED FILL MATRIX. TEST BY ASTM D1556, D2922 AND/OR D3017 WHEN APPROPRIATE. RECORD LIMITS AND ELEVATION OF BLANKET. ALL FILL AND COMPACTION OPERATIONS TO BE CONDUCTED UNDER THE OBSERVATION OF THE GEOTECHNICAL ENGINEER. SUBSEQUENT LIFTS TO BE APPLIED ONLY AFTER OBSERVATION AND CONFIRMATION OF SUITABILITY OF FILL AND RELEASE BY THE GEOTECHNICAL ENGINEER. BLANKETS TO BE CONSTRUCTED IN ACCORDANCE WITH PLATE G-12.

ROCK WINDROW DETAIL



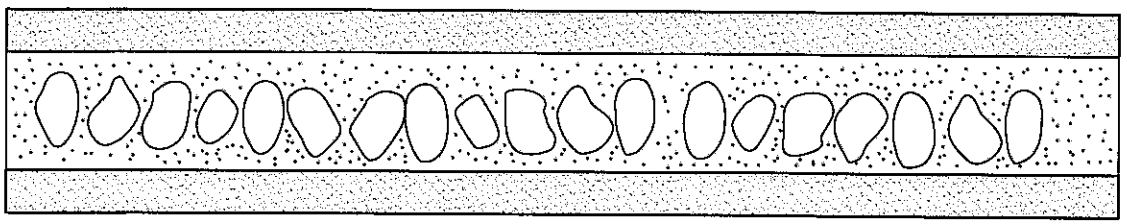
NOTE: OVERSIZED MATERIAL SHOULD BE REMOVED FROM THE 15' CLEAR ZONES WITH SPECIAL EQUIPMENT, SUCH AS A ROCK RAKE, PRIOR TO PLACING THE NEXT FILL LIFT.
*VARIANCES TO THE ABOVE ROCK HOLD DOWN MAY BE GRANTED SUBJECT TO APPROVAL BY THE OWNER, GEOTECHNICAL ENGINEER, AND GOVERNING AGENCY

TYPICAL WINDROW DETAIL (END VIEW)

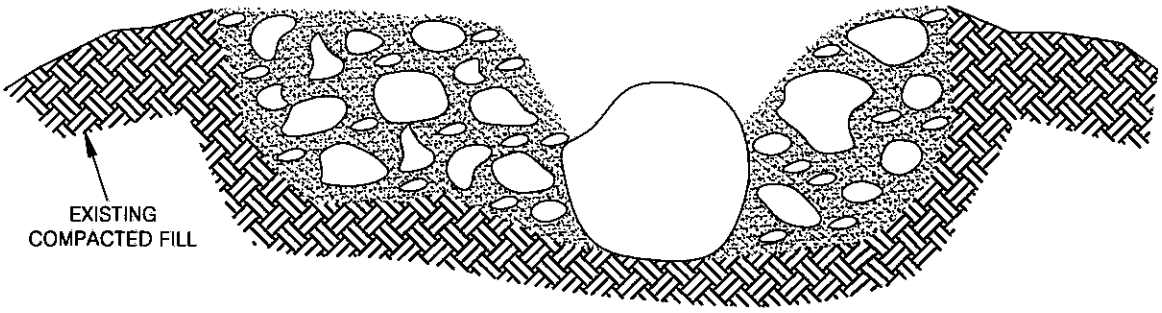


NOTE: COMPACTED FILL SHALL BE BROUGHT UP TO A HIGHER ELEVATION ALONG EACH WINDROW SO GRANULAR SOIL CAN BE FLOODED IN A "TRENCH CONDITION".

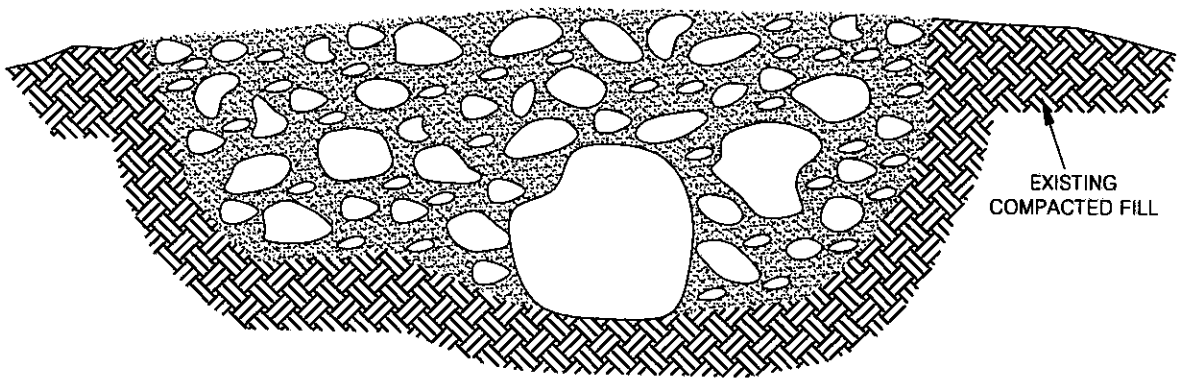
PROFILE VIEW



ISOLATED ROCK BURIAL DETAILS

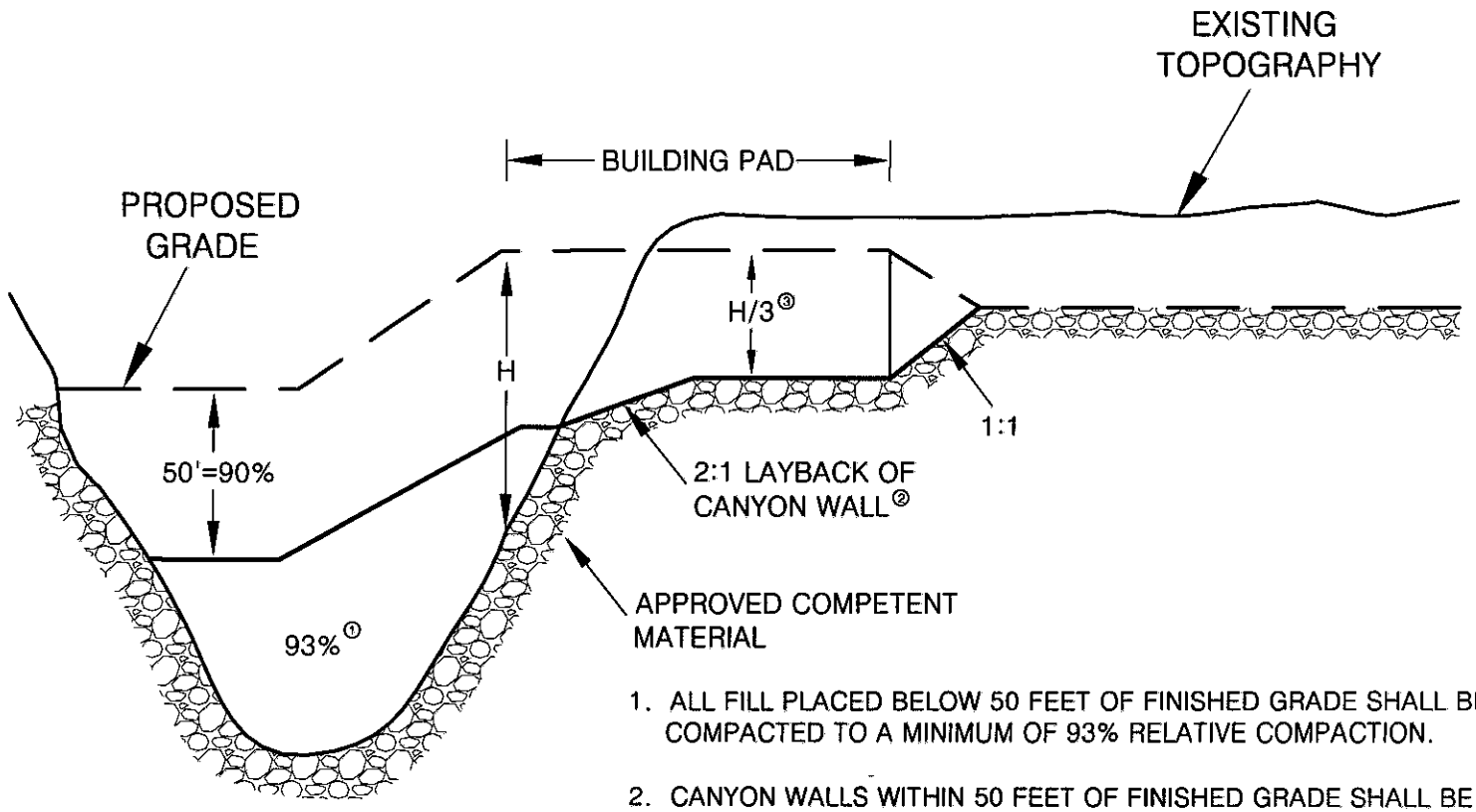


EXCAVATE HOLE INTO EXISTING FILL PRISM, PLACE BOULDER (< 8 feet in maximum dimension) INTO EXISTING COMPACTED FILL. SURROUND WITH SAND, GRAVEL, COBBLES AND WATER HEAVILY. TRACK WITH D8 OR LARGER EQUIPMENT UNTIL RESULTING FILL FULLY SUPPORTS EQUIPMENT. OBSERVE AND/OR TEST IN ACCORDANCE WITH ASTM D1556, D2922 OR D3017. ROCKS LARGER THAN 8 FEET SHALL BE FURTHER REDUCED IN SIZE BY SECONDARY BREAKING.



RELATIVE COMPACTION VS. DEPTH

CANYON WALL LAY BACK
DIFFERENTIAL FILL OVEREXCAVATION DETAILS



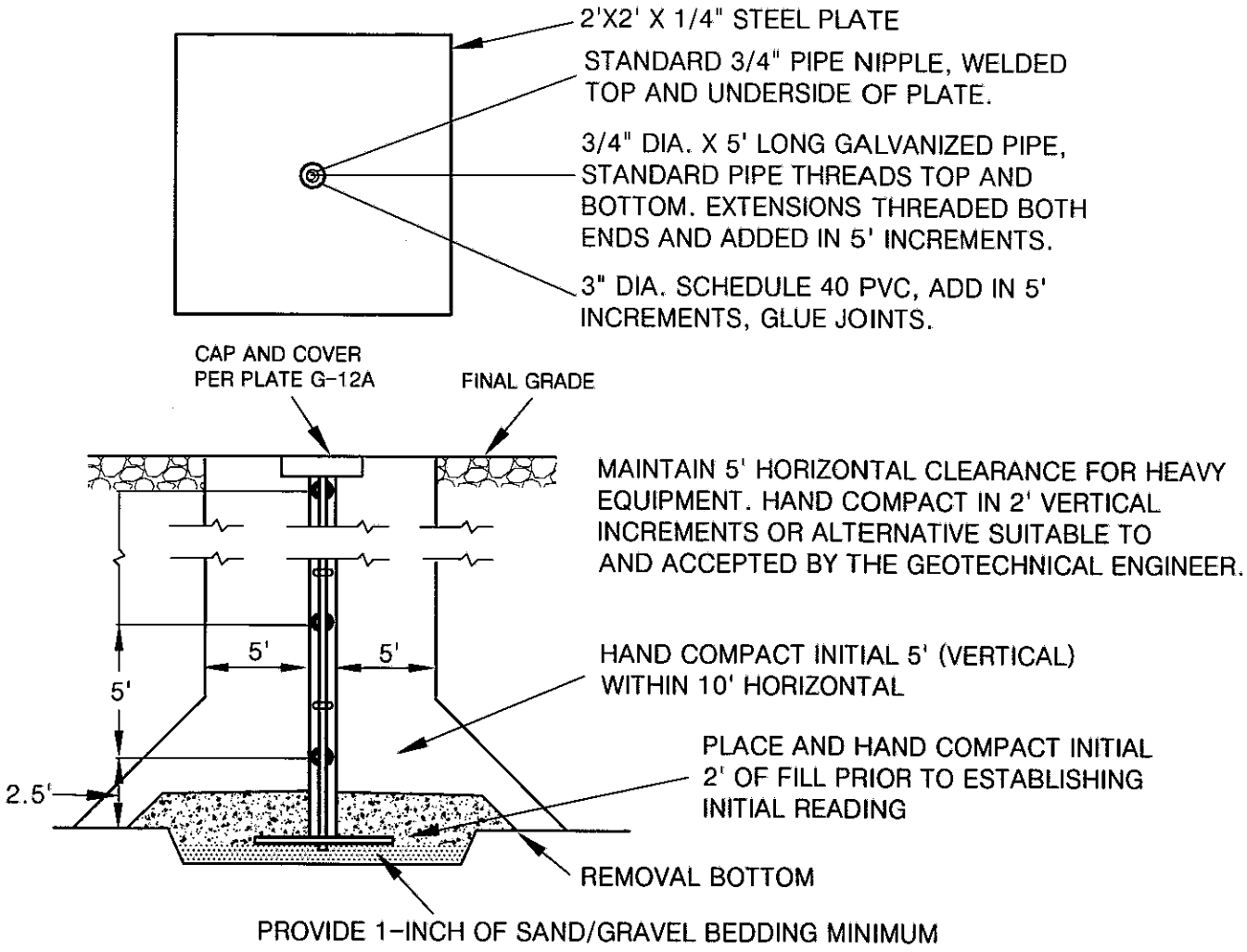
1. ALL FILL PLACED BELOW 50 FEET OF FINISHED GRADE SHALL BE COMPACTED TO A MINIMUM OF 93% RELATIVE COMPACTION.

2. CANYON WALLS WITHIN 50 FEET OF FINISHED GRADE SHALL BE LAID BACK TO A SLOPE RATIO OF 2:1 OR FLATTER.

3. ALL BUILDING PADS SHALL BE OVER EXCAVATED TO A MINIMUM OF 1/3 OF THE MAXIMUM DEPTH OF FILL BELOW THE BUILDING PAD TO A MAXIMUM OF 17 FEET.

4. IF THE 2:1 LAY BACK OF THE CANYON WALL IS IMPRACTICAL, THEN AS AN ALTERNATIVE THE INCREASED COMPACTION STANDARDS IN NOTE 1 SHOULD BE EXTENDED UP TO H/3 AND THE LAY BACK WILL NOT BE REQUIRED.

SETTLEMENT PLATE DETAIL



NOTES:

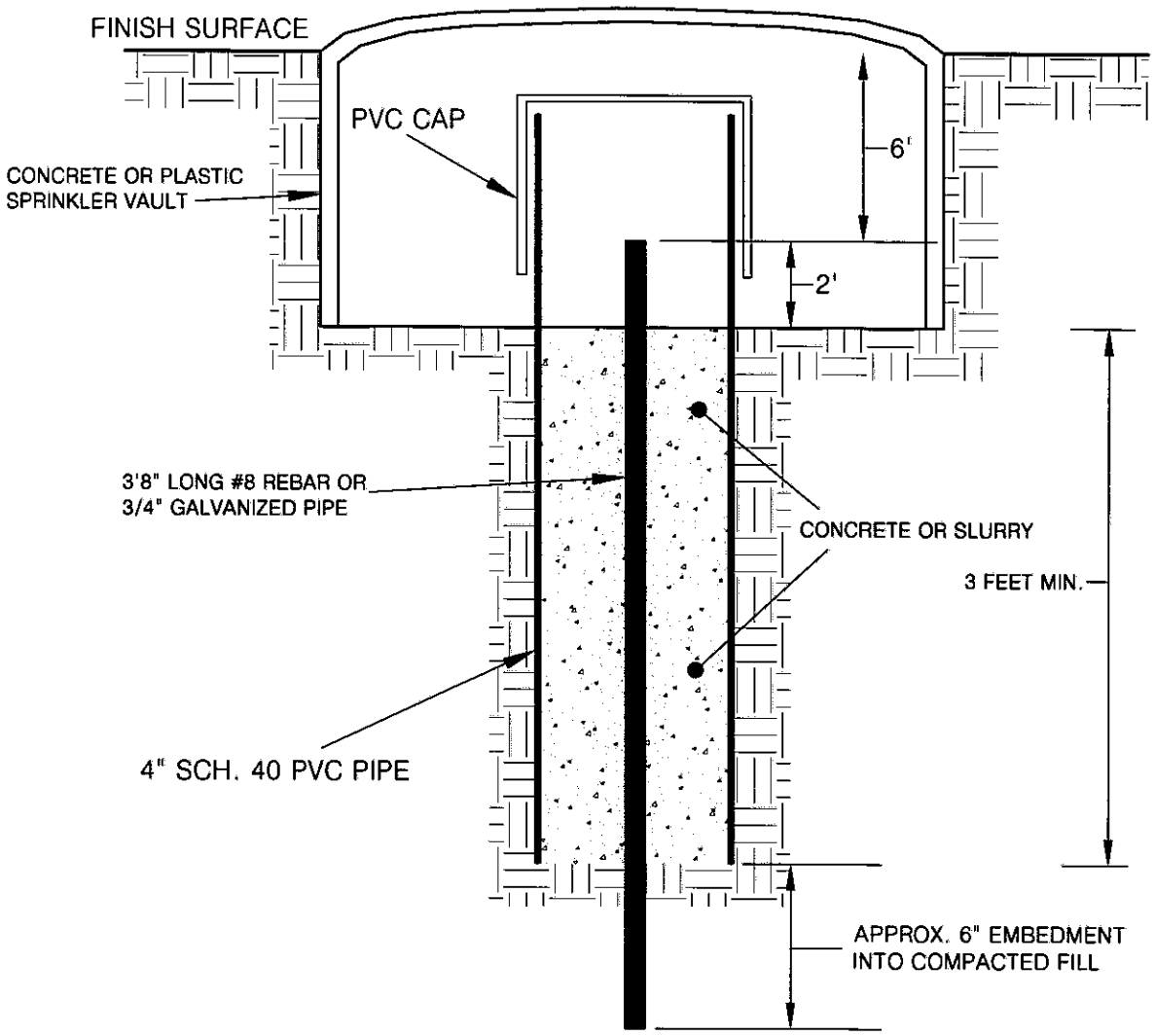
1) LOCATIONS OF SETTLEMENT PLATES SHALL BE CLEARLY MARKED AND READILY VISIBLE (RED FLAGGED) TO EQUIPMENT OPERATORS.

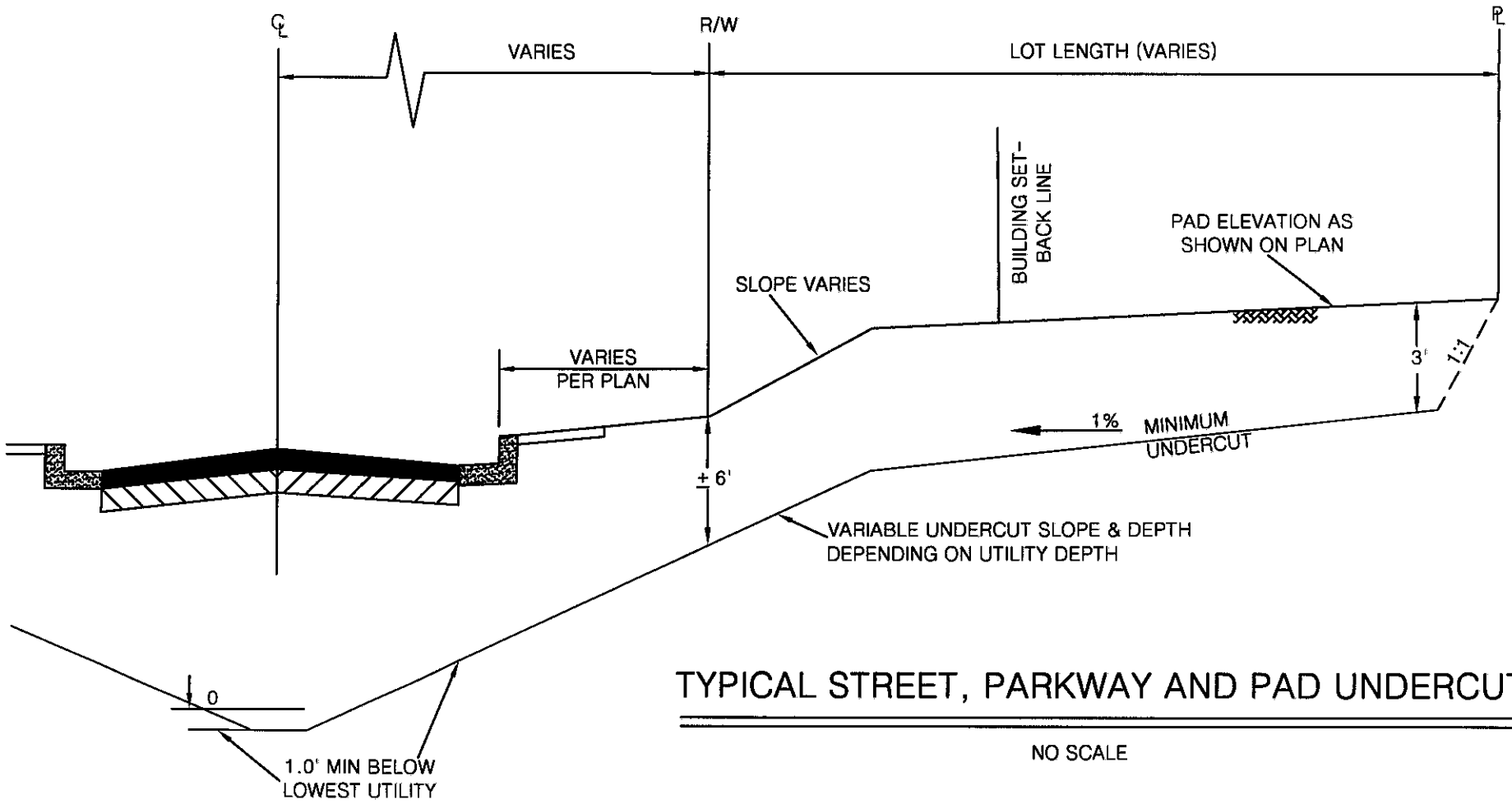
2) CONTRACTOR SHALL MAINTAIN 10' HORIZONTAL CLEARANCE FOR HEAVY EQUIPMENT WITHIN 5' (VERTICAL) OF PLATE BASE. FILL WITHIN CLEARANCE AREA SHALL BE HAND COMPACTED TO PROJECT SPECIFICATIONS OR COMPACTED BY ALTERNATIVE APPROVED BY THE GEOTECHNICAL ENGINEER.

3) AFTER 5' (VERTICAL) OF FILL IS IN PLACE, CONTRACTOR SHALL MAINTAIN 5' HORIZONTAL EQUIPMENT CLEARANCE. FILL IN CLEARANCE AREA SHALL BE HAND COMPACTED (OR APPROVED ALTERNATIVE) IN VERTICAL INCREMENTS NOT TO EXCEED 2 FEET.

4) IN THE EVENT OF DAMAGE TO SETTLEMENT PLATE OR EXTENSION RESULTING FROM EQUIPMENT OPERATING WITHIN PRESCRIBED CLEARANCE AREA, CONTRACTOR SHALL IMMEDIATELY NOTIFY GEOTECHNICAL ENGINEER AND SHALL BE RESPONSIBLE FOR RESTORING THE SETTLEMENT PLATE AND EXTENSION RODS TO WORKING ORDER.

SURFACE SETTLEMENT MONUMENT DETAIL





TYPICAL STREET, PARKWAY AND PAD UNDERCUT

NO SCALE

ALTA CALIFORNIA GEOTECHNICAL, INC .
VER. 3/13

PLATE G-19

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PLATE 1

ALTA CALIFORNIA GEOTECHNICAL, INC.
170 N. MAPLE STREET, STE 108 CORONA, CA 92880
TELEPHONE: (951)509-7090
PROJECT NUMBER: 1-0501 DATE: October 25, 2023

ATTACHMENT D

GROUNDWATER FEASIBILITY

In consideration of the inherent instability created by temporary construction backcuts for removals, it is imperative that grading schedules are coordinated to minimize the unsupported exposure time of these excavations. Once started, these excavations and subsequent fill operations should be maintained to completion without intervening delays imposed by avoidable circumstances. In cases where five-day workweeks comprise a normal schedule, grading should be planned to avoid exposing at-grade or near-grade excavations through a non-work weekend. Where improvements may be affected by temporary instability, either on or offsite, further restrictions such as slot cutting, extending workdays, implementing weekend schedules, and/or other requirements considered critical to serving specific circumstances may be imposed.

6.3 Storm Water Infiltration Systems

From a geotechnical perspective, allowing storm water to infiltrate the onsite soil in concentrated areas increases the potential for settlement, liquefaction, and water-related damage to structures/improvements, such as wet slabs or pumping subgrade, and should be avoided where possible. If infiltration systems are required on this site, care should be taken in designing systems that control the storm water as much as possible.

Preliminary infiltration testing was conducted at the site as part of this investigation, and the methodology is discussed in 3.2. The resulting infiltration rates for P-1 and P-2 were calculated to be 0.4-inches per hour. The results do not include a factor of safety.

Per the Geotech report, there is 0,4 inches per hour for infiltration. With a safety factor of 2, 0,2 inches per hour infiltration is insufficient for design.

SUBJECT TO FURTHER REVISION

LEGEND

- Depth To First Groundwater Contours
- City Boundaries
- OCWD Groundwater Basin Protection Boundary

Note: Data are not available for South Orange County at this time.

Source:
Sprotte, Fuller and Greenwood, 1980.
California Division of Mines and Geology;
California Geological Survey

LOS ANGELES COUNTY
ORANGE COUNTY

SAN BERNARDINO COUNTY
ORANGE COUNTY

RIVERSIDE COUNTY
ORANGE COUNTY

0 2 4 8 Kilometers
0 1.25 2.5 5 Miles

P:\9526E\6-GIS\Mxds\Reports\InfiltrationFeasability_20110215\9526E_FigureXVI-2d_DepthToGroundwaterOverview_20110215.mxd

TITLE
NORTH ORANGE COUNTY
MAPPED DEPTH TO FIRST
GROUNDWATER

ORANGE COUNTY
INFILTRATION STUDY

JOB
ORANGE CO.

SCALE	1" = 1.25 miles
DESIGNED	TH
DRAWING	TH
CHECKED	BMP
DATE	02/09/11
JOB NO.	9526-E

CA

PACE
Advanced Water Engineering

FIGURE
XVI-2d

ATTACHMENT E

CALCULATIONS

Brea

WQMP Flow Rate Calculations

Area	% Impervious	C	I (in/hr)	A (acres)	Q (cfs)	Selected Modular Wetland	Modular Wetland Allowable Q
DA-1	90.0%	0.825	0.23	0.33	0.063	MWS-L-4-8	0.115
DA-2	90.0%	0.825	0.23	0.66	0.125	MWS-L-4-13	0.144

Worksheet B: Simple Design Capture Volume Sizing Method

DA 1

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	0.90	inches
2	Enter the effect of provided HSCs, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
3	Calculate the remainder of the design capture storm depth, $d_{remainder}$ (inches) (Line 1 – Line 2)	$d_{remainder}$=	0.90	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	0.33	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.90	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.83	
4	Calculate runoff volume, V_{design}= *(C x* $d_{remainder}$ *x A x 43560 x (1/12))*	V_{design}=	894	cu-ft
Step 3: Design BMPs to ensure full retention of the DCV				
Step 3a: Determine design infiltration rate				
1	Enter measured infiltration rate, $K_{observed}$[1] (in/hr) (**Appendix VII**)	$K_{observed}$=	N/A	In/hr
2	Enter combined safety factor from Worksheet H, S_{total} (unitless)	S_{total}=		
3	Calculate design infiltration rate, $K_{design} = K_{observed} / S_{total}$	K_{design}=		In/hr
Step 3b: Determine minimum BMP footprint				
4	Enter drawdown time, *T* (max 48 hours)	T=		Hours
5	Calculate max retention depth that can be drawn down within the drawdown time (feet), $D_{max} = K_{design} x T x (1/12)$	D_{max}=		feet
6	Calculate minimum area required for BMP (sq-ft), $A_{min} = V_{design} / d_{max}$	A_{min}=		sq-ft

[1] $K_{observed}$ is the vertical infiltration measured in the field, before applying a factor of safety. If field testing measures a rate that is different than the vertical infiltration rate (for example, three-dimensional borehole percolation rate), then this rate must be adjusted by an acceptable method (for example, Porchet method) to yield the field estimate of vertical infiltration rate, $K_{observed}$. See Appendix VII.

Worksheet B: Simple Design Capture Volume Sizing Method

DA 2

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter design capture storm depth from Figure III.1, *d* (inches)	d=	0.90	inches
2	Enter the effect of provided HSCs, d_{HSC} (inches) (Worksheet A)	d_{HSC}=	0	inches
3	Calculate the remainder of the design capture storm depth, $d_{remainder}$ (inches) (Line 1 – Line 2)	$d_{remainder}$=	0.90	inches
Step 2: Calculate the DCV				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	0.66	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.90	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.83	
4	Calculate runoff volume, V_{design}= *(C x* $d_{remainder}$ *x A x 43560 x (1/12))*	V_{design}=	1,790	cu-ft
Step 3: Design BMPs to ensure full retention of the DCV				
Step 3a: Determine design infiltration rate				
1	Enter measured infiltration rate, $K_{observed}$[1] (in/hr) (**Appendix VII**)	$K_{observed}$=	N/A	In/hr
2	Enter combined safety factor from Worksheet H, S_{total} (unitless)	S_{total}=		
3	Calculate design infiltration rate, $K_{design} = K_{observed} / S_{total}$	K_{design}=		In/hr
Step 3b: Determine minimum BMP footprint				
4	Enter drawdown time, *T* (max 48 hours)	T=		Hours
5	Calculate max retention depth that can be drawn down within the drawdown time (feet), $D_{max} = K_{design} x T x (1/12)$	D_{max}=		feet
6	Calculate minimum area required for BMP (sq-ft), $A_{min} = V_{design} / d_{max}$	A_{min}=		sq-ft

[1] $K_{observed}$ is the vertical infiltration measured in the field, before applying a factor of safety. If field testing measures a rate that is different than the vertical infiltration rate (for example, three-dimensional borehole percolation rate), then this rate must be adjusted by an acceptable method (for example, Porchet method) to yield the field estimate of vertical infiltration rate, $K_{observed}$. See Appendix VII.

Worksheet D: Capture Efficiency Method for Flow-Based BMPs

Step 1: Determine the design capture storm depth used for calculating volume				
1	Enter the time of concentration, T_c (min) (See **Appendix IV.2**)	T_c=	5	min
2	Using **Figure III.4**, determine the design intensity at which the estimated time of concentration (T_c) achieves 80% capture efficiency, I_1	I_1=	0.23	in/hr
3	Enter the effect depth of provided HSCs upstream, d_{HSC} (inches) (**Worksheet A**)	d_{HSC}=	0	inches
4	Enter capture efficiency corresponding to d_{HSC}, Y_2 (**Worksheet A**)	Y_2=	0	%
5	Using **Figure III.4**, determine the design intensity at which the time of concentration (T_c) achieves the upstream capture efficiency(Y_2), I_2	I_2=	0	in/hr
6	Determine the design intensity that must be provided by BMP, $I_{design}= I_1-I_2$	I_{design}=	0.23	in/hr
Step 2: Calculate the design flowrate				
1	Enter Project area tributary to BMP (s), *A* (acres)	A=	0.99	acres
2	Enter Project Imperviousness, *imp* (unitless)	imp=	0.90	
3	Calculate runoff coefficient, *C= (0.75 x imp) + 0.15*	C=	0.825	
4	Calculate design flowrate, $Q_{design}= (C \times i_{design} \times A)$	Q_{design}=	0.188	cfs

Supporting Calculations

Describe system:

Q=CIA

C = (0.75x0.9+.15) =0.825 I=.23

DA 1: A=0.33 AC Q=0.063 CFS

DA 2: A=0.66 AC Q=0.125 CFS

Provide time of concentration assumptions:

Minimum Tc is assumed. The prelminary DMA .99 acres, split into 2 separate DA's.

minimum incremental benefit required to mandate its use (See discussion of threshold incremental benefit in **Appendix XIII**). This level of performance is termed the "minimum partial capture." A harvest and use system would be considered to achieve less than "minimum partial capture" if:

- Based on a system sized for the full DCV from the tributary area, and
- Based on the combined project demand for harvested water,
- The system draws down in greater than 30 days (720 hours), therefore captures less than 40 percent of average annual runoff (See Figure III.2).

Harvest and use systems with demand lower than required to achieve minimum partial capture are not required to be considered to demonstrate retention of stormwater to the MEP. If this is the case, other LID BMPs must be evaluated for retention and/or biotreatment of the Project DCV.

X.3.2. Demand Thresholds for Minimum Partial Capture

Table X.6 provides the minimum combined project demand to meet the minimum partial capture for the range of precipitation zones found in Orange County. Projects with a total demand below this value not required to prepare a project specific evaluation of harvest and use feasibility.

Table X.6: Harvested Water Demand Thresholds for Minimum Partial Capture

Design Capture Storm Depth[1], inches	Wet Season Demand Required for Minimum Partial Capture[2], gpd per impervious acre
0.60	490
0.65	530
0.70	570
0.75	610
0.80	650
0.85	690
0.90	730
0.95	770
1.00	810

1 - Based on isopluvial map (See **XVI.1**)

2 –Minimum Partial Capture is a performance standard whereby system performance exceeds 40 percent capture (See **Appendix** XIII) , such that the system must be considered for use even if it cannot achieve the full DCV.

X.3.3. TUTIA Ratio Thresholds for Minimum Partial Capture

Table X.7 provides thresholds for TUTIA (Toilet Users to Impervious Area) ratio required to achieve minimum partial capture of the stormwater DCV (i.e. at least 40 percent average annual capture efficiency with a system sized for the DCV). Projects with TUTIA ratios below this value and without other significant demands for harvested water are not required to prepare a project specific evaluation of harvest and use feasibility. The values in Table X.7 reflect the minimum TUTIA ratio required to achieve at least 40 percent average annual capture efficiency with a system sized for the DCV.

Table X.7: Minimum TUTIA for Minimum Partial Capture

Project Type	**Residential**	**Retail and Office Commercial**	**Industrial**	**Schools[1]**
Basis of Toilet User Calculation	*Resident*	*Employee (non-visitor)*	*Employee (non-visitor)*	*Employee (non-student)*
Design Capture Storm Depth, inches	**Minimum TUTIA Ratio Required for Minimum Partial Capture (toilet users/impervious acre)**			
0.6	74	98	125	21
0.65	80	106	135	23
0.7	86	114	145	24
0.75	92	122	155	26
0.8	98	130	165	28
0.85	104	138	176	30
0.9	110	146	186	31
0.95	117	154	196	33
1	123	162	206	35

1 – based on employees only; assumes approximately 5 students per employee.

X.3.4. Irrigated Area Thresholds for Minimum Partial Capture

Table X.8 provides thresholds for irrigated area per impervious acre for minimum partial capture of the stormwater DCV. Projects with irrigation area below this value and without other sources of significant demand will generally not be required to prepare a project specific evaluation of harvest and use feasibility. The values in Table X.8 reflect the minimum irrigated area per impervious area required to achieve at least 40 percent average annual capture efficiency with a system sized for the DCV.

Table X.8: Minimum Irrigated Area for Potential Partial Capture Feasibility

General Landscape Type	Conservation Design: K_L = 0.35			Active Turf Areas: K_L = 0.7		
Closest ET Station	*Irvine*	*Santa Ana*	*Laguna*	*Irvine*	*Santa Ana*	*Laguna*
Design Capture Storm Depth, inches	**Minimum Required Irrigated Area per Tributary Impervious Acre for Potential Partial Capture, ac/ac**					
0.60	0.66	0.68	0.72	0.33	0.34	0.36
0.65	0.72	0.73	0.78	0.36	0.37	0.39
0.70	0.77	0.79	0.84	0.39	0.39	0.42
0.75	0.83	0.84	0.90	0.41	0.42	0.45
0.80	0.88	0.90	0.96	0.44	0.45	0.48
0.85	0.93	0.95	1.02	0.47	0.48	0.51
0.90	0.99	1.01	1.08	0.49	0.51	0.54
0.95	1.04	1.07	1.14	0.52	0.53	0.57
1.00	1.10	1.12	1.20	0.55	0.56	0.60

Worksheet J: Summary of Harvested Water Demand and Feasibility

1	What demands for harvested water exist in the tributary area (check all that apply):			
2	Toilet and urinal flushing		☒	
3	Landscape irrigation		☒	
4	Other:_____		☐	
5	What is the design capture storm depth? (**Figure III.1**)	d	.9	inches
6	What is the project size?	A	0.99	ac
7	What is the acreage of impervious area?	IA	0.89	ac
	For projects with multiple types of demand (toilet flushing, indoor demand, and/or other demand)			
8	What is the minimum use required for partial capture? (**Table X.6**)			gpd
9	What is the project estimated wet season total daily use?			gpd
10	Is partial capture potentially feasible? (Line 9 > Line 8?)			
	For projects with only toilet flushing demand			
11	What is the minimum TUTIA for partial capture? (**Table X.7**)		109	
12	What is the project estimated TUTIA?		128	

Worksheet J: Summary of Harvested Water Demand and Feasibility

13	Is partial capture potentially feasible? (Line 12 > Line 11?)	No	
	For projects with only irrigation demand		
14	What is the minimum irrigation area required based on conservation landscape design? (**Table X.8**)	.90	ac
15	What is the proposed project irrigated area? (multiply conservation landscaping by 1; multiply active turf by 2)	.10	ac
16	Is partial capture potentially feasible? (Line 15 > Line 14?)	No	

Provide supporting assumptions and citations for controlling demand calculation:
ITEM 11 - FROM TABLE X.7 - 110 USERS/IMP ACRE X 9.1 = 109.
ITEM 12 - ESTIAMTE BASE ON 447 ROOMS AND 2 PERSONS PER UNIT = 124 USERS
ITEM 14 - FROM TABLE X.8 - KI = 0.35, DEPTH = 1.01, SANTA ANA
1.01 X 0.89 AC = .90 AC
ITEM 15 - .10 AC X 1.0 = .10 AC
SINCE THE IRRIGATION AND SEWER DEMAN ARE LESS THAN THE MINIMUM BASE THE PROJECT DOES NOT HAVE THE DEMAND NECESSARY TO CONSIDER HARVEST AND USE FEASIBLE.

VII.4.1. Site Suitability Considerations

Suitability assessment related considerations include (**Table VII.3**):

- Soil assessment methods – the site assessment extent (e.g., number of borings, test pits, etc.) and the measurement method used to estimate the short-term infiltration rate.
- Predominant soil texture/percent fines – soil texture and the percent of fines can greatly influence the potential for clogging.
- Site soil variability – site with spatially heterogeneous soils (vertically or horizontally) as determined from site investigations are more difficult to estimate average properties for resulting in a higher level of uncertainty associated with initial estimates.
- Depth to seasonal high groundwater/impervious layer – groundwater mounding may become an issue during excessively wet conditions where shallow aquifers or shallow clay lenses are present.

Table VII.3: Suitability Assessment Related Considerations for Infiltration Facility Safety Factors

Consideration	High Concern	Medium Concern	Low Concern
Assessment methods (see explanation below)	Use of soil survey maps or simple texture analysis to estimate short-term infiltration rates	Direct measurement of ≥ 20 percent of infiltration area with localized infiltration measurement methods (e.g., infiltrometer)	Direct measurement of ≥ 50 percent of infiltration area with localized infiltration measurement methods or Use of extensive test pit infiltration measurement methods
Texture Class	Silty and clayey soils with significant fines	Loamy soils	Granular to slightly loamy soils
Site soil variability	Highly variable soils indicated from site assessment or limited soil borings collected during site assessment	Soil borings/test pits indicate moderately homogeneous soils	Multiple soil borings/test pits indicate relatively homogeneous soils
Depth to groundwater/ impervious layer	<5 ft below facility bottom	5-10 ft below facility bottom	>10 below facility bottom

Localized infiltration testing refers to methods such as the double ring infiltrometer test (ASTM D3385-88) which measure infiltration rates over an area less than 10 sq-ft, may include lateral

Table VII.4: Design Related Considerations for Infiltration Facility Safety Factors

Consideration	High Concern	Medium Concern	Low Concern
Tributary area size	Greater than 10 acres.	Greater than 2 acres but less than 10 acres.	2 acres or less.
Level of pretreatment/ expected influent sediment loads	Pretreatment from gross solids removal devices only, such as hydrodynamic separators, racks and screens AND tributary area includes landscaped areas, steep slopes, high traffic areas, or any other areas expected to produce high sediment, trash, or debris loads.	Good pretreatment with BMPs that mitigate coarse sediments such as vegetated swales AND influent sediment loads from the tributary area are expected to be relatively low (e.g., low traffic, mild slopes, disconnected impervious areas, etc.).	Excellent pretreatment with BMPs that mitigate fine sediments such as bioretention or media filtration OR sedimentation or facility only treats runoff from relatively clean surfaces, such as rooftops.
Redundancy of treatment	No redundancy in BMP treatment train.	Medium redundancy, other BMPs available in treatment train to maintain at least 50% of function of facility in event of failure.	High redundancy, multiple components capable of operating independently and in parallel, maintaining at least 90% of facility functionality in event of failure.
Compaction during construction	Construction of facility on a compacted site or elevated probability of unintended/ indirect compaction.	Medium probability of unintended/ indirect compaction.	Heavy equipment actively prohibited from infiltration areas during construction and low probability of unintended/ indirect compaction.

Worksheet H: Factor of Safety and Design Infiltration Rate and Worksheet

Factor Category		Factor Description	Assigned Weight (w)	Factor Value (v)	Product (p) p = w x v
A	Suitability Assessment	Soil assessment methods	0.25	3	.75
		Predominant soil texture	0.25	3	.75
		Site soil variability	0.25	1	.25
		Depth to groundwater / impervious layer	0.25	1	.25
		Suitability Assessment Safety Factor, $S_A = \Sigma p$			2
B	Design	Tributary area size	0.25	1	.25
		Level of pretreatment/ expected sediment loads	0.25	3	.75
		Redundancy	0.25	3	.75
		Compaction during construction	0.25	2	.5
		Design Safety Factor, $S_B = \Sigma p$			2.25
Combined Safety Factor, $S_{Total} = S_A \times S_B$					4.5
Observed Infiltration Rate, inch/hr, $K_{observed}$ (corrected for test-specific bias)					0.40
Design Infiltration Rate, in/hr, $K_{DESIGN} = K_{Observed} / S_{Total}$					0.09 in/hr

Supporting Data

Briefly describe infiltration test and provide reference to test forms:

Due to the low infiltration rates after the safety of factor, it is deemed infeasible to infiltrate with the Project soil types and flow based biotreatment will be used instead.

Note: The minimum combined adjustment factor shall not be less than 2.0 and the maximum combined adjustment factor shall not exceed 9.0.

The following 2 year rational method analysis shows that the peak flows are within 5% and the time of concentration changes are within 5%

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
          (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
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            Ver. 18.0  Release Date: 07/01/2011  License ID 1499

                          Analysis prepared by:

                     Kimley-Horn and Associates, Inc.
                            765 The City Drive
                                Suite 200
                             Orange, CA 92868

 ************************* DESCRIPTION OF STUDY *************************
* BREA EXISTING CONDITIONS 2 YEAR                                       *
*                                                                       *
*                                                                       *
 *************************************************************************

  FILE NAME: BEX2.DAT
  TIME/DATE OF STUDY: 14:16 06/06/2024
==========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
==========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
--------------------------------------------------------------------------
```

```
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   274.00
  ELEVATION DATA: UPSTREAM(FEET) =    346.60  DOWNSTREAM(FEET) =    344.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.287
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.824
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 C        0.26      0.25     0.100    50    7.29
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      0.42
  TOTAL AREA(ACRES) =      0.26   PEAK FLOW RATE(CFS) =      0.42

********************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    101.00 IS CODE =   1
--------------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
================================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.29
  RAINFALL INTENSITY(INCH/HR) =   1.82
  AREA-AVERAGED Fm(INCH/HR) =  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.10
  EFFECTIVE STREAM AREA(ACRES) =       0.26
  TOTAL STREAM AREA(ACRES) =       0.26
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.42

********************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
--------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   210.00
  ELEVATION DATA: UPSTREAM(FEET) =    346.63  DOWNSTREAM(FEET) =    343.61

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    6.028
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  2.033
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  COMMERCIAL                 C        0.73      0.25     0.100    50    6.03
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
```

```
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.100
  SUBAREA RUNOFF(CFS) =      1.32
  TOTAL AREA(ACRES) =      0.73   PEAK FLOW RATE(CFS) =      1.32

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    101.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    6.03
  RAINFALL INTENSITY(INCH/HR) =   2.03
  AREA-AVERAGED Fm(INCH/HR) =  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.10
  EFFECTIVE STREAM AREA(ACRES) =       0.73
  TOTAL STREAM AREA(ACRES) =       0.73
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.32

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        0.42    7.29    1.824  0.25( 0.03) 0.10       0.3     100.00
      2        1.32    6.03    2.033  0.25( 0.03) 0.10       0.7     200.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.71    6.03    2.033  0.25( 0.03) 0.10       0.9     200.00
      2        1.60    7.29    1.824  0.25( 0.03) 0.10       1.0     100.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       1.71    Tc(MIN.) =     6.03
  EFFECTIVE AREA(ACRES) =       0.95   AREA-AVERAGED Fm(INCH/HR) =  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.10
  TOTAL AREA(ACRES) =        1.0
  LONGEST FLOWPATH FROM NODE    100.00 TO NODE    101.00 =     274.00 FEET.
============================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.0  TC(MIN.) =      6.03
  EFFECTIVE AREA(ACRES) =      0.95  AREA-AVERAGED Fm(INCH/HR)=  0.03
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 0.100
  PEAK FLOW RATE(CFS)   =       1.71

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
```

NUMBER	(CFS)	(MIN.)	(INCH/HR)	(INCH/HR)	(ACRES)	NODE
1	1.71	6.03	2.033	0.25(0.03) 0.10	0.9	200.00
2	1.60	7.29	1.824	0.25(0.03) 0.10	1.0	100.00

END OF RATIONAL METHOD ANALYSIS

```
**************************************************************************
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            Ver. 18.0  Release Date: 07/01/2011  License ID 1499

                          Analysis prepared by:

                      Kimley-Horn and Associates, Inc.
                             765 The City Drive
                                 Suite 200
                              Orange, CA 92868

 ************************* DESCRIPTION OF STUDY *************************
* BREA PROPOSED 1 YEAR                                                  *
*                                                                       *
*                                                                       *
 *************************************************************************

  FILE NAME: BPR1.DAT
  TIME/DATE OF STUDY: 13:15 06/06/2024
=========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    1.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *USER-DEFINED TABLED RAINFALL USED*
  NUMBER OF [TIME,INTENSITY] DATA PAIRS =  4
   1)    5.00;  1.640
   2)   30.00;  0.646
   3)   60.00;  0.457
   4)  720.00;  0.126
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
```

```
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   106.00
  ELEVATION DATA: UPSTREAM(FEET) =    344.68  DOWNSTREAM(FEET) =    343.68

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.909
  *   1 YEAR RAINFALL INTENSITY(INCH/HR) =  1.604
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS               C        0.13      0.25     0.350    50    5.91
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      0.18
  TOTAL AREA(ACRES) =      0.13   PEAK FLOW RATE(CFS) =      0.18

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    201.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.91
  RAINFALL INTENSITY(INCH/HR) =   1.60
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.13
  TOTAL STREAM AREA(ACRES) =       0.13
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.18

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  ELEVATION DATA: UPSTREAM(FEET) =    345.17  DOWNSTREAM(FEET) =    343.95

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.483
  *   1 YEAR RAINFALL INTENSITY(INCH/HR) =  1.621
```

```
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS               C        0.24      0.25     0.350    50    5.48
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      0.33
  TOTAL AREA(ACRES) =      0.24   PEAK FLOW RATE(CFS) =      0.33

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    201.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.48
  RAINFALL INTENSITY(INCH/HR) =   1.62
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.24
  TOTAL STREAM AREA(ACRES) =       0.24
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.33

****************************************************************************
  FLOW PROCESS FROM NODE    300.00 TO NODE    301.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   108.00
  ELEVATION DATA: UPSTREAM(FEET) =    345.02  DOWNSTREAM(FEET) =    343.95

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.895
  *   1 YEAR RAINFALL INTENSITY(INCH/HR) =  1.604
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS               C        0.29      0.25     0.350    50    5.89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      0.40
  TOTAL AREA(ACRES) =      0.29   PEAK FLOW RATE(CFS) =      0.40

****************************************************************************
  FLOW PROCESS FROM NODE    301.00 TO NODE    201.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
```

```
==============================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.89
  RAINFALL INTENSITY(INCH/HR) =   1.60
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.29
  TOTAL STREAM AREA(ACRES) =       0.29
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.40

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        0.18    5.91    1.604  0.25( 0.09) 0.35       0.1     100.00
      2        0.33    5.48    1.621  0.25( 0.09) 0.35       0.2     200.00
      3        0.40    5.89    1.604  0.25( 0.09) 0.35       0.3     300.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  3 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        0.87    5.48    1.621  0.25( 0.09) 0.35       0.6     200.00
      2        0.90    5.89    1.604  0.25( 0.09) 0.35       0.7     300.00
      3        0.90    5.91    1.604  0.25( 0.09) 0.35       0.7     100.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       0.90    Tc(MIN.) =     5.91
  EFFECTIVE AREA(ACRES) =       0.66   AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        0.7
  LONGEST FLOWPATH FROM NODE    300.00 TO NODE    201.00 =     108.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   337.53  DOWNSTREAM(FEET) =   336.93
  FLOW LENGTH(FEET) =   150.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 12.000
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   5.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   2.65
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.90
  PIPE TRAVEL TIME(MIN.) =   0.94    Tc(MIN.) =    6.85
  LONGEST FLOWPATH FROM NODE    300.00 TO NODE    202.00 =     258.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    202.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    6.85
  RAINFALL INTENSITY(INCH/HR) =   1.57
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.66
  TOTAL STREAM AREA(ACRES) =       0.66
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.90

****************************************************************************
  FLOW PROCESS FROM NODE    400.00 TO NODE    401.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   178.00
  ELEVATION DATA: UPSTREAM(FEET) =    345.78  DOWNSTREAM(FEET) =    344.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.186
  *   1 YEAR RAINFALL INTENSITY(INCH/HR) =  1.553
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS               C        0.33      0.25     0.350    50    7.19
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      0.44
  TOTAL AREA(ACRES) =      0.33   PEAK FLOW RATE(CFS) =      0.44

****************************************************************************
  FLOW PROCESS FROM NODE    401.00 TO NODE    202.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.19
  RAINFALL INTENSITY(INCH/HR) =   1.55
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.35
```

```
  EFFECTIVE STREAM AREA(ACRES) =       0.33
  TOTAL STREAM AREA(ACRES) =       0.33
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.44

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        0.87    6.43    1.583  0.25( 0.09) 0.35       0.6     200.00
      1        0.90    6.84    1.567  0.25( 0.09) 0.35       0.7     300.00
      1        0.90    6.85    1.566  0.25( 0.09) 0.35       0.7     100.00
      2        0.44    7.19    1.553  0.25( 0.09) 0.35       0.3     400.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.27    6.43    1.583  0.25( 0.09) 0.35       0.9     200.00
      2        1.32    6.84    1.567  0.25( 0.09) 0.35       1.0     300.00
      3        1.32    6.85    1.566  0.25( 0.09) 0.35       1.0     100.00
      4        1.33    7.19    1.553  0.25( 0.09) 0.35       1.0     400.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       1.33    Tc(MIN.) =     7.19
  EFFECTIVE AREA(ACRES) =       0.99   AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        1.0
  LONGEST FLOWPATH FROM NODE    300.00 TO NODE    202.00 =     258.00 FEET.
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.0  TC(MIN.) =      7.19
  EFFECTIVE AREA(ACRES) =      0.99  AREA-AVERAGED Fm(INCH/HR)=  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 0.350
  PEAK FLOW RATE(CFS)   =       1.33

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.27    6.43    1.583  0.25( 0.09) 0.35       0.9     200.00
      2        1.32    6.84    1.567  0.25( 0.09) 0.35       1.0     300.00
      3        1.32    6.85    1.566  0.25( 0.09) 0.35       1.0     100.00
      4        1.33    7.19    1.553  0.25( 0.09) 0.35       1.0     400.00
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
          (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
        (c) Copyright 1983-2011 Advanced Engineering Software (aes)
            Ver. 18.0  Release Date: 07/01/2011  License ID 1499

                          Analysis prepared by:

                     Kimley-Horn and Associates, Inc.
                            765 The City Drive
                                Suite 200
                             Orange, CA 92868

 ************************* DESCRIPTION OF STUDY *************************
* BREA PROPOSED 2 YEAR                                                  *
*                                                                       *
*                                                                       *
 ************************************************************************

  FILE NAME: BPR2.DAT
  TIME/DATE OF STUDY: 13:07 06/06/2024
========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    2.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *DATA BANK RAINFALL USED*
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

**************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
--------------------------------------------------------------------------
```

```
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   106.00
  ELEVATION DATA: UPSTREAM(FEET) =    344.68  DOWNSTREAM(FEET) =    343.68

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.909
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  2.057
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS               C        0.13      0.25     0.350    50    5.91
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      0.23
  TOTAL AREA(ACRES) =      0.13   PEAK FLOW RATE(CFS) =      0.23

********************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    201.00 IS CODE =   1
--------------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
================================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.91
  RAINFALL INTENSITY(INCH/HR) =   2.06
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.13
  TOTAL STREAM AREA(ACRES) =       0.13
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.23

********************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
--------------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
================================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  ELEVATION DATA: UPSTREAM(FEET) =    345.17  DOWNSTREAM(FEET) =    343.95

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.483
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  2.147
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS               C        0.24      0.25     0.350    50    5.48
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
```

```
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      0.44
  TOTAL AREA(ACRES) =      0.24   PEAK FLOW RATE(CFS) =      0.44

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    201.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.48
  RAINFALL INTENSITY(INCH/HR) =   2.15
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.24
  TOTAL STREAM AREA(ACRES) =       0.24
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.44

****************************************************************************
  FLOW PROCESS FROM NODE    300.00 TO NODE    301.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   108.00
  ELEVATION DATA: UPSTREAM(FEET) =    345.02  DOWNSTREAM(FEET) =    343.95

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.895
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  2.060
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS               C        0.29      0.25     0.350    50    5.89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      0.51
  TOTAL AREA(ACRES) =      0.29   PEAK FLOW RATE(CFS) =      0.51

****************************************************************************
  FLOW PROCESS FROM NODE    301.00 TO NODE    201.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.89
  RAINFALL INTENSITY(INCH/HR) =   2.06
```

```
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.29
  TOTAL STREAM AREA(ACRES) =       0.29
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.51

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        0.23    5.91    2.057  0.25( 0.09) 0.35       0.1     100.00
      2        0.44    5.48    2.147  0.25( 0.09) 0.35       0.2     200.00
      3        0.51    5.89    2.060  0.25( 0.09) 0.35       0.3     300.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  3 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.17    5.48    2.147  0.25( 0.09) 0.35       0.6     200.00
      2        1.17    5.89    2.060  0.25( 0.09) 0.35       0.7     300.00
      3        1.17    5.91    2.057  0.25( 0.09) 0.35       0.7     100.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       1.17    Tc(MIN.) =     5.89
  EFFECTIVE AREA(ACRES) =       0.66   AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        0.7
  LONGEST FLOWPATH FROM NODE    300.00 TO NODE    201.00 =     108.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   337.53  DOWNSTREAM(FEET) =   336.93
  FLOW LENGTH(FEET) =   150.00   MANNING'S N =  0.013
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   6.2 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   2.84
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       1.17
  PIPE TRAVEL TIME(MIN.) =   0.88    Tc(MIN.) =    6.78
  LONGEST FLOWPATH FROM NODE    300.00 TO NODE    202.00 =     258.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    202.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
```

```
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    6.78
  RAINFALL INTENSITY(INCH/HR) =   1.90
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.66
  TOTAL STREAM AREA(ACRES) =       0.66
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       1.17

****************************************************************************
  FLOW PROCESS FROM NODE    400.00 TO NODE    401.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   178.00
  ELEVATION DATA: UPSTREAM(FEET) =    345.78  DOWNSTREAM(FEET) =    344.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.186
  *   2 YEAR RAINFALL INTENSITY(INCH/HR) =  1.838
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS               C        0.33      0.25     0.350    50    7.19
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      0.52
  TOTAL AREA(ACRES) =      0.33   PEAK FLOW RATE(CFS) =      0.52

****************************************************************************
  FLOW PROCESS FROM NODE    401.00 TO NODE    202.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.19
  RAINFALL INTENSITY(INCH/HR) =   1.84
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.33
  TOTAL STREAM AREA(ACRES) =       0.33
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.52

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
```

```
 NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1        1.17    6.37    1.971  0.25( 0.09) 0.35       0.6     200.00
    1        1.17    6.78    1.901  0.25( 0.09) 0.35       0.7     300.00
    1        1.17    6.79    1.899  0.25( 0.09) 0.35       0.7     100.00
    2        0.52    7.19    1.838  0.25( 0.09) 0.35       0.3     400.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1        1.66    6.37    1.971  0.25( 0.09) 0.35       0.9     200.00
    2        1.68    6.78    1.901  0.25( 0.09) 0.35       1.0     300.00
    3        1.68    6.79    1.899  0.25( 0.09) 0.35       1.0     100.00
    4        1.65    7.19    1.838  0.25( 0.09) 0.35       1.0     400.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       1.68    Tc(MIN.) =     6.78
  EFFECTIVE AREA(ACRES) =       0.97   AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        1.0
  LONGEST FLOWPATH FROM NODE    300.00 TO NODE    202.00 =     258.00 FEET.
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.0  TC(MIN.) =      6.78
  EFFECTIVE AREA(ACRES) =      0.97  AREA-AVERAGED Fm(INCH/HR)=  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 0.350
  PEAK FLOW RATE(CFS)   =       1.68

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
    1        1.66    6.37    1.971  0.25( 0.09) 0.35       0.9     200.00
    2        1.68    6.78    1.901  0.25( 0.09) 0.35       1.0     300.00
    3        1.68    6.79    1.899  0.25( 0.09) 0.35       1.0     100.00
    4        1.65    7.19    1.838  0.25( 0.09) 0.35       1.0     400.00
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

The 1 year rational method analysis is used to size the inlet filters for full trash capture.

```
**************************************************************************
            RATIONAL METHOD HYDROLOGY COMPUTER PROGRAM PACKAGE
           (Reference: 1986 ORANGE COUNTY HYDROLOGY CRITERION)
         (c) Copyright 1983-2011 Advanced Engineering Software (aes)
            Ver. 18.0  Release Date: 07/01/2011  License ID 1499

                          Analysis prepared by:

                     Kimley-Horn and Associates, Inc.
                            765 The City Drive
                                Suite 200
                             Orange, CA 92868

 ************************* DESCRIPTION OF STUDY *************************
* BREA PROPOSED 1 YEAR                                                  *
*                                                                       *
*                                                                       *
 *************************************************************************

  FILE NAME: BPR1.DAT
  TIME/DATE OF STUDY: 13:15 06/06/2024
=========================================================================
  USER SPECIFIED HYDROLOGY AND HYDRAULIC MODEL INFORMATION:
=========================================================================
                    --*TIME-OF-CONCENTRATION MODEL*--

  USER SPECIFIED STORM EVENT(YEAR) =    1.00
  SPECIFIED MINIMUM PIPE SIZE(INCH) =  12.00
  SPECIFIED PERCENT OF GRADIENTS(DECIMAL) TO USE FOR FRICTION SLOPE = 0.95
  *USER-DEFINED TABLED RAINFALL USED*
  NUMBER OF [TIME,INTENSITY] DATA PAIRS =  4
   1)    5.00;  1.640
   2)   30.00;  0.646
   3)   60.00;  0.457
   4)  720.00;  0.126
  *ANTECEDENT MOISTURE CONDITION (AMC) I ASSUMED FOR RATIONAL METHOD*

  *USER-DEFINED STREET-SECTIONS FOR COUPLED PIPEFLOW AND STREETFLOW MODEL*
     HALF-  CROWN TO   STREET-CROSSFALL:   CURB  GUTTER-GEOMETRIES:  MANNING
     WIDTH  CROSSFALL  IN-  / OUT-/PARK-  HEIGHT  WIDTH  LIP   HIKE  FACTOR
NO.   (FT)     (FT)    SIDE / SIDE/ WAY    (FT)    (FT)  (FT)  (FT)    (n)
===  =====  =========  ================  ======  ===== ====== ===== =======
  1   30.0     20.0    0.018/0.018/0.020   0.67    2.00 0.0312 0.167 0.0150

  GLOBAL STREET FLOW-DEPTH CONSTRAINTS:
    1. Relative Flow-Depth =  0.00 FEET
       as (Maximum Allowable Street Flow Depth) - (Top-of-Curb)
    2. (Depth)*(Velocity) Constraint =  6.0 (FT*FT/S)
  *SIZE PIPE WITH A FLOW CAPACITY GREATER THAN
   OR EQUAL TO THE UPSTREAM TRIBUTARY PIPE.*
```

```
  *USER-SPECIFIED MINIMUM TOPOGRAPHIC SLOPE ADJUSTMENT NOT SELECTED

****************************************************************************
  FLOW PROCESS FROM NODE    100.00 TO NODE    101.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   106.00
  ELEVATION DATA: UPSTREAM(FEET) =    344.68  DOWNSTREAM(FEET) =    343.68

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.909
  *   1 YEAR RAINFALL INTENSITY(INCH/HR) =  1.604
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap      SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS               C        0.13      0.25     0.350    50    5.91
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      0.18
  TOTAL AREA(ACRES) =      0.13   PEAK FLOW RATE(CFS) =      0.18

****************************************************************************
  FLOW PROCESS FROM NODE    101.00 TO NODE    201.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.91
  RAINFALL INTENSITY(INCH/HR) =   1.60
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.13
  TOTAL STREAM AREA(ACRES) =       0.13
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.18

****************************************************************************
  FLOW PROCESS FROM NODE    200.00 TO NODE    201.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   100.00
  ELEVATION DATA: UPSTREAM(FEET) =    345.17  DOWNSTREAM(FEET) =    343.95

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.483
  *   1 YEAR RAINFALL INTENSITY(INCH/HR) =  1.621
```

```
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS               C        0.24      0.25     0.350    50    5.48
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      0.33
  TOTAL AREA(ACRES) =      0.24   PEAK FLOW RATE(CFS) =      0.33

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    201.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.48
  RAINFALL INTENSITY(INCH/HR) =   1.62
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.24
  TOTAL STREAM AREA(ACRES) =       0.24
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.33

****************************************************************************
  FLOW PROCESS FROM NODE    300.00 TO NODE    301.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   108.00
  ELEVATION DATA: UPSTREAM(FEET) =    345.02  DOWNSTREAM(FEET) =    343.95

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    5.895
  *   1 YEAR RAINFALL INTENSITY(INCH/HR) =  1.604
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS               C        0.29      0.25     0.350    50    5.89
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      0.40
  TOTAL AREA(ACRES) =      0.29   PEAK FLOW RATE(CFS) =      0.40

****************************************************************************
  FLOW PROCESS FROM NODE    301.00 TO NODE    201.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
```

```
==============================================================================
  TOTAL NUMBER OF STREAMS =  3
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  3 ARE:
  TIME OF CONCENTRATION(MIN.) =    5.89
  RAINFALL INTENSITY(INCH/HR) =   1.60
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.29
  TOTAL STREAM AREA(ACRES) =       0.29
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.40

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        0.18    5.91    1.604  0.25( 0.09) 0.35       0.1     100.00
      2        0.33    5.48    1.621  0.25( 0.09) 0.35       0.2     200.00
      3        0.40    5.89    1.604  0.25( 0.09) 0.35       0.3     300.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  3 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        0.87    5.48    1.621  0.25( 0.09) 0.35       0.6     200.00
      2        0.90    5.89    1.604  0.25( 0.09) 0.35       0.7     300.00
      3        0.90    5.91    1.604  0.25( 0.09) 0.35       0.7     100.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       0.90    Tc(MIN.) =     5.91
  EFFECTIVE AREA(ACRES) =       0.66   AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        0.7
  LONGEST FLOWPATH FROM NODE    300.00 TO NODE    201.00 =     108.00 FEET.

****************************************************************************
  FLOW PROCESS FROM NODE    201.00 TO NODE    202.00 IS CODE =  31
----------------------------------------------------------------------------
  >>>>>COMPUTE PIPE-FLOW TRAVEL TIME THRU SUBAREA<<<<<
  >>>>>USING COMPUTER-ESTIMATED PIPESIZE (NON-PRESSURE FLOW)<<<<<
==============================================================================
  ELEVATION DATA: UPSTREAM(FEET) =   337.53  DOWNSTREAM(FEET) =   336.93
  FLOW LENGTH(FEET) =   150.00   MANNING'S N =  0.013
  ESTIMATED PIPE DIAMETER(INCH) INCREASED TO 12.000
  DEPTH OF FLOW IN  12.0 INCH PIPE IS   5.4 INCHES
  PIPE-FLOW VELOCITY(FEET/SEC.) =   2.65
  ESTIMATED PIPE DIAMETER(INCH) =  12.00    NUMBER OF PIPES =   1
  PIPE-FLOW(CFS) =       0.90
  PIPE TRAVEL TIME(MIN.) =   0.94    Tc(MIN.) =    6.85
  LONGEST FLOWPATH FROM NODE    300.00 TO NODE    202.00 =     258.00 FEET.
```

```
****************************************************************************
  FLOW PROCESS FROM NODE    202.00 TO NODE    202.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  1 ARE:
  TIME OF CONCENTRATION(MIN.) =    6.85
  RAINFALL INTENSITY(INCH/HR) =   1.57
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.35
  EFFECTIVE STREAM AREA(ACRES) =       0.66
  TOTAL STREAM AREA(ACRES) =       0.66
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.90

****************************************************************************
  FLOW PROCESS FROM NODE    400.00 TO NODE    401.00 IS CODE =  21
----------------------------------------------------------------------------
  >>>>>RATIONAL METHOD INITIAL SUBAREA ANALYSIS<<<<<
  >>USE TIME-OF-CONCENTRATION NOMOGRAPH FOR INITIAL SUBAREA<<
============================================================================
  INITIAL SUBAREA FLOW-LENGTH(FEET) =   178.00
  ELEVATION DATA: UPSTREAM(FEET) =    345.78  DOWNSTREAM(FEET) =    344.00

  Tc = K*[(LENGTH** 3.00)/(ELEVATION CHANGE)]**0.20
  SUBAREA ANALYSIS USED MINIMUM Tc(MIN.) =    7.186
  *   1 YEAR RAINFALL INTENSITY(INCH/HR) =  1.553
  SUBAREA Tc AND LOSS RATE DATA(AMC  I ):
   DEVELOPMENT TYPE/      SCS SOIL   AREA      Fp         Ap     SCS   Tc
       LAND USE            GROUP   (ACRES)  (INCH/HR)  (DECIMAL)  CN  (MIN.)
  CONDOMINIUMS               C        0.33      0.25     0.350    50    7.19
  SUBAREA AVERAGE PERVIOUS LOSS RATE, Fp(INCH/HR) =  0.25
  SUBAREA AVERAGE PERVIOUS AREA FRACTION, Ap =  0.350
  SUBAREA RUNOFF(CFS) =      0.44
  TOTAL AREA(ACRES) =      0.33   PEAK FLOW RATE(CFS) =      0.44

****************************************************************************
  FLOW PROCESS FROM NODE    401.00 TO NODE    202.00 IS CODE =   1
----------------------------------------------------------------------------
  >>>>>DESIGNATE INDEPENDENT STREAM FOR CONFLUENCE<<<<<
  >>>>>AND COMPUTE VARIOUS CONFLUENCED STREAM VALUES<<<<<
============================================================================
  TOTAL NUMBER OF STREAMS =  2
  CONFLUENCE VALUES USED FOR INDEPENDENT STREAM  2 ARE:
  TIME OF CONCENTRATION(MIN.) =    7.19
  RAINFALL INTENSITY(INCH/HR) =   1.55
  AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25
  AREA-AVERAGED Ap =  0.35
```

```
  EFFECTIVE STREAM AREA(ACRES) =       0.33
  TOTAL STREAM AREA(ACRES) =       0.33
  PEAK FLOW RATE(CFS) AT CONFLUENCE =       0.44

  ** CONFLUENCE DATA **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        0.87    6.43    1.583  0.25( 0.09) 0.35       0.6     200.00
      1        0.90    6.84    1.567  0.25( 0.09) 0.35       0.7     300.00
      1        0.90    6.85    1.566  0.25( 0.09) 0.35       0.7     100.00
      2        0.44    7.19    1.553  0.25( 0.09) 0.35       0.3     400.00

  RAINFALL INTENSITY AND TIME OF CONCENTRATION RATIO
  CONFLUENCE FORMULA USED FOR  2 STREAMS.

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.27    6.43    1.583  0.25( 0.09) 0.35       0.9     200.00
      2        1.32    6.84    1.567  0.25( 0.09) 0.35       1.0     300.00
      3        1.32    6.85    1.566  0.25( 0.09) 0.35       1.0     100.00
      4        1.33    7.19    1.553  0.25( 0.09) 0.35       1.0     400.00

  COMPUTED CONFLUENCE ESTIMATES ARE AS FOLLOWS:
  PEAK FLOW RATE(CFS) =       1.33    Tc(MIN.) =     7.19
  EFFECTIVE AREA(ACRES) =       0.99   AREA-AVERAGED Fm(INCH/HR) =  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap =  0.35
  TOTAL AREA(ACRES) =        1.0
  LONGEST FLOWPATH FROM NODE    300.00 TO NODE    202.00 =     258.00 FEET.
================================================================================
  END OF STUDY SUMMARY:
  TOTAL AREA(ACRES)     =        1.0  TC(MIN.) =      7.19
  EFFECTIVE AREA(ACRES) =      0.99  AREA-AVERAGED Fm(INCH/HR)=  0.09
  AREA-AVERAGED Fp(INCH/HR) =  0.25  AREA-AVERAGED Ap = 0.350
  PEAK FLOW RATE(CFS)   =       1.33

  ** PEAK FLOW RATE TABLE **
   STREAM       Q      Tc   Intensity   Fp(Fm)     Ap     Ae     HEADWATER
   NUMBER     (CFS)  (MIN.) (INCH/HR) (INCH/HR)         (ACRES)    NODE
      1        1.27    6.43    1.583  0.25( 0.09) 0.35       0.9     200.00
      2        1.32    6.84    1.567  0.25( 0.09) 0.35       1.0     300.00
      3        1.32    6.85    1.566  0.25( 0.09) 0.35       1.0     100.00
      4        1.33    7.19    1.553  0.25( 0.09) 0.35       1.0     400.00
================================================================================
================================================================================
  END OF RATIONAL METHOD ANALYSIS
```

ATTACHMENT F

EDUCATION MATERIALS

LIST OF EDUCATIONAL MATERIALS PROVIDED

1. THE OCEAN BEGINS AT YOUR FRONT DOOR
2. PROPOER MAINTENANCE PRACTICES FOR YOUR BUSINESS
3. HOMEOWNERS GUIDE TO SUSTAINABLE WATER USE
4. HOUSEHOLD TIPS
5. PROPER DISPOSAL OF HOUSEHOLD HAZARDOUS WASTE
6. RESPONSIBLE PEST CONTROL
7. TIPS FOR HOME IMPROVEMENT PROJECTS
8. TIPS FOR LANDSCAPING AND GARDENING
9. TIPS FOR PET CARE
10. TIPS FOR POOL MAINTENANCE
11. TIPS FOR RESIDENTIAL POOL, LANDSCAPE, AND HARDSCAPE DRAINS
12. TIPS FOR PROJECTS USING PAINTt
13. SC-10: NON-STORMWATER DISCHARGE
14. SC-30: OUTDOOR LOADING/UNLOADING
15. SC-34: WASTE HANDLING & DISPOSAL
16. SC-41: BUILDING & GROUNDS MAINTENANCE
17. SC-43: PARKING/STORAGE AREA MAINTENANCE
18. SC-44: DRAINAGE SYSTEM MAINTENANCE
19. SC-70: ROAD AND STREET MAINTENANCE
20. SD-10: SITE DESIGN & LANDSCAPE PLANNING
21. SD-12: EFFICIENT IRRIGATION
22. SD-13: STORM DRAIN SIGNAGE
23. SD-32: TRASH STORAGE AREAS
24. SD-34: OUTDOOR MATERIAL STORARE AREAS
25. MODULAR WETLAND PRODUCT INFORMATION

The Ocean Begins at Your Front Door

Follow these simple steps to help reduce water pollution:

Household Activities

- Do not rinse spills with water. Use dry cleanup methods such as applying cat litter or another absorbent material, sweep and dispose of in the trash. Take items such as used or excess batteries, oven cleaners, automotive fluids, painting products and cathode ray tubes, like TVs and computer monitors, to a Household Hazardous Waste Collection Center (HHWCC).
- For a HHWCC near you call (714) 834-6752 or visit www.oclandfills.com.
- Do not hose down your driveway, sidewalk or patio to the street, gutter or storm drain. Sweep up debris and dispose of it in the trash.

Automotive

- Take your vehicle to a commercial car wash whenever possible. If you wash your vehicle at home, choose soaps, cleaners, or detergents labeled non-toxic, phosphate- free or biodegradable. Vegetable and citrus-based products are typically safest for the environment.
- Do not allow washwater from vehicle washing to drain into the street, gutter or storm drain. Excess washwater should be disposed of in the sanitary sewer (through a sink or toilet) or onto an absorbent surface like your lawn.
- Monitor your vehicles for leaks and place a pan under leaks. Keep your vehicles well maintained to stop and prevent leaks.
- Never pour oil or antifreeze in the street, gutter or storm drain. Recycle these substances at a service station, a waste oil collection center or used oil recycling center. For the nearest Used Oil Collection Center call 1-800-CLEANUP or visit www.1800cleanup.org.

Pool Maintenance

- Pool and spa water must be dechlorinated and free of excess acid, alkali or color to be allowed in the street, gutter or storm drain.
- When it is not raining, drain dechlorinated pool and spa water directly into the sanitary sewer.
- Some cities may have ordinances that do not allow pool water to be disposed of in the storm drain. Check with your city.

Landscape and Gardening

- Do not over-water. Water your lawn and garden by hand to control the amount of water you use or set irrigation systems to reflect seasonal water needs. If water flows off your yard onto your driveway or sidewalk, your system is over-watering. Periodically inspect and fix leaks and misdirected sprinklers.
- Do not rake or blow leaves, clippings or pruning waste into the street, gutter or storm drain. Instead, dispose of waste by composting, hauling it to a permitted landfill, or as green waste through your city's recycling program.
- Follow directions on pesticides and fertilizer, (measure, do not estimate amounts) and do not use if rain is predicted within 48 hours.
- Take unwanted pesticides to a HHWCC to be recycled. For locations and hours of HHWCC, call (714) 834-6752 or visit www.oclandfills.com.

Trash

- Place trash and litter that cannot be recycled in securely covered trash cans.
- Whenever possible, buy recycled products.
- Remember: Reduce, Reuse, Recycle.

Pet Care

- Always pick up after your pet. Flush waste down the toilet or dispose of it in the trash. Pet waste, if left outdoors, can wash into the street, gutter or storm drain.
- If possible, bathe your pets indoors. If you must bathe your pet outside, wash it on your lawn or another absorbent/permeable surface to keep the washwater from entering the street, gutter or storm drain.
- Follow directions for use of pet care products and dispose of any unused products at a HHWCC.

Common Pollutants

Home Maintenance

- Detergents, cleaners and solvents
- Oil and latex paint
- Swimming pool chemicals
- Outdoor trash and litter

Lawn and Garden

- Pet and animal waste
- Pesticides
- Clippings, leaves and soil
- Fertilizer

Automobile

- Oil and grease
- Radiator fluids and antifreeze
- Cleaning chemicals
- Brake pad dust

The Ocean Begins at Your Front Door

Never allow pollutants to enter the street, gutter or storm drain!

Did You Know?

- Most people believe that the largest source of water pollution in urban areas comes from specific sources such as factories and sewage treatment plants. In fact, the largest source of water pollution comes from city streets, neighborhoods, construction sites and parking lots. This type of pollution is sometimes called “non-point source” pollution.
- There are two types of non-point source pollution: stormwater and urban runoff pollution.
- Stormwater runoff results from rainfall. When rainstorms cause large volumes of water to rinse the urban landscape, picking up pollutants along the way.
- Urban runoff can happen any time of the year when excessive water use from irrigation, vehicle washing and other sources carries trash, lawn clippings and other urban pollutants into storm drains.

Where Does It Go?

- Anything we use outside homes, vehicles and businesses – like motor oil, paint, pesticides, fertilizers and cleaners – can be blown or washed into storm drains.
- A little water from a garden hose or rain can also send materials into storm drains.
- Storm drains are separate from our sanitary sewer systems; unlike water in sanitary sewers (from sinks or toilets), water in storm drains is not treated before entering our waterways.

Sources of Non-Point Source Pollution

- Automotive leaks and spills.
- Improper disposal of used oil and other engine fluids.
- Metals found in vehicle exhaust, weathered paint, rust, metal plating and tires.
- Pesticides and fertilizers from lawns, gardens and farms.
- Improper disposal of cleaners, paint and paint removers.
- Soil erosion and dust debris from landscape and construction activities.
- Litter, lawn clippings, animal waste, and other organic matter.
- Oil stains on parking lots and paved surfaces.

The Effect on the Ocean

Non-point source pollution can have a serious impact on water quality in Orange County. Pollutants from the storm drain system can harm marine life as well as coastal and wetland habitats. They can also degrade recreation areas such as beaches, harbors and bays.

Stormwater quality management programs have been developed throughout Orange County to educate and encourage the public to protect water quality, monitor runoff in the storm drain system, investigate illegal dumping and maintain storm drains.

Support from Orange County residents and businesses is needed to improve water quality and reduce urban runoff pollution. Proper use and disposal of materials will help stop pollution before it reaches the storm drain and the ocean.

For More Information

Orange County Stormwater Program

California Environmental Protection Agency
www.calepa.ca.gov

- **Air Resources Board**
  www.arb.ca.gov
- **Department of Pesticide Regulation**
  www.cdpr.ca.gov
- **Department of Toxic Substances Control**
  www.dtsc.ca.gov
- **Integrated Waste Management Board**
  www.ciwmb.ca.gov
- **Office of Environmental Health Hazard Assessment**
  www.oehha.ca.gov
- **State Water Resources Control Board**
  www.waterboards.ca.gov

Earth 911 - Community-Specific Environmental Information 1-800-cleanup or visit www.1800cleanup.org

Health Care Agency's Ocean and Bay Water Closure and Posting Hotline
(714) 433-6400 or visit www.ocbeachinfo.com

Integrated Waste Management Dept. of Orange County (714) 834-6752 or visit www.oclandfills.com for information on household hazardous waste collection centers, recycling centers and solid waste collection

O.C. Agriculture Commissioner
(714) 447-7100 or visit www.ocagcomm.com

Stormwater Best Management Practice Handbook
Visit www.cabmphandbooks.com

UC Master Gardener Hotline
(714) 708-1646 or visit www.uccemg.com

The Orange County Stormwater Program has created and moderates an electronic mailing list to facilitate communications, take questions and exchange ideas among its users about issues and topics related to stormwater and urban runoff and the implementation of program elements. To join the list, please send an email to ocstormwaterinfo-join@list.ocwatersheds.com

Aliso Viejo	(949)	425-2535
Anaheim Public Works Operations	(714)	765-6860
Brea Engineering	(714)	990-7666
Buena Park Public Works	(714)	562-3655
Costa Mesa Public Services	(714)	754-5323
Cypress Public Works	(714)	229-6740
Dana Point Public Works	(949)	248-3584
Fountain Valley Public Works	(714)	593-4441
Fullerton Engineering Dept.	(714)	738-6853
Garden Grove Public Works	(714)	741-5956
Huntington Beach Public Works	(714)	536-5431
Irvine Public Works	(949)	724-6315
La Habra Public Services	(562)	905-9792
La Palma Public Works	(714)	690-3310
Laguna Beach Water Quality	(949)	497-0378
Laguna Hills Public Services	(949)	707-2650
Laguna Niguel Public Works	(949)	362-4337
Laguna Woods Public Works	(949)	639-0500
Lake Forest Public Works	(949)	461-3480
Los Alamitos Community Dev.	(562)	431-3538
Mission Viejo Public Works	(949)	470-3056
Newport Beach, Code & Water Quality Enforcement	(949)	644-3215
Orange Public Works	(714)	532-6480
Placentia Public Works	(714)	993-8245
Rancho Santa Margarita	(949)	635-1800
San Clemente Environmental Programs	(949)	361-6143
San Juan Capistrano Engineering	(949)	234-4413
Santa Ana Public Works	(714)	647-3380
Seal Beach Engineering	(562)	431-2527 x317
Stanton Public Works	(714)	379-9222 x204
Tustin Public Works/Engineering	(714)	573-3150
Villa Park Engineering	(714)	998-1500
Westminster Public Works/Engineering	(714)	898-3311 x446
Yorba Linda Engineering	(714)	961-7138
Orange County Stormwater Program	(877)	897-7455

Orange County 24-Hour
Water Pollution Problem Reporting Hotline
1-877-89-SPILL (1-877-897-7455)

On-line Water Pollution Problem Reporting Form
www.ocwatersheds.com

Printed on Recycled Paper

Preventing water pollution at your commercial/industrial site

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many landscape and building maintenance activities can lead to water pollution if you're not careful. Paint, chemicals, plant clippings and other materials can be blown or washed into storm drains that flow to the ocean. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never pour soap or fertilizers into the ocean, so why would you let them enter the storm drains? Follow these easy tips to help prevent water pollution.

Some types of industrial facilities are required to obtain coverage under the State General Industrial Permit. For more information visit: **www.swrcb.ca.gov/stormwater/industrial.html**

For more information, please call the **Orange County Stormwater Program** at **1-877-89-SPILL** (1-877-897-7455) or visit **www.ocwatersheds.com**

To report a spill, call the **Orange County 24-Hour Water Pollution Problem Reporting Hotline** at **1-877-89-SPILL** (1-877-897-7455).

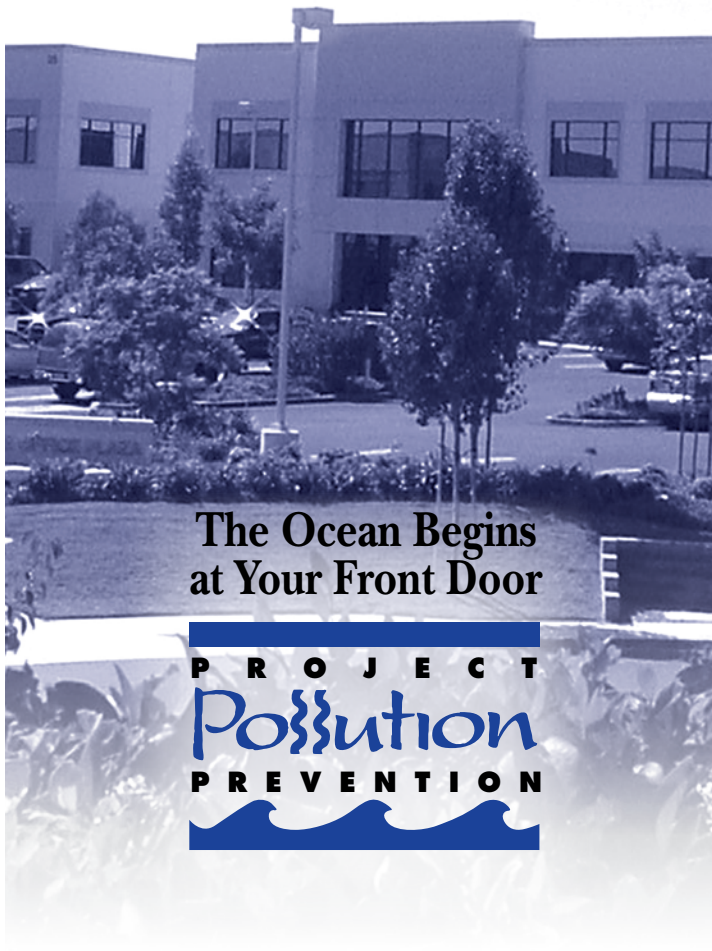
For emergencies, dial 911.

RECYCLE USED OIL

Printed on Recycled Paper

Help Prevent Ocean Pollution:

Proper Maintenance Practices for Your Business



The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

Proper Maintenance Practices for your Business

Landscape Maintenance

- Compost grass clippings, leaves, sticks and other vegetation, or dispose of it at a permitted landfill or in green waste containers. Do not dispose of these materials in the street, gutter or storm drain.
- Irrigate slowly and inspect the system for leaks, overspraying and runoff. Adjust automatic timers to avoid overwatering.
- Follow label directions for the use and disposal of fertilizers and pesticides.
- Do not apply pesticides or fertilizers if rain is expected within 48 hours or if wind speeds are above 5 mph.
- Do not spray pesticides within 100 feet of waterways.
- Fertilizers should be worked into the soil rather than dumped onto the surface.
- If fertilizer is spilled on the pavement or sidewalk, sweep it up immediately and place it back in the container.

Building Maintenance

- Never allow washwater, sweepings or sediment to enter the storm drain.
- Sweep up dry spills and use cat litter, towels or similar materials to absorb wet spills. Dispose of it in the trash.
- If you wash your building, sidewalk or parking lot, you **must** contain the water. Use a shop vac to collect the water and contact your city or sanitation agency for proper disposal information. Do not let water enter the street, gutter or storm drain.
- Use drop cloths underneath outdoor painting, scraping, and sandblasting work, and properly dispose of materials in the trash.
- Use a ground cloth or oversized tub for mixing paint and cleaning tools.
- Use a damp mop or broom to clean floors.
- Cover dumpsters to keep insects, animals, rainwater and sand from entering. Keep the area around the dumpster clear of trash and debris. Do not overfill the dumpster.
- Call your trash hauler to replace leaking dumpsters.
- Do not dump any toxic substance or liquid waste on the pavement, the ground, or near a storm drain. Even materials that seem harmless such as latex paint or biodegradable cleaners can damage the environment.

Never Dispose of Anything in the Storm Drain.

- Recycle paints, solvents and other materials. For more information about recycling and collection centers, visit **www.oclandfills.com**.
- Store materials indoors or under cover and away from storm drains.
- Use a construction and demolition recycling company to recycle lumber, paper, cardboard, metals, masonry, carpet, plastic, pipes, drywall, rocks, dirt, and green waste. For a listing of construction and demolition recycling locations in your area, visit **www.ciwmb.ca.gov/recycle.**
- Properly label materials. Familiarize employees with Material Safety Data Sheets.

PROJECT Pollution PREVENTION

The Pollution Solution

Several residential activities can result in water pollution. Among these activities are car washing and hosing off driveways and sidewalks. Both activities can waste water and result in excess runoff. Water conservation methods described in this pamphlet can prevent considerable amounts of runoff and conserve water. By taking your car to a commercial car wash and by sweeping driveways and sidewalks, you can further prevent the transport of pollutants to Orange County waterways. Here are some of the common pollutants for which you can be part of the solution:

1 Pesticides and Fertilizer

- **Pollution:** The same pesticides that are designed to be toxic to pests can have an equally lethal impact on our marine life. The same fertilizer that promotes plant growth in lawns and gardens can also create nuisance algae blooms, which remove oxygen from the water and clog waterways when it decomposes.
- **Solution:** Never use pesticides or fertilizer within 48 hours of an anticipated rainstorm. Use only as much as is directed on the label and keep it off driveways and sidewalks.

2 Dirt and Sediment

- **Pollution:** Dirt or sediment can impede the flow of the stormwater and negatively impact stream habitat as it travels through waterways and deposits downstream. Pollutants can attach to sediment, which can then be transported through our waterways.
- **Solution:** Protect dirt stockpiles by covering them with tarps or secure plastic sheets to prevent wind or rain from allowing dirt or sediment to enter the storm drain system.

3 Metals

- **Pollution:** Metals and other toxins present in car wash water can harm important plankton, which forms the base of the aquatic food chain.
- **Solution:** Take your car to a commercial car wash where the wash water is captured and treated at a local wastewater treatment plant.

DID YOU KNOW?

Did you know that most of the pollution found in our waterways is not from a single source, but from a "non-point" source meaning the accumulation of pollution from residents and businesses throughout the community.

4 Pet Waste

- **Pollution:** Pet waste carries bacteria through our watersheds and eventually will be washed out to the ocean. This can pose a health risk to swimmers and surfers.
- **Solution:** Pick up after your pets!

5 Trash and Debris

- **Pollution:** Trash and debris can enter waterways by wind, littering and careless maintenance of trash receptacles. Street sweeping collects some of this trash; however, much of what isn't captured ends up in our storm drain system where it flows untreated out to the ocean.
- **Solution:** Don't litter and make sure trash containers are properly covered. It is far more expensive to clean up the litter and trash that ends up in our waterways than it is to prevent it in the first place. Come out to one of Orange County's many locations for Coastal and Inner-Coastal Cleanup Day, which is held in September.

6 Motor Oil / Vehicle Fluids

- **Pollution:** Oil and petroleum products from our vehicles are toxic to people, wildlife and plants.
- **Solution:** Fix any leaks from your vehicle and keep the maintenance up on your car. Use absorbent material such as cat litter on oil spills, then sweep it up and dispose of it in the trash. Recycle used motor oil at a local Household Hazardous Waste Collection Center.

A TEAM EFFORT

The Orange County Stormwater Program has teamed with the Municipal Water District of Orange County (MWDOC) and the University of California Cooperative Extension Program (UCCE) to develop this pamphlet.

Low Impact Development (LID) and sustainable water use prevents water pollution and conserves water for drinking and reuse. Reducing your water use and the amount of water flowing from your home protects the environment and saves you money.

Thank you for making water protection a priority!

For more information, please visit

Orange County Stormwater Program
www.ocwatersheds.com/publiced/

Municipal Water District of Orange County
www.mwdoc.com

University of California Master Gardeners of Orange County
www.uccemg.com

UC Cooperative Extension OC Water Quality and Water Resources
www.ucanr.org/sites/urbanwatermgmt/

To report a spill, call the Orange County 24-Hour Water Pollution Prevention Reporting Hotline at 1-877-89-SPILL \ (1-877-897-7455)

Special Thanks to
The City of Los Angeles Stormwater Program for the use of its artwork

The Metropolitan Water District of Southern California for the use of the California-Friendly Plant and Native Habitat photos

Homeowners Guide for Sustainable Water Use

Low Impact Development, Water Conservation & Pollution Prevention

The Ocean Begins at Your Front Door

RUNOFF, RAINWATER AND REUSE

Where Does Water Runoff Go?

Stormwater, or water from rainfall events, and runoff from outdoor water use such as sprinklers and hoses flows from homes directly into catch basins and the storm drain system. After entering the storm drain, the water flows untreated into streams, rivers, bays and ultimately the Pacific Ocean. Runoff can come from lawns, gardens, driveways, sidewalks and roofs. As it flows over hard, impervious surfaces, it picks up pollutants. Some pollutants carried by the water runoff include trash, pet waste, pesticides, fertilizer, motor oil and more.

Water Conservation

Pollution not only impairs the water quality for habitat and recreation, it can also reduce the water available for reuse. Runoff allowed to soak into the ground is cleaned as it percolates through the soil, replenishing depleted groundwater supplies. Groundwater provides at least 50% of the total water for drinking and other indoor household activities in north and central Orange County. When land is covered with roads, parking lots, homes, etc., there is less land to take in the water and more hard surfaces over which the water can flow.

In Orange County, 60-70% of water used by residents and businesses goes to irrigation and other outdoor uses. Reusing rainwater to irrigate our lawn not only reduces the impact of water pollution from runoff, but it also is a great way to conserve our precious water resources and replenish our groundwater basin.

What is Low Impact Development (LID)?

Low Impact Development (LID) is a method of development that seeks to maintain the natural hydrologic character of an area. LID provides a more sustainable and pollution-preventative approach to water management.

New water quality regulations require implementation of LID in larger new developments and encourage implementation of LID and other sustainable practices in existing residential areas. Implementing modifications to your lawn or garden can reduce pollution in our environment, conserve water and reduce your water bill.

Permeable pavement allows water runoff to infiltrate through the soil and prevents most pollutants from reaching the storm drain system.

OPTIONS FOR RAINWATER HARVESTING AND REUSE

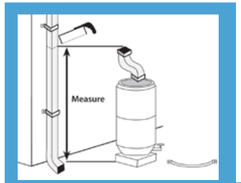
Rainwater harvesting is a great way to save money, prevent pollution and reduce potable water use. To harvest your rainwater, simply redirect the runoff from roofs and downspouts to rain barrels. Rain gardens are another option; these reduce runoff as well as encourage infiltration.

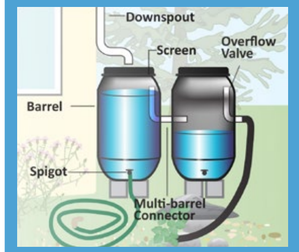
Downspout Disconnection/Redirection

Disconnecting downspouts from pipes running to the gutter prevents runoff from transporting pollutants to the storm drain. Once disconnected, downspouts can be redirected to rain gardens or other vegetated areas, or be connected to a rain barrel.

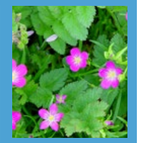
Rain Barrels

Rain barrels capture rainwater flow from roofs for reuse in landscape irrigation. Capacity of rain barrels needed for your home will depend on the amount of roof area and rainfall received. When purchasing your rain barrel, make sure it includes a screen, a spigot to siphon water for use, an overflow tube to allow for excess water to run out and a connector if you wish to connect multiple barrels to add capacity of water storage.





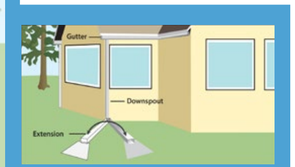
Mosquito growth prevention is very important when installing a rain barrel. The best way to prevent mosquito breeding is to eliminate entry points by ensuring all openings are sealed tightly. If these methods are unsuccessful, products are available to kill mosquito larvae, but that are harmless to animals and humans. Regular application of these products is essential. Please visit the Orange County Vector Control website for more information at www.ocvcd.org/mosquitoes3.php.



Rain Gardens

Rain gardens allow runoff to be directed from your roof downspout into a landscaped area. Vegetation and rocks in the garden will slow the flow of water to allow for infiltration into the soil. Plants and soil particles will absorb pollutants from the roof runoff. By utilizing a native plant palate, rain gardens can be maintained all year with minimal additional irrigation. These plants are adapted to the semi-arid climate of Southern California, require less water and can reduce your water bill.

Before modifying your yard to install a rain garden, please consult your local building and/or planning departments to ensure your garden plan follows pertinent building codes and ordinances. Besides codes and ordinances, some home owner associations also have guidelines for yard modifications. If your property is in hill areas or includes engineered slopes, please seek professional advice before proceeding with changes.



For information on how to disconnect a downspout or to install and maintain a rain barrel or rain garden at your home, please see the Los Angeles Rainwater Harvesting Program, A Homeowner's "How-To" Guide, November 2009 at www.larainwaterharvesting.org/

OTHER WATER CONSERVATION AND POLLUTION PREVENTION TECHNIQUES

Native Vegetation and Maintenance

"California Friendly" plants or native vegetation can significantly reduce water use. These plants often require far less fertilizers and pesticides, which are two significant pollutants found in Orange County waterways. Replacing water "thirsty" plants and grass types with water efficient natives is a great way to save water and reduce the need for potentially harmful pesticides and fertilizer.

Please see the California Friendly Garden Guide produced by the Metropolitan Water District of Southern California and associated Southern California Water Agencies for a catalog of California friendly plants and other garden resources at www.bewaterwise.com/Gardensoft.

Weed Free Yards

Weeds are water thieves. They often reproduce quickly and rob your yard of both water and nutrients. Weed your yard by hand if possible. If you use herbicides to control the weeds, use only the amount recommended on the label and never use it if rain is forecast within the next 48 hours.

Soil Amendments

Soil amendments such as green waste (e.g. grass clippings, compost, etc.) can be a significant source of nutrients and can help keep the soil near the roots of plants moist. However, they can cause algal booms if they get into our waterways, which reduces the amount of oxygen in the water and impacts most aquatic organisms. It is important to apply soil amendments more than 48 hours prior to predicted rainfall.

IRRIGATE EFFICIENTLY

Water runoff from sprinklers left on too long will carry pollutants into our waterways.

Smart Irrigation Controllers

Smart Irrigation Controllers have internal clocks as well as sensors that will turn off the sprinklers in response to environmental changes. If it is raining, too windy or too cold, the smart irrigation control sprinklers will automatically shut off.

Check with your local water agency for available rebates on irrigation controllers and smart timers.

- Aim your sprinklers at your lawn, not the sidewalk – By simply adjusting the direction of your sprinklers you can save water, prevent water pollution from runoff, keep your lawn healthy and save money.
- **Set a timer for your sprinklers** – lawns absorb the water they need to stay healthy within a few minutes of turning on the sprinklers. Time your sprinklers; when water begins running off your lawn, you can turn them off. Your timer can be set to water your lawn for this duration every time.
- **Water at Sunrise** – Watering early in the morning will reduce water loss due to evaporation. Additionally, winds tend to die down in the early morning so the water will get to the lawn as intended.
- **Water by hand** – Instead of using sprinklers, consider watering your yard by hand. Hand-watering ensures that all plants get the proper amount of water and you will prevent any water runoff, which wastes water and carries pollutants into our waterways.
- **Fix leaks** - Nationwide, households waste one trillion gallons of water a year to leaks – that is enough water to serve the entire state of Texas for a year. If your garden hose is leaking, replace the nylon or rubber hose washer and ensure a tight connection. Fix broken sprinklers immediately.

Do your part to prevent water pollution in our creeks, rivers, bays and ocean.

Clean beaches and healthy creeks, rivers, bays, and ocean are important to Orange County. However, many common household activities can lead to water pollution if you're not careful.

Remember the Water in Your Storm Drain is Not Treated BEFORE It Enters Our Waterways

Litter, oil, chemicals and other substances that are left on your yard or driveway can be blown or washed into storm drains that flow to the ocean. Over-watering your lawn and washing your car can also flush materials into the storm drains. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated.

You would never pour soap, fertilizers or oil into the ocean, so don't let them enter streets, gutters or storm drains. Follow the easy tips in this brochure to help prevent water pollution.

For more information, please call the **Orange County Stormwater Program** at **1-877-89-SPILL** (1-877-897-7455) or visit **www.ocwatersheds.com**

To report a spill, call the **Orange County 24-Hour Water Pollution Problem Reporting Hotline 1-877-89-SPILL** (1-877-897-7455).

For emergencies, dial 911.

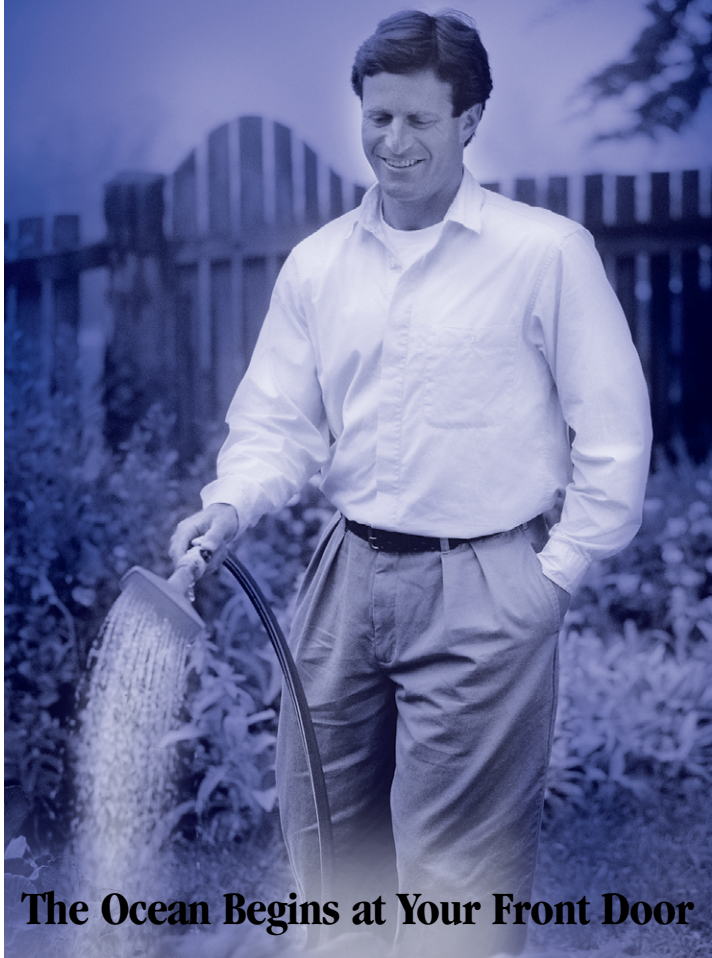
The tips contained in this brochure provide useful information to help prevent water pollution while performing everyday household activities. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

GENUINE RECYCLED PAPER
50% PRE-CONSUMER AND 15% POST-CONSUMER

RECYCLE USED OIL

Help Prevent Ocean Pollution:

Household Tips



The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

Pollution Prevention

Household Activities

- **Do not rinse spills with water!** Sweep outdoor spills and dispose of in the trash. For wet spills like oil, apply cat litter or another absorbent material, then sweep and bring to a household hazardous waste collection center (HHWCC).
- Securely cover trash cans.
- Take household hazardous waste to a household hazardous waste collection center.
- Store household hazardous waste in closed, labeled containers inside or under a cover.
- Do not hose down your driveway, sidewalk or patio. Sweep up debris and dispose of in trash.
- Always pick up after your pet. Flush waste down the toilet or dispose of in the trash.
- Bathe pets indoors or have them professionally groomed.

Household Hazardous Wastes include:

- ▲ **Batteries**
- ▲ **Paint thinners, paint strippers and removers**
- ▲ **Adhesives**
- ▲ **Drain openers**
- ▲ **Oven cleaners**
- ▲ **Wood and metal cleaners and polishes**
- ▲ **Herbicides and pesticides**
- ▲ **Fungicides/wood preservatives**
- ▲ **Automotive fluids and products**
- ▲ **Grease and rust solvents**
- ▲ **Thermometers and other products containing mercury**
- ▲ **Fluorescent lamps**
- ▲ **Cathode ray tubes, e.g. TVs, computer monitors**
- ▲ **Pool and spa chemicals**

Gardening Activities

- Follow directions on pesticides and fertilizers, (measure, do not estimate amounts) and do not use if rain is predicted within 48 hours.
- Water your lawn and garden by hand to control the amount of water you use. Set irrigation systems to reflect seasonal water needs. If water flows off your yard and onto your driveway or sidewalk, your system is over-watering.
- Mulch clippings or leave them on the lawn. If necessary, dispose in a green waste container.
- Cultivate your garden often to control weeds.

Washing and Maintaining Your Car

- Take your car to a commercial car wash whenever possible.
- Choose soaps, cleaners, or detergents labeled "non-toxic," "phosphate free" or "biodegradable." Vegetable and citrus-based products are typically safest for the environment, **but even these should not be allowed into the storm drain.**
- Shake floor mats into a trash can or vacuum to clean.
- Do not use acid-based wheel cleaners and "hose off" engine degreasers at home. They can be used at a commercial facility, which can properly process the washwater.
- **Do not dump washwater onto your driveway, sidewalk, street, gutter or storm drain.** Excess washwater should be disposed of in the sanitary sewers (through a sink, or toilet) or onto an absorbent surface like your lawn.
- Use a nozzle to turn off water when not actively washing down automobile.
- Monitor vehicles for leaks and place pans under leaks. Keep your car well maintained to stop and prevent leaks.
- Use cat litter or other absorbents and sweep to remove any materials deposited by vehicles. Contain sweepings and dispose of at a HHWCC.
- Perform automobile repair and maintenance under a covered area and use drip pans or plastic sheeting to keep spills and waste material from reaching storm drains.
- **Never pour oil or antifreeze in the street, gutter or storm drains.** Recycle these substances at a service station, HHWCC, or used oil recycling center. For the nearest Used Oil Collection Center call 1-800-CLEANUP or visit www.ciwmb.ca.gov/UsedOil.

For locations and hours of Household Hazardous Waste Collection Centers in Anaheim, Huntington Beach, Irvine and San Juan Capistrano, call (714)834-6752 or visit www.oclandfills.com.

Do your part to prevent water pollution in our creeks, rivers, bays and ocean.

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, not properly disposing of household hazardous waste can lead to water pollution. Batteries, electronics, paint, oil, gardening chemicals, cleaners and other hazardous materials cannot be thrown in the trash. They also must never be poured or thrown into yards, sidewalks, driveways, gutters or streets. Rain or other water could wash the materials into the storm drain and eventually into our waterways and the ocean. In addition, hazardous waste must not be poured in the sanitary sewers (sinks and toilets).

NEVER DISPOSE OF HOUSEHOLD HAZARDOUS WASTE IN THE TRASH, STREET, GUTTER, STORM DRAIN OR SEWER.

For more information,
please call the
Orange County Stormwater Program
at **1-877-89-SPILL** (1-877-897-7455)
or visit
www.ocwatersheds.com

To Report Illegal Dumping of Household Hazardous Waste call 1-800-69-TOXIC

To report a spill,
call the
Orange County 24-Hour Water Pollution Problem Reporting Hotline
1-877-89-SPILL (1-877-897-7455).

For emergencies, dial 911.

RECYCLE USED OIL

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Help Prevent Ocean Pollution:

Proper Disposal of Household Hazardous Waste

The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

ORANGE COUNTY

Pollution Prevention

Leftover household products that contain corrosive, toxic, ignitable, or reactive ingredients are considered to be "household hazardous waste" or "HHW." HHW can be found throughout your home, including the bathroom, kitchen, laundry room and garage.

WHEN POSSIBLE, USE NON-HAZARDOUS OR LESS-HAZARDOUS PRODUCTS.

Disposal of HHW down the drain, on the ground, into storm drains, or in the trash is illegal and unsafe.

Proper disposal of HHW is actually easy. Simply drop them off at a Household Hazardous Waste Collection Center (HHWCC) for free disposal and recycling. Many materials including anti-freeze, latex-based paint, motor oil and batteries can be recycled. Some centers have a "Stop & Swap" program that lets you take partially used home, garden, and automobile products free of charge. There are four HHWCCs in Orange County:

Anaheim:.....1071 N. Blue Gum St
Huntington Beach:.....17121 Nichols St
Irvine:..... 6411 Oak Canyon
San Juan Capistrano:... 32250 La Pata Ave

Centers are open Tuesday-Saturday, 9 a.m.-3 p.m. Centers are closed on rainy days and major holidays. For more information, call **(714) 834-6752** or visit **www.oclandfills.com.**

Common household hazardous wastes

- Batteries
- Paint and paint products
- Adhesives
- Drain openers
- Household cleaning products
- Wood and metal cleaners and polishes
- Pesticides
- Fungicides/wood preservatives
- Automotive products (antifreeze, motor oil, fluids)
- Grease and rust solvents
- Fluorescent lamps
- Mercury (thermometers & thermostats)
- All forms of electronic waste including computers and microwaves
- Pool & spa chemicals
- Cleaners
- Medications
- Propane (camping & BBQ)
- Mercury-containing lamps
- Television & monitors (CRTs, flatscreens)

Tips for household hazardous waste

- Never dispose of HHW in the trash, street, gutter, storm drain or sewer.
- Keep these materials in closed, labeled containers and store materials indoors or under a cover.
- When possible, use non-hazardous products.
- Reuse products whenever possible or share with family and friends.
- Purchase only as much of a product as you'll need. Empty containers may be disposed of in the trash.
- HHW can be harmful to humans, pets and the environment. Report emergencies to 911.

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many common activities such as pest control can lead to water pollution if you're not careful. Pesticide treatments must be planned and applied properly to ensure that pesticides do not enter the street, gutter or storm drain. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never dump pesticides into the ocean, so don't let it enter the storm drains. Pesticides can cause significant damage to our environment if used improperly. If you are thinking of using a pesticide to control a pest, there are some important things to consider.

For more information,
please call
University of California Cooperative
Extension Master Gardeners at
(714) 708-1646
or visit these Web sites:
www.uccemg.org
www.ipm.ucdavis.edu

For instructions on collecting a specimen sample visit the Orange County Agriculture Commissioner's website at:
http://www.ocagcomm.com/ser_lab.asp

To report a spill, call the
Orange County 24-Hour Water Pollution Problem Reporting Hotline at 1-877-89-SPILL (1-877-897-7455).

For emergencies, dial 911.

Information From:
Cheryl Wilen, Area IPM Advisor; Darren Haver, Watershed Management Advisor; Mary Louise Flint, IPM Education and Publication Director; Pamela M. Geisel, Environmental Horticulture Advisor; Carolyn L. Unruh, University of California Cooperative Extension staff writer. Photos courtesy of the UC Statewide IPM Program and Darren Haver.

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Help Prevent Ocean Pollution:

Responsible Pest Control

Tips for Pest Control

Key Steps to Follow:

Step 1: **Correctly identify the pest (insect, weed, rodent, or disease) and verify that it is actually causing the problem.**

Three life stages of the common lady beetle, a beneficial insect.

This is important because beneficial insects are often mistaken for pests and sprayed with pesticides needlessly.

Consult with a Certified Nursery Professional at a local nursery or garden center or send a sample of the pest to the Orange County Agricultural Commissioner's Office.

Determine if the pest is still present – even though you see damage, the pest may have left.

Step 2: **Determine how many pests are present and causing damage.**

Small pest populations may be controlled more safely using non-pesticide techniques. These include removing food sources, washing off leaves with a strong stream of water, blocking entry into the home using caulking and replacing problem plants with ones less susceptible to pests.

Integrated Pest Management (IPM) usually combines several least toxic pest control methods for long-term prevention and management of pest problems without harming you, your family, or the environment.

UC CE University of California Cooperative Extension

Step 3: **If a pesticide must be used, choose the least toxic chemical.**

Obtain information on the least toxic pesticides that are effective at controlling the target pest from the UC Statewide Integrated Pest Management (IPM) Program's Web site at www.ipm.ucdavis.edu.

Seek out the assistance of a Certified Nursery Professional at a local nursery or garden center when selecting a pesticide. Purchase the smallest amount of pesticide available.

Apply the pesticide to the pest during its most vulnerable life stage. This information can be found on the pesticide label.

Step 4: **Wear appropriate protective clothing.**

Follow pesticide labels regarding specific types of protective equipment you should wear. Protective clothing should always be washed separately from other clothing.

Step 5: **Continuously monitor external conditions when applying pesticides such as weather, irrigation, and the presence of children and animals.**

Never apply pesticides when rain is predicted within the next 48 hours. Also, do not water after applying pesticides unless the directions say it is necessary.

Apply pesticides when the air is still; breezy conditions may cause the spray or dust to drift away from your targeted area.

In case of an emergency call 911 and/or the regional poison control number at (714) 634-5988 or (800) 544-4404 (CA only).

For general questions you may also visit www.calpoison.org.

Step 6: **In the event of accidental spills, sweep up or use an absorbent agent to remove any excess pesticides. Avoid the use of water.**

Be prepared. Have a broom, dust pan, or dry absorbent material, such as cat litter, newspapers or paper towels, ready to assist in cleaning up spills.

Contain and clean up the spill right away. Place contaminated materials in a doubled plastic bag. All materials used to clean up the spill should be properly disposed of according to your local Household Hazardous Waste Disposal site.

Step 7: **Properly store and dispose of unused pesticides.**

Purchase Ready-To-Use (RTU) products to avoid storing large concentrated quantities of pesticides.

Store unused chemicals in a locked cabinet.

Unused pesticide chemicals may be disposed of at a Household Hazardous Waste Collection Center.

Empty pesticide containers should be triple rinsed prior to disposing of them in the trash.

Household Hazardous Waste Collection Center
(714) 834-6752
www.oclandfills.com

PROJECT Pollution PREVENTION

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many common activities can lead to water pollution if you're not careful. Home improvement projects and work sites must be maintained to ensure that building materials do not enter the street, gutter or storm drain. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never dump building materials into the ocean, so don't let them enter the storm drains. Follow these tips to help prevent water pollution.

For more information,
please call the
Orange County Stormwater Program
at **1-877-89-SPILL** (1-877-897-7455)
or visit
www.ocwatersheds.com

To report a spill,
call the
Orange County 24-Hour
Water Pollution Problem
Reporting Hotline
at **1-877-89-SPILL** (1-877-897-7455).

For emergencies, dial 911.

The tips contained in this brochure provide useful information to help prevent water pollution while performing home improvement projects. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

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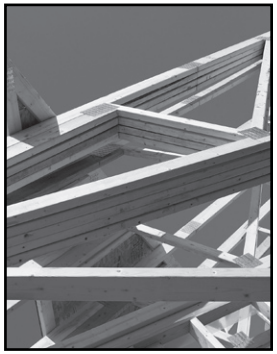
Help Prevent Ocean Pollution:

Tips for Home Improvement Projects

Tips for Home Improvement Projects

Home improvement projects can cause significant damage to the environment. Whether you hire a contractor or work on the house yourself, it is important to follow these simple tips while renovating, remodeling or improving your home:

General Construction



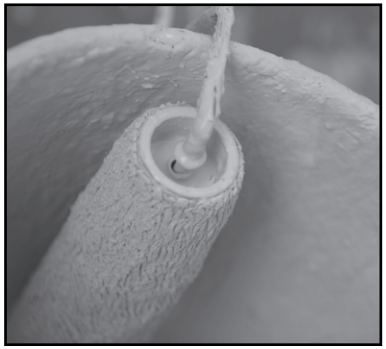
- Schedule projects for dry weather.
- Keep all construction debris away from the street, gutter and storm drain.
- Store materials under cover with temporary roofs or plastic sheets to eliminate or reduce the possibility that rainfall, runoff or wind will carry materials from the project site to the street, storm drain or adjacent properties.

Building Materials

- Never hose materials into a street, gutter or storm drain.
- Exposed piles of construction material should not be stored on the street or sidewalk.
- Minimize waste by ordering only the amount of materials needed to complete the job.
- Do not mix more fresh concrete than is needed for each project.
- Wash concrete mixers and equipment in a designated washout area where the water can flow into a containment area or onto dirt.
- Dispose of small amounts of dry excess materials in the trash. Powdery waste, such as dry concrete, must be properly contained within a box or bag prior to disposal. Call your local trash hauler for weight and size limits.

Paint

- Measure the room or object to be painted, then buy only the amount needed.
- Place the lid on firmly and store the paint can upside-down in a dry location away from the elements.
- Tools such as brushes, buckets and rags should never be washed where excess water can drain into the street, gutter or storm drain. All tools should be rinsed in a sink connected to the sanitary sewer.
- When disposing of paint, never put wet paint in the trash.
- Dispose of water-based paint by removing the lid and letting it dry in the can. Large amounts must be taken to a Household Hazardous Waste Collection Center (HHWCC).



- Oil-based paint is a household hazardous waste. All leftover paint should be taken to a HHWCC.
- For HHWCC locations and hours, call **(714) 834-6752** or visit **www.oclandfills.com**.

Erosion Control

- Schedule grading and excavation projects for dry weather.
- When temporarily removing soil, pile it in a contained, covered area where it cannot spill into the street, or obtain the required temporary encroachment or street closure permit and follow the conditions instructed by the permit.
- When permanently removing large quantities of soil, a disposal location must be found prior to excavation. Numerous businesses are available to handle disposal needs. For disposal options, visit **www.ciwmb.ca.gov/SWIS**.
- Prevent erosion by planting fast-growing annual and perennial grasses. They will shield and bind the soil.

Recycle

- Use a construction and demolition recycling company to recycle lumber, paper, cardboard, metals, masonry (bricks, concrete, etc.), carpet, plastic, pipes (plastic, metal and clay), drywall, rocks, dirt and green waste.

- For a listing of construction and demolition recycling locations in your area, visit **www.ciwmb.ca.gov/recycle.**

Spills

- Clean up spills immediately by using an absorbent material such as cat litter, then sweep it up and dispose of it in the trash.
- Immediately report spills that have entered the street, gutter or storm drain to the County's 24-Hour Water Pollution Problem Reporting Hotline at **(714) 567-6363** or visit **www.ocwatersheds.com** to fill out an incident reporting form.

PROJECT Pollution PREVENTION

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many common activities can lead to water pollution if you're not careful. Fertilizers, pesticides and other chemicals that are left on yards or driveways can be blown or washed into storm drains that flow to the ocean. Overwatering lawns can also send materials into storm drains. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never pour gardening products into the ocean, so don't let them enter the storm drains. Follow these easy tips to help prevent water pollution.

For more information,
please call the
Orange County Stormwater Program
at **1-877-89-SPILL** (1-877-897-7455)
or visit
www.ocwatersheds.com

UCCE Master Gardener Hotline:
(714) 708-1646

To report a spill,
call the
Orange County 24-Hour
Water Pollution Problem
Reporting Hotline
1-877-89-SPILL (1-877-897-7455).

For emergencies, dial 911.

The tips contained in this brochure provide useful information to help prevent water pollution while landscaping or gardening. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

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Help Prevent Ocean Pollution:

Tips for Landscape & Gardening

The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

Tips for Landscape & Gardening

Never allow gardening products or polluted water to enter the street, gutter or storm drain.

General Landscaping Tips

- Protect stockpiles and materials from wind and rain by storing them under tarps or secured plastic sheeting.
- Prevent erosion of slopes by planting fast-growing, dense ground covering plants. These will shield and bind the soil.
- Plant native vegetation to reduce the amount of water, fertilizers, and pesticide applied to the landscape.

- Never apply pesticides or fertilizers when rain is predicted within the next 48 hours.

Garden & Lawn Maintenance

- Do not overwater. Use irrigation practices such as drip irrigation, soaker hoses or micro spray systems. Periodically inspect and fix leaks and misdirected sprinklers.
- Do not rake or blow leaves, clippings or pruning waste into the street, gutter or storm drain. Instead, dispose of green waste by composting, hauling it to a permitted landfill, or recycling it through your city's program.

- Use slow-release fertilizers to minimize leaching, and use organic fertilizers.
- Read labels and use only as directed. Do not over-apply pesticides or fertilizers. Apply to spots as needed, rather than blanketing an entire area.
- Store pesticides, fertilizers and other chemicals in a dry covered area to prevent exposure that may result in the deterioration of containers and packaging.

- Rinse empty pesticide containers and re-use rinse water as you would use the product. Do not dump rinse water down storm drains. Dispose of empty containers in the trash.
- When available, use non-toxic alternatives to traditional pesticides, and use pesticides specifically designed to control the pest you are targeting. For more information, visit **www.ipm.ucdavis.edu**.
- If fertilizer is spilled, sweep up the spill before irrigating. If the spill is liquid, apply an absorbent material such as cat litter, and then sweep it up and dispose of it in the trash.
- Take unwanted pesticides to a Household Hazardous Waste Collection Center to be recycled. Locations are provided below.

Household Hazardous Waste Collection Centers

Anaheim:	1071 N. Blue Gum St.
Huntington Beach:	17121 Nichols St.
Irvine:	6411 Oak Canyon
San Juan Capistrano:	32250 La Pata Ave.

For more information, call (714) 834-6752 or visit www.oclandfills.com

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many common activities can lead to water pollution if you're not careful. Pet waste and pet care products can be washed into the storm drains that flow to the ocean. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never put pet waste or pet care products into the ocean, so don't let them enter the storm drains. Follow these easy tips to help prevent water pollution.

For more information,
please call the
Orange County Stormwater Program
at **1-877-89-SPILL** (1-877-897-7455)
or visit
www.ocwatersheds.com

To report a spill,
call the
Orange County 24-Hour Water Pollution Problem Reporting Hotline
1-877-89-SPILL (1-877-897-7455).

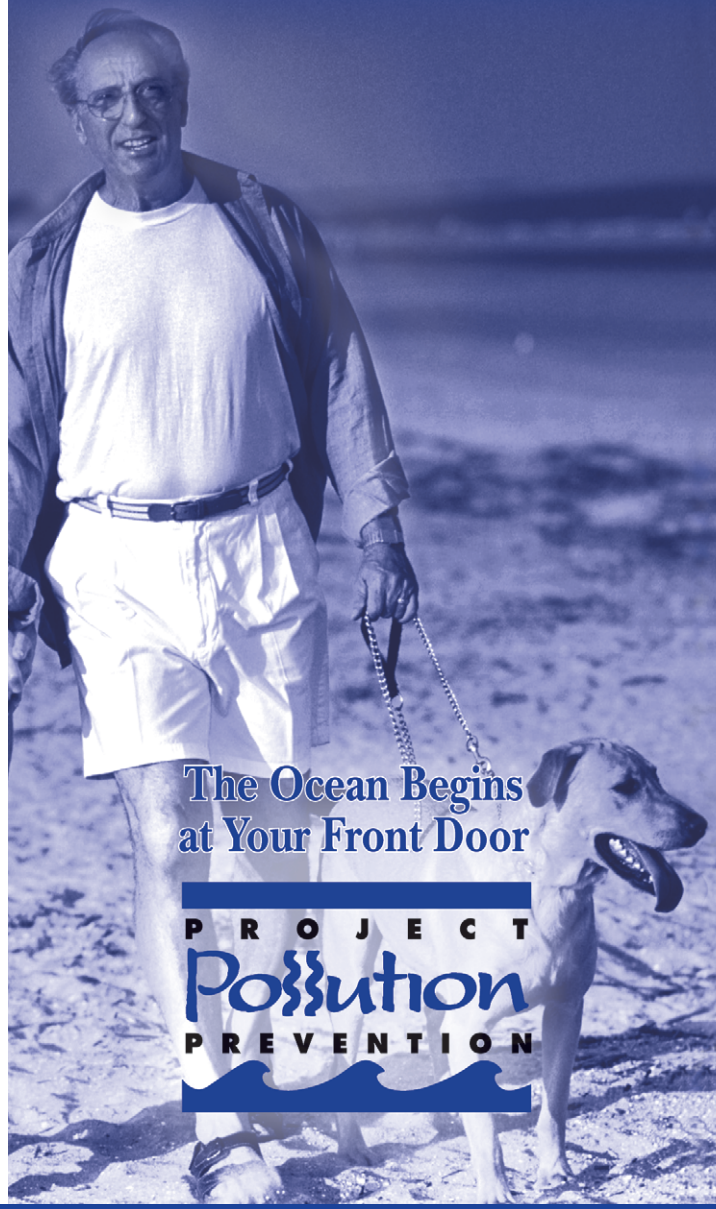
For emergencies, dial 911.

The tips contained in this brochure provide useful information to help prevent water pollution while caring for your pet. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

Printed on Recycled Paper

Help Prevent Ocean Pollution:

Tips for Pet Care



Tips for Pet Care

Never let any pet care products or washwater run off your yard and into the street, gutter or storm drain.

Washing Your Pets

Even biodegradable soaps and shampoos can be harmful to marine life and the environment.

- If possible, bathe your pets indoors using less-toxic shampoos or have your pet professionally groomed. Follow instructions on the products and clean up spills.

- If you bathe your pet outside, wash it on your lawn or another absorbent/ permeable surface to keep the washwater from running into the street, gutter or storm drain.

Flea Control

- Consider using oral or topical flea control products.

- If you use flea control products such as shampoos, sprays or collars, make sure to dispose of any unused products at a Household Hazardous Waste Collection Center. For location information, call **(714) 834-6752**.

Why You Should Pick Up After Your Pet

It's the law! Every city has an ordinance requiring you to pick up after your pet. Besides being a nuisance, pet waste can lead to water pollution, even if you live inland. During rainfall, pet waste left outdoors can wash into storm drains. This waste flows directly into our waterways and the ocean where it can harm human health, marine life and the environment.

As it decomposes, pet waste demands a high level of oxygen from water. This decomposition can contribute to killing marine life by reducing the amount of dissolved oxygen available to them.

Have fun with your pets, but please be a responsible pet owner by taking care of them and the environment.

- Take a bag with you on walks to pick up after your pet.

- Dispose of the waste in the trash or in a toilet.

PROJECT Pollution PREVENTION

Clean beaches and healthy creeks, rivers, bays, and ocean are important to Orange County. However, many common activities can lead to water pollution if you're not careful. Swimming pools and spas are common in Orange County, but they must be maintained properly to guarantee that chemicals aren't allowed to enter the street, where they can flow into the storm drains and then into the waterways. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never dump pool chemicals into the ocean, so don't let it enter the storm drains. Follow these easy tips to help prevent water pollution.

For more information,
please call the
Orange County Stormwater Program
at **1-877-89-SPILL** (1-877-897-7455)
or visit
www.ocwatersheds.com

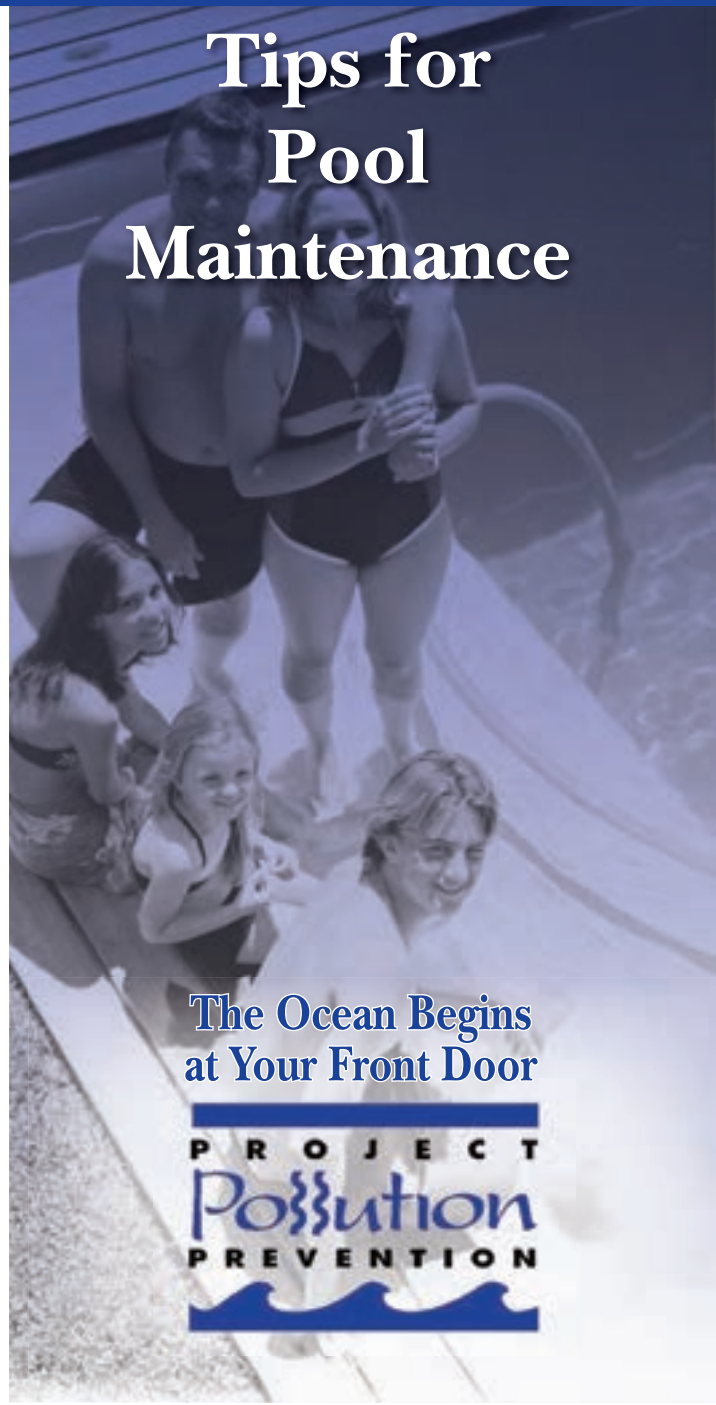
To report a spill,
call the
Orange County 24-Hour
Water Pollution Reporting Hotline
1-877-89-SPILL (1-877-897-7455).

For emergencies, dial 911.

The tips contained in this brochure provide useful information to help prevent water pollution while maintaining your pool. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

Help Prevent Ocean Pollution:

Tips for Pool Maintenance



The Ocean Begins at Your Front Door

PROJECT Pollution PREVENTION

Tips for Pool Maintenance

Many pools are plumbed to allow the pool to drain directly to the sanitary sewer. If yours is not, follow these instructions for disposing of pool and spa water.

Acceptable and Preferred Method of Disposal

When you cannot dispose of pool water in the sanitary sewer, the release of dechlorinated swimming pool water is allowed if all of these tips are followed:

- The residual chlorine does not exceed 0.1 mg/l (parts per million).
- The pH is between 6.5 and 8.5.
- The water is free of any unusual coloration, dirt or algae.
- There is no discharge of filter media.
- There is no discharge of acid cleaning wastes.
- Some cities may have ordinances that do not allow pool water to be disposed into a storm drain. Check with your city.

How to Know if You're Following the Standards

You can find out how much chlorine is in your water by using a pool testing kit. Excess chlorine can be removed by discontinuing the use of chlorine for a few days prior to discharge or by purchasing dechlorinating chemicals from a local pool supply company. Always make sure to follow the instructions that come with any products you use.

Doing Your Part

By complying with these guidelines, you will make a significant contribution toward keeping pollutants out of Orange County's creeks, streams, rivers, bays and the ocean. This helps to protect organisms that are sensitive to pool chemicals, and helps to maintain the health of our environment.

PROJECT Pollution PREVENTION

For more information,
please call the
Orange County Stormwater Program
at **1-877-89-SPILL** (1-877-897-7455)
or visit
www.ocwatersheds.com

To report a spill,
call the
Orange County 24-Hour Water Pollution Problem Reporting Hotline
at **1-877-89-SPILL** (1-877-897-7455).

For emergencies, dial 911.

The tips contained in this brochure provide useful information to help prevent water pollution. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

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Help Prevent Ocean Pollution:

Tips for Residential Pool, Landscape and Hardscape Drains

The Ocean Begins at Your Front Door

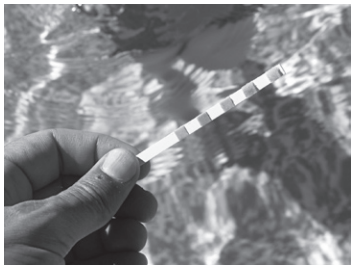
PROJECT Pollution PREVENTION

Tips for Residential Pool, Landscape and Hardscape Drains

Pool Maintenance

All pool water discharged to the curb, gutter or permitted pool drain from your property must meet the following water quality criteria:

- The residual chlorine does not exceed 0.1 mg/L (parts per million).
- The pH is between 6.5 and 8.5.
- The water is free of any unusual coloration.
- There is no discharge of filter media or acid cleaning wastes.



Some cities have ordinances that do not allow pool water to be discharged to the storm drain. Check with your city.

Landscape and Hardscape Drains

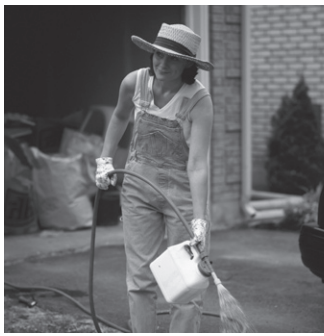
The following recommendations will help reduce or prevent pollutants from your landscape and hardscape drains from entering the street, gutter or storm drain. Unlike water that enters the sewer (from sinks and toilets), water that enters a landscape or hardscape drain is not treated before entering our creeks, rivers, bays and ocean.

Household Activities

- Do not rinse spills of materials or chemicals to any drain.
- Use dry cleanup methods such as applying cat litter or another absorbent material, then sweep it up and dispose of it in the trash. If the material is hazardous, dispose of it at a Household Hazardous Waste Collection Center (HHWCC). For locations, call **(714) 834-6752** or visit **www.oclandfills.com**.
- Do not hose down your driveways, sidewalks or patios to your landscape or hardscape drain. Sweep up debris and dispose of it in the trash.
- Always pick up after your pet. Flush waste down the toilet or dispose of it in the trash.
- Do not store items such as cleaners, batteries, automotive fluids, paint products, TVs, or computer monitors uncovered outdoors. Take them to a HHWCC for disposal.

Yard Maintenance

- Do not overwater. Water by hand or set automated irrigation systems to reflect seasonal water needs.
- Follow directions on pesticides and fertilizers (measure, do not estimate amounts) and do not use if rain is predicted within 48 hours.
- Cultivate your garden often to control weeds and reduce the need to use chemicals.



Vehicle Maintenance

- Never pour oil or antifreeze down your landscape or hardscape drain. Recycle these substances at a service station, a waste collection center or used oil recycling center. For locations, contact the Used Oil Program at **1-800-CLEANUP** or visit **www.CLEANUP.org**.
- Whenever possible, take your vehicle to a commercial car wash.
- If you do wash your vehicle at home, do not allow the washwater to go down your landscape or hardscape drain. Instead, dispose of it in the sanitary sewer (a sink or toilet) or onto an absorbent surface such as your lawn.
- Use a spray nozzle that will shut off the water when not in use.

Clean beaches and healthy creeks, rivers, bays and ocean are important to Orange County. However, many common activities such as painting can lead to water pollution if you're not careful. Paint must be used, stored and disposed of properly to ensure that it does not enter the street, gutter or storm drain. Unlike water in sanitary sewers (from sinks and toilets), water in storm drains is not treated before entering our waterways.

You would never dump paint into the ocean, so don't let it enter the storm drains. Follow these easy tips to help prevent water pollution.

For more information,
please call the
Orange County Stormwater Program
at **1-877-89-SPILL** (1-877-897-7455)
or visit
www.ocwatersheds.com

To report a spill,
call the
Orange County 24-Hour Water Pollution Problem Reporting Hotline
at **1-877-89-SPILL** (1-877-897-7455).

For emergencies, dial 911.

The tips contained in this brochure provide useful information to help prevent water pollution while using, storing and disposing of paint. If you have other suggestions, please contact your city's stormwater representatives or call the Orange County Stormwater Program.

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Help Prevent Ocean Pollution:

Tips for Projects Using Paint

Tips for Projects Using Paint

Paint can cause significant damage to our environment. Whether you hire a contractor or do it yourself, it is important to follow these simple tips when purchasing, using, cleaning, storing and disposing of paint.

Purchasing Paint

- Measure the room or object to be painted, then buy only the amount needed.
- Whenever possible, use water-based paint since it usually does not require hazardous solvents such as paint thinner for cleanup.

Painting

- Use only one brush or roller per color of paint to reduce the amount of water needed for cleaning.
- Place open paint containers or trays on a stable surface and in a position that is unlikely to spill.
- Always use a tarp under the area or object being painted to collect paint drips and contain spills.

Cleaning

- Never clean brushes or rinse paint containers in the street, gutter or storm drain.
- For oil-based products, use as much of the paint on the brushes as possible. Clean brushes with thinner. To reuse thinner, pour it through a fine filter (e.g. nylon, metal gauze or filter paper) to remove solids such as leftover traces of paint.
- For water-based products, use as much of the paint on the brushes as possible, then rinse in the sink.
- Collect all paint chips and dust. Chips and dust from marine paints or paints containing lead, mercury or tributyl tin are hazardous waste. Sweep up and dispose of at a Household Hazardous Waste Collection Center (HHWCC).

Storing Paint

- Store paint in a dry location away from the elements.
- Store leftover water-based paint, oil-based paint and solvents separately in original or clearly marked containers.
- Avoid storing paint cans directly on cement floors. The bottom of the can will rust much faster on cement.
- Place the lid on firmly and store the paint can upside-down to prevent air from entering. This will keep the paint usable longer. Oil-based paint is usable for up to 15 years. Water-based paint remains usable for up to 10 years.

Alternatives to Disposal

- Use excess paint to apply another coat, for touch-ups, or to paint a closet, garage, basement or attic.
- Give extra paint to friends or family. Extra paint can also be donated to a local theatre group, low-income housing program or school.
- Take extra paint to an exchange program such as the **"Stop & Swap"** that allows you to drop off or pick up partially used home care products free of charge. **"Stop & Swap"** programs are available at most HHWCCs.
- For HHWCC locations and hours, call **(714) 834-6752** or visit **www.oclandfills.com**.

Disposing of Paint

- Never put wet paint in the trash.

For water-based paint:

- If possible, brush the leftover paint on cardboard or newspaper. Otherwise, allow the paint to dry in the can with the lid off in a well-ventilated area protected from the elements, children and pets. Stirring the paint every few days will speed up the drying.
- Large quantities of extra paint should be taken to a HHWCC.
- Once dried, paint and painted surfaces may be disposed of in the trash. When setting a dried paint can out for trash collection, leave the lid off so the collector will see that the paint has dried.

For oil-based paint:

- Oil-based paint is a household hazardous waste. All leftover paint should be taken to a HHWCC.

Aerosol paint:

- Dispose of aerosol paint cans at a HHWCC.

Spills

- Never hose down pavement or other impermeable surfaces where paint has spilled.
- Clean up spills immediately by using an absorbent material such as cat litter. Cat litter used to clean water-based paint spills can be disposed of in the trash. When cleaning oil-based paint spills with cat litter, it must be taken to a HHWCC.
- Immediately report spills that have entered the street, gutter or storm drain to the County's 24-Hour Water Pollution Problem Reporting Hotline at **(714) 567-6363** or visit **www.ocwatersheds.com** to fill out an incident reporting form.

PROJECT Pollution PREVENTION

Non-Stormwater Discharges SC-10

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

Non-stormwater discharges are those flows that do not consist entirely of stormwater. Some non-stormwater discharges do not include pollutants and may be discharged to the storm drain. These include uncontaminated groundwater and natural springs. There are also some non-stormwater discharges that typically do not contain pollutants and may be discharged to the storm drain with conditions. These include car washing, air conditioner condensate, etc. However there are certain non-stormwater discharges that pose environmental concern. These discharges may originate from illegal dumping or from internal floor drains, appliances, industrial processes, sinks, and toilets that are connected to the nearby storm drainage system. These discharges (which may include: process waste waters, cooling waters, wash waters, and sanitary wastewater) can carry substances such as paint, oil, fuel and other automotive fluids, chemicals and other pollutants into storm drains. They can generally be detected through a combination of detection and elimination. The ultimate goal is to effectively eliminate non-stormwater discharges to the stormwater drainage system through implementation of measures to detect, correct, and enforce against illicit connections and illegal discharges of pollutants on streets and into the storm drain system and creeks.

Targeted Constituents

Sediment	
Nutrients	■
Trash	
Metals	■
Bacteria	■
Oil and Grease	■
Organics	■

Approach

Initially the industry must make an assessment of non-stormwater discharges to determine which types must be eliminated or addressed through BMPs. The focus of the following approach is in the elimination of non-stormwater discharges.

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Pollution Prevention

- Ensure that used oil, used antifreeze, and hazardous chemical recycling programs are being implemented. Encourage litter control.

Suggested Protocols

Recommended Complaint Investigation Equipment

- Field Screening Analysis
  - pH paper or meter
  - Commercial stormwater pollutant screening kit that can detect for reactive phosphorus, nitrate nitrogen, ammonium nitrogen, specific conductance, and turbidity
  - Sample jars
  - Sample collection pole
  - A tool to remove access hole covers
- Laboratory Analysis
  - Sample cooler
  - Ice
  - Sample jars and labels
  - Chain of custody forms
- Documentation
  - Camera
  - Notebook
  - Pens
  - Notice of Violation forms
  - Educational materials

General

- Develop clear protocols and lines of communication for effectively prohibiting non-stormwater discharges, especially those that are not classified as hazardous. These are often not responded to as effectively as they need to be.
- Stencil or demarcate storm drains, where applicable, to prevent illegal disposal of pollutants. Storm drain inlets should have messages such as "Dump No Waste Drains to Stream" stenciled or demarcated next to them to warn against ignorant or intentional dumping of pollutants into the storm drainage system.

- See SC44 Stormwater Drainage System Maintenance for additional information.

Illicit Connections

- Locate discharges from the industrial storm drainage system to the municipal storm drain system through review of "as-built" piping schematics.
- Isolate problem areas and plug illicit discharge points.
- Locate and evaluate all discharges to the industrial storm drain system.

Visual Inspection and Inventory

- Inventory and inspect each discharge point during dry weather.
- Keep in mind that drainage from a storm event can continue for a day or two following the end of a storm and groundwater may infiltrate the underground stormwater collection system. Also, non-stormwater discharges are often intermittent and may require periodic inspections.

Review Infield Piping

- A review of the "as-built" piping schematic is a way to determine if there are any connections to the stormwater collection system.
- Inspect the path of floor drains in older buildings.

Smoke Testing

- Smoke testing of wastewater and stormwater collection systems is used to detect connections between the two systems.
- During dry weather the stormwater collection system is filled with smoke and then traced to sources. The appearance of smoke at the base of a toilet indicates that there may be a connection between the sanitary and the stormwater system.

Dye Testing

- A dye test can be performed by simply releasing a dye into either your sanitary or process wastewater system and examining the discharge points from the stormwater collection system for discoloration.

TV Inspection of Drainage System

- TV Cameras can be employed to visually identify illicit connections to the industrial storm drainage system.

Illegal Dumping

- Regularly inspect and clean up hot spots and other storm drainage areas where illegal dumping and disposal occurs.
- On paved surfaces, clean up spills with as little water as possible. Use a rag for small spills, a damp mop for general cleanup, and absorbent material for larger spills. If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be sent to a certified laundry (rags) or disposed of as hazardous waste.

- Never hose down or bury dry material spills. Sweep up the material and dispose of properly.
- Use adsorbent materials on small spills rather than hosing down the spill. Remove the adsorbent materials promptly and dispose of properly.
- For larger spills, a private spill cleanup company or Hazmat team may be necessary.

Once a site has been cleaned:

- Post "No Dumping" signs with a phone number for reporting dumping and disposal.
- Landscaping and beautification efforts of hot spots may also discourage future dumping, as well as provide open space and increase property values.
- Lighting or barriers may also be needed to discourage future dumping.
- See fact sheet SC11 Spill Prevention, Control, and Cleanup.

Inspection

- Regularly inspect and clean up hot spots and other storm drainage areas where illegal dumping and disposal occurs.
- Conduct field investigations of the industrial storm drain system for potential sources of non-stormwater discharges.
- Pro-actively conduct investigations of high priority areas. Based on historical data, prioritize specific geographic areas and/or incident type for pro-active investigations.

Reporting

- A database is useful for defining and tracking the magnitude and location of the problem.
- Report prohibited non-stormwater discharges observed during the course of normal daily activities so they can be investigated, contained, and cleaned up or eliminated.
- Document that non-stormwater discharges have been eliminated by recording tests performed, methods used, dates of testing, and any on-site drainage points observed.
- Document and report annually the results of the program.
- Maintain documentation of illicit connection and illegal dumping incidents, including significant conditionally exempt discharges that are not properly managed.

Training

- Training of technical staff in identifying and documenting illegal dumping incidents is required.
- Consider posting the quick reference table near storm drains to reinforce training.
- Train employees to identify non-stormwater discharges and report discharges to the appropriate departments.

- Educate employees about spill prevention and cleanup.
- Well-trained employees can reduce human errors that lead to accidental releases or spills. The employee should have the tools and knowledge to immediately begin cleaning up a spill should one occur. Employees should be familiar with the Spill Prevention Control and Countermeasure Plan.
- Determine and implement appropriate outreach efforts to reduce non-permissible non-stormwater discharges.
- Conduct spill response drills annually (if no events occurred to evaluate your plan) in cooperation with other industries.
- When a responsible party is identified, educate the party on the impacts of his or her actions.

Spill Response and Prevention

- See SC11 Spill Prevention Control and Cleanup.

Other Considerations

- Many facilities do not have accurate, up-to-date schematic drawings.

Requirements

Costs (including capital and operation & maintenance)

- The primary cost is for staff time and depends on how aggressively a program is implemented.
- Cost for containment and disposal is borne by the discharger.
- Illicit connections can be difficult to locate especially if there is groundwater infiltration.
- Indoor floor drains may require re-plumbing if cross-connections to storm drains are detected.

Maintenance (including administrative and staffing)

- Illegal dumping and illicit connection violations requires technical staff to detect and investigate them.

Supplemental Information

Further Detail of the BMP

Illegal Dumping

- Substances illegally dumped on streets and into the storm drain systems and creeks include paints, used oil and other automotive fluids, construction debris, chemicals, fresh concrete, leaves, grass clippings, and pet wastes. All of these wastes cause stormwater and receiving water quality problems as well as clog the storm drain system itself.
- Establish a system for tracking incidents. The system should be designed to identify the following:
  - Illegal dumping hot spots

- Types and quantities (in some cases) of wastes
- Patterns in time of occurrence (time of day/night, month, or year)
- Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills)
- Responsible parties

One of the keys to success of reducing or eliminating illegal dumping is increasing the number of people at the facility who are aware of the problem and who have the tools to at least identify the incident, if not correct it. Therefore, train field staff to recognize and report the incidents.

What constitutes a "non-stormwater" discharge?

- Non-stormwater discharges to the stormwater collection system may include any water used directly in the manufacturing process (process wastewater), air conditioning condensate and coolant, non-contact cooling water, cooling equipment condensate, outdoor secondary containment water, vehicle and equipment wash water, sink and drinking fountain wastewater, sanitary wastes, or other wastewaters.

Permit Requirements

- Facilities subject to stormwater permit requirements must include a certification that the stormwater collection system has been tested or evaluated for the presence of non-stormwater discharges. The State's General Industrial Stormwater Permit requires that non-stormwater discharges be eliminated prior to implementation of the facility's SWPPP.

Performance Evaluation

- Review annually internal investigation results; assess whether goals were met and what changes or improvements are necessary.
- Obtain feedback from personnel assigned to respond to, or inspect for, illicit connections and illegal dumping incidents.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Outdoor Loading/Unloading SC-30

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

The loading/unloading of materials usually takes place outside on docks or terminals; therefore, materials spilled, leaked, or lost during loading/unloading may collect in the soil or on other surfaces and have the potential to be carried away by stormwater runoff or when the area is cleaned. Additionally, rainfall may wash pollutants from machinery used to unload or move materials. Implementation of the following protocols will prevent or reduce the discharge of pollutants to stormwater from outdoor loading/unloading of materials.

Targeted Constituents

Sediment	✓
Nutrients	✓
Trash	
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓

Approach

Reduce potential for pollutant discharge through source control pollution prevention and BMP implementation. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

Pollution Prevention

- Keep accurate maintenance logs to evaluate materials removed and improvements made.
- Park tank trucks or delivery vehicles in designated areas so that spills or leaks can be contained.
- Limit exposure of material to rainfall whenever possible.
- Prevent stormwater run-on.
- Check equipment regularly for leaks.

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Suggested Protocols

Loading and Unloading – General Guidelines

- Develop an operations plan that describes procedures for loading and/or unloading.
- Conduct loading and unloading in dry weather if possible.
- Cover designated loading/unloading areas to reduce exposure of materials to rain.
- Consider placing a seal or door skirt between delivery vehicles and building to prevent exposure to rain.
- Design loading/unloading area to prevent stormwater run-on, which would include grading or berming the area, and position roof downspouts so they direct stormwater away from the loading/unloading areas.
- Have employees load and unload all materials and equipment in covered areas such as building overhangs at loading docks if feasible.
- Load/unload only at designated loading areas.
- Use drip pans underneath hose and pipe connections and other leak-prone spots during liquid transfer operations, and when making and breaking connections. Several drip pans should be stored in a covered location near the liquid transfer area so that they are always available, yet protected from precipitation when not in use. Drip pans can be made specifically for railroad tracks. Drip pans must be cleaned periodically, and drip collected materials must be disposed of properly.
- Pave loading areas with concrete instead of asphalt.
- Avoid placing storm drains in the area.
- Grade and/or berm the loading/unloading area to a drain that is connected to a deadend.

Inspection

- Check loading and unloading equipment regularly for leaks, including valves, pumps, flanges and connections.
- Look for dust or fumes during loading or unloading operations.

Training

- Train employees (e.g., fork lift operators) and contractors on proper spill containment and cleanup.
- Have employees trained in spill containment and cleanup present during loading/unloading.
- Train employees in proper handling techniques during liquid transfers to avoid spills.
- Make sure forklift operators are properly trained on loading and unloading procedures.

Spill Response and Prevention

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Contain leaks during transfer.
- Store and maintain appropriate spill cleanup materials in a location that is readily accessible and known to all and ensure that employees are familiar with the site's spill control plan and proper spill cleanup procedures.
- Have an emergency spill cleanup plan readily available.
- Use drip pans or comparable devices when transferring oils, solvents, and paints.

Other Considerations (Limitations and Regulations)

- Space and time limitations may preclude all transfers from being performed indoors or under cover.
- It may not be possible to conduct transfers only during dry weather.

Requirements

Costs

Costs should be low except when covering a large loading/unloading area.

Maintenance

- Conduct regular inspections and make repairs as necessary. The frequency of repairs will depend on the age of the facility.
- Check loading and unloading equipment regularly for leaks.
- Conduct regular broom dry-sweeping of area.

Supplemental Information

Further Detail of the BMP

Special Circumstances for Indoor Loading/Unloading of Materials

Loading or unloading of liquids should occur in the manufacturing building so that any spills that are not completely retained can be discharged to the sanitary sewer, treatment plant, or treated in a manner consistent with local sewer authorities and permit requirements.

- For loading and unloading tank trucks to above and below ground storage tanks, the following procedures should be used:
  - The area where the transfer takes place should be paved. If the liquid is reactive with the asphalt, Portland cement should be used to pave the area.
  - The transfer area should be designed to prevent run-on of stormwater from adjacent areas. Sloping the pad and using a curb, like a speed bump, around the uphill side of the transfer area should reduce run-on.

- The transfer area should be designed to prevent runoff of spilled liquids from the area. Sloping the area to a drain should prevent runoff. The drain should be connected to a dead-end sump or to the sanitary sewer. A positive control valve should be installed on the drain.

- For transfer from rail cars to storage tanks that must occur outside, use the following procedures:

  - Drip pans should be placed at locations where spillage may occur, such as hose connections, hose reels, and filler nozzles. Use drip pans when making and breaking connections.

  - Drip pan systems should be installed between the rails to collect spillage from tank cars.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Waste Handling & Disposal SC-34

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

Improper storage and handling of solid wastes can allow toxic compounds, oils and greases, heavy metals, nutrients, suspended solids, and other pollutants to enter stormwater runoff. The discharge of pollutants to stormwater from waste handling and disposal can be prevented and reduced by tracking waste generation, storage, and disposal; reducing waste generation and disposal through source reduction, reuse, and recycling; and preventing run-on and runoff.

Targeted Constituents

Sediment	
Nutrients	
Trash	
Metals	✓
Bacteria	✓
Oil and Grease	✓
Organics	✓

Approach

Pollution Prevention

- Accomplish reduction in the amount of waste generated using the following source controls:
  - Production planning and sequencing
  - Process or equipment modification
  - Raw material substitution or elimination
  - Loss prevention and housekeeping
  - Waste segregation and separation
  - Close loop recycling
- Establish a material tracking system to increase awareness about material usage. This may reduce spills and minimize contamination, thus reducing the amount of waste produced.
- Recycle materials whenever possible.

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Suggested Protocols

General

- Cover storage containers with leak proof lids or some other means. If waste is not in containers, cover all waste piles (plastic tarps are acceptable coverage) and prevent stormwater run-on and runoff with a berm. The waste containers or piles must be covered except when in use.
- Use drip pans or absorbent materials whenever grease containers are emptied by vacuum trucks or other means. Grease cannot be left on the ground. Collected grease must be properly disposed of as garbage.
- Check storage containers weekly for leaks and to ensure that lids are on tightly. Replace any that are leaking, corroded, or otherwise deteriorating.
- Sweep and clean the storage area regularly. If it is paved, do not hose down the area to a storm drain.
- Dispose of rinse and wash water from cleaning waste containers into a sanitary sewer if allowed by the local sewer authority. Do not discharge wash water to the street or storm drain.
- Transfer waste from damaged containers into safe containers.
- Take special care when loading or unloading wastes to minimize losses. Loading systems can be used to minimize spills and fugitive emission losses such as dust or mist. Vacuum transfer systems can minimize waste loss.

Controlling Litter

- Post "No Littering" signs and enforce anti-litter laws.
- Provide a sufficient number of litter receptacles for the facility.
- Clean out and cover litter receptacles frequently to prevent spillage.

Waste Collection

- Keep waste collection areas clean.
- Inspect solid waste containers for structural damage regularly. Repair or replace damaged containers as necessary.
- Secure solid waste containers; containers must be closed tightly when not in use.
- Do not fill waste containers with washout water or any other liquid.
- Ensure that only appropriate solid wastes are added to the solid waste container. Certain wastes such as hazardous wastes, appliances, fluorescent lamps, pesticides, etc., may not be disposed of in solid waste containers (see chemical/ hazardous waste collection section below).

- Do not mix wastes; this can cause chemical reactions, make recycling impossible, and complicate disposal.

Good Housekeeping

- Use all of the product before disposing of the container.
- Keep the waste management area clean at all times by sweeping and cleaning up spills immediately.
- Use dry methods when possible (e.g., sweeping, use of absorbents) when cleaning around restaurant/food handling dumpster areas. If water must be used after sweeping/using absorbents, collect water and discharge through grease interceptor to the sewer.

Chemical/Hazardous Wastes

- Select designated hazardous waste collection areas on-site.
- Store hazardous materials and wastes in covered containers and protect them from vandalism.
- Place hazardous waste containers in secondary containment.
- Make sure that hazardous waste is collected, removed, and disposed of only at authorized disposal areas.
- Stencil or demarcate storm drains on the facility's property with prohibitive message regarding waste disposal.

Run-on/Runoff Prevention

- Prevent stormwater run-on from entering the waste management area by enclosing the area or building a berm around the area.
- Prevent waste materials from directly contacting rain.
- Cover waste piles with temporary covering material such as reinforced tarpaulin, polyethylene, polyurethane, polypropyleneor hypalon.
- Cover the area with a permanent roof if feasible.
- Cover dumpsters to prevent rain from washing waste out of holes or cracks in the bottom of the dumpster.
- Move the activity indoor after ensuring all safety concerns such as fire hazard and ventilation are addressed.

Inspection

- Inspect and replace faulty pumps or hoses regularly to minimize the potential of releases and spills.
- Check waste management areas for leaking containers or spills.

- Repair leaking equipment including valves, lines, seals, or pumps promptly.

Training

- Train staff in pollution prevention measures and proper disposal methods.
- Train employees and contractors in proper spill containment and cleanup. The employee should have the tools and knowledge to immediately begin cleaning up a spill should one occur.
- Train employees and subcontractors in proper hazardous waste management.

Spill Response and Prevention

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Have an emergency plan, equipment and trained personnel ready at all times to deal immediately with major spills
- Collect all spilled liquids and properly dispose of them.
- Store and maintain appropriate spill cleanup materials in a location known to all near the designated wash area.
- Ensure that vehicles transporting waste have spill prevention equipment that can prevent spills during transport. Spill prevention equipment includes:
  - Vehicles equipped with baffles for liquid waste
  - Trucks with sealed gates and spill guards for solid waste

Other Considerations (Limitations and Regulations)

Hazardous waste cannot be reused or recycled; it must be disposed of by a licensed hazardous waste hauler.

Requirements

Costs

Capital and O&M costs for these programs will vary substantially depending on the size of the facility and the types of waste handled. Costs should be low if there is an inventory program in place.

Maintenance

- None except for maintaining equipment for material tracking program.

Supplemental Information

Further Detail of the BMP

Land Treatment System

Minimize runoff of polluted stormwater from land application by:

- Choosing a site where slopes are under 6%, the soil is permeable, there is a low water table, it is located away from wetlands or marshes, and there is a closed drainage system

- Avoiding application of waste to the site when it is raining or when the ground is saturated with water
- Growing vegetation on land disposal areas to stabilize soils and reduce the volume of surface water runoff from the site
- Maintaining adequate barriers between the land application site and the receiving waters (planted strips are particularly good)
- Using erosion control techniques such as mulching and matting, filter fences, straw bales, diversion terracing, and sediment basins
- Performing routine maintenance to ensure the erosion control or site stabilization measures are working

Examples

The port of Long Beach has a state-of-the-art database for identifying potential pollutant sources, documenting facility management practices, and tracking pollutants.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

Solid Waste Container Best Management Practices – Fact Sheet On-Line Resources – Environmental Health and Safety. Harvard University. 2002.

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Pollution from Surface Cleaning Folder. 1996. Bay Area Stormwater Management Agencies Association (BASMAA). http://www.basmaa.org

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Building & Grounds Maintenance SC-41

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	✓
Nutrients	✓
Trash	
Metals	✓
Bacteria	✓
Oil and Grease	
Organics	

Description

Stormwater runoff from building and grounds maintenance activities can be contaminated with toxic hydrocarbons in solvents, fertilizers and pesticides, suspended solids, heavy metals, abnormal pH, and oils and greases. Utilizing the protocols in this fact sheet will prevent or reduce the discharge of pollutants to stormwater from building and grounds maintenance activities by washing and cleaning up with as little water as possible, following good landscape management practices, preventing and cleaning up spills immediately, keeping debris from entering the storm drains, and maintaining the stormwater collection system.

Approach

Reduce potential for pollutant discharge through source control pollution prevention and BMP implementation. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

Pollution Prevention

- Switch to non-toxic chemicals for maintenance when possible.
- Choose cleaning agents that can be recycled.
- Encourage proper lawn management and landscaping, including use of native vegetation.

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- Encourage use of Integrated Pest Management techniques for pest control.
- Encourage proper onsite recycling of yard trimmings.
- Recycle residual paints, solvents, lumber, and other material as much as possible.

Suggested Protocols

Pressure Washing of Buildings, Rooftops, and Other Large Objects

- In situations where soaps or detergents are used and the surrounding area is paved, pressure washers must use a water collection device that enables collection of wash water and associated solids. A sump pump, wet vacuum or similarly effective device must be used to collect the runoff and loose materials. The collected runoff and solids must be disposed of properly.
- If soaps or detergents are not used, and the surrounding area is paved, wash runoff does not have to be collected but must be screened. Pressure washers must use filter fabric or some other type of screen on the ground and/or in the catch basin to trap the particles in wash water runoff.
- If you are pressure washing on a grassed area (with or without soap), runoff must be dispersed as sheet flow as much as possible, rather than as a concentrated stream. The wash runoff must remain on the grass and not drain to pavement.

Landscaping Activities

- Dispose of grass clippings, leaves, sticks, or other collected vegetation as garbage, or by composting. Do not dispose of collected vegetation into waterways or storm drainage systems.
- Use mulch or other erosion control measures on exposed soils.

Building Repair, Remodeling, and Construction

- Do not dump any toxic substance or liquid waste on the pavement, the ground, or toward a storm drain.
- Use ground or drop cloths underneath outdoor painting, scraping, and sandblasting work, and properly dispose of collected material daily.
- Use a ground cloth or oversized tub for activities such as paint mixing and tool cleaning.
- Clean paintbrushes and tools covered with water-based paints in sinks connected to sanitary sewers or in portable containers that can be dumped into a sanitary sewer drain. Brushes and tools covered with non-water-based paints, finishes, or other materials must be cleaned in a manner that enables collection of used solvents (e.g., paint thinner, turpentine, etc.) for recycling or proper disposal.
- Use a storm drain cover, filter fabric, or similarly effective runoff control mechanism if dust, grit, wash water, or other pollutants may escape the work area and enter a catch basin. This is particularly necessary on rainy days. The containment device(s) must be in place at the beginning of the work day, and accumulated dirty runoff and solids must be collected and disposed of before removing the containment device(s) at the end of the work day.

- If you need to de-water an excavation site, you may need to filter the water before discharging to a catch basin or off-site. If directed off-site, you should direct the water through hay bales and filter fabric or use other sediment filters or traps.
- Store toxic material under cover during precipitation events and when not in use. A cover would include tarps or other temporary cover material.

Mowing, Trimming, and Planting

- Dispose of leaves, sticks, or other collected vegetation as garbage, by composting or at a permitted landfill. Do not dispose of collected vegetation into waterways or storm drainage systems.
- Use mulch or other erosion control measures when soils are exposed.
- Place temporarily stockpiled material away from watercourses and drain inlets, and berm or cover stockpiles to prevent material releases to the storm drain system.
- Consider an alternative approach when bailing out muddy water: do not put it in the storm drain; pour over landscaped areas.
- Use hand weeding where practical.

Fertilizer and Pesticide Management

- Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of fertilizers and pesticides and training of applicators and pest control advisors.
- Use less toxic pesticides that will do the job when applicable. Avoid use of copper-based pesticides if possible.
- Do not use pesticides if rain is expected.
- Do not mix or prepare pesticides for application near storm drains.
- Use the minimum amount needed for the job.
- Calibrate fertilizer distributors to avoid excessive application.
- Employ techniques to minimize off-target application (e.g., spray drift) of pesticides, including consideration of alternative application techniques.
- Apply pesticides only when wind speeds are low.
- Fertilizers should be worked into the soil rather than dumped or broadcast onto the surface.
- Irrigate slowly to prevent runoff and then only as much as is needed.
- Clean pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.
- Dispose of empty pesticide containers according to the instructions on the container label.

- Use up the pesticides. Rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.
- Implement storage requirements for pesticide products with guidance from the local fire department and County Agricultural Commissioner. Provide secondary containment for pesticides.

Inspection

- Inspect irrigation system periodically to ensure that the right amount of water is being applied and that excessive runoff is not occurring. Minimize excess watering and repair leaks in the irrigation system as soon as they are observed.

Training

- Educate and train employees on pesticide use and in pesticide application techniques to prevent pollution.
- Train employees and contractors in proper techniques for spill containment and cleanup.
- Be sure the frequency of training takes into account the complexity of the operations and the nature of the staff.

Spill Response and Prevention

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Place a stockpile of spill cleanup materials, such as brooms, dustpans, and vacuum sweepers (if desired) near the storage area where it will be readily accessible.
- Have employees trained in spill containment and cleanup present during the loading/unloading of dangerous wastes, liquid chemicals, or other materials.
- Familiarize employees with the Spill Prevention Control and Countermeasure Plan.
- Clean up spills immediately.

Other Considerations

Alternative pest/weed controls may not be available, suitable, or effective in many cases.

Requirements

Costs

- Cost will vary depending on the type and size of facility.
- Overall costs should be low in comparison to other BMPs.

Maintenance

Sweep paved areas regularly to collect loose particles. Wipe up spills with rags and other absorbent material immediately, do not hose down the area to a storm drain.

Supplemental Information

Further Detail of the BMP

Fire Sprinkler Line Flushing

Building fire sprinkler line flushing may be a source of non-stormwater runoff pollution. The water entering the system is usually potable water, though in some areas it may be non-potable reclaimed wastewater. There are subsequent factors that may drastically reduce the quality of the water in such systems. Black iron pipe is usually used since it is cheaper than potable piping, but it is subject to rusting and results in lower quality water. Initially, the black iron pipe has an oil coating to protect it from rusting between manufacture and installation; this will contaminate the water from the first flush but not from subsequent flushes. Nitrates, poly-phosphates and other corrosion inhibitors, as well as fire suppressants and antifreeze may be added to the sprinkler water system. Water generally remains in the sprinkler system a long time (typically a year) and between flushes may accumulate iron, manganese, lead, copper, nickel, and zinc. The water generally becomes anoxic and contains living and dead bacteria and breakdown products from chlorination. This may result in a significant BOD problem and the water often smells. Consequently dispose fire sprinkler line flush water into the sanitary sewer. Do not allow discharge to storm drain or infiltration due to potential high levels of pollutants in fire sprinkler line water.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

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Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Parking/Storage Area Maintenance SC-43

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	✓
Nutrients	
Trash	✓
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓

Description

Parking lots and storage areas can contribute a number of substances, such as trash, suspended solids, hydrocarbons, oil and grease, and heavy metals that can enter receiving waters through stormwater runoff or non-stormwater discharges. The protocols in this fact sheet are intended to prevent or reduce the discharge of pollutants from parking/storage areas and include using good housekeeping practices, following appropriate cleaning BMPs, and training employees.

Approach

The goal of this program is to ensure stormwater pollution prevention practices are considered when conducting activities on or around parking areas and storage areas to reduce potential for pollutant discharge to receiving waters. Successful implementation depends on effective training of employees on applicable BMPs and general pollution prevention strategies and objectives.

Pollution Prevention

- Encourage alternative designs and maintenance strategies for impervious parking lots. (See New Development and Redevelopment BMP Handbook)
- Keep accurate maintenance logs to evaluate BMP implementation.

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Suggested Protocols

General

- Keep the parking and storage areas clean and orderly. Remove debris in a timely fashion.
- Allow sheet runoff to flow into biofilters (vegetated strip and swale) and/or infiltration devices.
- Utilize sand filters or oleophilic collectors for oily waste in low quantities.
- Arrange rooftop drains to prevent drainage directly onto paved surfaces.
- Design lot to include semi-permeable hardscape.
- Discharge soapy water remaining in mop or wash buckets to the sanitary sewer through a sink, toilet, clean-out, or wash area with drain.

Controlling Litter

- Post "No Littering" signs and enforce anti-litter laws.
- Provide an adequate number of litter receptacles.
- Clean out and cover litter receptacles frequently to prevent spillage.
- Provide trash receptacles in parking lots to discourage litter.
- Routinely sweep, shovel, and dispose of litter in the trash.

Surface Cleaning

- Use dry cleaning methods (e.g., sweeping, vacuuming) to prevent the discharge of pollutants into the stormwater conveyance system if possible.
- Establish frequency of public parking lot sweeping based on usage and field observations of waste accumulation.
- Sweep all parking lots at least once before the onset of the wet season.
- Follow the procedures below if water is used to clean surfaces:
  - Block the storm drain or contain runoff.
  - Collect and pump wash water to the sanitary sewer or discharge to a pervious surface. Do not allow wash water to enter storm drains.
  - Dispose of parking lot sweeping debris and dirt at a landfill.
- Follow the procedures below when cleaning heavy oily deposits:
  - Clean oily spots with absorbent materials.
  - Use a screen or filter fabric over inlet, then wash surfaces.

- Do not allow discharges to the storm drain.
- Vacuum/pump discharges to a tank or discharge to sanitary sewer.
- Appropriately dispose of spilled materials and absorbents.

Surface Repair

- Preheat, transfer or load hot bituminous material away from storm drain inlets.
- Apply concrete, asphalt, and seal coat during dry weather to prevent contamination from contacting stormwater runoff.
- Cover and seal nearby storm drain inlets where applicable (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal.
- Use only as much water as necessary for dust control, to avoid runoff.
- Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.

Inspection

- Have designated personnel conduct inspections of parking facilities and stormwater conveyance systems associated with parking facilities on a regular basis.
- Inspect cleaning equipment/sweepers for leaks on a regular basis.

Training

- Provide regular training to field employees and/or contractors regarding cleaning of paved areas and proper operation of equipment.
- Train employees and contractors in proper techniques for spill containment and cleanup.

Spill Response and Prevention

- Keep your Spill Prevention Control and Countermeasure (SPCC) Plan up-to-date.
- Place a stockpile of spill cleanup materials where it will be readily accessible or at a central location.
- Clean up fluid spills immediately with absorbent rags or material.
- Dispose of spilled material and absorbents properly.

Other Considerations

Limitations related to sweeping activities at large parking facilities may include high equipment costs, the need for sweeper operator training, and the inability of current sweeper technology to remove oil and grease.

SC-43 Parking/Storage Area Maintenance

Requirements

Costs

Cleaning/sweeping costs can be quite large. Construction and maintenance of stormwater structural controls can be quite expensive as well.

Maintenance

- Sweep parking lot regularly to minimize cleaning with water.
- Clean out oil/water/sand separators regularly, especially after heavy storms.
- Clean parking facilities regularly to prevent accumulated wastes and pollutants from being discharged into conveyance systems during rainy conditions.

Supplemental Information

Further Detail of the BMP

Surface Repair

Apply concrete, asphalt, and seal coat during dry weather to prevent contamination from contacting stormwater runoff. Where applicable, cover and seal nearby storm drain inlets (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal. Only use only as much water as is necessary for dust control to avoid runoff.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

King County Storm Water Pollution Control Manual http://dnr.metrokc.gov/wlr/dss/spcm.htm

Pollution from Surface Cleaning Folder. 1996. Bay Area Stormwater Management Agencies Association (BASMAA). http://www.basmaa.org/

Oregon Association of Clean Water Agencies. Oregon Municipal Stormwater Toolbox for Maintenance Practices. June 1998.

Santa Clara Valley Urban Runoff Pollution Prevention Program http://www.scvurppp.org

The Storm Water Managers Resource Center http://www.stormwatercenter.net/

Drainage System Maintenance SC-44

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize

Description

As a consequence of its function, the stormwater conveyance system collects and transports urban runoff and stormwater that may contain certain pollutants. The protocols in this fact sheet are intended to reduce pollutants reaching receiving waters through proper conveyance system operation and maintenance.

Targeted Constituents

Sediment	■
Nutrients	
Trash	■
Metals	
Bacteria	■
Oil and Grease	
Organics	

Approach

Pollution Prevention

Maintain catch basins, stormwater inlets, and other stormwater conveyance structures on a regular basis to remove pollutants, reduce high pollutant concentrations during the first flush of storms, prevent clogging of the downstream conveyance system, restore catch basins' sediment trapping capacity, and ensure the system functions properly hydraulically to avoid flooding.

Suggested Protocols

Catch Basins/Inlet Structures

- Staff should regularly inspect facilities to ensure compliance with the following:
  - Immediate repair of any deterioration threatening structural integrity.
  - Cleaning before the sump is 40% full. Catch basins should be cleaned as frequently as needed to meet this standard.
  - Stenciling of catch basins and inlets (see SC34 Waste Handling and Disposal).

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- Clean catch basins, storm drain inlets, and other conveyance structures before the wet season to remove sediments and debris accumulated during the summer.
- Conduct inspections more frequently during the wet season for problem areas where sediment or trash accumulates more often. Clean and repair as needed.
- Keep accurate logs of the number of catch basins cleaned.
- Store wastes collected from cleaning activities of the drainage system in appropriate containers or temporary storage sites in a manner that prevents discharge to the storm drain.
- Dewater the wastes if necessary with outflow into the sanitary sewer if permitted. Water should be treated with an appropriate filtering device prior to discharge to the sanitary sewer. If discharge to the sanitary sewer is not allowed, water should be pumped or vacuumed to a tank and properly disposed. Do not dewater near a storm drain or stream.

Storm Drain Conveyance System

- Locate reaches of storm drain with deposit problems and develop a flushing schedule that keeps the pipe clear of excessive buildup.
- Collect and pump flushed effluent to the sanitary sewer for treatment whenever possible.

Pump Stations

- Clean all storm drain pump stations prior to the wet season to remove silt and trash.
- Do not allow discharge to reach the storm drain system when cleaning a storm drain pump station or other facility.
- Conduct routine maintenance at each pump station.
- Inspect, clean, and repair as necessary all outlet structures prior to the wet season.

Open Channel

- Modify storm channel characteristics to improve channel hydraulics, increase pollutant removals, and enhance channel/creek aesthetic and habitat value.
- Conduct channel modification/improvement in accordance with existing laws. Any person, government agency, or public utility proposing an activity that will change the natural (emphasis added) state of any river, stream, or lake in California, must enter into a Steam or Lake Alteration Agreement with the Department of Fish and Game. The developer-applicant should also contact local governments (city, county, special districts), other state agencies (SWRCB, RWQCB, Department of Forestry, Department of Water Resources), and Federal Corps of Engineers and USFWS.

Illicit Connections and Discharges

- Look for evidence of illegal discharges or illicit connections during routine maintenance of conveyance system and drainage structures:
  - Is there evidence of spills such as paints, discoloring, etc?

- Are there any odors associated with the drainage system?
- Record locations of apparent illegal discharges/illicit connections?
- Track flows back to potential dischargers and conduct aboveground inspections. This can be done through visual inspection of upgradient manholes or alternate techniques including zinc chloride smoke testing, fluorometric dye testing, physical inspection testing, or television camera inspection.
- Eliminate the discharge once the origin of flow is established.

- Stencil or demarcate storm drains, where applicable, to prevent illegal disposal of pollutants. Storm drain inlets should have messages such as "Dump No Waste Drains to Stream" stenciled next to them to warn against ignorant or intentional dumping of pollutants into the storm drainage system.
- Refer to fact sheet SC-10 Non-Stormwater Discharges.

Illegal Dumping

- Inspect and clean up hot spots and other storm drainage areas regularly where illegal dumping and disposal occurs.
- Establish a system for tracking incidents. The system should be designed to identify the following:
  - Illegal dumping hot spots
  - Types and quantities (in some cases) of wastes
  - Patterns in time of occurrence (time of day/night, month, or year)
  - Mode of dumping (abandoned containers, "midnight dumping" from moving vehicles, direct dumping of materials, accidents/spills)
  - Responsible parties
- Post "No Dumping" signs in problem areas with a phone number for reporting dumping and disposal. Signs should also indicate fines and penalties for illegal dumping.
- Refer to fact sheet SC-10 Non-Stormwater Discharges.

Training

- Train crews in proper maintenance activities, including record keeping and disposal.
- Allow only properly trained individuals to handle hazardous materials/wastes.
- Have staff involved in detection and removal of illicit connections trained in the following:
  - OSHA-required Health and Safety Training (29 CFR 1910.120) plus annual refresher training (as needed).

- OSHA Confined Space Entry training (Cal-OSHA Confined Space, Title 8 and Federal OSHA 29 CFR 1910.146).

- Procedural training (field screening, sampling, smoke/dye testing, TV inspection).

Spill Response and Prevention

- Investigate all reports of spills, leaks, and/or illegal dumping promptly.
- Clean up all spills and leaks using "dry" methods (with absorbent materials and/or rags) or dig up, remove, and properly dispose of contaminated soil.
- Refer to fact sheet SC-11 Spill Prevention, Control, and Cleanup.

Other Considerations (Limitations and Regulations)

- Clean-up activities may create a slight disturbance for local aquatic species. Access to items and material on private property may be limited. Trade-offs may exist between channel hydraulics and water quality/riparian habitat. If storm channels or basins are recognized as wetlands, many activities, including maintenance, may be subject to regulation and permitting.
- Storm drain flushing is most effective in small diameter pipes (36-inch diameter pipe or less, depending on water supply and sediment collection capacity). Other considerations associated with storm drain flushing may include the availability of a water source, finding a downstream area to collect sediments, liquid/sediment disposal, and prohibition against disposal of flushed effluent to sanitary sewer in some areas.
- Regulations may include adoption of substantial penalties for illegal dumping and disposal.
- Local municipal codes may include sections prohibiting discharge of soil, debris, refuse, hazardous wastes, and other pollutants into the storm drain system.

Requirements

Costs

- An aggressive catch basin cleaning program could require a significant capital and O&M budget.
- The elimination of illegal dumping is dependent on the availability, convenience, and cost of alternative means of disposal. The primary cost is for staff time. Cost depends on how aggressively a program is implemented. Other cost considerations for an illegal dumping program include:

  - Purchase and installation of signs.

  - Rental of vehicle(s) to haul illegally-disposed items and material to landfills.

  - Rental of heavy equipment to remove larger items (e.g., car bodies) from channels.

  - Purchase of landfill space to dispose of illegally-dumped items and material.

- Methods used for illicit connection detection (smoke testing, dye testing, visual inspection, and flow monitoring) can be costly and time-consuming. Site-specific factors, such as the level of impervious area, the density and ages of buildings, and type of land use will determine the level of investigation necessary.

Maintenance

- Two-person teams may be required to clean catch basins with vactor trucks.
- Teams of at least two people plus administrative personnel are required to identify illicit discharges, depending on the complexity of the storm sewer system.
- Arrangements must be made for proper disposal of collected wastes.
- Technical staff are required to detect and investigate illegal dumping violations.

Supplemental Information

Further Detail of the BMP

Storm Drain Flushing

Flushing is a common maintenance activity used to improve pipe hydraulics and to remove pollutants in storm drainage systems. Flushing may be designed to hydraulically convey accumulated material to strategic locations, such as an open channel, another point where flushing will be initiated, or the sanitary sewer and the treatment facilities, thus preventing resuspension and overflow of a portion of the solids during storm events. Flushing prevents "plug flow" discharges of concentrated pollutant loadings and sediments. Deposits can hinder the designed conveyance capacity of the storm drain system and potentially cause backwater conditions in severe cases of clogging.

Storm drain flushing usually takes place along segments of pipe with grades that are too flat to maintain adequate velocity to keep particles in suspension. An upstream manhole is selected to place an inflatable device that temporarily plugs the pipe. Further upstream, water is pumped into the line to create a flushing wave. When the upstream reach of pipe is sufficiently full to cause a flushing wave, the inflated device is rapidly deflated with the assistance of a vacuum pump, thereby releasing the backed up water and resulting in the cleaning of the storm drain segment.

To further reduce impacts of stormwater pollution, a second inflatable device placed well downstream may be used to recollect the water after the force of the flushing wave has dissipated. A pump may then be used to transfer the water and accumulated material to the sanitary sewer for treatment. In some cases, an interceptor structure may be more practical or required to recollect the flushed waters.

It has been found that cleansing efficiency of periodic flush waves is dependent upon flush volume, flush discharge rate, sewer slope, sewer length, sewer flow rate, sewer diameter, and population density. As a rule of thumb, the length of line to be flushed should not exceed 700 feet. At this maximum recommended length, the percent removal efficiency ranges between 65-75% for organics and 55-65% for dry weather grit/inorganic material. The percent removal efficiency drops rapidly beyond that. Water is commonly supplied by a water truck, but fire hydrants can also supply water. To make the best use of water, it is recommended that reclaimed water be used or that fire hydrant line flushing coincide with storm sewer flushing.

References and Resources

California's Nonpoint Source Program Plan http://www.swrcb.ca.gov/nps/index.html

Clark County Storm Water Pollution Control Manual
http://www.co.clark.wa.us/pubworks/bmpman.pdf

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The Storm Water Managers Resource Center http://www.stormwatercenter.net

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http://www.epa.gov/npdes/menuofbmps/poll_16.htm

Road and Street Maintenance SC-70

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	☑
Nutrients	
Trash	☑
Metals	☑
Bacteria	
Oil and Grease	☑
Organics	☑
Oxygen Demanding	☑

Description

Streets, roads, and highways are significant sources of pollutants in stormwater discharges, and operation and maintenance (O&M) practices, if not conducted properly, can contribute to the problem. Stormwater pollution from roadway and bridge maintenance should be addressed on a site-specific basis. Use of the procedures outlined below, that address street sweeping and repair, bridge and structure maintenance, and unpaved roads will reduce pollutants in stormwater.

Approach

Pollution Prevention

- Use the least toxic materials available (e.g. water based paints, gels or sprays for graffiti removal)
- Recycle paint and other materials whenever possible.
- Enlist the help of citizens to keep yard waste, used oil, and other wastes out of the gutter.

Suggested Protocols

Street Sweeping and Cleaning

- Maintain a consistent sweeping schedule. Provide minimum monthly sweeping of curbed streets.
- Perform street cleaning during dry weather if possible.

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- Avoid wet cleaning or flushing of street, and utilize dry methods where possible.
- Consider increasing sweeping frequency based on factors such as traffic volume, land use, field observations of sediment and trash accumulation, proximity to water courses, etc. For example:
  - Increase the sweeping frequency for streets with high pollutant loadings, especially in high traffic and industrial areas.
  - Increase the sweeping frequency just before the wet season to remove sediments accumulated during the summer.
  - Increase the sweeping frequency for streets in special problem areas such as special events, high litter or erosion zones.
- Maintain cleaning equipment in good working condition and purchase replacement equipment as needed. Old sweepers should be replaced with new technologically advanced sweepers (preferably regenerative air sweepers) that maximize pollutant removal.
- Operate sweepers at manufacturer requested optimal speed levels to increase effectiveness.
- To increase sweeping effectiveness consider the following:
  - Institute a parking policy to restrict parking in problematic areas during periods of street sweeping.
  - Post permanent street sweeping signs in problematic areas; use temporary signs if installation of permanent signs is not possible.
  - Develop and distribute flyers notifying residents of street sweeping schedules.
- Regularly inspect vehicles and equipment for leaks, and repair immediately.
- If available use vacuum or regenerative air sweepers in the high sediment and trash areas (typically industrial/commercial).
- Keep accurate logs of the number of curb-miles swept and the amount of waste collected.
- Dispose of street sweeping debris and dirt at a landfill.
- Do not store swept material along the side of the street or near a storm drain inlet.
- Keep debris storage to a minimum during the wet season or make sure debris piles are contained (e.g. by berming the area) or covered (e.g. with tarps or permanent covers).

Street Repair and Maintenance

Pavement marking

- Schedule pavement marking activities for dry weather.

- Develop paint handling procedures for proper use, storage, and disposal of paints.
- Transfer and load paint and hot thermoplastic away from storm drain inlets.
- Provide drop cloths and drip pans in paint mixing areas.
- Properly maintain application equipment.
- Street sweep thermoplastic grindings. Yellow thermoplastic grindings may require special handling as they may contain lead.
- Paints containing lead or tributyltin are considered a hazardous waste and must be disposed of properly.
- Use water based paints whenever possible. If using water based paints, clean the application equipment in a sink that is connected to the sanitary sewer.
- Properly store leftover paints if they are to be kept for the next job, or dispose of properly.

Concrete installation and repair

- Schedule asphalt and concrete activities for dry weather.
- Take measures to protect any nearby storm drain inlets and adjacent watercourses, prior to breaking up asphalt or concrete (e.g. place san bags around inlets or work areas).
- Limit the amount of fresh concrete or cement mortar mixed, mix only what is needed for the job.
- Store concrete materials under cover, away from drainage areas. Secure bags of cement after they are open. Be sure to keep wind-blown cement powder away from streets, gutters, storm drains, rainfall, and runoff.
- Return leftover materials to the transit mixer. Dispose of small amounts of hardened excess concrete, grout, and mortar in the trash.
- Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile, or dispose in the trash.
- When making saw cuts in pavement, use as little water as possible and perform during dry weather. Cover each storm drain inlet completely with filter fabric or plastic during the sawing operation and contain the slurry by placing straw bales, sandbags, or gravel dams around the inlets. After the liquid drains or evaporates, shovel or vacuum the slurry residue from the pavement or gutter and remove from site. Alternatively, a small onsite vacuum may be used to pick up the slurry as this will prohibit slurry from reaching storm drain inlets.
- Wash concrete trucks off site or in designated areas on site designed to preclude discharge of wash water to drainage system.

Patching, resurfacing, and surface sealing

- Schedule patching, resurfacing and surface sealing for dry weather.
- Stockpile materials away from streets, gutter areas, storm drain inlets or watercourses. During wet weather, cover stockpiles with plastic tarps or berm around them if necessary to prevent transport of materials in runoff.
- Pre-heat, transfer or load hot bituminous material away from drainage systems or watercourses.
- Where applicable, cover and seal nearby storm drain inlets (with waterproof material or mesh) and maintenance holes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from covered maintenance holes and storm drain inlets when the job is complete.
- Prevent excess material from exposed aggregate concrete or similar treatments from entering streets or storm drain inlets. Designate an area for clean up and proper disposal of excess materials.
- Use only as much water as necessary for dust control, to avoid runoff.
- Sweep, never hose down streets to clean up tracked dirt. Use a street sweeper or vacuum truck. Do not dump vacuumed liquid in storm drains.
- Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.

Equipment cleaning maintenance and storage

- Inspect equipment daily and repair any leaks. Place drip pans or absorbent materials under heavy equipment when not in use.
- Perform major equipment repairs at the corporation yard, when practical.
- If refueling or repairing vehicles and equipment must be done onsite, use a location away from storm drain inlets and watercourses.
- Clean equipment including sprayers, sprayer paint supply lines, patch and paving equipment, and mud jacking equipment at the end of each day. Clean in a sink or other area (e.g. vehicle wash area) that is connected to the sanitary sewer.

Bridge and Structure Maintenance

Paint and Paint Removal

- Transport paint and materials to and from job sites in containers with secure lids and tied down to the transport vehicle.
- Do not transfer or load paint near storm drain inlets or watercourses.

- Test and inspect spray equipment prior to starting to paint. Tighten all hoses and connections and do not overfill paint container.
- Plug nearby storm drain inlets prior to starting painting where there is significant risk of a spill reaching storm drains. Remove plugs when job is completed.
- If sand blasting is used to remove paint, cover nearby storm drain inlets prior to starting work.
- Perform work on a maintenance traveler or platform, or use suspended netting or tarps to capture paint, rust, paint removing agents, or other materials, to prevent discharge of materials to surface waters if the bridge crosses a watercourse. If sanding, use a sander with a vacuum filter bag.
- Capture all clean-up water, and dispose of properly.
- Recycle paint when possible (e.g. paint may be used for graffiti removal activities). Dispose of unused paint at an appropriate household hazardous waste facility.

Graffiti Removal

- Schedule graffiti removal activities for dry weather.
- Protect nearby storm drain inlets prior to removing graffiti from walls, signs, sidewalks, or other structures needing graffiti abatement. Clean up afterwards by sweeping or vacuuming thoroughly, and/or by using absorbent and properly disposing of the absorbent.
- When graffiti is removed by painting over, implement the procedures under Painting and Paint Removal above.
- Direct runoff from sand blasting and high pressure washing (with no cleaning agents) into a landscaped or dirt area. If such an area is not available, filter runoff through an appropriate filtering device (e.g. filter fabric) to keep sand, particles, and debris out of storm drains.
- If a graffiti abatement method generates wash water containing a cleaning compound (such as high pressure washing with a cleaning compound), plug nearby storm drains and vacuum/pump wash water to the sanitary sewer.
- Consider using a waterless and non-toxic chemical cleaning method for graffiti removal (e.g. gels or spray compounds).

Repair Work

- Prevent concrete, steel, wood, metal parts, tools, or other work materials from entering storm drains or watercourses.
- Thoroughly clean up the job site when the repair work is completed.
- When cleaning guardrails or fences follow the appropriate surface cleaning methods (depending on the type of surface) outlined in SC-71 Plaza & Sidewalk Cleaning fact sheet.

- If painting is conducted, follow the painting and paint removal procedures above.
- If graffiti removal is conducted, follow the graffiti removal procedures above.
- If construction takes place, see the Construction Activity BMP Handbook.
- Recycle materials whenever possible.

Unpaved Roads and Trails

- Stabilize exposed soil areas to prevent soil from eroding during rain events. This is particularly important on steep slopes.
- For roadside areas with exposed soils, the most cost-effective choice is to vegetate the area, preferably with a mulch or binder that will hold the soils in place while the vegetation is establishing. Native vegetation should be used if possible.
- If vegetation cannot be established immediately, apply temporary erosion control mats/blankets; a comma straw, or gravel as appropriate.
- If sediment is already eroded and mobilized in roadside areas, temporary controls should be installed. These may include: sediment control fences, fabric-covered triangular dikes, gravel-filled burlap bags, biobags, or hay bales staked in place.

Non-Stormwater Discharges

Field crews should be aware of non-stormwater discharges as part of their ongoing street maintenance efforts.

- Refer to SC-10 Non-Stormwater Discharges
- Identify location, time and estimated quantity of discharges.
- Notify appropriate personnel.

Training

- Train employees regarding proper street sweeping operation and street repair and maintenance.
- Instruct employees and subcontractors to ensure that measures to reduce the stormwater impacts of roadway/bridge maintenance are being followed.
- Require engineering staff and/or consulting A/E firms to address stormwater quality in new bridge designs or existing bridge retrofits.
- Use a training log or similar method to document training.
- Train employees on proper spill containment and clean up, and in identifying non-stormwater discharges.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Keep your Spill Prevention Control and countermeasure (SPCC) plan up-to-date, and implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Densely populated areas or heavily used streets may require parking regulations to clear streets for cleaning.
- No currently available conventional sweeper is effective at removing oil and grease. Mechanical sweepers are not effective at removing finer sediments.
- Limitations may arise in the location of new bridges. The availability and cost of land and other economic and political factors may dictate where the placement of a new bridge will occur. Better design of the bridge to control runoff is required if it is being placed near sensitive waters.

Requirements

Costs

- The maintenance of local roads and bridges is already a consideration of most community public works or transportation departments. Therefore, the cost of pollutant reducing management practices will involve the training and equipment required to implement these new practices.
- The largest expenditures for street sweeping programs are in staffing and equipment. The capital cost for a conventional street sweeper is between $60,000 and $120,000. Newer technologies might have prices approaching $180,000. The average useful life of a conventional sweeper is about four years, and programs must budget for equipment replacement. Sweeping frequencies will determine equipment life, so programs that sweep more often should expect to have a higher cost of replacement.
- A street sweeping program may require the following.
  - Sweeper operators, maintenance, supervisory, and administrative personnel are required.
  - Traffic control officers may be required to enforce parking restrictions.
  - Skillful design of cleaning routes is required for program to be productive.
  - Arrangements must be made for disposal of collected wastes.

- If investing in newer technologies, training for operators must be included in operation and maintenance budgets. Costs for public education are small, and mostly deal with the need to obey parking restrictions and litter control. Parking tickets are an effective reminder to obey parking rules, as well as being a source of revenue.

Maintenance

- Not applicable

Supplemental Information

Further Detail of the BMP

Street sweeping

There are advantages and disadvantages to the two common types of sweepers. The best choice depends on your specific conditions. Many communities find it useful to have a compliment of both types in their fleet.

Mechanical Broom Sweepers - More effective at picking up large debris and cleaning wet streets. Less costly to purchase and operate. Create more airborne dust.

Vacuum Sweepers - More effective at removing fine particles and associated heavy metals. Ineffective at cleaning wet streets. Noisier than mechanical broom sweepers which may restrict areas or times of operation. May require an advance vehicle to remove large debris.

Street Flushers - Not affected by biggest interference to cleaning, parked cars. May remove finer sediments, moving them toward the gutter and stormwater inlets. For this reason, flushing fell out of favor and is now used primarily after sweeping. Flushing may be effective for combined sewer systems. Presently street flushing is not allowed under most NPDES permits.

Cross-Media Transfer of Pollutants

The California Air Resources Board (ARB) has established state ambient air quality standards including a standard for respirable particulate matter (less than or equal to 10 microns in diameter, symbolized as PM10). In the effort to sweep up finer sediments to remove attached heavy metals, municipalities should be aware that fine dust, that cannot be captured by the sweeping equipment and becomes airborne, could lead to issues of worker and public safety.

Bridges

Bridges that carry vehicular traffic generate some of the more direct discharges of runoff to surface waters. Bridge scupper drains cause a direct discharge of stormwater into receiving waters and have been shown to carry relatively high concentrations of pollutants. Bridge maintenance also generates wastes that may be either directly deposited to the water below or carried to the receiving water by stormwater. The following steps will help reduce the stormwater impacts of bridge maintenance:

- Site new bridges so that significant adverse impacts to wetlands, sensitive areas, critical habitat, and riparian vegetation are minimized.

- Design new bridges to avoid the use of scupper drains and route runoff to land for treatment control. Existing scupper drains should be cleaned on a regular basis to avoid sediment/debris accumulation.
- Reduce the discharge of pollutants to surface waters during maintenance by using suspended traps, vacuums, or booms in the water to capture paint, rust, and paint removing agents. Many of these wastes may be hazardous. Properly dispose of this waste by referring to CA21 (Hazardous Waste Management) in the Construction Handbook.
- Train employees and subcontractors to reduce the discharge of wastes during bridge maintenance.

De-icing

- Do not over-apply deicing salt and sand, and routinely calibrate spreaders.
- Near reservoirs, restrict the application of deicing salt and redirect any runoff away from reservoirs.
- Consider using alternative deicing agents (less toxic, biodegradable, etc.).

References and Resources

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.

Orange County Stormwater Program
http://www.ocwatersheds.com/stormwater/swp_introduction.asp

Oregon Association of Clean Water Agencies. Oregon Municipal Stormwater Toolbox for Maintenance Practices. June 1998.

Santa Clara Valley Urban Runoff Pollution Prevention Program. 1997 Urban Runoff Management Plan. September 1997, updated October 2000.

Santa Clara Valley Urban Runoff Pollution Prevention Program. 2001. Fresh Concrete and Mortar Application Best Management Practices for the Construction Industry. June.

Santa Clara Valley Urban Runoff Pollution Prevention Program. 2001. Roadwork and Paving Best Management Practices for the Construction Industry. June.

United States Environmental Protection Agency (USEPA). 2002. Pollution Prevention/Good Housekeeping for Municipal Operations Roadway and Bridge Maintenance. On-line
http://www.epa.gov/npdes/menuofbmps/poll_13.htm

Site Design & Landscape Planning SD-10

Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- ☑ Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Each project site possesses unique topographic, hydrologic, and vegetative features, some of which are more suitable for development than others. Integrating and incorporating appropriate landscape planning methodologies into the project design is the most effective action that can be done to minimize surface and groundwater contamination from stormwater.

Approach

Landscape planning should couple consideration of land suitability for urban uses with consideration of community goals and projected growth. Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment.

Design Considerations

Design requirements for site design and landscapes planning should conform to applicable standards and specifications of agencies with jurisdiction and be consistent with applicable General Plan and Local Area Plan policies.

Designing New Installations

Begin the development of a plan for the landscape unit with attention to the following general principles:

- Formulate the plan on the basis of clearly articulated community goals. Carefully identify conflicts and choices between retaining and protecting desired resources and community growth.
- Map and assess land suitability for urban uses. Include the following landscape features in the assessment: wooded land, open unwooded land, steep slopes, erosion-prone soils, foundation suitability, soil suitability for waste disposal, aquifers, aquifer recharge areas, wetlands, floodplains, surface waters, agricultural lands, and various categories of urban land use. When appropriate, the assessment can highlight outstanding local or regional resources that the community determines should be protected (e.g., a scenic area, recreational area, threatened species habitat, farmland, fish run). Mapping and assessment should recognize not only these resources but also additional areas needed for their sustenance.

Project plan designs should conserve natural areas to the extent possible, maximize natural water storage and infiltration opportunities, and protect slopes and channels.

Conserve Natural Areas during Landscape Planning

If applicable, the following items are required and must be implemented in the site layout during the subdivision design and approval process, consistent with applicable General Plan and Local Area Plan policies:

- Cluster development on least-sensitive portions of a site while leaving the remaining land in a natural undisturbed condition.
- Limit clearing and grading of native vegetation at a site to the minimum amount needed to build lots, allow access, and provide fire protection.
- Maximize trees and other vegetation at each site by planting additional vegetation, clustering tree areas, and promoting the use of native and/or drought tolerant plants.
- Promote natural vegetation by using parking lot islands and other landscaped areas.
- Preserve riparian areas and wetlands.

Maximize Natural Water Storage and Infiltration Opportunities Within the Landscape Unit

- Promote the conservation of forest cover. Building on land that is already deforested affects basin hydrology to a lesser extent than converting forested land. Loss of forest cover reduces interception storage, detention in the organic forest floor layer, and water losses by evapotranspiration, resulting in large peak runoff increases and either their negative effects or the expense of countering them with structural solutions.
- Maintain natural storage reservoirs and drainage corridors, including depressions, areas of permeable soils, swales, and intermittent streams. Develop and implement policies and

regulations to discourage the clearing, filling, and channelization of these features. Utilize them in drainage networks in preference to pipes, culverts, and engineered ditches.

- Evaluating infiltration opportunities by referring to the stormwater management manual for the jurisdiction and pay particular attention to the selection criteria for avoiding groundwater contamination, poor soils, and hydrogeological conditions that cause these facilities to fail. If necessary, locate developments with large amounts of impervious surfaces or a potential to produce relatively contaminated runoff away from groundwater recharge areas.

Protection of Slopes and Channels during Landscape Design

- Convey runoff safely from the tops of slopes.
- Avoid disturbing steep or unstable slopes.
- Avoid disturbing natural channels.
- Stabilize disturbed slopes as quickly as possible.
- Vegetate slopes with native or drought tolerant vegetation.
- Control and treat flows in landscaping and/or other controls prior to reaching existing natural drainage systems.
- Stabilize temporary and permanent channel crossings as quickly as possible, and ensure that increases in run-off velocity and frequency caused by the project do not erode the channel.
- Install energy dissipaters, such as riprap, at the outlets of new storm drains, culverts, conduits, or channels that enter unlined channels in accordance with applicable specifications to minimize erosion. Energy dissipaters shall be installed in such a way as to minimize impacts to receiving waters.
- Line on-site conveyance channels where appropriate, to reduce erosion caused by increased flow velocity due to increases in tributary impervious area. The first choice for linings should be grass or some other vegetative surface, since these materials not only reduce runoff velocities, but also provide water quality benefits from filtration and infiltration. If velocities in the channel are high enough to erode grass or other vegetative linings, riprap, concrete, soil cement, or geo-grid stabilization are other alternatives.
- Consider other design principles that are comparable and equally effective.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define “redevelopment” in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of “ redevelopment” must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under “designing new installations” above should be followed.

Redevelopment may present significant opportunity to add features which had not previously been implemented. Examples include incorporation of depressions, areas of permeable soils, and swales in newly redeveloped areas. While some site constraints may exist due to the status of already existing infrastructure, opportunities should not be missed to maximize infiltration, slow runoff, reduce impervious areas, disconnect directly connected impervious areas.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Stormwater Management Manual for Western Washington, Washington State Department of Ecology, August 2001.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Efficient Irrigation SD-12

Design Objectives

- ☑ Maximize Infiltration
- ☑ Provide Retention
- ☑ Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Irrigation water provided to landscaped areas may result in excess irrigation water being conveyed into stormwater drainage systems.

Approach

Project plan designs for development and redevelopment should include application methods of irrigation water that minimize runoff of excess irrigation water into the stormwater conveyance system.

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

Design Considerations

Designing New Installations

The following methods to reduce excessive irrigation runoff should be considered, and incorporated and implemented where determined applicable and feasible by the Permittee:

- Employ rain-triggered shutoff devices to prevent irrigation after precipitation.
- Design irrigation systems to each landscape area's specific water requirements.
- Include design featuring flow reducers or shutoff valves triggered by a pressure drop to control water loss in the event of broken sprinkler heads or lines.
- Implement landscape plans consistent with County or City water conservation resolutions, which may include provision of water sensors, programmable irrigation times (for short cycles), etc.

- Design timing and application methods of irrigation water to minimize the runoff of excess irrigation water into the storm water drainage system.
- Group plants with similar water requirements in order to reduce excess irrigation runoff and promote surface filtration. Choose plants with low irrigation requirements (for example, native or drought tolerant species). Consider design features such as:
  - Using mulches (such as wood chips or bar) in planter areas without ground cover to minimize sediment in runoff
  - Installing appropriate plant materials for the location, in accordance with amount of sunlight and climate, and use native plant materials where possible and/or as recommended by the landscape architect
  - Leaving a vegetative barrier along the property boundary and interior watercourses, to act as a pollutant filter, where appropriate and feasible
  - Choosing plants that minimize or eliminate the use of fertilizer or pesticides to sustain growth
- Employ other comparable, equally effective methods to reduce irrigation water runoff.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Storm Drain Signage SD-13

Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- ☑ Prohibit Dumping of Improper Materials
- Contain Pollutants
- Collect and Convey

Description

Waste materials dumped into storm drain inlets can have severe impacts on receiving and ground waters. Posting notices regarding discharge prohibitions at storm drain inlets can prevent waste dumping. Storm drain signs and stencils are highly visible source controls that are typically placed directly adjacent to storm drain inlets.

Approach

The stencil or affixed sign contains a brief statement that prohibits dumping of improper materials into the urban runoff conveyance system. Storm drain messages have become a popular method of alerting the public about the effects of and the prohibitions against waste disposal.

Suitable Applications

Stencils and signs alert the public to the destination of pollutants discharged to the storm drain. Signs are appropriate in residential, commercial, and industrial areas, as well as any other area where contributions or dumping to storm drains is likely.

Design Considerations

Storm drain message markers or placards are recommended at all storm drain inlets within the boundary of a development project. The marker should be placed in clear sight facing toward anyone approaching the inlet from either side. All storm drain inlet locations should be identified on the development site map.

Designing New Installations

The following methods should be considered for inclusion in the project design and show on project plans:

- Provide stenciling or labeling of all storm drain inlets and catch basins, constructed or modified, within the project area with prohibitive language. Examples include “NO DUMPING

– DRAINS TO OCEAN" and/or other graphical icons to discourage illegal dumping.

- Post signs with prohibitive language and/or graphical icons, which prohibit illegal dumping at public access points along channels and creeks within the project area.

Note - Some local agencies have approved specific signage and/or storm drain message placards for use. Consult local agency stormwater staff to determine specific requirements for placard types and methods of application.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. If the project meets the definition of "redevelopment", then the requirements stated under " designing new installations" above should be included in all project design plans.

Additional Information

Maintenance Considerations

- Legibility of markers and signs should be maintained. If required by the agency with jurisdiction over the project, the owner/operator or homeowner's association should enter into a maintenance agreement with the agency or record a deed restriction upon the property title to maintain the legibility of placards or signs.

Placement

- Signage on top of curbs tends to weather and fade.

- Signage on face of curbs tends to be worn by contact with vehicle tires and sweeper brooms.

Supplemental Information

Examples

- Most MS4 programs have storm drain signage programs. Some MS4 programs will provide stencils, or arrange for volunteers to stencil storm drains as part of their outreach program.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Trash Storage Areas SD-32

Description

Trash storage areas are areas where a trash receptacle (s) are located for use as a repository for solid wastes. Stormwater runoff from areas where trash is stored or disposed of can be polluted. In addition, loose trash and debris can be easily transported by water or wind into nearby storm drain inlets, channels, and/or creeks. Waste handling operations that may be sources of stormwater pollution include dumpsters, litter control, and waste piles.

Approach

This fact sheet contains details on the specific measures required to prevent or reduce pollutants in stormwater runoff associated with trash storage and handling. Preventative measures including enclosures, containment structures, and impervious pavements to mitigate spills, should be used to reduce the likelihood of contamination.

Design Objectives

- Maximize Infiltration
- Provide Retention
- Slow Runoff
- Minimize Impervious Land Coverage
- Prohibit Dumping of Improper Materials
- ☑ Contain Pollutants
- Collect and Convey

Suitable Applications

Appropriate applications include residential, commercial and industrial areas planned for development or redevelopment. (Detached residential single-family homes are typically excluded from this requirement.)

Design Considerations

Design requirements for waste handling areas are governed by Building and Fire Codes, and by current local agency ordinances and zoning requirements. The design criteria described in this fact sheet are meant to enhance and be consistent with these code and ordinance requirements. Hazardous waste should be handled in accordance with legal requirements established in Title 22, California Code of Regulation.

Wastes from commercial and industrial sites are typically hauled by either public or commercial carriers that may have design or access requirements for waste storage areas. The design criteria in this fact sheet are recommendations and are not intended to be in conflict with requirements established by the waste hauler. The waste hauler should be contacted prior to the design of your site trash collection areas. Conflicts or issues should be discussed with the local agency.

Designing New Installations

Trash storage areas should be designed to consider the following structural or treatment control BMPs:

- Design trash container areas so that drainage from adjoining roofs and pavement is diverted around the area(s) to avoid run-on. This might include berming or grading the waste handling area to prevent run-on of stormwater.
- Make sure trash container areas are screened or walled to prevent off-site transport of trash.

- Use lined bins or dumpsters to reduce leaking of liquid waste.
- Provide roofs, awnings, or attached lids on all trash containers to minimize direct precipitation and prevent rainfall from entering containers.
- Pave trash storage areas with an impervious surface to mitigate spills.
- Do not locate storm drains in immediate vicinity of the trash storage area.
- Post signs on all dumpsters informing users that hazardous materials are not to be disposed of therein.

Redeveloping Existing Installations

Various jurisdictional stormwater management and mitigation plans (SUSMP, WQMP, etc.) define "redevelopment" in terms of amounts of additional impervious area, increases in gross floor area and/or exterior construction, and land disturbing activities with structural or impervious surfaces. The definition of " redevelopment" must be consulted to determine whether or not the requirements for new development apply to areas intended for redevelopment. If the definition applies, the steps outlined under "designing new installations" above should be followed.

Additional Information

Maintenance Considerations

The integrity of structural elements that are subject to damage (i.e., screens, covers, and signs) must be maintained by the owner/operator. Maintenance agreements between the local agency and the owner/operator may be required. Some agencies will require maintenance deed restrictions to be recorded of the property title. If required by the local agency, maintenance agreements or deed restrictions must be executed by the owner/operator before improvement plans are approved.

Other Resources

A Manual for the Standard Urban Stormwater Mitigation Plan (SUSMP), Los Angeles County Department of Public Works, May 2002.

Model Standard Urban Storm Water Mitigation Plan (SUSMP) for San Diego County, Port of San Diego, and Cities in San Diego County, February 14, 2002.

Model Water Quality Management Plan (WQMP) for County of Orange, Orange County Flood Control District, and the Incorporated Cities of Orange County, Draft February 2003.

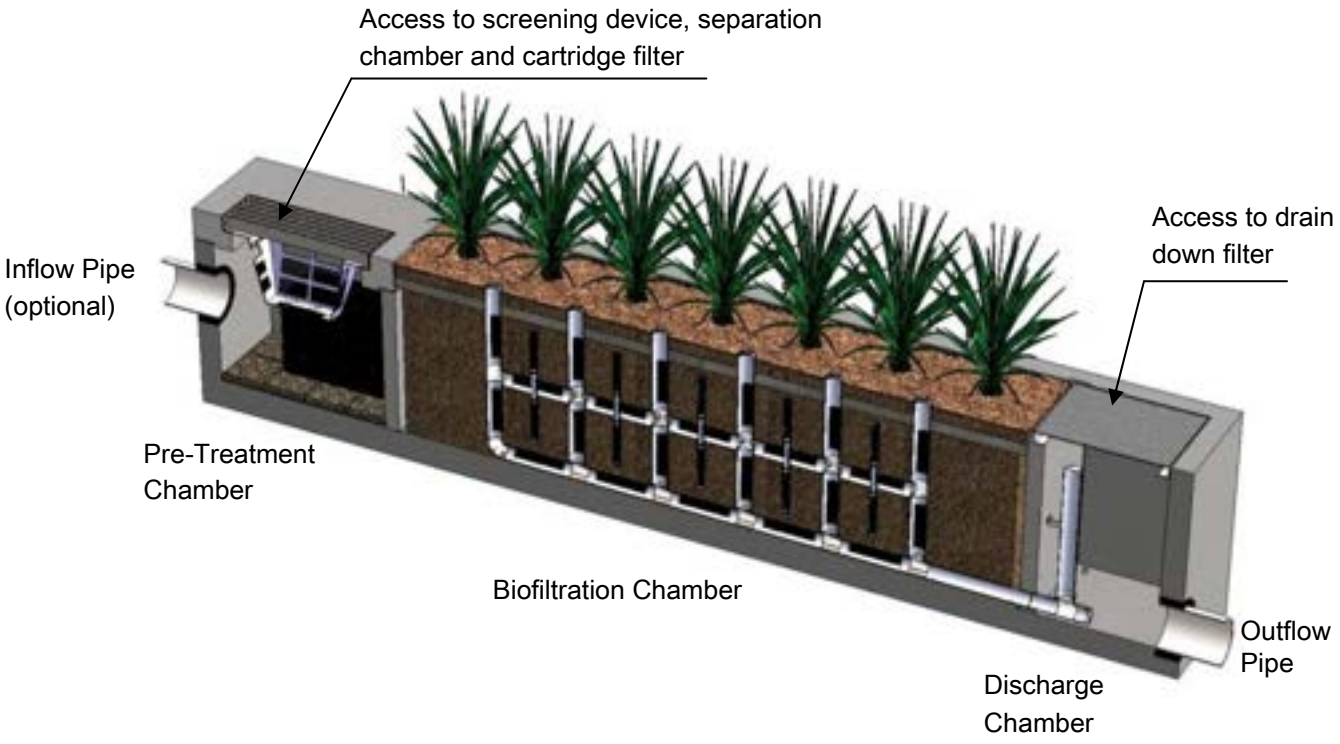
Ventura Countywide Technical Guidance Manual for Stormwater Quality Control Measures, July 2002.

Maintenance Guidelines for Modular Wetland System - Linear

Maintenance Summary

- Remove Trash from Screening Device – average maintenance interval is 6 to 12 months.
  - (*5 minute average service time*).
- Remove Sediment from Separation Chamber – average maintenance interval is 12 to 24 months.
  - (*10 minute average service time*).
- Replace Cartridge Filter Media – average maintenance interval 12 to 24 months.
  - (*10-15 minute per cartridge average service time*).
- Replace Drain Down Filter Media – average maintenance interval is 12 to 24 months.
  - (*5 minute average service time*).
- Trim Vegetation – average maintenance interval is 6 to 12 months.
  - (*Service time varies*).

System Diagram



Maintenance Procedures

Screening Device

1. Remove grate or manhole cover to gain access to the screening device in the Pre-Treatment Chamber. Vault type units do not have screening device. Maintenance can be performed without entry.
2. Remove all pollutants collected by the screening device. Removal can be done manually or with the use of a vacuum truck. The hose of the vacuum truck will not damage the screening device.
3. Screening device can easily be removed from the Pre-Treatment Chamber to gain access to separation chamber and media filters below. Replace grate or manhole cover when completed.

Separation Chamber

1. Perform maintenance procedures of screening device listed above before maintaining the separation chamber.
2. With a pressure washer spray down pollutants accumulated on walls and cartridge filters.
3. Vacuum out Separation Chamber and remove all accumulated pollutants. Replace screening device, grate or manhole cover when completed.

Cartridge Filters

1. Perform maintenance procedures on screening device and separation chamber before maintaining cartridge filters.
2. Enter separation chamber.
3. Unscrew the two bolts holding the lid on each cartridge filter and remove lid.
4. Remove each of 4 to 8 media cages holding the media in place.
5. Spray down the cartridge filter to remove any accumulated pollutants.
6. Vacuum out old media and accumulated pollutants.
7. Reinstall media cages and fill with new media from manufacturer or outside supplier. Manufacturer will provide specification of media and sources to purchase.
8. Replace the lid and tighten down bolts. Replace screening device, grate or manhole cover when completed.

Drain Down Filter

1. Remove hatch or manhole cover over discharge chamber and enter chamber.
2. Unlock and lift drain down filter housing and remove old media block. Replace with new media block. Lower drain down filter housing and lock into place.
3. Exit chamber and replace hatch or manhole cover.

Maintenance Notes

1. Following maintenance and/or inspection, it is recommended the maintenance operator prepare a maintenance/inspection record. The record should include any maintenance activities performed, amount and description of debris collected, and condition of the system and its various filter mechanisms.

2. The owner should keep maintenance/inspection record(s) for a minimum of five years from the date of maintenance. These records should be made available to the governing municipality for inspection upon request at any time.

3. Transport all debris, trash, organics and sediments to approved facility for disposal in accordance with local and state requirements.

4. Entry into chambers may require confined space training based on state and local regulations.

5. No fertilizer shall be used in the Biofiltration Chamber.

6. Irrigation should be provided as recommended by manufacturer and/or landscape architect. Amount of irrigation required is dependent on plant species. Some plants may require irrigation.

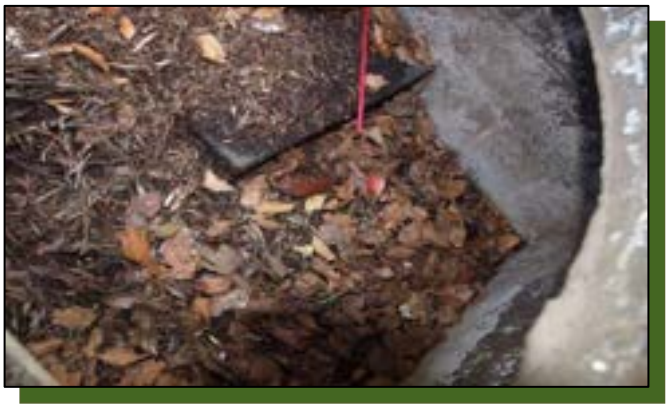
Maintenance Procedure Illustration

Screening Device

The screening device is located directly under the manhole or grate over the Pre-Treatment Chamber. It's mounted directly underneath for easy access and cleaning. Device can be cleaned by hand or with a vacuum truck.

Separation Chamber

The separation chamber is located directly beneath the screening device. It can be quickly cleaned using a vacuum truck or by hand. A pressure washer is useful to assist in the cleaning process.



Cartridge Filters

The cartridge filters are located in the Pre-Treatment chamber connected to the wall adjacent to the biofiltration chamber. The cartridges have removable tops to access the individual media filters. Once the cartridge is open media can be easily removed and replaced by hand or a vacuum truck.

Drain Down Filter

The drain down filter is located in the Discharge Chamber. The drain filter unlocks from the wall mount and hinges up. Remove filter block and replace with new block.

Trim Vegetation

Vegetation should be maintained in the same manner as surrounding vegetation and trimmed as needed. No fertilizer shall be used on the plants. Irrigation per the recommendation of the manufacturer and or landscape architect. Different types of vegetation requires different amounts of irrigation.

Inspection Form

Modular Wetland System, Inc.
P. 760.433-7640
F. 760-433-3176
E. Info@modularwetlands.com

www.modularwetlands.com

Inspection Report
Modular Wetlands System

Project Name _____

Project Address _____
(city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

Inspector Name _____ Date ____/____/____ Time _____ AM / PM

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Inspection Checklist

Modular Wetland System Type (Curb, Grate or UG Vault): _____ Size (22', 14' or etc.): _____

Structural Integrity:	**Yes**	**No**	**Comments**
Damage to pre-treatment access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Damage to discharge chamber access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Does the MWS unit show signs of structural deterioration (cracks in the wall, damage to frame)?			
Is the inlet/outlet pipe or drain down pipe damaged or otherwise not functioning properly?			
Working Condition:			
Is there evidence of illicit discharge or excessive oil, grease, or other automobile fluids entering and clogging the unit?			
Is there standing water in inappropriate areas after a dry period?			
Is the filter insert (if applicable) at capacity and/or is there an accumulation of debris/trash on the shelf system?			
Does the depth of sediment/trash/debris suggest a blockage of the inflow pipe, bypass or cartridge filter? If yes, specify which one in the comments section. Note depth of accumulation in in pre-treatment chamber.			Depth:
Does the cartridge filter media need replacement in pre-treatment chamber and/or discharge chamber?			Chamber:
Any signs of improper functioning in the discharge chamber? Note issues in comments section.			
Other Inspection Items:			
Is there an accumulation of sediment/trash/debris in the wetland media (if applicable)?			
Is it evident that the plants are alive and healthy (if applicable)? Please note Plant Information below.			
Is there a septic or foul odor coming from inside the system?			

Waste:	**Yes**	**No**
Sediment / Silt / Clay		
Trash / Bags / Bottles		
Green Waste / Leaves / Foliage		

Recommended Maintenance	
No Cleaning Needed	
Schedule Maintenance as Planned	
Needs Immediate Maintenance	

Plant Information	
Damage to Plants	
Plant Replacement	
Plant Trimming	

Additional Notes: _____

2972 San Luis Rey Road, Oceanside, CA 92058 P (760) 433-7640 F (760) 433-3176

Maintenance Report

Modular Wetland System, Inc.
P. 760.433-7640
F. 760-433-3176
E. Info@modularwetlands.com

www.modularwetlands.com

Cleaning and Maintenance Report
Modular Wetlands System

Project Name _____

Project Address _____
(city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

Inspector Name _____ Date ____/____/____ Time _____ AM / PM

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Site Map #	GPS Coordinates of Insert	Manufacturer / Description / Sizing	Trash Accumulation	Foliage Accumulation	Sediment Accumulation	Total Debris Accumulation	Condition of Media 25/50/75/100 (will be changed @ 75%)	Operational Per Manufactures' Specifications (If not, why?)
	Lat: Long:	MWS Catch Basins						
		MWS Sedimentation Basin						
		Media Filter Condition						
		Plant Condition						
		Drain Down Media Condition						
		Discharge Chamber Condition						
		Drain Down Pipe Condition						
		Inlet and Outlet Pipe Condition						

Comments:

2972 San Luis Rey Road, Oceanside, CA 92058 P. 760.433.7640 F. 760.433.3176

WASHINGTON STATE DEPARTMENT OF ECOLOGY

April 2014

GENERAL USE LEVEL DESIGNATION FOR BASIC, ENHANCED, AND PHOSPHORUS TREATMENT

For the

MWS-Linear Modular Wetland

Ecology's Decision:

Based on Modular Wetland Systems, Inc. application submissions, including the Technical Evaluation Report, dated April 1, 2014, Ecology hereby issues the following use level designation:

1. General use level designation (GULD) for the MWS-Linear Modular Wetland Stormwater Treatment System for Basic treatment

    - Sized at a hydraulic loading rate of 1 gallon per minute (gpm) per square foot (sq ft) of wetland cell surface area. For moderate pollutant loading rates (low to medium density residential basins), size the Prefilters at 3.0 gpm/sq ft of cartridge surface area. For high loading rates (commercial and industrial basins), size the Prefilters at 2.1 gpm/sq ft of cartridge surface area.

2. General use level designation (GULD) for the MWS-Linear Modular Wetland Stormwater Treatment System for Phosphorus treatment

    - Sized at a hydraulic loading rate of 1 gallon per minute (gpm) per square foot (sq ft) of wetland cell surface area. For moderate pollutant loading rates (low to medium density residential basins), size the Prefilters at 3.0 gpm/sq ft of cartridge surface area. For high loading rates (commercial and industrial basins), size the Prefilters at 2.1 gpm/sq ft of cartridge surface area.

3. General use level designation (GULD) for the MWS-Linear Modular Wetland Stormwater Treatment System for Enhanced treatment

    - Sized at a hydraulic loading rate of 1 gallon per minute (gpm) per square foot (sq ft) of wetland cell surface area. For moderate pollutant loading rates (low to medium density residential basins), size the Prefilters at 3.0 gpm/sq ft of cartridge surface area. For high loading rates (commercial and industrial basins), size the Prefilters at 2.1 gpm/sq ft of cartridge surface area.

4. Ecology approves the MWS - Linear Modular Wetland Stormwater Treatment System units for Basic, Phosphorus, and Enhanced treatment at the hydraulic loading rate listed above. Designers shall calculate the water quality design flow rates using the following procedures:

    - Western Washington: For treatment installed upstream of detention or retention, the water quality design flow rate is the peak 15-minute flow rate as calculated using the latest version of the Western Washington Hydrology Model or other Ecology-approved continuous runoff model.
    - Eastern Washington: For treatment installed upstream of detention or retention, the water quality design flow rate is the peak 15-minute flow rate as calculated using one of the three methods described in Chapter 2.2.5 of the Stormwater Management Manual for Eastern Washington (SWMMEW) or local manual.
    - Entire State: For treatment installed downstream of detention, the water quality design flow rate is the full 2-year release rate of the detention facility.

5. These use level designations have no expiration date but may be revoked or amended by Ecology, and are subject to the conditions specified below.

Ecology's Conditions of Use:

Applicants shall comply with the following conditions:

1. Design, assemble, install, operate, and maintain the MWS – Linear Modular Wetland Stormwater Treatment System units, in accordance with Modular Wetland Systems, Inc. applicable manuals and documents and the Ecology Decision.
2. Each site plan must undergo Modular Wetland Systems, Inc. review and approval before site installation. This ensures that site grading and slope are appropriate for use of a MWS – Linear Modular Wetland Stormwater Treatment System unit.
3. MWS – Linear Modular Wetland Stormwater Treatment System media shall conform to the specifications submitted to, and approved by, Ecology.
4. Maintenance: The required maintenance interval for stormwater treatment devices is often dependent upon the degree of pollutant loading from a particular drainage basin. Therefore, Ecology does not endorse or recommend a "one size fits all" maintenance cycle for a particular model/size of manufactured filter treatment device.

    - Typically, Modular Wetland Systems, Inc. designs MWS - Linear Modular Wetland systems for a target prefilter media life of 6 to 12 months.
    - Indications of the need for maintenance include effluent flow decreasing to below the design flow rate or decrease in treatment below required levels.
    - Owners/operators must inspect MWS - Linear Modular Wetland systems for a minimum of twelve months from the start of post-construction operation to determine site-specific maintenance schedules and requirements. You must conduct inspections monthly during the wet season, and every other month during the dry season. (According to the SWMMWW, the wet season in western Washington is October 1 to April 30. According to SWMMEW, the wet season in eastern Washington is October 1 to June 30). After the

first year of operation, owners/operators must conduct inspections based on the findings during the first year of inspections.

- Conduct inspections by qualified personnel, follow manufacturer's guidelines, and use methods capable of determining either a decrease in treated effluent flowrate and/or a decrease in pollutant removal ability.
- When inspections are performed, the following findings typically serve as maintenance triggers:
    - Standing water remains in the vault between rain events, or
    - Bypass occurs during storms smaller than the design storm.
    - If excessive floatables (trash and debris) are present (but no standing water or excessive sedimentation), perform a minor maintenance consisting of gross solids removal, not prefilter media replacement.
    - Additional data collection will be used to create a correlation between pretreatment chamber sediment depth and pre-filter clogging (see *Issues to be Addressed by the Company* section below)

6. Discharges from the MWS - Linear Modular Wetland Stormwater Treatment System units shall not cause or contribute to water quality standards violations in receiving waters.

Applicant:	Modular Wetland Systems, Inc.
Applicant's Address:	*PO. Box 869* *Oceanside, CA 92054*

Application Documents:

- *Original Application for Conditional Use Level Designation*, Modular Wetland System, Linear Stormwater Filtration System Modular Wetland Systems, Inc., January 2011
- *Quality Assurance Project Plan*: Modular Wetland system – Linear Treatment System performance Monitoring Project, draft, January 2011.
- *Revised Application for Conditional Use Level Designation*, Modular Wetland System, Linear Stormwater Filtration System Modular Wetland Systems, Inc., May 2011
- *Memorandum: Modular Wetland System-Linear GULD Application Supplementary Data, April 2014*
- *Technical Evaluation Report: Modular Wetland System Stormwater Treatment System Performance Monitoring, April 2014.*

Applicant's Use Level Request:

General use level designation as a Basic, Enhanced, and Phosphorus treatment device in accordance with Ecology's Guidance for Evaluating Emerging Stormwater Treatment Technologies Technology Assessment Protocol – Ecology (TAPE) January 2011 Revision.

Applicant's Performance Claims:

- The MWS – Linear Modular wetland is capable of removing a minimum of 80-percent of TSS from stormwater with influent concentrations between 100 and 200 mg/l.
- The MWS – Linear Modular wetland is capable of removing a minimum of 50-percent of Total Phosphorus from stormwater with influent concentrations between 0.1 and 0.5 mg/l.
- The MWS – Linear Modular wetland is capable of removing a minimum of 30-percent of dissolved Copper from stormwater with influent concentrations between 0.005 and 0.020 mg/l.
- The MWS – Linear Modular wetland is capable of removing a minimum of 60-percent of dissolved Zinc from stormwater with influent concentrations between 0.02 and 0.30 mg/l.

Ecology Recommendations:

- Modular Wetland Systems, Inc. has shown Ecology, through laboratory and field-testing, that the MWS - Linear Modular Wetland Stormwater Treatment System filter system is capable of attaining Ecology's Basic, Total phosphorus, and Enhanced treatment goals.

Findings of Fact:

Laboratory Testing

The MWS-Linear Modular wetland has the:

- Capability to remove 99 percent of total suspended solids (using Sil-Co-Sil 106) in a quarter-scale model with influent concentrations of 270 mg/L.
- Capability to remove 91 percent of total suspended solids (using Sil-Co-Sil 106) in laboratory conditions with influent concentrations of 84.6 mg/L at a flow rate of 3.0 gpm per square foot of media.
- Capability to remove 93 percent of dissolved Copper in a quarter-scale model with influent concentrations of 0.757 mg/L.
- Capability to remove 79 percent of dissolved Copper in laboratory conditions with influent concentrations of 0.567 mg/L at a flow rate of 3.0 gpm per square foot of media.
- Capability to remove 80.5-percent of dissolved Zinc in a quarter-scale model with influent concentrations of 0.95 mg/L at a flow rate of 3.0 gpm per square foot of media.
- Capability to remove 78-percent of dissolved Zinc in laboratory conditions with influent concentrations of 0.75 mg/L at a flow rate of 3.0 gpm per square foot of media.

Field Testing

- Modular Wetland Systems, Inc. conducted monitoring of an MWS-Linear (Model # MWS-L-4-13) from April 2012 through May 2013, at a transportation maintenance facility in Portland, Oregon. The manufacturer collected flow-weighted composite

samples of the system's influent and effluent during 28 separate storm events. The system treated approximately 75 percent of the runoff from 53.5 inches of rainfall during the monitoring period. The applicant sized the system at 1 gpm/sq ft. (wetland media) and 3gpm/sq ft. (prefilter).

- Influent TSS concentrations for qualifying sampled storm events ranged from 20 to 339 mg/L. Average TSS removal for influent concentrations greater than 100 mg/L (n=7) averaged 85 percent. For influent concentrations in the range of 20-100 mg/L (n=18), the upper 95 percent confidence interval about the mean effluent concentration was 12.8 mg/L.
- Total phosphorus removal for 17 events with influent TP concentrations in the range of 0.1 to 0.5 mg/L averaged 65 percent. A bootstrap estimate of the lower 95 percent confidence limit (LCL95) of the mean total phosphorus reduction was 58 percent.
- The lower 95 percent confidence limit of the mean percent removal was 60.5 percent for dissolved zinc for influent concentrations in the range of 0.02 to 0.3 mg/L (n=11). The lower 95 percent confidence limit of the mean percent removal was 32.5 percent for dissolved copper for influent concentrations in the range of 0.005 to 0.02 mg/L (n=14) at flow rates up to 28 gpm (design flow rate 41 gpm). Laboratory test data augmented the data set, showing dissolved copper removal at the design flow rate of 41 gpm (93 percent reduction in influent dissolved copper of 0.757 mg/L).

Issues to be addressed by the Company:

1. Modular Wetland Systems, Inc. should collect maintenance and inspection data for the first year on all installations in the Northwest in order to assess standard maintenance requirements for various land uses in the region. Modular Wetland Systems, Inc. should use these data to establish required maintenance cycles.
2. Modular Wetland Systems, Inc. should collect pre-treatment chamber sediment depth data for the first year of operation for all installations in the Northwest. Modular Wetland Systems, Inc. will use these data to create a correlation between sediment depth and pre-filter clogging.

Technology Description:
Download at http://www.modularwetlands.com/

Contact Information:

Applicant: Greg Kent
Modular Wetland Systems, Inc.
P.O. Box 869
Oceanside, CA 92054
gkent@biocleanenvironmental.net

Applicant website: http://www.modularwetlands.com/

Ecology web link: http://www.ecy.wa.gov/programs/wg/stormwater/newtech/index.html

Ecology: Douglas C. Howie, P.E.
Department of Ecology
Water Quality Program
(360) 407-6444
douglas.howie@ecy.wa.gov

Revision History

Date	**Revision**
June 2011	Original use-level-designation document
September 2012	Revised dates for TER and expiration
January 2013	Modified Design Storm Description, added Revision Table, added maintenance discussion, modified format in accordance with Ecology standard
December 2013	Updated name of Applicant
April 2014	Approved GULD designation for Basic, Phosphorus, and Enhanced treatment

ATTACHMENT G

OPERATIONS AND MAINTENANCE (O&M) PLAN

EXHIBIT B – INSPECTION AND MAINTENANCE FORM

CONTECH®
ENGINEERED SOLUTIONS

Modular Wetlands® Linear Operatons & Maintenance Manual

MODULAR WETLANDS®

MODULAR WETLANDS LINEAR
OPERATION & MAINTENANCE MANUAL

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OVERVIEW

This operation and maintenance (O&M) manual is for the Modular Wetlands Linear Biofilter (MWL). Please read the instructions and equipment lists closely prior to starting. It is important to follow all necessary safety procedures associated with state and local regulations. Please contact Contech for more information on pre-authorized third-party service providers who can provide inspection and maintenance services in your area. For a list of service providers in your area, please visit www.conteches.com/maintenance.

WARNING

Confined space entry may be required. Contractor to obtain all equipment and training to meet applicable local and OSHA regulations regarding confined space entry. It is the Contractor's or entry personnel's responsibility to always proceed safely.

SAFETY NOTICE & PERSONAL SAFETY EQUIPMENT

Job site safety is a topic and a practice addressed comprehensively by others. The inclusions here are merely reminders to whole areas of Safety Practice that are the responsibility of the Owner(s), Manager(s), and Service Provider(s). OSHA and Canadian OSH, Federal, State/Provincial, and Local Jurisdiction Safety Standards apply on any given site or project. The knowledge and applicability of those responsibilities is the Service Provider's responsibility and outside the scope of Contech Engineered Solutions.

Safety Boots

Gloves

Hard Hat

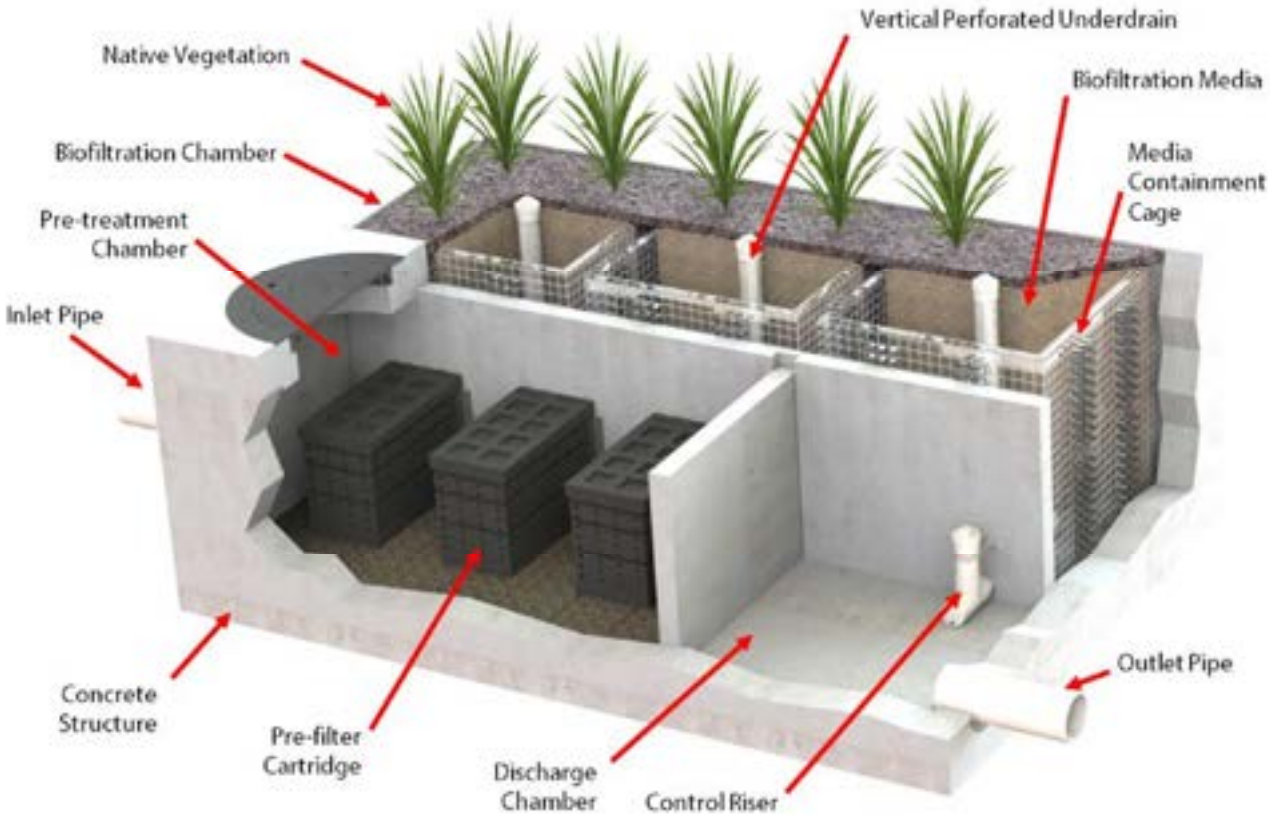
Eye Protection

Maintenance and Protection of Traffic Plan

MODULAR WETLANDS LINEAR COMPONENTS LIST

The MWL system comes in multiple sizes and configurations, including side by side or end to end layouts, both as open planters or underground systems. See shop drawings (plans) for project specific details.

The standard MWL system is comprised of the following components:



INSPECTION SUMMARY & EQUIPMENT LIST

Stormwater regulations require BMPs be inspected and maintained to ensure they are operating as designed to allow for effective pollutant removal and provide protection to receiving water bodies. It is recommended that inspections be performed multiple times during the first year to assess the site-specific loading conditions. The first year of inspections can be used to set inspection and maintenance intervals for subsequent years to ensure appropriate maintenance is provided.

- Inspect pre-treatment, biofiltration, and discharge chambers an average of once every six to twelve months. Varies based on site specific and local conditions.
- Average inspection time is approximately 15 minutes. Always ensure appropriate safety protocol and procedures are followed.

The following is a list of equipment required to allow for simple and effective inspection of the MWL:

Modular Wetlands Linear Inspection Form

Flashlight

Tape Measure

Access Cover Hook

Ratchet
& 7/16" Socket
(if required for older pre-filter cartridges that have two bolts holding the lids on)

INSPECTION & MAINTENANCE NOTES

1. Following maintenance and/or inspection, it is recommended that the maintenance operator prepare a maintenance/inspection record. The record should include any maintenance activities performed, amount and description of debris collected, and condition of the system and its various filter mechanisms.
2. The owner should keep maintenance/inspection record(s) for a minimum of five years from the date of maintenance. These records should be made available to the governing municipality for inspection upon request at any time.
3. Transport all debris, trash, organics, and sediments to approved facility for disposal in accordance with local and state requirements.
4. Entry into chambers may require confined space training based on state and local regulations.
5. No fertilizer shall be used in the biofiltration chamber.
6. Irrigation should be provided as recommended by manufacturer and/or landscape architect. Amount of irrigation required is dependent on plant species. Some plants may not require irrigation after initial establishment.

INSPECTION PROCESS

1. Prepare the inspection form by writing in the necessary information including project name, location, date & time, unit number and other information (see inspection form).
2. Observe the inside of the system through the access covers. If minimal light is available and vision into the unit is impaired, utilize a flashlight to see inside the system and all chambers.
3. Look for any out of the ordinary obstructions in the inflow pipe, pre-treatment chamber, biofiltration chamber, discharge chamber or outflow pipe. Write down any observations on the inspection form.
4. Through observation and/or digital photographs, estimate the amount of trash, debris accumulated in the pre-treatment chamber. Utilizing a tape measure or measuring stick, estimate the amount of sediment in this chamber. Record this depth on the inspection form.
5. Through visual observation, inspect the condition of the pre-filter cartridges. Look for excessive build-up of sediment on the cartridges, any build-up on the tops of the cartridges, or clogging of the holes. Record this information on the inspection form. The pre-filter cartridges can be further inspected by removing the cartridge tops and assessing the color of the BioMediaGREEN filter cubes (requires entry into pre-treatment chamber - see notes previous notes regarding confined space entry). Record the color of the material. New material is a light green color. As the media becomes clogged, it will turn darker in color, eventually becoming dark brown or black. The closer to black the media is the higher percentage that the media is exhausted and in need of replacement.

6. The biofiltration chamber is generally maintenance-free due to the system's advanced pre-treatment chamber. For units which have open planters with vegetation, it is recommended that the vegetation be inspected. Look for any plants that are dead or showing signs of disease or other negative stressors. Record the general health of the plants on the inspection form and indicate through visual observation or digital photographs if trimming of the vegetation is required.

7. The discharge chamber houses the control riser (if applicable), drain down filter (only in California - older models), and is connected to the outflow pipe. It is important to check to ensure the orifice is in proper operating condition and free of any obstructions. It is also important to assess the condition of the drain down filter media which utilizes a block form of the BioMediaGREEN. Assess in the same manner as the cubes in the pre-filter cartridge as mentioned above.

8. Finalize the inspection report for analysis by the maintenance manager to determine if maintenance is required.

MAINTENANCE INDICATORS

Based upon the observations made during inspection, maintenance of the system may be required based on the following indicators:

- Missing or damaged internal components or cartridges.
- Obstructions in the system or its inlet and/or outlet pipes.
- Excessive accumulation of floatables in the pre-treatment chamber in which the length and width of the chamber is fully impacted more than 18".
- Excessive accumulation of sediment in the pre-treatment chamber of more than 6" in depth.
- Excessive accumulation of sediment on the BioMediaGREEN media housed within the pretreatment cartridges. When media is more than 85% clogged, replacement is required. The darker the BioMediaGREEN, the more clogged it is and in need of replacement.
- Excessive accumulation of sediment on the BioMediaGREEN media housed within the drain down filter (California only - older models).
- Overgrown vegetation.

MAINTENANCE SUMMARY & EQUIPMENT LIST

The time has come to maintain your MWL. All necessary pre-maintenance steps must be carried out before maintenance occurs. Once traffic control has been set up per local and state regulations and access covers have been safely opened, the maintenance process can begin. It should be noted that some maintenance activities require confined space entry. All confined space requirements must be strictly followed before entry into the system. In addition, the following is recommended:

- Prepare the maintenance form by writing in the necessary information including project name, location, date & time, unit number and other info (see maintenance form).
- Set up all appropriate safety and maintenance equipment.
- Ensure traffic control is set up and properly positioned.
- Prepared pre-checks (OSHA, safety, confined space entry) are performed.
    - A gas meter should be used to detect the presence of any hazardous gases prior to entering the system. If hazardous gases are present, do not enter the vault. Following appropriate confined space procedures, take steps such as utilizing a venting system to address the hazard. Once it is determined to be safe, enter the system utilizing appropriate entry equipment such as a ladder and tripod with harness.

The following is a list of equipment required for maintenance of the MWL:

Modular Wetlands Linear Maintenance Form

Flashlight

Access Cover Hook

Ratchet
& 7/16" Socket
(if required for older pre-filter cartridges that have two bolts holding the lids on)

Vacuum Assisted Truck with Pressure Washer

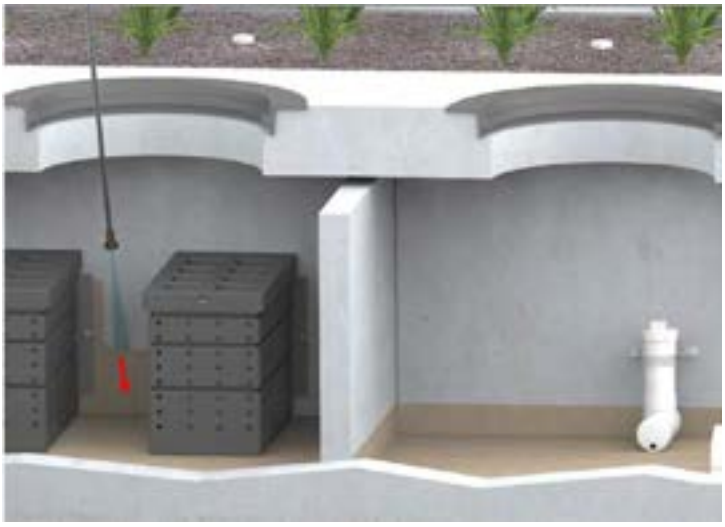
Replacement
BioMediaGREEN
(If Required)

(order BioMediaGREEN from Contech's Maintenance Team members at https://www.conteches.com/maintenance)

MAINTENANCE INSTRUCTIONS

1. ACCESS COVER REMOVAL

Upon determining that the vault is safe for entry, remove all access cover(s) and position the vacuum truck accordingly.



2. PRESSURE WASH SYSTEM CHAMBERS

With the pressure washer, spray down pollutants accumulated on the walls and floors of the pre-treatment and discharge chambers. Then wash any accumulated sediment from the pre-filter cartridge(s).

3. VACUUM SYSTEM CHAMBERS

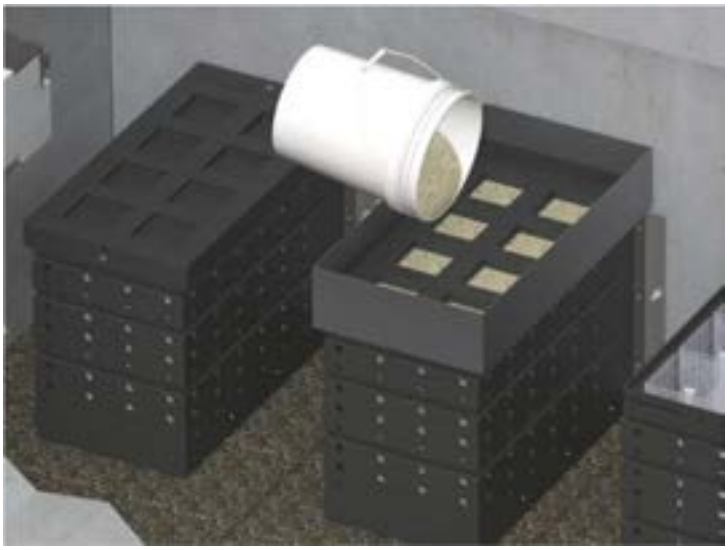
Vacuum out pre-treatment and discharge chambers and remove all accumulated pollutants including trash, debris, and sediments. Be sure to vacuum the pre-treatment floor until the pervious pavers are visible and clean. **(MWL systems outside of California may or may not have pervious pavers on the floor in the pre-treatment chamber)** If pre-filter cartridges require media replacement, proceed to **Step 4**. If not, replace the access cover(s) and proceed to **Step 7**.

4. PRE-FILTER CARTRIDGE LID REMOVAL

After successfully cleaning out the pre-treatment chamber, enter the chamber and remove the lid(s) from the pre-filter cartridge(s) by removing the two thumb screws. (Older pre-filter cartridges have two bolts holding the lids on that require a 7/16" socket to remove)

5. VACUUM EXISTING PRE-FILTER MEDIA

Utilize the vacuum truck hose or hose extension to remove the filter media from each of the individual media cages. Once filter media has been sucked out, use a pressure washer to spray down the inside of the cartridge and its media cages. Remove cleaned media cages and place to the side. Once removed, the vacuum hose can be inserted into the cartridge to vacuum out any remaining material near the bottom of the cartridge.



6. PRE-FILTER MEDIA REPLACEMENT

Reinstall media cages and fill with new media from the manufacturer or outside supplier. Manufacturer will provide specification of media and sources to purchase. The easiest way to fill the media cages is to utilize a refilling tray that can also be sourced from the manufacturer. Place the refilling tray on top of the cartridge and fill with new bulk media shaking it down into the cages. Using your hands, lightly compact the media into each filter cage. Once the cages are full (each cartridge will hold five heaping 5gal buckets of bulk media), remove the refilling tray and replace the cartridge top, ensuring fasteners are properly tightened.

7. MAINTAINING VEGETATION

In general, the biofiltration chamber is maintenance-free with the exception of maintaining the vegetation. The MWL utilizes vegetation similar to surrounding landscape areas, therefore, trim vegetation to match surrounding vegetation. If any plants have died, replace them with new ones.

8. INSPECT UNDERDRAIN SYSTEM

Each vertical under drain on the biofiltration chamber has a removable threaded cap that can be taken off to check for any blockages or root growth. Once removed, a jetting attachment to the pressure washer can be used to clean out the under drain and orifice riser if needed.

9. REPLACE ACCESS COVERS

Once maintenance is complete, replace all access cover(s)

REPLACING BIOFILTRATION MEDIA IF REQUIRED

As with all biofilter systems, at some point the biofiltration media will need to be replaced, either due to physical clogging or sorptive exhaustion (for dissolved pollutants) of the media ion exchange capacity (to remove dissolved metals and phosphorous). The general life of this media is 10 to 20 years based on site specific conditions and pollutant loading, so replacing the biofiltration media should not be a common occurrence. In the event that the biofiltration media requires replacement, contact one of Contech's Maintenance Team members at https://www.conteches.com/maintenance to order new biofiltration media. The quantity of media needed can be determined by providing the model number and unit depth. Media will be provided in super sacks for easy installation. Each sack will weigh between 1,000 and 2,000 lbs. Biofiltration media replacement can be done following the steps below:

1. VACUUM EXISTING BIOFILTRATION MEDIA

Remove the mulch and vegetation to access the biofiltration media, and then position the vacuum truck accordingly. Utilize the vacuum truck to vacuum out all the media. Once all media is removed, use the pressure washer to spray down all the netting and underdrain systems on the inside of the media containment cage. Vacuum out any remaining debris after spraying down netting. Inspect the netting for any damage or holes. If the netting is damaged, it can be repaired or replaced with guidance by the manufacturer.

2. INSTALLING NEW BIOFILTRATION MEDIA

Ensure that the chamber is fully cleaned prior to installation of new media into the media containment cage(s). Media will be provided in super sacks for easy installation. A lifting apparatus (forklift, backhoe, boom truck, or other) is recommended to position the super sack over the biofiltration chamber. Add media in lifts to ensure that the riser pipes remain vertical. Be sure to only fill the media cage(s) up to the same level as the old media.

3. REPLANT VEGETATION

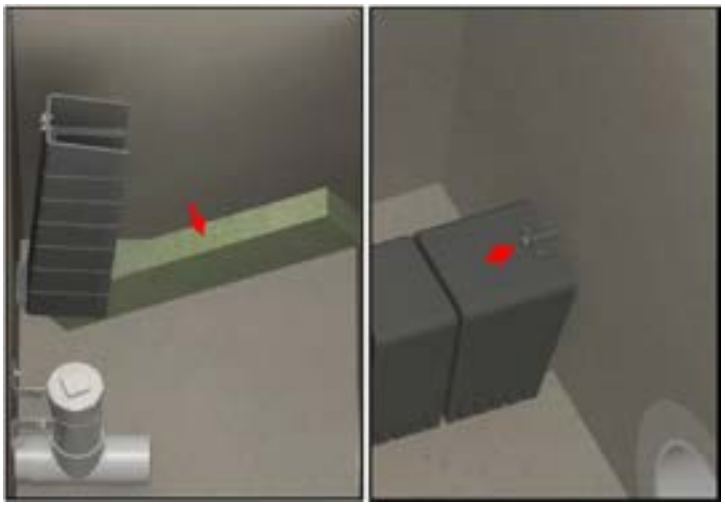
Once the media has been replaced, replant the vegetation and cover biofiltration chamber with approved mulch (if applicable). If the existing vegetation is not being reused, and new vegetation is being planted, you will need to acquire new plant establishment media that will be installed just below the mulch layer at each plant location. (see plan drawings for details). Contact one of Contech's Maintenance Team members at https://www.conteches.com/maintenance to order new plant establishment media.

REPLACING DRAIN DOWN FILTER MEDIA (ONLY ON OLDER CALIFORNIA MODELS)

NOTE: The drain down filter is only found on units installed in California prior to 2023
If during inspection it was determined that the drain down filter media requires replacement, contact one of Contech's Maintenance Team members at https://www.conteches.com/maintenance to order new media.

1. REMOVE EXISTING DRAIN DOWN MEDIA

Pull knob back to unlock the locking mechanism and lift the drain down filter housing to remove the used BioMediaGREEN filter block.



2. INSTALL NEW DRAIN DOWN MEDIA

Ensure that the chamber and housing are fully cleaned prior to installation of new media, and then insert the new BioMediaGREEN filter block. The media filter block should fit snugly between the chamber walls and be centered under the filter housing. Lower the housing over the filter block and secure the locking mechanism.

NOTES

CONTECH® ENGINEERED SOLUTIONS

Inspection Report
Modular Wetlands Linear

Project Name _____

Project Address _____
(city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Inspector Name _____ Date ____/____/____ Time _____ AM / PM

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

Inspection Checklist

Modular Wetland System Type (Curb, Grate or UG Vault): _____ Size (22', 14' or etc.): _____

Structural Integrity:	**Yes**	**No**	**Comments**
Damage to pre-treatment access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Damage to discharge chamber access cover (manhole cover/grate) or cannot be opened using normal lifting pressure?			
Does the MWS unit show signs of structural deterioration (cracks in the wall, damage to frame)?			
Is the inlet/outlet pipe or drain down pipe damaged or otherwise not functioning properly?			
Working Condition:			
Is there evidence of illicit discharge or excessive oil, grease, or other automobile fluids entering and clogging the unit?			
Is there standing water in inappropriate areas after a dry period?			
Is the filter insert (if applicable) at capacity and/or is there an accumulation of debris/trash on the shelf system?			
Does the depth of sediment/trash/debris suggest a blockage of the inflow pipe, bypass or cartridge filter? If yes, specify which one in the comments section. Note depth of accumulation in in pre-treatment chamber.			Depth:
Does the cartridge filter media need replacement in pre-treatment chamber and/or discharge chamber?			Chamber:
Any signs of improper functioning in the discharge chamber? Note issues in comments section.			
Other Inspection Items:			
Is there an accumulation of sediment/trash/debris in the wetland media (if applicable)?			
Is it evident that the plants are alive and healthy (if applicable)? Please note Plant Information below.			
Is there a septic or foul odor coming from inside the system?			

Waste:	**Yes**	**No**
Sediment / Silt / Clay		
Trash / Bags / Bottles		
Green Waste / Leaves / Foliage		

Recommended Maintenance	
No Cleaning Needed	
Schedule Maintenance as Planned	
Needs Immediate Maintenance	

Plant Information	
Damage to Plants	
Plant Replacement	
Plant Trimming	

Additional Notes: _____

CONTECH®
ENGINEERED SOLUTIONS

Cleaning and Maintenance Report
Modular Wetlands Linear

Project Name _____

Project Address _____
(city) (Zip Code)

Owner / Management Company _____

Contact _____ Phone ( ) –

For Office Use Only
(Reviewed By)
(Date)
Office personnel to complete section to the left.

Inspector Name _____ Date ____/____/____ Time _____ AM / PM

Type of Inspection ☐ Routine ☐ Follow Up ☐ Complaint ☐ Storm Storm Event in Last 72-hours? ☐ No ☐ Yes

Weather Condition _____ Additional Notes _____

Site Map #	GPS Coordinates of Insert	Manufacturer / Description / Sizing	Trash Accumulation	Foliage Accumulation	Sediment Accumulation	Total Debris Accumulation	Condition of Media 25/50/75/100 (will be changed @ 75%)	Operational Per Manufactures' Specifications (If not, why?)
	Lat: Long:	MWS Catch Basins						
		MWS Sedimentation Basin						
		Media Filter Condition						
		Plant Condition						
		Drain Down Media Condition						
		Discharge Chamber Condition						
		Drain Down Pipe Condition						
		Inlet and Outlet Pipe Condition						

Comments:

CONTECH®
ENGINEERED SOLUTIONS

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800-338-1122

WWW.CONTECHES.COM

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SUPPORT

DRAWINGS AND SPECIFICATIONS ARE AVAILABLE AT WWW.CONTECHES.COM

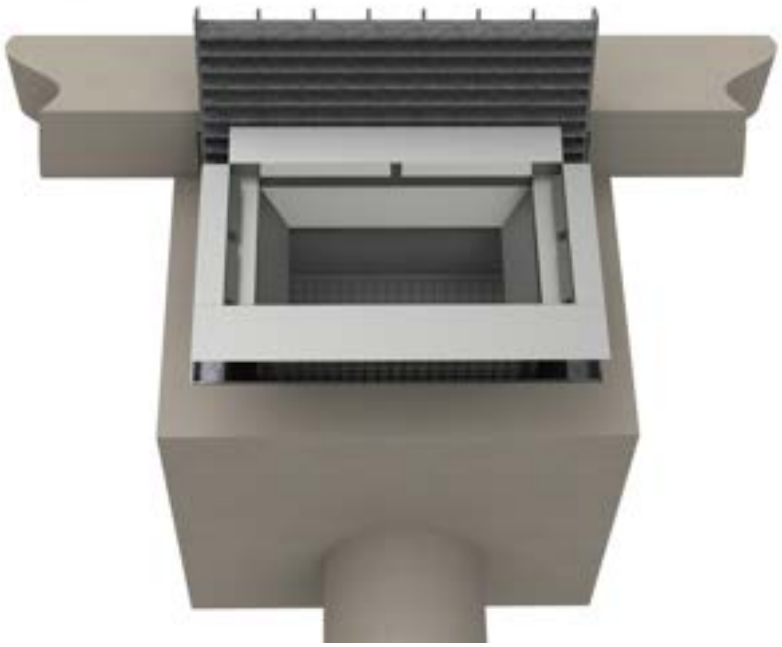
ModWetLinear OM Manual 03/24

Oldcastle Precast®

FLOGARD +PLUS®

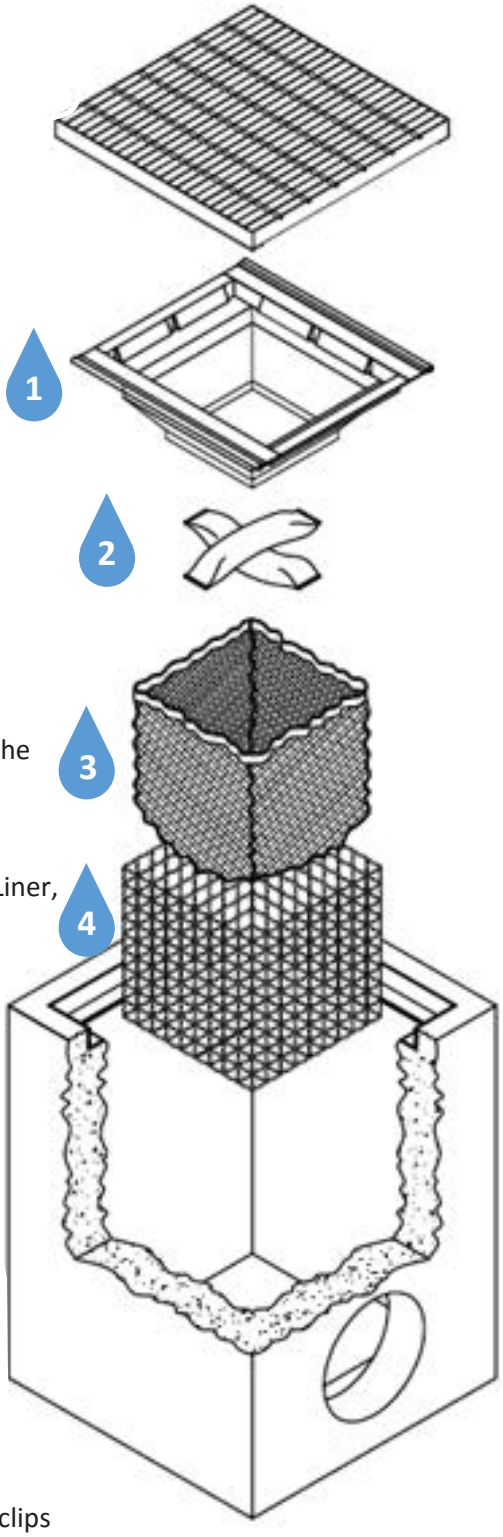
Replacement & Repair

Instruction Manual



Stormwater

FloGard Plus Replacement and Repair



Parts of the FloGard Plus Inlet Filter-

1. FloGard Stainless Steel Support Frame
2. Fossil Rock Absorbent Pouches
3. Liner
4. GeoGrid Support Basket & Cable

* Grate and Basin NOT INCLUDED

Disassembly:

1. Clear FloGard of any existing debris by hand or vacuum.
2. Unclip and remove the Fossil Rock pouches from the inside Liner.
3. Lift the FloGard from the catch basin.
4. Using a slotted screw driver, carefully pry open the metal tabs holding the GeoGrid and Cable in place. Separate the GeoGrid and Liner from the FloGard frame.
5. Unclip the Liner from the inside of the GeoGrid. If you are reusing the Liner, rinse thoroughly with water and inspect for tears. (If torn, mend with stainless steel wire or replace the Liner).
6. Rinse and inspect the GeoGrid Basket and the reinforcing cable. (If torn, mend with stainless steel wire or replace the GeoGrid).
7. Rinse and inspect the Stainless Steel FloGard frame.

Reassembly:

1. Fully expand the GeoGrid Basket and orient to the FloGard frame. Hook cable and GeoGrid to the FloGard frame metal tabs and close the tabs using slotted screwdriver. Move around the FloGard until all tabs are closed and GeoGrid is secured to the Frame.
2. Expand and orient the Liner, locating the clips at each corner and side. Push the Liner through the center of the FloGard frame and secure the clips to the GeoGrid Basket close to the top support cable. Push the Liner to expand inside of the basket.
3. Clip new Fossil Rock Rubberizer pouches to the inside of the Liner.
4. Lower FloGard back into the basin, replace grate.

FLOGARD +PLUS®

OUR MARKETS

BUILDING STRUCTURES

COMMUNICATIONS

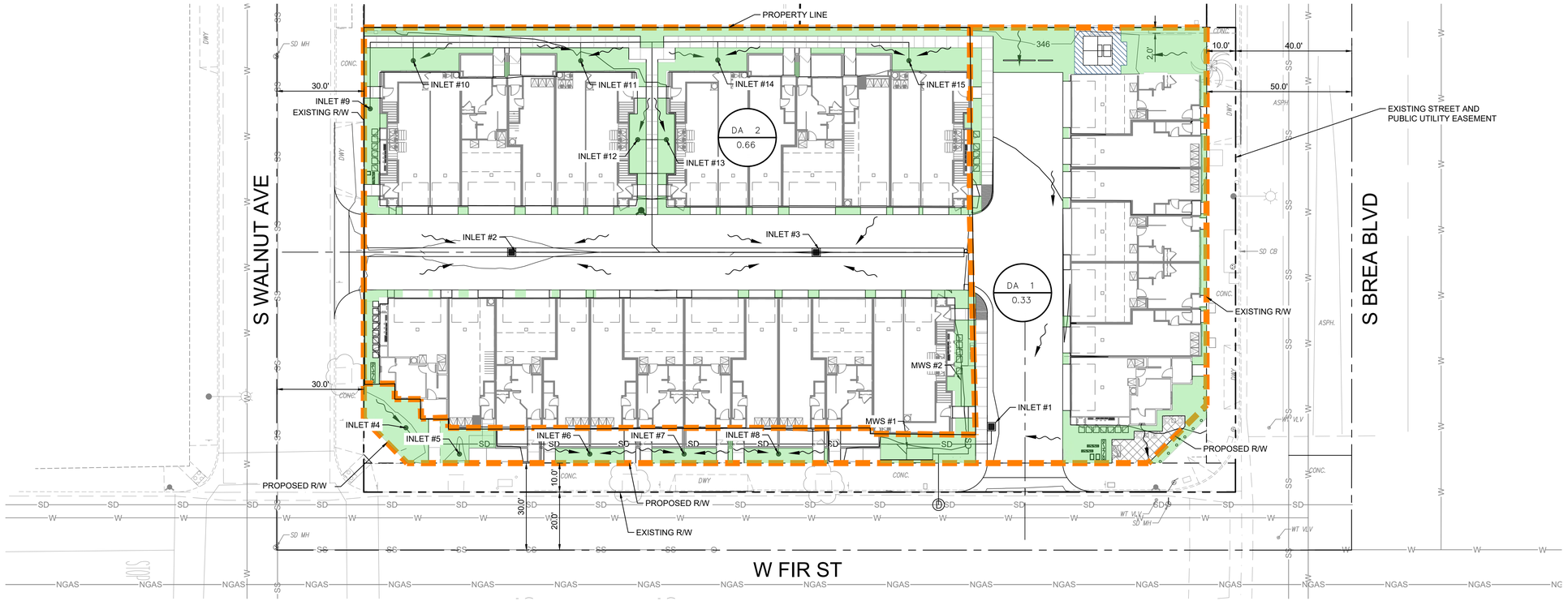
WATER

ENERGY

TRANSPORTATION

ATTACHMENT H

CONCEPTUAL WQMP SITE PLAN



LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- EXISTING EASEMENT
- CENTERLINE
- DRAINAGE BOUNDARY
- DIRECTION OF WATER FLOW
- DA ID / ACRES — DRAINAGE MANAGEMENT AREA LABEL
- PROPOSED LANDSCAPE
- PROPOSED INLETS
- SD — PROPOSED STORM DRAIN PIPE
- R — RIDGE LINE
- XXX — PROPOSED CONTOUR
- Ⓓ — STORM DRAIN MAINHOLE
- MODULAR WETLAND SYSTEM

BMP NOTES

1. ALL INLETS TO HAVE STORM DRAIN STENCILING AND SIGNAGE.
2. TRASH STORAGE IN INDIVIDUAL BINS LOCATED IN EVERY TOWNHOME.
3. DRIVE AISLE TO HAVE STREET SWEEPING.
4. MODULAR WETLAND SYSTEMS TO HAVE INTERNAL DIVERSION SYSTEMS THROUGH INTERNAL WEIR.
5. SELF-CERTIFICATION FROM A STATE LICENSED PROFESSIONAL ENGINEER OR THIRD-PARTY CERTIFICATIONS ARE REQUIRED OF ALL BMP'S CONSTRUCTED ON THIS PLAN AND ALL BMP'S SHALL BE CLEANED AND IN WORKING CONDITION AS PRESCRIBED BY THE MANUFACTURER TO OBTAIN CERTIFICATE OF OCCUPANCY FROM THE CITY OF BREA.

IMPERVIOUS AREA CALCULATIONS

ANALYSIS	DA 1	DA 2
DMA AREA (AC)	0.33	0.66
PERCENT IMPERVIOUS	90%	90%
IMPERVIOUS AREA (AC)	0.30	0.59
REQUIRED TREATMENT	0.06	0.13
BMP	MWS-4-8	MWS-4-13
TREATMENT CAPACITY	0.115	0.144

BMP INFORMATION

BMP	LOCATION	SIZE
MWS #1: PROPRIETARY MODULAR WETLAND	33°54'36.06"N, 117°54'15.80"W	MWS-4-8
MWS #2: PROPRIETARY MODULAR WETLAND	33°54'36.18"N, 117°54'15.53"W	MWS-4-13
INLET #1 -TRASH CAPTURE	33°54'36.05"N, 117°54'15.49"W	FGP-18F
INLET #2 -TRASH CAPTURE	33°54'37.28"N, 117°54'16.96"W	FGP-18F
INLET #3 -TRASH CAPTURE	33°54'36.84"N, 117°54'15.84"W	FGP-18F
INLET #4 -TRASH CAPTURE	33°54'36.89"N, 117°54'17.66"W	FGP-12F
INLET #5 -TRASH CAPTURE	33°54'36.73"N, 117°54'17.51"W	FGP-12F
INLET #6 -TRASH CAPTURE	33°54'36.55"N, 117°54'17.02"W	FGP-12F
INLET #7 -TRASH CAPTURE	33°54'36.41"N, 117°54'16.67"W	FGP-12F
INLET #8 -TRASH CAPTURE	33°54'36.27"N, 117°54'16.32"W	FGP-12F
INLET #9 -TRASH CAPTURE	33°54'37.93"N, 117°54'17.24"W	FGP-12F
INLET #10 -TRASH CAPTURE	33°54'38.01"N, 117°54'16.99"W	FGP-12F
INLET #11 -TRASH CAPTURE	33°54'37.77"N, 117°54'16.38"W	FGP-12F
INLET #12 -TRASH CAPTURE	33°54'37.44"N, 117°54'16.31"W	FGP-12F
INLET #13 -TRASH CAPTURE	33°54'37.40"N, 117°54'16.20"W	FGP-12F
INLET #14 -TRASH CAPTURE	33°54'37.57"N, 117°54'15.88"W	FGP-12F
INLET #15 -TRASH CAPTURE	33°54'37.30"N, 117°54'15.16"W	FGP-12F

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

No.	REVISIONS	DATE	BY

Kimley»Horn
© 2024 KIMLEY-HORN AND ASSOCIATES, INC.
1100 W TOWN AND COUNTRY ROAD,SUITE 700,
ORANGE, CA 92868
PHONE: 714-939-1030 FAX: 714-938-9488
WWW.KIMLEY-HORN.COM

KHA PROJECT	094848007
DATE	6/10/2024
SCALE	AS SHOWN
DESIGNED BY	KH
DRAWN BY	FC
CHECKED BY	TG

CITY OF BREA

685 BREA
PREPARED FOR
CITY VENTURES

CA

REGISTERED PROFESSIONAL ENGINEER — ASHLA MICHELLE — No. 3 — CIVIL — STATE OF CALIFORNIA

WQMP SUMMARY

SHEET NUMBER
1

Know what's below. Call 811 before you dig.

Plotted By:Huo, Kevin Sheet Set:Kha Layout:WQMP June 10, 2024 02:28:19pm K:\ORA_LDEV\094848007 - Brea\CAD\Exhibits\WQMP Exhibit.dwg
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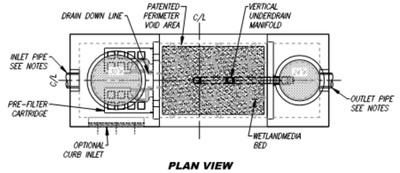
SITE SPECIFIC DATA

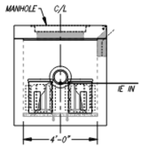
PROJECT NUMBER	
PROJECT NAME	
PROJECT LOCATION	
STRUCTURE ID	
TREATMENT REQUIRED	
TREATMENT FLOW (CFS)	
PRETREATMENT LOADING RATE (GPM/SF)	3.0 GPM/SF
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0
PEAK BYPASS REQUIRED (CFS) - IF APPLICABLE	

PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PEDESTRIAN		
NOTES:			

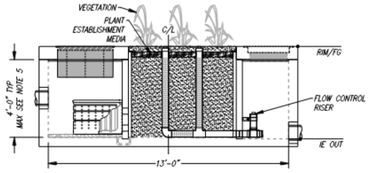
* PRELIMINARY ONLY - NOT FOR CONSTRUCTION



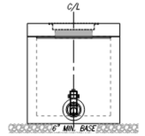
PLAN VIEW



LEFT END VIEW



ELEVATION VIEW



RIGHT END VIEW

INSTALLATION NOTES

1. CONTRACTOR TO PROVIDE ALL LABOR, EQUIPMENT, MATERIALS AND INCIDENTALS REQUIRED TO OFFLOAD AND INSTALL THE SYSTEM AND APPURTENANCES IN ACCORDANCE WITH THIS DRAWING AND THE MANUFACTURER'S SPECIFICATIONS, UNLESS OTHERWISE STATED IN MANUFACTURER'S CONTRACT.
2. UNIT MUST BE INSTALLED ON LEVEL BASE. MANUFACTURER RECOMMENDS A MINIMUM 6" LEVEL ROCK BASE UNLESS SPECIFIED BY THE PROJECT ENGINEER. CONTRACTOR IS RESPONSIBLE FOR VERIFYING PROJECT ENGINEER'S RECOMMENDED BASE SPECIFICATIONS.
3. CONTRACTOR TO SUPPLY AND INSTALL ALL EXTERNAL CONNECTING PIPES. ALL PIPES MUST BE FLUSH WITH INSIDE SURFACE OF CONCRETE (PIPES CANNOT INTRUDE BEYOND FLUSH). INVERT OF OUTFLOW PIPE MUST BE FLUSH WITH DISCHARGE CHAMBER FLOOR. ALL PIPES SHALL BE SEALED WATERTIGHT PER MANUFACTURER'S STANDARD CONNECTION DETAIL.
4. CONTRACTOR RESPONSIBLE FOR CONTACTING CONTECH FOR ACTIVATION OF UNIT. MANUFACTURER'S WARRANTY IS VOID WITHOUT PROPER ACTIVATION BY A CONTECH REPRESENTATIVE.
5. VERTICAL HEIGHT VARIES BASED ON SITE SPECIFIC REQUIREMENTS.

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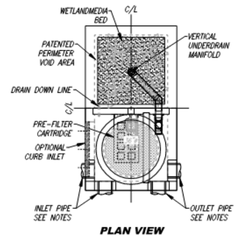
MWS-L-4-13-V
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

SITE SPECIFIC DATA

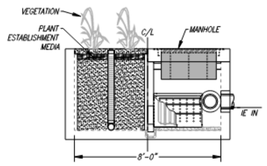
PROJECT NUMBER	
PROJECT NAME	
PROJECT LOCATION	
STRUCTURE ID	
TREATMENT REQUIRED	
TREATMENT FLOW (CFS)	
PRETREATMENT LOADING RATE (GPM/SF)	2.1 GPM/SF
WETLAND MEDIA LOADING RATE (GPM/SF)	1.0
PEAK BYPASS REQUIRED (CFS) - IF APPLICABLE	

PIPE DATA	I.E.	MATERIAL	DIAMETER
INLET PIPE 1			
INLET PIPE 2			
OUTLET PIPE			
	PRETREATMENT	BIOFILTRATION	DISCHARGE
RIM ELEVATION			
SURFACE LOAD	PEDESTRIAN		
NOTES:			

* PRELIMINARY ONLY - NOT FOR CONSTRUCTION



PLAN VIEW



LEFT END VIEW

INSTALLATION NOTES

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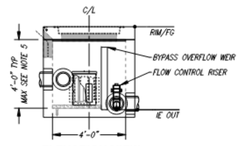
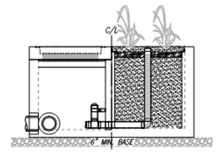
4. CONTRACTOR RESPONSIBLE FOR CONTACTING CONTECH FOR ACTIVATION OF UNIT. MANUFACTURER'S WARRANTY IS VOID WITHOUT PROPER ACTIVATION BY A CONTECH REPRESENTATIVE.
5. VERTICAL HEIGHT VARIES BASED ON SITE SPECIFIC REQUIREMENTS.



ELEVATION VIEW



RIGHT END VIEW

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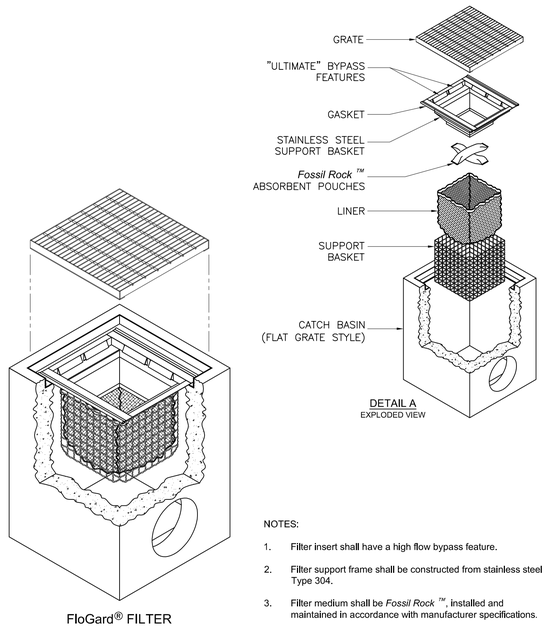
MWS-L-4-8-V
STORMWATER BIOFILTRATION SYSTEM
STANDARD DETAIL

FGP-0001



DETAIL A
EXPLODED VIEW

FloGard® FILTER
-INSTALLED INTO CATCH BASIN-

NOTES:

1. Filter insert shall have a high flow bypass feature.
2. Filter support frame shall be constructed from stainless steel Type 304.
3. Filter medium shall be *Fossil Rock ™*, installed and maintained in accordance with manufacturer specifications.
4. Storage capacity reflects 80% of maximum solids collection prior to impeding filtering bypass.

U.S. PATENT # 6,00,023 & 6,877,029

FloGard®
Catch Basin Insert Filter
Grated Inlet Style

Inlet Filtration

Oldcastle® Stormwater Solutions
7921 Southpark Plaza, Suite 200 | Littleton, CO | 80120 | Ph: 800.579.8819 | oldcastlestormwater.com

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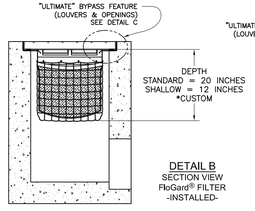
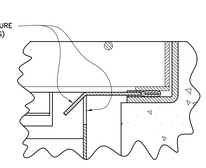
DRAWING NO.	REV.	ECO	DATE	SHEET
FGP-0001	G	ECO-0142 JPR 7/13/16	JPR 11/3/06	1 OF 2

FGP-0001

U.S. PATENT # 6,00,023 & 6,877,029



DETAIL B
SECTION VIEW
FloGard® FILTER
-INSTALLED-



DETAIL C
"ULTIMATE"
BYPASS FEATURES

* MANY OTHER STANDARD & CUSTOM SIZES & DEPTHS AVAILABLE UPON REQUEST.

SPECIFIER CHART

MODEL NO. STANDARD DEPTH	STANDARD & SHALLOW DEPTH (Data in these columns is the same for both STANDARD & SHALLOW versions)			STANDARD DEPTH -20 Inches-		MODEL NO. SHALLOW DEPTH	SHALLOW DEPTH -12 Inches-	
	INLET ID Inside Dimension (inch x inch)	GRATE OD Outside Dimension (inch x inch)	TOTAL BYPASS CAPACITY (cu. ft. / sec.)	SOLIDS STORAGE CAPACITY (cu. ft.)	FILTERED FLOW (cu. ft. / sec.)		SOLIDS STORAGE CAPACITY (cu. ft.)	FILTERED FLOW (cu. ft. / sec.)
FGP-12F	12 X 12	12 X 14	2,8	0,3	0,4	FGP-12F8	,15	,25
FGP-16F	16 X 16	16 X 19	4,7	0,8	0,7	FGP-16F8	,45	,4
FGP-18F	18 X 18	18 X 20	4,7	0,8	0,7	FGP-18F8	,45	,4
FGP-1824F	16 X 22	18 X 24	5,0	1,5	1,2	FGP-1824F8	,85	,7
FGP-1836F	18 X 36	18 X 40	6,9	2,3	1,6	FGP-1836F8	1,3	,9
FGP-2024F	18 X 22	20 X 24	5,9	1,2	1,0	FGP-2024F8	,7	,55
FGP-21F	22 X 22	22 X 24	6,1	2,2	1,5	FGP-21F8	1,25	,85
FGP-24F	24 X 24	24 X 27	6,1	2,2	1,5	FGP-24F8	1,25	,85
FGP-2430F	24 X 30	26 X 30	7,0	2,8	1,8	FGP-2430F8	1,6	1,05
FGP-2436F	24 X 36	24 X 40	8,0	3,4	2,0	FGP-2436F8	1,95	1,15
FGP-2448F	24 X 48	26 X 48	9,3	4,4	2,4	FGP-2448F8	2,5	1,35
FGP-28F	28 X 28	32 X 32	6,3	2,2	1,5	FGP-28F8	1,25	,85
FGP-30F	30 X 30	30 X 34	8,1	3,6	2,0	FGP-30F8	2,05	1,15
FGP-36F	36 X 36	36 X 40	9,1	4,6	2,4	FGP-36F8	2,65	1,35
FGP-3648F	36 X 48	40 X 48	11,5	6,8	3,2	FGP-3648F8	3,9	1,85
FGP-48F	48 X 48	48 X 54	13,2	9,5	3,9	FGP-48F8	5,45	2,25
FGP-SD24F	24 X 24	28 X 28	6,1	2,2	1,5	FGP-SD24F8	1,25	,85

FloGard®
Catch Basin Insert Filter
Grated Inlet Style

Inlet Filtration

Oldcastle® Stormwater Solutions
7921 Southpark Plaza, Suite 200 | Littleton, CO | 80120 | Ph: 800.579.8819 | oldcastlestormwater.com

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DRAWING NO.	REV.	ECO	DATE	SHEET
FGP-0001	G	ECO-0142 JPR 7/13/16	JPR 11/3/06	2 OF 2

Plotted By:Huo, Kevin Sheet Set:Kha Layout:WQMP June 10, 2024 02:28:19pm K:\ORA_LDEV\094848007 - Brea\CAD\Exhibits\WQMP Exhibit.dwg
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811 Know what's below. Call 811 before you dig.

No.	REVISIONS	DATE	BY

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ORANGE, CA 92868
PHONE: 714-939-1030 FAX: 714-938-9488
WWW.KIMLEY-HORN.COM

KHA PROJECT	094848007
DATE	6/10/2024
SCALE	AS SHOWN
DESIGNED BY	KH
DRAWN BY	FC
CHECKED BY	TG

685 BREA
PREPARED FOR
CITY VENTURES

CITY OF BREA CA

REGISTERED PROFESSIONAL ENGINEER JOSHUA WARREN No. 93751 CIVIL STATE OF CALIFORNIA

WQMP SUMMARY

SHEET NUMBER
1

ATTACHMENT I

BMP Summary and WQMP Correspondence

City of Brea
Project Specific WQMP Summary Report

INSTRUCTIONS: Project applicant, please fill out and check all that apply.

Project Name: 685 Brea	Project Address: 584 South Brea Boulevard, City of Brea, CA 92821
WQMP Application Number (BLD #): TBD	APN(s): 284-282-06
Watershed: Santa Ana Watershed	Project Size (Acres): 0.99 ac.
New Development or Redevelopment:	Design Capture Volume (ft^3): 0.188 cfs
Land Use Type (check one): ☐ Industrial (SIC Code):_____ ☐ Commercial (SIC Code):_____ ☒ Mixed Use ☐ Residential ☐ Municipal (i.e. CIP) ☐ Other (specify): _____	Total BMP Treatment Capacity (ft^3): 0.259 cfs
	Hydromodification (Yes/No): Yes
	Owner/Company Name: McCulloch Family Trust
	Owner Address: 15105 Tacuba Drive La Mirada, CA 90638
	Contact Name: McCulloch Family Trust
	Contact Phone: (714_-366-4991
	HOA/POA (Yes/No): Yes

STRUCTURAL BMP SUMMARY TABLE

Provide an itemized list of each LID and FCS BMP for each proposed project DMA. Expand this table as needed.

LID BMP Description (i.e. HSC-1, BIO-2, include manufacturer and model number if possible)	**DMA ID** (as noted on BMP Plot Plan)	**DMA Acres**	**DCV** (indicate units)	**BMP Treatment Capacity** (indicate units)	**BMP GPS Coordinates**
1.MWS #1 – MWS-4-8 (BIO-7)	1	0.33	0.063 CFS	0.115	33°54'36.06"N, 117°54'15.80"W
2. MWS #2 – MWS-4-13 (BIO-7)	2	0.69	0.125 CFS	0.144	33°54'36.18"N, 117°54'15.53"W
	TOTAL	0.99	0.188	0.259	
Does BMP Capacity Exceed DCV (Y/N)?					

FCS Description	**DMA ID**	**Location Description**	**FCS GPS Coordinates**
1. Inlet #1 Trash Capture	Inlet 1	Inlet Located within DA 1	33°54'36.05"N, 117°54'15.49"W
2. Inlet #1 Trash Capture	Inlet 2	Inlet Located within DA 2	33°54'37.28"N, 117°54'16.96"W
3. Inlet #1 Trash Capture	Inlet 3	Inlet Located within DA 2	33°54'36.84"N, 117°54'15.84"W
4. Inlet #1 Trash Capture	Inlet 4	Inlet Located within DA 1	33°54'36.89"N, 117°54'17.66"W
5. Inlet #1 Trash Capture	Inlet 5	Inlet Located within DA 1	33°54'36.73"N, 117°54'17.51"W
6. Inlet #1 Trash Capture	Inlet 6	Inlet Located within DA 1	33°54'36.55"N, 117°54'17.02"W
7. Inlet #1 Trash Capture	Inlet 7	Inlet Located within DA 1	33°54'36.41"N, 117°54'16.67"W
8. Inlet #1 Trash Capture	Inlet 8	Inlet Located within DA 1	33°54'36.27"N, 117°54'16.32"W
9. Inlet #1 Trash Capture	Inlet 9	Inlet Located within DA 2	33°54'37.93"N, 117°54'17.24"W
10. Inlet #1 Trash Capture	Inlet 10	Inlet Located within DA 2	33°54'38.01"N, 117°54'16.99"W
11. Inlet #1 Trash Capture	Inlet 11	Inlet Located within DA 2	33°54'37.77"N, 117°54'16.38"W

12. Inlet #1 Trash Capture	Inlet 12	Inlet Located within DA 2	33°54'37.44"N, 117°54'16.31"W
13. Inlet #1 Trash Capture	Inlet 13	Inlet Located within DA 2	33°54'37.40"N, 117°54'16.20"W
14. Inlet #1 Trash Capture	Inlet 14	Inlet Located within DA 2	33°54'37.57"N, 117°54'15.88"W
15. Inlet #1 Trash Capture	Inlet 15	Inlet Located within DA 2	33°54'37.30"N, 117°54'15.16"W

Non-Structural Source Control BMP's (check all that apply):

- ☒ N1 Owner, Tenant, Occupant Education
- ☒ N2 Activity Restrictions
- ☒ N3 Common Area Landscape Mgmt
- ☒ N4 BMP Maintenance
- ☐ N5 Title 22 CCR Compliance
- ☐ N6 Local Water Quality Permit
- ☐ N7 Spill Contingency Plan
- ☐ N8 Underground Storage Tank
- ☐ N9 Hazardous Materials Disclosure
- ☐ N10 Uniform Fire Code
- ☒ N11 Common Area Litter Control
- ☒ N12 Employee Training
- ☐ N13 Loading Dock Good Housekeeping
- ☒ N14 Common Area Catch Basin Inspection
- ☒ N15 Street Sweeping Private Streets & Parking Lots
- ☐ N16 Retail Gasoline Outlets

Structural Source Control BMP's (check all that apply):

- ☒ S1 Storm Drain System Stenciling/Signage
- ☐ S2 Outdoor Material Storage Areas
- ☒ S3 Trash Storage Areas
- ☒ S4 Efficient Irrigation Systems & Landscape Design
- ☐ S5 Protect Slopes & Channels
- ☐ S6 Loading Dock Areas
- ☐ S7 Maintenance Bays
- ☐ S8 Vehicle Wash Areas
- ☐ S9 Outdoor Process Areas
- ☐ S10 Equipment Wash Areas
- ☐ S11 Fueling Areas
- ☐ S12 Hillside Landscaping
- ☐ S13 Wash Water Controls for Food Prep Areas
- ☐ S14 Community Car Wash Racks

Project WQMP Summary Exhibit

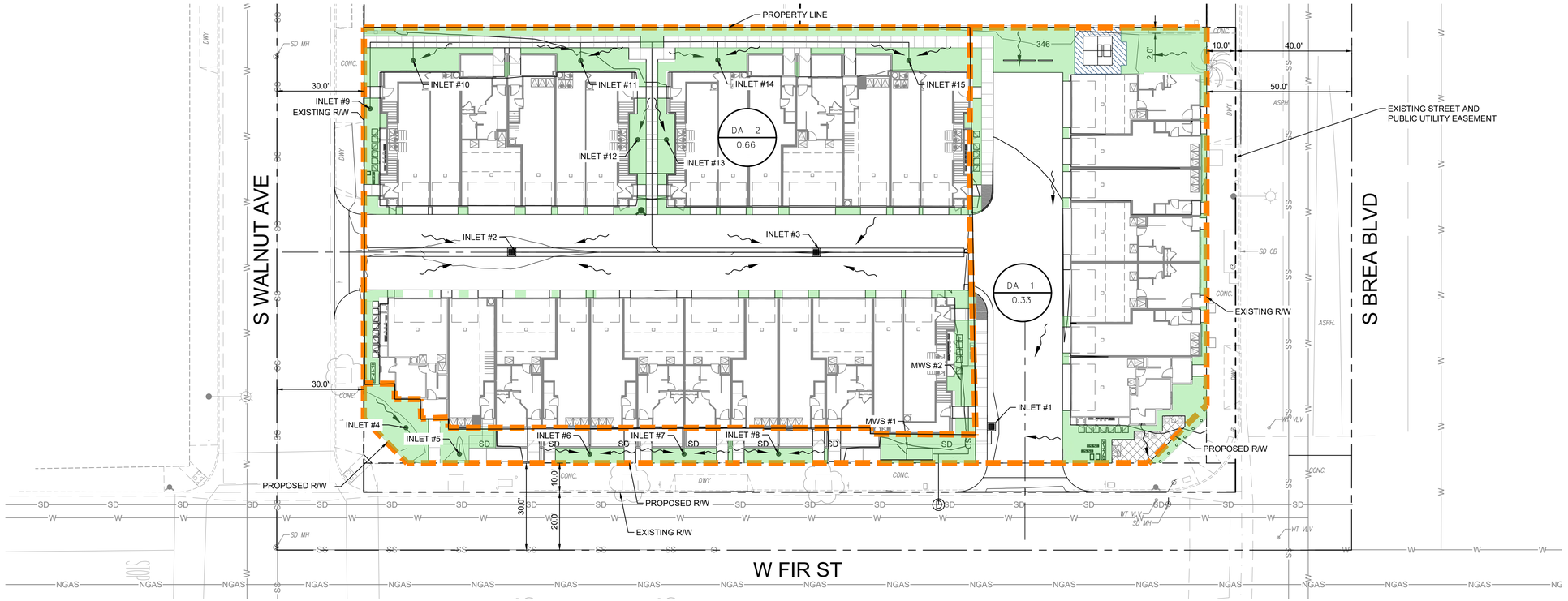
This WQMP Summary Exhibit ("Summary Exhibit") is to ensure there is a consistent and clarified exhibit included as part of the WQMP submittal process. The purpose of this Summary Exhibit is for it to be used by City inspectors to verify that post-construction structural BMPs are implemented correctly at the project site and as described in the approved WQMP. Though similar, the required elements of this Summary Exhibit are separate from the WQMP Plot Plan that is otherwise found in the WQMP report, as it should only include information relevant to the understanding of stormwater BMP operations and maintenance (i.e. no construction notes) and minimize use of topo lines, elevation callouts, etc. The Summary Exhibit shall include the following elements:

- Drainage Management Areas (DMAs) and flow information (i.e. surface flow arrows and pipe flow arrows),
- BMPs (LID and Structural Source Control – i.e. trash enclosures, catch basin stenciling),
- FCS – Full Capture Systems for trash TMDLs,
- Other structural water quality devices (i.e. roof downspout filters),
- All connections between on-site stormwater structures and off-site storm drains,
- And list of structural BMP ID (CASQA-appropriate).

Where applicable, the applicant shall input concise BMP sizing information in tabular form in the Summary Exhibit. This BMP sizing information should be grouped by drainage area and include:

- DMA ID,
- BMP ID (i.e. MWS #1, CDS #1, INF #1) and TGD BMP ID (i.e. BIO-1, BIO-7, INF-1, HSC-2),
- BMP description (i.e. dimensions, model number),
- And BMP location coordinates.

BMPs should be grouped by drainage area in BMP summary table. Color can be used to highlight the information above but should not be used for other plan details. Details unrelated to stormwater should be turned off/screened back/de-emphasized where possible. If using a hatch for pavement or landscaping, ensure it is also screened back and not distracting from BMPs.



LEGEND

- PROPERTY LINE
- RIGHT OF WAY
- EXISTING EASEMENT
- CENTERLINE
- DRAINAGE BOUNDARY
- DIRECTION OF WATER FLOW
- DA ID / ACRES — DRAINAGE MANAGEMENT AREA LABEL
- PROPOSED LANDSCAPE
- PROPOSED INLETS
- SD — PROPOSED STORM DRAIN PIPE
- R — RIDGE LINE
- XXX — PROPOSED CONTOUR
- Ⓓ — STORM DRAIN MAINHOLE
- MODULAR WETLAND SYSTEM

BMP NOTES

1. ALL INLETS TO HAVE STORM DRAIN STENCILING AND SIGNAGE.
2. TRASH STORAGE IN INDIVIDUAL BINS LOCATED IN EVERY TOWNHOME.
3. DRIVE AISLE TO HAVE STREET SWEEPING.
4. MODULAR WETLAND SYSTEMS TO HAVE INTERNAL DIVERSION SYSTEMS THROUGH INTERNAL WEIR.
5. SELF-CERTIFICATION FROM A STATE LICENSED PROFESSIONAL ENGINEER OR THIRD-PARTY CERTIFICATIONS ARE REQUIRED OF ALL BMP'S CONSTRUCTED ON THIS PLAN AND ALL BMP'S SHALL BE CLEANED AND IN WORKING CONDITION AS PRESCRIBED BY THE MANUFACTURER TO OBTAIN CERTIFICATE OF OCCUPANCY FROM THE CITY OF BREA.

IMPERVIOUS AREA CALCULATIONS

ANALYSIS	DA 1	DA 2
DMA AREA (AC)	0.33	0.66
PERCENT IMPERVIOUS	90%	90%
IMPERVIOUS AREA (AC)	0.30	0.59
REQUIRED TREATMENT	0.06	0.13
BMP	MWS-4-8	MWS-4-13
TREATMENT CAPACITY	0.115	0.144

BMP INFORMATION

BMP	LOCATION	SIZE
MWS #1: PROPRIETARY MODULAR WETLAND	33°54'36.06"N, 117°54'15.80"W	MWS-4-8
MWS #2: PROPRIETARY MODULAR WETLAND	33°54'36.18"N, 117°54'15.53"W	MWS-4-13
INLET #1 -TRASH CAPTURE	33°54'36.05"N, 117°54'15.49"W	FGP-18F
INLET #2 -TRASH CAPTURE	33°54'37.28"N, 117°54'16.96"W	FGP-18F
INLET #3 -TRASH CAPTURE	33°54'36.84"N, 117°54'15.84"W	FGP-18F
INLET #4 -TRASH CAPTURE	33°54'36.89"N, 117°54'17.66"W	FGP-12F
INLET #5 -TRASH CAPTURE	33°54'36.73"N, 117°54'17.51"W	FGP-12F
INLET #6 -TRASH CAPTURE	33°54'36.55"N, 117°54'17.02"W	FGP-12F
INLET #7 -TRASH CAPTURE	33°54'36.41"N, 117°54'16.67"W	FGP-12F
INLET #8 -TRASH CAPTURE	33°54'36.27"N, 117°54'16.32"W	FGP-12F
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INLET #10 -TRASH CAPTURE	33°54'38.01"N, 117°54'16.99"W	FGP-12F
INLET #11 -TRASH CAPTURE	33°54'37.77"N, 117°54'16.38"W	FGP-12F
INLET #12 -TRASH CAPTURE	33°54'37.44"N, 117°54'16.31"W	FGP-12F
INLET #13 -TRASH CAPTURE	33°54'37.40"N, 117°54'16.20"W	FGP-12F
INLET #14 -TRASH CAPTURE	33°54'37.57"N, 117°54'15.88"W	FGP-12F
INLET #15 -TRASH CAPTURE	33°54'37.30"N, 117°54'15.16"W	FGP-12F

NORTH

GRAPHIC SCALE IN FEET
0 10 20 40

No.	REVISIONS	DATE	BY

Kimley»Horn
© 2024 KIMLEY-HORN AND ASSOCIATES, INC.
1100 W TOWN AND COUNTRY ROAD,SUITE 700,
ORANGE, CA 92868
PHONE: 714-939-1030 FAX: 714-938-9488
WWW.KIMLEY-HORN.COM

KHA PROJECT	094848007
DATE	6/10/2024
SCALE	AS SHOWN
DESIGNED BY	KH
DRAWN BY	FC
CHECKED BY	TG

CITY OF BREA

685 BREA
PREPARED FOR
CITY VENTURES

CA

REGISTERED PROFESSIONAL ENGINEER — ASHLA MICHELLE — No. 3 — CIVIL — STATE OF CALIFORNIA

WQMP SUMMARY

SHEET NUMBER
1

Know what's below. Call 811 before you dig.

Plotted By:Huo, Kevin Sheet Set:Kha Layout:WQMP June 10, 2024 02:28:19pm K:\ORA_LDEV\094848007 - Brea\CAD\Exhibits\WQMP Exhibit.dwg
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

BMP Maintenance Self-Certification Form for the City of Brea

In addition to routine annual inspections conducted by the City for proper maintenance of post-construction stormwater control measures or Best Management Practices (BMPs) on the property, the City of Brea requires that the party responsible for maintenance of these BMPs receive proper orientation and training on their operations and maintenance. This form is to be completed by the owner representative and shall be made available to the City Authorized Inspector upon request. Should the maintenance provider or facility maintenance representative change at any time, the owner representative shall complete this form with the new responsible party for BMP maintenance.

Property Information	BMP O&M
Project Name:	**Responsible Party:** (Owner, management company or HOA/POA)
Legal Owner of Record:	**Contact Name:**
Address:	**Address:**
Telephone:	**Telephone:**
Email:	**Email:**

As the party responsible for operation and maintenance of the BMPs specified in the approved Water Quality Management Plan (WQMP) for the subject property, I hereby certify under penalty of law that I, or persons under my supervision, are qualified and competent to carry out the inspection and maintenance the BMPs in a manner consistent with the approved WQMP Operation and Maintenance (O&M) Plan.

_____ _____

Maintenance Representative Signature Date

As the owner representative of the **[insert project name]** for which a Water Quality Management Plan (WQMP) was approved by the City, I hereby certify under penalty of law that all BMPs contained within the approved Project WQMP have been maintained and inspected in accordance with the schedule and frequency outlined in the approved WQMP Operation and Maintenance (O&M) Plan. The maintenance activities and inspections conducted have been performed by qualified and knowledgeable

individuals listed above. To the best of my knowledge, the information submitted is true and accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and citations for violating water quality regulations.

Owner/Representative Signature	Date

Water Quality Management Plan Checklist

City of Brea

The purpose of this checklist is to provide a format for uniform, comprehensive, and well-documented reviews of the Water Quality Management Plans (WQMPs) submitted by project applicants. The completed checklist should be transmitted to the project applicant with the project WQMP. A copy of the completed checklist should be retained with the project planning/permitting file. Upon acceptance of the project's Final WQMP, the property owner shall record a "Covenant and Agreement" with the County-Clerk Recorder or other instrument acceptable to the City to inform future property owners of the requirement to implement the approved project-specific WQMP. The recordation must be incorporated into the WQMP as an appendix prior to final approval.

WQMP (select one): ☒ Preliminary ☐ Final

City Planning Project Number (CD #): PLN-2023-00081

Project Name: 685 Brea

Project Address: 685 Brea Boulevard

First Review

WQMP Received on: 11/29/2023

Review Completed on: 12/8/2023

Second Review

WQMP Received on: _____

Review Completed on: _____

Third Review

WQMP Received on: _____

Review Completed on: _____

Signature of Reviewer: _____ Date: _____

REQUIRED FOR ALL SUBMITTALS AND RESUBMITTALS:
Submit an electronic copy to building@cityofbrea.net
Electronic submittals must be original-quality PDFs submitted as an attachment* (Max 10MB) or through a file transfer service. *Scans of hard copies will not be accepted*.

FINAL APPROVAL PROCESS, submitted to City Hall At 1 Civic Center Circle, Brea Ca 92821, attention Brian Ingallinera, Environmental Services or electronic documentation - sent via file transfer service to Briani@cityofbrea.net AS PRESCRIBED BELOW:

- One hard bound copy of approved WQMP that contains tabs/labels for each section
- Electronic submittals (PDF format) of the following documents -Labeled as indicated below
- Full approved WQMP
- Exhibit Sheet(s) & Detail Sheets for each bmp
- City of Brea-Project Specific WQMP Summary Report
- Section V-Inspection & Maintenance

Prior to the field verification process from Environmental Services the following items must be submitted/completed:

- Electronic copies (PDF format) of the Self-Certification from a State Licensed Professional Engineer or Third-Party Certifications are required of all BMP's constructed - Sent via file transfer service to Briani@cityofbrea.net
- Electronic copy (PDF format) of the recorded documents - Sent via file transfer service to Briani@cityofbrea.net
    - Title Page
    - Signed Owners Certification Page
    - Engineers Certification Page
    - The City of Brea-Specific WQMP Summary Report
    - Exhibit & Details of BMPs
    - Section V-Inspection & Maintenance

Prior to sign off from Environmental Services to obtain the Certificate of Occupancy the following items must be completed:

- All BMP's are accessible to conduct visual inspection and take photos
- All the BMP's are clean and in working condition as prescribed by the manufacturer

One hard copy will be returned to the owner upon City-stamped approval. Grading Permit will be approved upon submittal of the hard copy WQMPs. An electronic copy (PDF) is also required. Electronic submittals must be original-quality PDFs submitted as an attachment* (Max 10MB) or through a file transfer service. *Scans of hard copies will not be accepted*.

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Title Page			
Name of project	X		
Application and/or Tract Number *Include application number PLN-2023-00081.*		X	
Lot number(s) if site is a portion of a Tract			X
Site address (or addresses) and planning area number	X		
Owner/Developer name	X		
Owner/Developer address & telephone number	X		
Consulting/Engineering firm that prepared WQMP	X		
Consulting/Engineering firm address & phone number	X		
Date WQMP was prepared/revised	X		
Owner's Certification			
A signed certification statement, in which the project owner acknowledges and accepts the provisions of the WQMP, follows the title page. *Include Owner's signature.*		X	
Table of Contents			
A Table of Contents, including a list of all figures and attachments is included.	X		
Section 1.0, Permit Numbers and Conditions of Approval			
Lists the Discretionary Permit(s).			X
The lot & tract/parcel map number describing the subject property.	X		
Lists, verbatim, the Water Quality Conditions, including condition requiring preparation of WQMP, if applicable.			X
Provides applicable conditions from watershed-based plans including WIHMPs and TMDLs.			X
Final Resolution of Approval, Conditional Use Permit, etc. is included as an Attachment to the WQMP.			X
Section 2.0, Project Description			
For All Projects:			
Identifies planning area or community name. *Include community name if there is one.*		X	
Does the project description completely and accurately describe where facilities will be located, what activities will be conducted and where on the site, what kinds of materials and products will be used, how and where materials will be received and stored, and what kinds of wastes will be generated?	X		

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Describes all paved areas, including the type of parking areas.	X		
Describes all landscaped areas.	X		
Describes ownership of all portions of project and site. – Will any infrastructure transfer to public agencies (City, County, Caltrans, etc.)? – Will a homeowners or property owners association will be formed? *Include homeowner's association is applicable.* – Will the association be involved in long term maintenance?		X	
Identifies the potential stormwater or urban runoff pollutants reasonably expected to be associated with the project. *Pesticides and oil & grease are expected pollutants of the proposed land use per Table 2.1 of the TGD.*		X	
Identifies potential HCOCs. *Since the project has HCOCs and is not infiltrating, calculations showing that the proposed peak 2-yr, 24-hr flowrate does not exceed 105% of the existing peak 2-yr, 24-hr flowrate must be provided. If this is exceeded then the site must mitigate the peak 2-yr, 24-hr flowrate to 110% of existing peak 2-yr, 24-hr flowrate. Hydrology calculations must be provided, and a summary of the results must be included in Section II.3. Please refer to Section 7.II-2.4.2.2 in the MWQMP for details.*		X	
Identifies post development drainage characteristics.	X		
For Commercial and Industrial Projects:			
– Provides Standard Industrial Classification (SIC) Code which best describes the facilities operations?			X
– Describes the type of use (or uses) for each building or tenant space			X
– Does project include food preparation, cooking, and eating areas (specify location and type of area)			X
– Describes delivery areas and loading docks (specify location and design and if below grade and types of materials expected to be stored			X
– Describes outdoor materials storage areas (describe and depict location(s), specify type(s) of materials expected to be stored)			X
– Describes activities that will be routinely conducted outdoors			X
– Describes any activities associated with equipment or vehicle maintenance and repair, including washing or cleaning. Indicates number of service bays or number of fueling islands/fuel pumps, if applicable.			X
Residential Projects			
– Range of lot and home sizes;	X		
– Describes all community facilities such as, laundry, car wash, swimming pools, jacuzzi, parks, open spaces, tot lots, etc.	X		

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Section 3.0, Site Description			
Describes project area and surrounding planning areas in sufficient detail to allow project location to be plotted on a base map.	X		
Provides site address and site size to nearest tenth acre.	X		
Identifies the zoning or land use designation.	X		
Identifies soil types and the quantity and percentage of pervious and impervious surface for pre-project and project conditions. *Per OC Stormwater Tools, the project is located in Soil Type C (OC Land Development (ocgis.com)).*		X	
Describes pre-project site drainage and how it ties into drainage of surrounding or adjacent areas and describes how planned project drainage and how it will tie into drainage of surrounding or adjacent areas.	X		
Identifies the watershed in which the project is located and the : – downstream receiving waters – known water quality impairments as included in the 303(d) List – applicable Total Maximum Daily Loads (TMDLs) – hydrologic conditions of concern, if any.	X		
Identifies known Environmentally Sensitive Areas (ESAs) and Areas of Special Biological Significance (ASBSs) within the vicinity and their proximity to the project.			X
Section 4.0, Best Management Practices			
Includes applicable performance criteria for the following: hydromodification control, LID criteria, and treatment control BMPs. *Hydromodification must be addressed for peak flowrate mitigation. Hydrology calculations must be provided.*		X	
Do on-site BMPs include full capture certification or does a separate BMP address the full capture of trash (Connector Pipe Screen, Catch Basin Screen, or equivalent)? *Due to the project having greater than 10 du/acre, Full Trash Capture requirements must be met. 1-yr, 1-hr flowrate sizing must be provided for the trash capture BMPs.*		X	
Includes narrative describing how site design concepts were considered and incorporated into project plans.	X		
Lists and describes all Routine Source Control BMPs (Non-structural and Structural).	X		
Describes the implementation frequency and identifies the entity or party responsible for implementation of each Non-Structural BMP.	X		
If applicable Routine Source Control BMPs were not included, was a reasonable explanation provided?	X		

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Lists and describes appropriate Treatment Control BMPs and identifies the design basis (SQDF or SQDV) for the Treatment Control BMPs.			X
For Routine Non-Structural BMPs N1 (Education for Property Owners, Tenants, and Occupants) and N12 (Employee Training), does the WQMP describe the concepts that will be addressed by the education and training? Is a list of educational materials that will be used provided? Are copies of the educational materials included in an Attachment to the WQMP?	X		
Lists and describes appropriate LID and Hydromodification BMPs and identifies the design basis (SQDF or SQDV) for the LID BMPs.	X		
Describes any regional/sub-regional BMPs that will be utilized (NOC).			X
Lists and appropriately calculates any Credits that the Project may qualify for.			X
Lists and describes alternative compliance measures (Treatment Control BMPs, regional programs, Urban Runoff Fund/Mitigation Program participation described if LID BMPs do not fulfill LID and Hydromodification requirements.			X
If applicable, Waiver Request and proof of submittal to the Regional Board Executive Officer included.			X
Section 5.0, Inspection and Maintenance Responsibility for BMPs			
Identifies the entity (or entities) responsible for the long-term inspection and maintenance of all structural source control BMPs and all Treatment Control BMPs, including name, title, company, address, and phone number.	X		
Describes the minimum frequency for inspection and maintenance to ensure the effectiveness of each structural source control BMP and each Treatment Control BMP. *The Modular Wetland maintenance frequency does not match the manufacturer's recommendations. Either refer to the manufacturer O&M plan or match it.*		X	
If ownership of the Treatment Control BMPs will be transferred to a public agency, does the WQMP include an Attachment indicating the public agency's intent to accept the Treatment Control BMPs as designed?			X
Is an appropriate mechanism for the long-term operation and maintenance, including funding, in place?	X		
Section 6.0, Location Map and Plot Plan			
Has an 11" by 17" plot plan been included?	X		
Do all figures, maps, plot plans, etc. have a legend, including a North arrow and scale?	X		
Are all facilities labeled for the intended function?	X		

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Are all areas of outdoor activity labeled?	X		
Are all structural BMPs indicated (including GIS coordinates for LID BMPs in decimal degrees)? *Include BMP coordinates in decimal degrees on the WQMP exhibit.*		X	
Is drainage flow information, including general surface flow lines, concrete or other surface ditches or channels, as well as storm drain facilities such as catch basins and underground storm drain pipes depicted?	X		
Depicts where and how on-site drainage ties into the off-site drainage system.	X		
All BMPs proposed/shown on the WQMP exhibit are reflected in the Grading Plans. *Grading Plans were not provided for review, so this verification was unable to be complete.*		X	
The following self-certification statement is provided on the WQMP exhibit: • Self-Certification from a State Licensed Professional Engineer or Third-Party Certifications are required of all BMP's constructed on this plan and all BMP's shall be cleaned and in working condition as prescribed by the manufacturer to obtain Certificate of Occupancy from the City of Brea. *Include statement.*		X	
Other			
Grading Plans have been provided and include the following statement in the construction notes of the Grading Plans: • Self-Certification from a State Licensed Professional Engineer or Third-Party Certifications are required of all BMP's constructed on this plan and all BMP's shall be cleaned and in working condition as prescribed by the manufacturer to obtain Certificate of Occupancy from the City of Brea.			
City of Brea "Project Specific WQMP Summary Report" form and Project WQMP Summary Exhibit included? *Include.*		X	

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Has an electronic copy (i.e. PDF) of the WQMP been provided? A scan of the hard copy WQMP is not acceptable. The PDF shall be created from the original electronic source files to minimize file size, provide better quality, and allow for keyword search. The PDF copy shall be submitted via email or via a file transfer service to both sausili@fuscoe.com and briani@cityofbrea.net	X		
Is an Appendix for County recordation of the WQMP included? Recordation of Title Page, Owner Certification Page, Engineer Certification Page, and City of Brea WQMP Summary Page must be recorded before approval can be issued.			X
Has an Appendix been provided for WQMP-related correspondence been provided? Please include email pertaining to the WQMP, previous plan check comments, or any specific instructions from plan checkers or City staff • For Final WQMP submittals, the stamped cover page of the approved Preliminary WQMP must be included in this Appendix. *Include.*		X	
Is the BMP Maintenance Self-Certification Form included in the Appendix? *Include.*		X	
Are the WQMP plan check checklists from previous rounds of reviews included in the Appendix with WQMP Summary?			X

Water Quality Management Plan Checklist

City of Brea

The purpose of this checklist is to provide a format for uniform, comprehensive, and well-documented reviews of the Water Quality Management Plans (WQMPs) submitted by project applicants. The completed checklist should be transmitted to the project applicant with the project WQMP. A copy of the completed checklist should be retained with the project planning/permitting file. Upon acceptance of the project's Final WQMP, the property owner shall record a "Covenant and Agreement" with the County-Clerk Recorder or other instrument acceptable to the City to inform future property owners of the requirement to implement the approved project-specific WQMP. The recordation must be incorporated into the WQMP as an appendix prior to final approval.

WQMP (select one): ☒ Preliminary ☐ Final

City Planning Project Number (CD #): PLN-2023-00081

Project Name: 685 Brea

Project Address: 685 Brea Boulevard

First Review

WQMP Received on: 11/29/2023

Review Completed on: 12/8/2023

Second Review

WQMP Received on: 3/7/2024

Review Completed on: 3/14/2024

Third Review

WQMP Received on: _____

Review Completed on: _____

Signature of Reviewer: _____ Date: _____

REQUIRED FOR ALL SUBMITTALS AND RESUBMITTALS:
Submit an electronic copy to building@cityofbrea.net
Electronic submittals must be original-quality PDFs submitted as an attachment* (Max 10MB) or through a file transfer service. *Scans of hard copies will not be accepted*.

FINAL APPROVAL PROCESS, submitted to City Hall At 1 Civic Center Circle, Brea Ca 92821, attention Brian Ingallinera, Environmental Services or electronic documentation - sent via file transfer service to Briani@cityofbrea.net AS PRESCRIBED BELOW:

- One hard bound copy of approved WQMP that contains tabs/labels for each section
- Electronic submittals (PDF format) of the following documents -Labeled as indicated below
- Full approved WQMP
- Exhibit Sheet(s) & Detail Sheets for each bmp
- City of Brea-Project Specific WQMP Summary Report
- Section V-Inspection & Maintenance

Prior to the field verification process from Environmental Services the following items must be submitted/completed:

- Electronic copies (PDF format) of the Self-Certification from a State Licensed Professional Engineer or Third-Party Certifications are required of all BMP's constructed - Sent via file transfer service to Briani@cityofbrea.net
- Electronic copy (PDF format) of the recorded documents - Sent via file transfer service to Briani@cityofbrea.net
    - Title Page
    - Signed Owners Certification Page
    - Engineers Certification Page
    - The City of Brea-Specific WQMP Summary Report
    - Exhibit & Details of BMPs
    - Section V-Inspection & Maintenance

Prior to sign off from Environmental Services to obtain the Certificate of Occupancy the following items must be completed:

- All BMP's are accessible to conduct visual inspection and take photos
- All the BMP's are clean and in working condition as prescribed by the manufacturer

One hard copy will be returned to the owner upon City-stamped approval. Grading Permit will be approved upon submittal of the hard copy WQMPs. An electronic copy (PDF) is also required. Electronic submittals must be original-quality PDFs submitted as an attachment* (Max 10MB) or through a file transfer service. *Scans of hard copies will not be accepted*.

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Title Page			
Name of project	X		
Application and/or Tract Number *Include application number PLN-2023-00081.*		X	
Lot number(s) if site is a portion of a Tract			X
Site address (or addresses) and planning area number	X		
Owner/Developer name	X		
Owner/Developer address & telephone number	X		
Consulting/Engineering firm that prepared WQMP	X		
Consulting/Engineering firm address & phone number	X		
Date WQMP was prepared/revised *Add date revised*	X		
Owner's Certification			
A signed certification statement, in which the project owner acknowledges and accepts the provisions of the WQMP, follows the title page. *Include Owner's signature. See redline markup.*		X	
Table of Contents			
A Table of Contents, including a list of all figures and attachments is included.	X		
Section 1.0, Permit Numbers and Conditions of Approval			
Lists the Discretionary Permit(s).			X
The lot & tract/parcel map number describing the subject property.	X		
Lists, verbatim, the Water Quality Conditions, including condition requiring preparation of WQMP, if applicable.			X
Provides applicable conditions from watershed-based plans including WIHMPs and TMDLs.			X
Final Resolution of Approval, Conditional Use Permit, etc. is included as an Attachment to the WQMP.			X
Section 2.0, Project Description			
For All Projects:			
Identifies planning area or community name. *Include community name if there is one.*		X	

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Does the project description completely and accurately describe where facilities will be located, what activities will be conducted and where on the site, what kinds of materials and products will be used, how and where materials will be received and stored, and what kinds of wastes will be generated? *Highlighted items aren't discussed. Clarify that the City of Brea maintains the existing offsite storm drains within the public ROW, and the Owner/HOA is responsible for maintaining the onsite storm drain systems, inlets, and BMPs. See redlines.*		X	
Describes all paved areas, including the type of parking areas.	X		
Describes all landscaped areas.	X		
Describes ownership of all portions of project and site. – Will any infrastructure transfer to public agencies (City, County, Caltrans, etc.)? – Will a homeowners or property owners association will be formed? *Include homeowner's association is applicable. 2nd Request.* – Will the association be involved in long term maintenance?		X	
Identifies the potential stormwater or urban runoff pollutants reasonably expected to be associated with the project.	X		
Identifies potential HCOCs. *Provide copies of the hydrology maps showing node locations, flowpaths, etc. supporting the 2-year calculations. Per OC Stormwater Tools, the project is located in Soil Type C (OC Land Development (ocgis.com)). Revise calculations as necessary.*		X	
Identifies post development drainage characteristics. *Last sentence mentions offsite flows, however these flows are not discussed in the remainder of the WQMP, nor are they identified on the WQMP Exhibit.*		X	
For Commercial and Industrial Projects:			
– Provides Standard Industrial Classification (SIC) Code which best describes the facilities operations?			X
– Describes the type of use (or uses) for each building or tenant space			X
– Does project include food preparation, cooking, and eating areas (specify location and type of area)			X
– Describes delivery areas and loading docks (specify location and design and if below grade and types of materials expected to be stored			X
– Describes outdoor materials storage areas (describe and depict location(s), specify type(s) of materials expected to be stored)			X
– Describes activities that will be routinely conducted outdoors			X
– Describes any activities associated with equipment or vehicle maintenance and repair, including washing or cleaning. Indicates number of service bays or number of fueling islands/fuel pumps, if applicable.			X

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Residential Projects			
– Range of lot and home sizes;	X		
– Describes all community facilities such as, laundry, car wash, swimming pools, jacuzzi, parks, open spaces, tot lots, etc. *How will trash be managed? Describe what common areas are proposed.*		X	
Section 3.0, Site Description			
Describes project area and surrounding planning areas in sufficient detail to allow project location to be plotted on a base map.	X		
Provides site address and site size to nearest tenth acre.	X		
Identifies the zoning or land use designation.	X		
Identifies soil types and the quantity and percentage of pervious and impervious surface for pre-project and project conditions. *Per OC Stormwater Tools, the project is located in Soil Type C (OC Land Development (ocgis.com)). 2nd Request.*		X	
Describes pre-project site drainage and how it ties into drainage of surrounding or adjacent areas and describes how planned project drainage and how it will tie into drainage of surrounding or adjacent areas. *Precipitation zone missing. Page 5 mentions offsite flow, but Page 8 identifies there is no offsite drainage. Reconcile differences.*		X	
Identifies the watershed in which the project is located and the : – downstream receiving waters – known water quality impairments as included in the 303(d) List – applicable Total Maximum Daily Loads (TMDLs) – hydrologic conditions of concern, if any.	X		
Identifies known Environmentally Sensitive Areas (ESAs) and Areas of Special Biological Significance (ASBSs) within the vicinity and their proximity to the project.			X
Section 4.0, Best Management Practices			
Includes applicable performance criteria for the following: hydromodification control, LID criteria, and treatment control BMPs.		X	
Do on-site BMPs include full capture certification or does a separate BMP address the full capture of trash (Connector Pipe Screen, Catch Basin Screen, or equivalent)? *Trash capture BMPs are mentioned but not described or sized in report. Identify locations on WQMP Exhibit and attach details.*		X	
Includes narrative describing how site design concepts were considered and incorporated into project plans.		X	
Lists and describes all Routine Source Control BMPs (Non-structural and Structural).		X	

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Describes the implementation frequency and identifies the entity or party responsible for implementation of each Non-Structural BMP.	X		
If applicable Routine Source Control BMPs were not included, was a reasonable explanation provided?	X		
Lists and describes appropriate Treatment Control BMPs and identifies the design basis (SQDF or SQDV) for the Treatment Control BMPs. *See comment above regarding Full Trash Capture BMPs.*		X	
For Routine Non-Structural BMPs N1 (Education for Property Owners, Tenants, and Occupants) and N12 (Employee Training), does the WQMP describe the concepts that will be addressed by the education and training? Is a list of educational materials that will be used provided? Are copies of the educational materials included in an Attachment to the WQMP?	X		
Lists and describes appropriate LID and Hydromodification BMPs and identifies the design basis (SQDF or SQDV) for the LID BMPs.	X		
Describes any regional/sub-regional BMPs that will be utilized (NOC).			X
Lists and appropriately calculates any Credits that the Project may qualify for.			X
Lists and describes alternative compliance measures (Treatment Control BMPs, regional programs, Urban Runoff Fund/Mitigation Program participation described if LID BMPs do not fulfill LID and Hydromodification requirements.			X
If applicable, Waiver Request and proof of submittal to the Regional Board Executive Officer included.			X
Section 5.0, Inspection and Maintenance Responsibility for BMPs			
Identifies the entity (or entities) responsible for the long-term inspection and maintenance of all structural source control BMPs and all Treatment Control BMPs, including name, title, company, address, and phone number. *Entity left blank. O&M Plan attachment is missing.*		X	
Describes the minimum frequency for inspection and maintenance to ensure the effectiveness of each structural source control BMP and each Treatment Control BMP. *Provide O&M information for Full Trash Capture BMPs.*		X	
If ownership of the Treatment Control BMPs will be transferred to a public agency, does the WQMP include an Attachment indicating the public agency's intent to accept the Treatment Control BMPs as designed?			X
Is an appropriate mechanism for the long-term operation and maintenance, including funding, in place?	X		
Section 6.0, Location Map and Plot Plan			
Has an 11" by 17" plot plan been included?	X		

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Do all figures, maps, plot plans, etc. have a legend, including a North arrow and scale?	X		
Are all facilities labeled for the intended function?		X	
Are all areas of outdoor activity labeled?	X		
Are all structural BMPs indicated (including GIS coordinates for LID BMPs in decimal degrees)? *Include BMP coordinates in decimal degrees on the WQMP exhibit. 2nd Request. Identify two separate DMA's since two BMPs are proposed. Add a separate BMP Summary Table with sizing and coordinates of each MWS unit, and label with a unique identifier. Include full trash capture BMPs as well.*		X	
Is drainage flow information, including general surface flow lines, concrete or other surface ditches or channels, as well as storm drain facilities such as catch basins and underground storm drain pipes depicted? *Storm drain inlets are unclear & symbols do not match legend. How will runoff get into the inlets from the alleyway? MWS unit locations are difficult to see on exhibit. See redline markup.*		X	
Depicts where and how on-site drainage ties into the off-site drainage system.	X		
All BMPs proposed/shown on the WQMP exhibit are reflected in the Grading Plans. *Grading Plans were not provided for review, so this verification was unable to be complete.*		X	
The following self-certification statement is provided on the WQMP exhibit: • Self-Certification from a State Licensed Professional Engineer or Third-Party Certifications are required of all BMP's constructed on this plan and all BMP's shall be cleaned and in working condition as prescribed by the manufacturer to obtain Certificate of Occupancy from the City of Brea. *Include statement.*		X	
Other			
Grading Plans have been provided and include the following statement in the construction notes of the Grading Plans: • Self-Certification from a State Licensed Professional Engineer or Third-Party Certifications are required of all BMP's constructed on this plan and all BMP's shall be cleaned and in working condition as prescribed by the manufacturer to obtain Certificate of Occupancy from the City of Brea.			
City of Brea "Project Specific WQMP Summary Report" form and Project WQMP Summary Exhibit included? *Include. 2nd Request*		X	

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Has an electronic copy (i.e. PDF) of the WQMP been provided? A scan of the hard copy WQMP is not acceptable. The PDF shall be created from the original electronic source files to minimize file size, provide better quality, and allow for keyword search. The PDF copy shall be submitted via email or via a file transfer service to both sausili@fuscoe.com and briani@cityofbrea.net	X		
Is an Appendix for County recordation of the WQMP included? Recordation of Title Page, Owner Certification Page, Engineer Certification Page, and City of Brea WQMP Summary Page must be recorded before approval can be issued.			X
Has an Appendix been provided for WQMP-related correspondence been provided? Please include email pertaining to the WQMP, previous plan check comments, or any specific instructions from plan checkers or City staff • For Final WQMP submittals, the stamped cover page of the approved Preliminary WQMP must be included in this Appendix. *Include.*		X	
Is the BMP Maintenance Self-Certification Form included in the Appendix? *Include.*		X	
Are the WQMP plan check checklists from previous rounds of reviews included in the Appendix with WQMP Summary? *Include.*		X	

Water Quality Management Plan Checklist

City of Brea

The purpose of this checklist is to provide a format for uniform, comprehensive, and well-documented reviews of the Water Quality Management Plans (WQMPs) submitted by project applicants. The completed checklist should be transmitted to the project applicant with the project WQMP. A copy of the completed checklist should be retained with the project planning/permitting file. Upon acceptance of the project's Final WQMP, the property owner shall record a "Covenant and Agreement" with the County-Clerk Recorder or other instrument acceptable to the City to inform future property owners of the requirement to implement the approved project-specific WQMP. The recordation must be incorporated into the WQMP as an appendix prior to final approval.

WQMP (select one): ☒ Preliminary ☐ Final

City Planning Project Number (CD #): PLN-2023-00081

Project Name: 685 Brea

Project Address: 685 Brea Boulevard

First Review

WQMP Received on: 11/29/2023

Review Completed on: 12/8/2023

Second Review

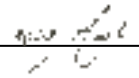
WQMP Received on: 3/7/2024

Review Completed on: 3/14/2024

Third Review

WQMP Received on: 5/22/2024

Review Completed on: 5/29/2024

Signature of Reviewer:  Date: 5/29/2024

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WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Title Page			
Name of project	X		
Application and/or Tract Number	X		
Lot number(s) if site is a portion of a Tract			X
Site address (or addresses) and planning area number	X		
Owner/Developer name	X		
Owner/Developer address & telephone number	X		
Consulting/Engineering firm that prepared WQMP	X		
Consulting/Engineering firm address & phone number	X		
Date WQMP was prepared/revised	X		
Owner's Certification			
A signed certification statement, in which the project owner acknowledges and accepts the provisions of the WQMP, follows the title page.	X		
Table of Contents			
A Table of Contents, including a list of all figures and attachments is included.	X		
Section 1.0, Permit Numbers and Conditions of Approval			
Lists the Discretionary Permit(s).			X
The lot & tract/parcel map number describing the subject property.	X		
Lists, verbatim, the Water Quality Conditions, including condition requiring preparation of WQMP, if applicable.			X
Provides applicable conditions from watershed-based plans including WIHMPs and TMDLs.			X
Final Resolution of Approval, Conditional Use Permit, etc. is included as an Attachment to the WQMP.			X
Section 2.0, Project Description			
For All Projects:			
Identifies planning area or community name.	X		
Does the project description completely and accurately describe where facilities will be located, what activities will be conducted and where on the site, what kinds of materials and products will be used, how and where materials will be received and stored, and what kinds of wastes will be generated?	X		
Describes all paved areas, including the type of parking areas.	X		
Describes all landscaped areas.	X		

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Describes ownership of all portions of project and site. – Will any infrastructure transfer to public agencies (City, County, Caltrans, etc.)? – Will a homeowners or property owners association will be formed? – Will the association be involved in long term maintenance?	X		
Identifies the potential stormwater or urban runoff pollutants reasonably expected to be associated with the project.	X		
Identifies potential HCOCs. *Soil Type D is used in the existing condition 2 yr rational method calculations. Please revise to Type C.*		X	
Identifies post development drainage characteristics.	X		
For Commercial and Industrial Projects:			
– Provides Standard Industrial Classification (SIC) Code which best describes the facilities operations?			X
– Describes the type of use (or uses) for each building or tenant space			X
– Does project include food preparation, cooking, and eating areas (specify location and type of area)			X
– Describes delivery areas and loading docks (specify location and design and if below grade and types of materials expected to be stored			X
– Describes outdoor materials storage areas (describe and depict location(s), specify type(s) of materials expected to be stored)			X
– Describes activities that will be routinely conducted outdoors			X
– Describes any activities associated with equipment or vehicle maintenance and repair, including washing or cleaning. Indicates number of service bays or number of fueling islands/fuel pumps, if applicable.			X
Residential Projects			
– Range of lot and home sizes;	X		
– Describes all community facilities such as, laundry, car wash, swimming pools, jacuzzi, parks, open spaces, tot lots, etc.	X		
Section 3.0, Site Description			
Describes project area and surrounding planning areas in sufficient detail to allow project location to be plotted on a base map.	X		
Provides site address and site size to nearest tenth acre.	X		
Identifies the zoning or land use designation.	X		
Identifies soil types and the quantity and percentage of pervious and impervious surface for pre-project and project conditions.	X		

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Describes pre-project site drainage and how it ties into drainage of surrounding or adjacent areas and describes how planned project drainage and how it will tie into drainage of surrounding or adjacent areas.	X		
Identifies the watershed in which the project is located and the : – downstream receiving waters – known water quality impairments as included in the 303(d) List – applicable Total Maximum Daily Loads (TMDLs) – hydrologic conditions of concern, if any.	X		
Identifies known Environmentally Sensitive Areas (ESAs) and Areas of Special Biological Significance (ASBSs) within the vicinity and their proximity to the project.			X
Section 4.0, Best Management Practices			
Includes applicable performance criteria for the following: hydromodification control, LID criteria, and treatment control BMPs.		X	
Do on-site BMPs include full capture certification or does a separate BMP address the full capture of trash (Connector Pipe Screen, Catch Basin Screen, or equivalent)? *The proposed BioGrate-Fabric is not an approved full capture BMP. A list of approved full-capture BMPs can be found on the CA Waterboards website below:* *https://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/trash_implementation/certified_fcsdevicelist_16Feb2021.pdf* *The full capture BMP sizing calculations appear to be using the wrong design intensity. It should not be 0.23 in/hr but that of the 1-yr, 1-hr storm event. Also, describe why there is additional 0.215 acres of area that is calculated for inlet #3 that is not a part of the rest of the project.*		X	
Includes narrative describing how site design concepts were considered and incorporated into project plans.		X	
Lists and describes all Routine Source Control BMPs (Non-structural and Structural).		X	
Describes the implementation frequency and identifies the entity or party responsible for implementation of each Non-Structural BMP.	X		
If applicable Routine Source Control BMPs were not included, was a reasonable explanation provided?	X		
Lists and describes appropriate Treatment Control BMPs and identifies the design basis (SQDF or SQDV) for the Treatment Control BMPs. *See comment above regarding Full Trash Capture BMPs.*		X	

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
For Routine Non-Structural BMPs N1 (Education for Property Owners, Tenants, and Occupants) and N12 (Employee Training), does the WQMP describe the concepts that will be addressed by the education and training? Is a list of educational materials that will be used provided? Are copies of the educational materials included in an Attachment to the WQMP?	X		
Lists and describes appropriate LID and Hydromodification BMPs and identifies the design basis (SQDF or SQDV) for the LID BMPs.	X		
Describes any regional/sub-regional BMPs that will be utilized (NOC).			X
Lists and appropriately calculates any Credits that the Project may qualify for.			X
Lists and describes alternative compliance measures (Treatment Control BMPs, regional programs, Urban Runoff Fund/Mitigation Program participation described if LID BMPs do not fulfill LID and Hydromodification requirements.			X
If applicable, Waiver Request and proof of submittal to the Regional Board Executive Officer included.			X
Section 5.0, Inspection and Maintenance Responsibility for BMPs			
Identifies the entity (or entities) responsible for the long-term inspection and maintenance of all structural source control BMPs and all Treatment Control BMPs, including name, title, company, address, and phone number.	X		
Describes the minimum frequency for inspection and maintenance to ensure the effectiveness of each structural source control BMP and each Treatment Control BMP.	X		
If ownership of the Treatment Control BMPs will be transferred to a public agency, does the WQMP include an Attachment indicating the public agency's intent to accept the Treatment Control BMPs as designed?			X
Is an appropriate mechanism for the long-term operation and maintenance, including funding, in place?	X		
Section 6.0, Location Map and Plot Plan			
Has an 11" by 17" plot plan been included?	X		
Do all figures, maps, plot plans, etc. have a legend, including a North arrow and scale?	X		
Are all facilities labeled for the intended function?	X		
Are all areas of outdoor activity labeled?	X		
Are all structural BMPs indicated (including GIS coordinates for LID BMPs in decimal degrees)?	X		

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Is drainage flow information, including general surface flow lines, concrete or other surface ditches or channels, as well as storm drain facilities such as catch basins and underground storm drain pipes depicted?	X		
Depicts where and how on-site drainage ties into the off-site drainage system.	X		
All BMPs proposed/shown on the WQMP exhibit are reflected in the Grading Plans. *Grading Plans are to be reviewed in Final.*			X
The following self-certification statement is provided on the WQMP exhibit: • Self-Certification from a State Licensed Professional Engineer or Third-Party Certifications are required of all BMP's constructed on this plan and all BMP's shall be cleaned and in working condition as prescribed by the manufacturer to obtain Certificate of Occupancy from the City of Brea.	X		
Other			
Grading Plans have been provided and include the following statement in the construction notes of the Grading Plans: • Self-Certification from a State Licensed Professional Engineer or Third-Party Certifications are required of all BMP's constructed on this plan and all BMP's shall be cleaned and in working condition as prescribed by the manufacturer to obtain Certificate of Occupancy from the City of Brea.			X
City of Brea "Project Specific WQMP Summary Report" form and Project WQMP Summary Exhibit included? *Update for changed FCS BMPs.*	X		
Has an electronic copy (i.e. PDF) of the WQMP been provided? A scan of the hard copy WQMP is not acceptable. The PDF shall be created from the original electronic source files to minimize file size, provide better quality, and allow for keyword search. The PDF copy shall be submitted via email or via a file transfer service to both sausili@fuscoe.com and briani@cityofbrea.net	X		
Is an Appendix for County recordation of the WQMP included? Recordation of Title Page, Owner Certification Page, Engineer Certification Page, and City of Brea WQMP Summary Page must be recorded before approval can be issued.			X

WQMP REQUIREMENT	Requirement Satisfied?		
	Yes	No	N/A
Has an Appendix been provided for WQMP-related correspondence been provided? Please include email pertaining to the WQMP, previous plan check comments, or any specific instructions from plan checkers or City staff • For Final WQMP submittals, the stamped cover page of the approved Preliminary WQMP must be included in this Appendix. *Repeat Comment: Include.*		X	
Is the BMP Maintenance Self-Certification Form included in the Appendix?			X
Are the WQMP plan check checklists from previous rounds of reviews included in the Appendix with WQMP Summary? *Repeat Comment: Include.*		X	

ATTACHMENT J

TRANSFER OF RESPONSIBILITY

CEQA NOTICE OF EXEMPTION

TO: Orange County Clerk-Recorder
601 N. Ross Street
Santa Ana, CA 92701

FROM City of Brea
Community Development Department
1 Civic Center Circle
Brea, CA 92821

PROJECT TITLE/CASE NO.:	**SOUTH BREA TOWNHOMES PROJECT - TENTATIVE TRACT MAP NO. 19315, DENSITY BONUS NO. 2023-01, AND PRECISE DEVELOPMENT NO. 2023-03**
PROJECT LOCATION:	685 South Brea Boulevard, Brea, CA 92821
PROJECT DESCRIPTION:	To demolish an approximately 6,592-square-foot commercial building and construction of a new housing development project that will include 29 residential single-family attached units and three live/work units, for a total of 32 units, dispersed in four buildings.
Name of Public Agency Approving Project:	City of Brea
Project Applicant & Address:	Brea 1 Inv, LLC 3121 Michelson Drive, Suite 150 Irvine, CA 92612

Exempt Status: ***(Check one)***

- ☐ Ministerial *(Sec. 21080(b)(1); 15268)*
- ☐ Declared Emergency *(Sec. 21080(b)(3); 15269(a))*
- ☐ Emergency Project *(Sec. 21080(b)(4); 15269 (b)(c))*
- ☒ Categorical Exemption *(Sec. 15332)*
- ☐ Statutory Exemption (15282(s))
- ☐ Other:

Reason why project is exempt: Class 32 is applicable as the Project consisting of an approximately 0.99-acre housing development is considered in-fill development consistent with the development standards of the underlying zone meeting the following conditions: (a) the project is consistent with the applicable general plan designation and all applicable general plan policies as well as the applicable designation and regulation requirements; (b) the proposed development occurs on a project site of no more than five acres substantially surrounded by urban uses; (c) the project has no habitat for endangered, rare, or threatened species; (d) approval of the project would not result in any significant effects relating to traffic, noise, air quality or water quality; and (e) the site can be adequately served by all required utilities and public services. Technical analyses prepared for the Project, which includes a Scoping Agreement for Traffic Impact Analysis, Noise Impact Study, Air Quality, Greenhouse Gas, and Energy Impact Study, and Preliminary Water Quality Management Plan, demonstrated that the Project would not have any significant effect related to traffic, noise, air quality, and water quality.

Joanne Hwang, City Planner *Date*

City of Brea

Planning Commission Communication

Informational/Project Updates

Meeting	Agenda Group	
Tuesday, July 23, 2024, 6:00 PM	ADMINISTRATIVE ITEMS	Item: 7B

RECOMMENDATION

Staff recommends that the Planning Commission receive and file the Planning Division Updates, dated July 12, 2024 (Attachment A).

RESPECTFULLY SUBMITTED:

Joanne Hwang, ACIP, City Planner

Attachments

Planning Update - Updated 07.12.2024.pdf

City of Brea

Project Updates

July 12, 2024

BREA PLANNING DIVISION

BREA PLANNING DIVISION

Last Updated July 12, 2024

CONTENTS

- **IN PROCESS/UNDER REVIEW**

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2	Amazon Facility	275 Valencia Avenue
3	Pet Aquamation	580 W. Lambert Road
4	AT&T Wireless Rooftop Facility	380 W. Central Avenue
5	Albertson's Distribution Center Office Building	200 N. Puente Street
6	Loading Dock Addition	750 Challenger Street
7	South Brea Townhomes	685 S. Brea Boulevard
8	New warehouse building (Preliminary Plan Review)	3350 E. Birch Street
9	New Industrial Building	424 Berry Way
10	Affordable housing development (Preliminary Plan Review)	323 N. Brea Blvd
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14	Urban Lot Split (Preliminary Plan Review)	125 E. Olinda Place
15	Imperial Mariner parking reduction	915, 955, 975 W. Imperial Hwy
16	Bruxie's on-site alcohol	215 W. Birch Street
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18	A 2nd story ADU height increase	401 Sycamore Avenue
19	Lunch Box 101 on-site alcohol	7 Pointe Drive

APPROVED/ENTITLED

Story Map ID	Project Name	Address
1	Mercury Lane Apartments	SE corner of Mercury Lane and Berry Street
2	Brea Imperial Center Remodel	SW corner of State College Boulevard and Imperial Highway
3	Transwestern	285 N. Berry Street; 711 W. Imperial Highway
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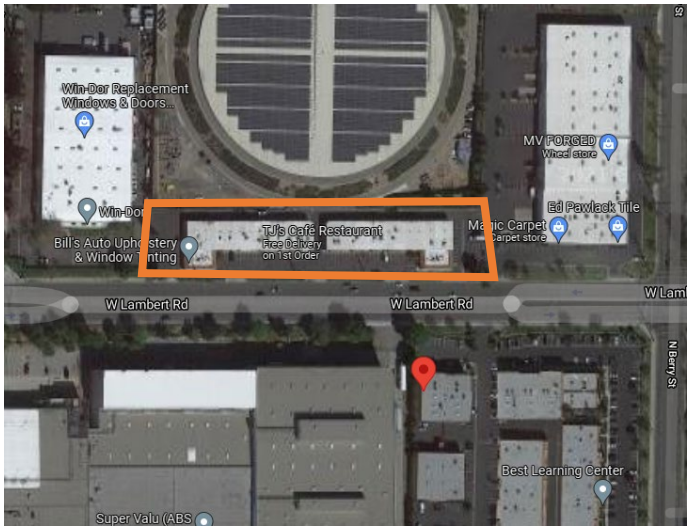
5	Brea 265 Tentative Tract Map	Valencia Ave; Lambert Rd; Carbon Canyon Rd; Rose Dr
6	Accessory Dwelling Unit	527 E. Elm Street
7	Industrial Building	2727 E. Imperial Highway
8	Brea Mall Mixed Use Project	100 Brea Mall Road
9	Gaslight Square Redevelopment	255 E. Imperial Highway
10	Southlands Church Fence Height	2950 E. Imperial Highway
11	Boiling Crab – Outdoor Patio	120 S. Brea Boulevard #106
12	Brea Plaza Remodel (Buildings E-G)	1639 E. Imperial Highway
13	Boiling Crab – On-site Alcohol	120 S. Brea Boulevard
14	Smart Parke Pet Daycare	835 E. Birch Street
15	Brea Place Sign Program Amendment	100-145 S. State College Boulevard
16	Wireless Co-location	145 S. State College Boulevard
17	California Spine Institute	721 E. Imperial Highway
18	Macallans Public House – Expansion of On-Site Alcohol and New Outdoor Patios	330 W. Birch Street, Suite 1
19	Dr. Squatch Fence Height	114 N. Berry Street
20	Super Juicy Dumpling – On-Site Alcohol	2445 E. Imperial Highway #A
21	Wireless Modification	185 E. Alder Street
22	Smoke & Char (formerly Corazon Modern Kitchen) – Expansion of On-Site Alcohol	120 S. Brea Boulevard #106
23	New Wireless Facility	724 N. Brea Boulevard
24	Brea Plaza Sign Program Amendment	1639 E. Imperial Highway
25	Pacific Paws animal hospital	710 N. Brea Blvd
26	Imperial Mariner tentative parcel map	915, 955, 975 W. Imperial Hwy
27	Light Industrial Building	Northwest corner of Nasa Street and Surveyor Avenue

- **REPEALED/DENIED (within one year)**

N/A

In-Process/Review

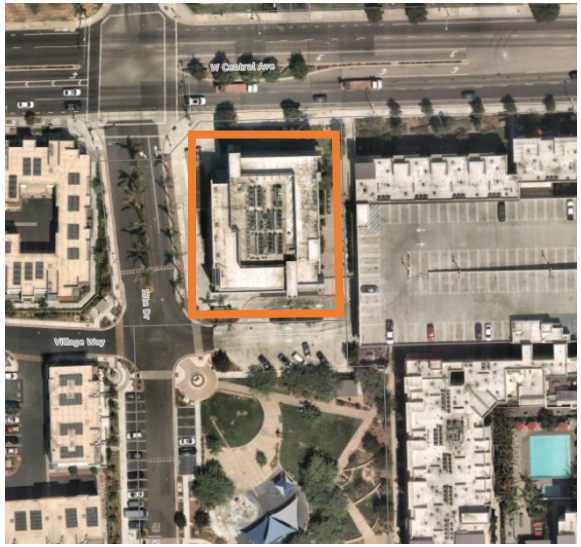
LAMBERT ROAD OFFICE CONDO TENTATIVE PARCEL MAP ***(MAP ID: 1)***		
Case Type:	• Tentative Parcel Map •	**PROJECT MAP:**
Project No.:	• TPM 2021-189; **Accela No.: PLN-2021-00061**	
Project Location:	• Accessor's Parcel Number (APN): 296-223-13 • 700-800 W Lambert Road.	
Project Description:	• The applicant is proposing to convert two existing 12-unit buildings (total 24 units) into 24 office condominium units. No new construction is proposed; existing unit boundaries, floor plans and floor areas will not change.	
Project Planner:	• Esteban Rubiano (estebanr@cityofbrea.net)	
Applicant:	• 801 Lambert LLC, A California Limited Liability Company (Mark Blumenthal)	
Application submittal Date:	• October 25, 2021	
Current Status:	• Application was deemed complete on October 12, 2023. • Planning Commission review TBD pending applicant response.	



AMAZON FACILITY ***(MAP ID: 2)***		
Case Type:	• Plan Review	**PROJECT MAP:**
Project No.:	• PR No. 2022-09; **ACCELA No. PLN 2022-00042**	
Project Location:	• 275 W. Valencia • Assessor's Parcel Number (APN): 320-233-17	
Project Description:	• The Project proposes to demolish the existing 3-story, 637,503 square-foot, 60-foot high office building (previously occupied by Bank of America) and construct a new 181,500 square-foot, 44-foot high warehouse building that will be used as Amazon's parcel delivery facility.	
Project Planner:	• Jessica Newton, Senior Planner (jessican@cityofbrea.net)	
Applicant:	• Tim Reed of Ware Malcomb	
Application submittal Date:	• May 31, 2022	
Current Status:	• Under review • EIR NOP was issued on July 13, 2023, and the public comment period ended on August 11, 2023. • EIR Scoping Meeting was held on July 24, 2023.	

PET AQUAMATION BUSINESS ***(MAP ID: 3)***		
Case Type:	• Conditional Use Permit	**PROJECT MAP:**
Project No.:	• CUP No. 2022-15; **ACCELA No. PLN 2022-00053**	
Project Location:	• 580 W Lambert Road, Unit E • Assessor's Parcel Number (APN): 296-081-07	
Project Description:	• The applicant is proposing to establish a pet aquamation (cremation) facility with mobile after-life care veterinary services. No live animals are proposed on-site.	
Project Planner:	• Esteban Rubiano, Assistant Planner (estebanr@cityofbrea.net)	
Applicant:	• Dr. Annie Forslund (Home Pet Euthanasia of Southern California)	
Application submittal Date:	• July 19, 2022	
Current Status:	• Pending resubmittal from the applicant.	

AT&T WIRELESS ROOFTOP FACILITY ***(MAP ID: 4)***		
Case Type:	• Plan Review	**PROJECT MAP:**
Project No.:	• PR No. 2022-12; PR No. 2022-13; **ACCELA No: PLN-2022-00074**	
Project Location:	• Assessor's Parcel Number (APN): 296-241-10 • 380 W Central Ave	
Project Description:	• The applicant is proposing to install a new rooftop wireless communication facility on an existing commercial office building.	
Project Planner:	• Graham Bultema, Assistant Planner (grahamb@cityofbrea.net)	
Applicant:	• New Cingular Wireless PCS, LLC dba AT&T Wireless	
Application submittal Date:	• November 22, 2022	
Current Status:	• Pending resubmittal from the applicant.	



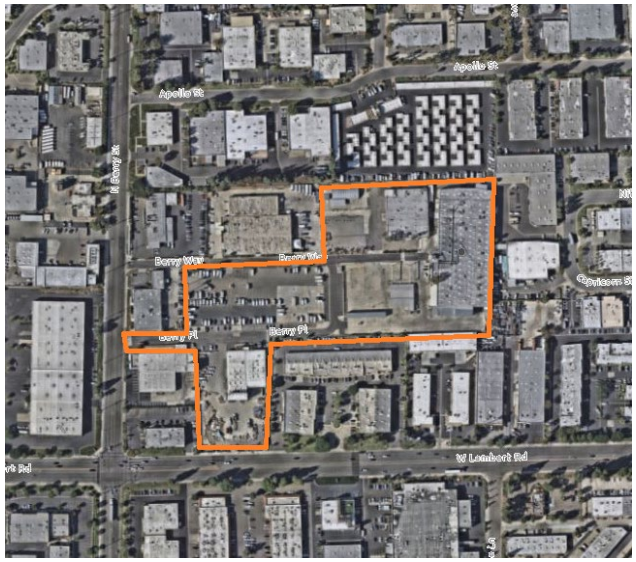
ALBERTSON'S DISTRIBUTION CENTER OFFICE BUILDING ***(MAP ID: 5)***		
Case Type:	• Conditional Use Permit, Precise Development, Administrative Remedy	**PROJECT MAP:**
Project No.:	• CUP No. 2023-02; PD No. 2023-01; AR No. 2023-03; **ACCELA No: PLN-2023-00027**	
Project Location:	• Assessor's Parcel Number (APN): 296-231-12 • 200 N Puente St	
Project Description:	• The applicant is proposing a new two-story office building for an Albertson's distribution center.	
Project Planner:	• Esteban Rubiano, Assistant Planner (estebanr@cityofbrea.net)	
Applicant:	• John Doan	
Application submittal Date:	• April 25, 2023	
Current Status:	• Pending resubmittal from the applicant.	

LOADING DOCK ADDITION ***(MAP ID: 6)***		
Case Type:	• Plan Review	**PROJECT MAP:**
Project No.:	• PR 2023-05; **ACCELA No: PLN-2023-00031**	
Project Location:	• Assessor's Parcel Number (APN): 296-223-19 • 750 Challenger Street	
Project Description:	• The applicant is proposing to add a secondary loading dock and restripe parking stalls.	
Project Planner:	• Esteban Rubiano, Assistant Planner (estebanr@cityofbrea.net)	
Applicant:	• Esther Yang	
Application submittal Date:	• April 27, 2023	
Current Status:	• Pending resubmittal from the applicant	

SOUTH BREA TOWNHOMES ***(MAP ID: 7)***		
Case Type:	• Precise Development, Tentative Tract Map, Density Bonus, Tree Removal Permit	**PROJECT MAP:**
Project No.:	• PD 2023-03, TPM 2023-01, DB 2023-01 and TRP 2023-01; **ACCELA No: PLN-2023-00081**	
Project Location:	• Assessor's Parcel Number (APN): 284-282-06 • 685 S. Brea Boulevard	
Project Description:	• The applicant is proposing a new 32-unit, 3 story residential development *NOTE: This is based on a SB 330 preliminary application that was previously submitted on August 1, 2023*	
Project Planner:	• Jessica Newton, Senior Planner (jessican@cityofbrea.net)	
Applicant:	• Patrick Chien of City Ventures	
Application submittal Date:	• November 21, 2023	
Current Status:	• Scheduled for the Planning Commission public hearing on July 23, 2024	

NEW WAREHOUSE BUILDING ***(MAP ID: 8)***		
Case Type:	• Preliminary Plan Review	**PROJECT MAP:**
Project No.:	• **ACCELA No: PLN-2023-00046**	
Project Location:	• Assessor's Parcel Number (APN): 320-233-21 • 3350 E. Birch Street	
Project Description:	• The applicant is proposing to demolish existing office building and construct a 86,145 sq. ft. warehouse building	
Project Planner:	• Esteban Rubiano, Assistant Planner (Estebanr@cityofbrea.net)	
Applicant:	• Scot A. Finch	
Application submittal Date:	• July 3, 2023	
Current Status:	• Preliminary comment letter was issued on August 3, 2023. No further action will be taken. The Applicant may submit a full application if they want to pursue the project.	

NEW INDUSTRIAL BUILDING ***(MAP ID: 9)***		
Case Type:	• Plan Review	**PROJECT MAP:**
Project No.:	• PR No. 2024-01; **ACCELA No: PLN-2024-00009**	
Project Location:	• Assessor's Parcel Number (APN): 296-251-04 • 424 Berry Way	
Project Description:	• The Applicant is proposing to demolish existing industrial buildings located at the eastern portion of the parcel and construct a new 147,500 sq. ft. warehouse.	
Project Planner:	• Graham Bultema, Assistant Planner (grahamb@cityofbrea.net)	
Applicant:	• Rexford Industrial, Berry, LLC.	
Application submittal Date:	• February 6, 2024	
Current Status:	• Pending resubmittal from applicant	



AFFORDABLE HOUSING DEVELOPMENT ***(MAP ID: 10)***		
Case Type:	• Preliminary Plan Review; Density Bonus	**PROJECT MAP:**
Project No.:	• PPR No. 2024-01, DB No. 2024-01; **ACCELA No: PLN-2024-00014/PLN-2024-00031**	
Project Location:	• Assessor's Parcel Number (APN): 296-301-02 • 323 N. Brea Blvd.	
Project Description:	• The Applicant is proposing a new multi-family affordable/permanent supporting housing development, which could include between 28 and 40 dwelling units.	
Project Planner:	• Marie Dao, Senior Management Analyst (maried@cityofbrea.net)	
Applicant:	• Tish Kelly of Jamboree Housing Corp.	
Application submittal Date:	• March 12, 2024	
Current Status:	• Preliminary comment letter was issued on April 10, 2024. No further action will be taken. The Applicant may submit a full application if they want to pursue the project.; Density Bonus application is currently under review	

BREA PLAZA APARTMENTS ***(MAP ID: 11)***		
Case Type:	• General Plan Amendment, Zone Change and Precise Development	**PROJECT MAP:**
Project No.:	• GPA 2024-01, ZC 2024-01, PD 2024-01; **ACCELA No: PLN-2024-00017**	
Project Location:	• Assessor's Parcel Number (APN): 319-102-25 • 1639 East Imperial Highway	
Project Description:	• The applicant is proposing a General Plan Amendment and a Zone Change to amend the project site's General Plan and Zoning Designation from General Commercial to Mixed Use II, and construct a new 6 story, 110-unit apartment building at the northwest corner of the property.	
Project Planner:	• Jessica Newton, Senior Planner (jessican@cityofbrea.net)	
Applicant:	• Jahn Nguyen of AO	
Application submittal Date:	• March 19, 2024	
Current Status:	• Under review	

GREENBRIAR RESIDENTIAL DEVELOPMENT ***(MAP ID: 12)***		
Case Type:	• General Plan Amendment, Zone Change, Plan Review, Conditional Use Permit, Development Agreement, Precise Development, Tentative Tract Map	**PROJECT MAP:**
Project No.:	• GPA 2024-02, ZC 2024-02, PR 2024-03, CUP 2024-02, DA 2024-01, PD 2024-02, TTM 2024-01; **ACCELA No: PLN-2024-00020**	
Project Location:	• Assessor's Parcel Number (APN): 319-102-34 • 1698-1700 Greenbriar Lane	
Project Description:	• The Applicant is proposing to demolish existing office building and a parking structure and construct 180 single-family attached dwelling unit development.	
Project Planner:	• Rebecca Pennington, Senior Planner (rebeccap@cityofbrea.net)	
Applicant:	• Gary Jones of Lennar Homes of California, Inc.	
Application submittal Date:	• March 26, 2024	
Current Status:	• Pending resubmittal from the applicant.	

NEW RESIDENTIAL DEVELOPMENT ***(MAP ID: 13)***		
Case Type:	• Preliminary Plan Review	**PROJECT MAP:**
Project No.:	• PPR No. 2024-02; **ACCELA No: PLN-2024-00018**	
Project Location:	• Assessor's Parcel Number (APN): 296-332-17 • 112 Bracken Street	
Project Description:	• The Applicant is proposing to construct a 4 unit, for-sale residential development with one ADU attached for one of the units.	
Project Planner:	• Brianna Co, Planning Technician (briannac@cityofbrea.net)	
Applicant:	• Eric Gonsalves of The Cirrus Company, LLC	
Application submittal Date:	• March 26, 2024	
Current Status:	• Preliminary comment letter was issued on April 25, 2024. No further action will be taken. The Applicant may submit a full application if they want to pursue the project.	

URBAN LOT SPLIT – PRELIMINARY PLAN REVIEW ***(MAP ID: 14)***		
Case Type:	• Preliminary Plan Review	**PROJECT MAP:**
Project No.:	• PPR No. 2024-03; **ACCELA No: PLN-2024-00021**	
Project Location:	• Assessor's Parcel Number (APN): 315-051-03 • 125 E Olinda Place	
Project Description:	• The Applicant is proposing to subdivide the existing vacant lot into 2 lots using the Urban Lot Split provisions and construct 2 units on each lot.	
Project Planner:	• Graham Bultema, Assistant Planner (grahamb@cityofbrea.net)	
Applicant:	• Jordan Byers	
Application submittal Date:	• April 9, 2024	
Current Status:	• Preliminary comment letter was issued on May 9, 2024. No further action will be taken. The Applicant may submit a full application if they want to pursue the project.	

IMPERIAL MARINER PARKING REDUCTION ***(MAP ID: 15)***		
Case Type:	• Minor Conditional Use Permit	**PROJECT MAP:**
Project No.:	• MCUP No. 2024-04; **ACCELA No: PLN-2024-00028**	
Project Location:	• Assessor's Parcel Number (APN): 296-342-05 and 296-114-01 • 915, 955, 975 W. Imperial Hwy	
Project Description:	• The applicant is requesting reduction in the required parking for the existing office/medical complex to accommodate additional medical office uses	
Project Planner:	• Esteban Rubiano, Assistant Planner (estebanr@cityofbrea.net)	
Applicant:	• James McGrade of Imperial Mariner, LLC	
Application submittal Date:	• May 23, 2024	
Current Status:	• Pending resubmittal from the applicant	

BRUXIE ON-SITE ALCOHOL ***(MAP ID: 16)***		
Case Type:	• Minor Conditional Use Permit	**PROJECT MAP:**
Project No.:	• MCUP No. 2024-01; **ACCELA No: PLN-2024-00029**	
Project Location:	• Assessor's Parcel Number (APN): 296-632-27 • 215 W. Birch Street	
Project Description:	• The Applicant is proposing to serve beer and wine at the existing restaurant (Bruxie)	
Project Planner:	• Brianna Co, Planning Technician (briannac@cityofbrea.net)	
Applicant:	• Kelly Bullarney of Bruxie	
Application submittal Date:	• May 28, 2024	
Current Status:	• Pending resubmittal from the applicant	

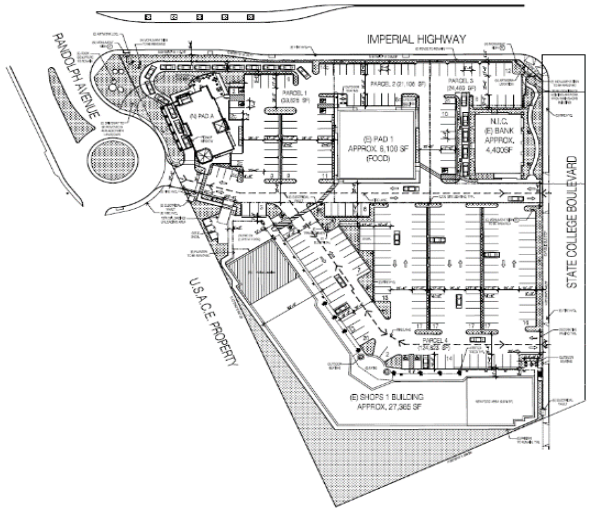
AUSLETICS FITNESS STUDIO ***(MAP ID: 17)***		
Case Type:	• Minor Conditional Use Permit	**PROJECT MAP:**
Project No.:	• MCUP No. 2024-02; **ACCELA No: PLN-2024-00030**	
Project Location:	• Assessor's Parcel Number (APN): 319-191-05 • 396 N. Cliffwood Park Street	
Project Description:	• The Applicant is proposing to establish an instruction based fitness studio (Ausletics).	
Project Planner:	• Cristal Nava, Assistant Planner (cristaln@cityofbrea.net)	
Applicant:	• Aree Richardson	
Application submittal Date:	• June 11, 2024	
Current Status:	• Pending resubmittal from the applicant	

A 2nd STORY ADU HEIGHT INCREASE ***(MAP ID: 18)***		
Case Type:	• Certificate of Compatibility	**PROJECT MAP:**
Project No.:	• CC No. 2024-01; **ACCELA No: PLN-2024-00027**	
Project Location:	• Assessor's Parcel Number (APN): 284-223-01 • 401 Sycamore Avenue	
Project Description:	• The Applicant is requesting an increase in maximum height of a 2nd story ADU from 16 feet to 23 feet	
Project Planner:	• Graham Bultema, Assistant Planner (grahamb@cityofbrea.net)	
Applicant:	• Jasmeet Gill Kennington	
Application submittal Date:	• June 11, 2024	
Current Status:	• Pending resubmittal from the applicant	

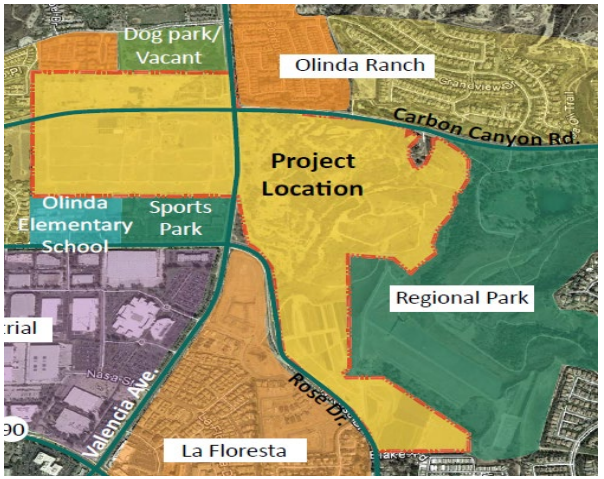
LUNCH BOX 101 ON-SITE ALCOHOL ***(MAP ID: 19)***		
Case Type:	• Minor Conditional Use Permit	**PROJECT MAP:**
Project No.:	• MCUP No. 2024-03; **ACCELA No: PLN-2024-00033**	
Project Location:	• Assessor's Parcel Number (APN): 319-381-17 • 7 Pointe Drive Suite 100	
Project Description:	• The Applicant is proposing to serve beer and wine at the existing restaurant (Lunch Box 101)	
Project Planner:	• Graham Bultema, Assistant Planner (grahamb@cityofbrea.net)	
Applicant:	• Dorothy Iannessa	
Application submittal Date:	• June 25, 2024	
Current Status:	• Under review	

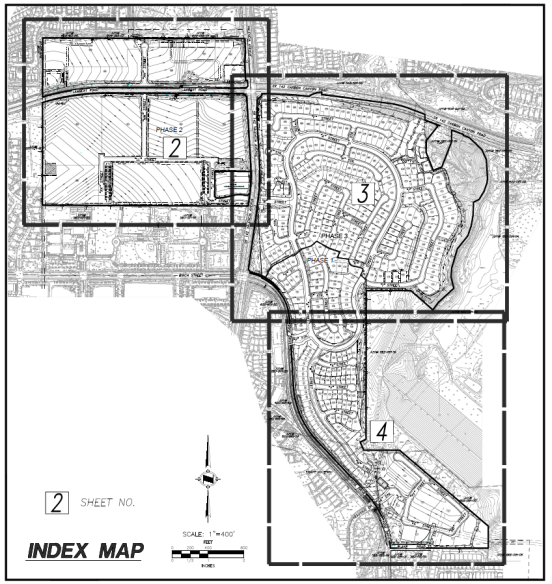
Approved/Entitled

MERCURY LANE APARTMENTS ***(Map ID: 1)***		
Case Type:	• Planned Community Master Plan, Zone Change, Development Agreement, Environmental Impact Report	**RENDERING:**
Project No.:	• PCMP No. 19-01, ZC No. 19-01, DA No 19-01, FEIR 19-01	
Project Location:	• Assessor's Parcel Number (APN): 296-141-05 • Southeast corner of Mercury Lane and Berry Street	
Project Description:	• The project is a new 5-story building with 114 workforce residential units.	
Project Planner:	• Planning Division (Planner@cityofbrea.net)	
Applicant	• Dwight Manely	
Approval Dates:	• Planning Commission recommended approval of the project to the City council on April 28, 2020 • City Council approved the project on June 2, 2020	
Current Status:	• In building permit plan check process	

BREA IMPERIAL CENTER ***(Map ID: 2)***		
Case Type:	• Amendment to Conditional Use Permit 18-06, Precise Development, Conditional Use Permits, Tentative Parcel Map	**PROJECT MAP:** 
Project No.:	• CUP 18-05, PD 17-03, CUP 18-07, TPM 2017-01	
Project Location:	• Assessor's Parcel Number (APN): 029-331-22, -28 • 311-391 South State College & 1130-1160 Imperial Highway	
Project Description:	• The project includes façade improvements, demolition and reconstruction of a portion of the Brea Imperial Center and parking modifications to the center with a new comprehensive sign program. In addition, a Tentative Parcel Map to subdivide the 4.1-acre site into two parcels.	
Project Planner:	• Planning Division (Planner@cityofbrea.net)	
Applicant	• Winston Liu of JLJ (USA) Investments, LLC	
Approval Dates:	• The Planning Commission approved the project on July 24, 2018.	
Current Status:	• Under construction	

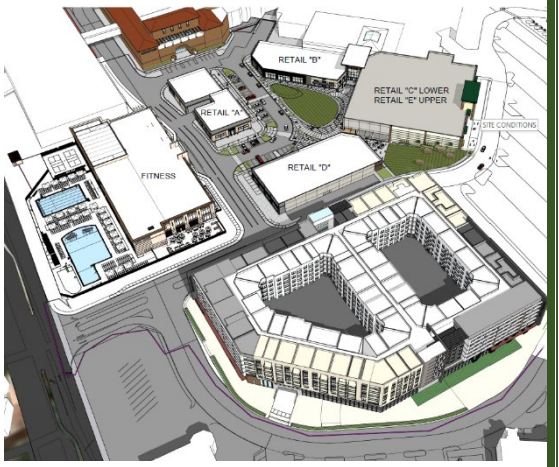
TRANSWESTERN ***(MAP ID: 3)***		
Case Type:	• Precise Development, Mitigated Negative Declaration, Conditional Use Permit, Tentative Parcel Map	**PROJECT MAP:**
Project No.:	• PD No. 21-01; MND No. 21-01, CUP 21-08, TPM 2021-140; **ACCELA No. PLN-2021-00007**	
Project Location:	• 285 N Berry Street and 711 W Imperial Hwy • Assessor's Parcel Number (APN): 296-101-08; 296-101-05; 296-101-03	
Project Description:	• The project is a development of a new 126,797 square foot industrial building with associated parking and landscaping.	
Project Planner:	• Planning Division (Planner@cityofbrea.net)	
Applicant:	• Transwestern Company (Sara Santomauro)	
Approval Dates:	• Approved by Planning Commission on September 28, 2021	
Current Status:	• Under construction	

BREA 265 SPECIFIC PLAN ***(MAP ID 4)***		
Case Types:	• Specific Plan, General Plan Amendment, Zone Change, and Development Agreement	**PROJECT MAP:** 
Project No.:	• **ACCELA No. PLN-2020-00011;** ENV No. 22-01, GPA No. 22-01, ZC No. 22-01, DA No. 22-01, SP No. 22-01	
Project Location:	• Accessor's Parcel Map (APN): 322-031-24; 322-031-23; 322-031-31; 322-031-04; 322-031-12; 322-031-01; 322-031-10; 322-031-15; 322-031-14; 322-031-13; 322-031-13; 3200-070-02l; 322-072-02; 322-031-21; 322-03-121; 322-031-19; 320-071-29; 320-073-07 • The 262-acre site, commonly known as Brea 265, is generally bounded by Lambert Road/Carbon Canyon Road to the north, Carbon Canyon Regional Park to the east, Birch Street and Rose Drive to the South, and residential uses to the west.	
Project Description:	• The project includes the following: (1) General Plan Amendment to change the General Plan Land Use designation of the site from Hillside Residential and Low Density Residential to Brea 265 Specific Plan; (2) Zone Change to change the zoning of the site from HR and R-1 to Brea 265 Specific Plan; (3) Specific Plan for the adoption of a new specific plan providing up to 1,100 residential dwelling units, parks and recreational amenities, and open space and right of way improvements; (4) Tentative Tract Map for the subdivision of the project site for residential, parks and open space uses; and (5) Development Agreement defining terms of development by vesting the City's approval and specifying public benefits and improvements	
Project Planner:	• Planning Division (Planner@cityofbrea.net)	
Applicant:	• AERA ENERGY	
Approval Dates:	• Planning Commission recommended approval of the project to the City Council on May 24, 2022. • City Council reviewed the SP, GPA, ZC, and DA for the Project on June 21, 2022. The project was continued to July 19, 2022, where it was approved by City Council.	
Current Status:	• N/A	

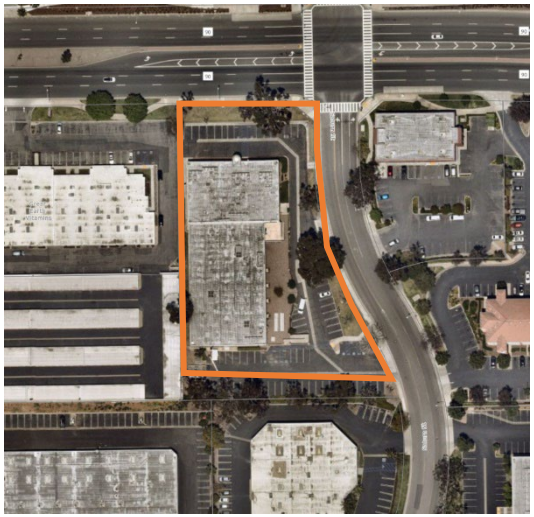
BREA 265 TENTATIVE TRACT MAP ***(MAP ID: 5)***		
Case Types:	• Tentative Tract Map	**PROJECT MAP:** 
Project No.:	• **ACCELA No. PLN 2020-00011;** TTM 16423	
Project Location:	• Accessor's Parcel Map (APN): 322-031-24; 322-031-23; 322-031-31; 322-031-04; 322-031-12; 322-031-01; 322-031-10; 322-031-15; 322-031-14; 322-031-13; 322-031-13; 3200-070-02l; 322-072-02; 322-031-21; 322-03-121; 322-031-19; 320-071-29; 320-073-07 • The 262-acre site, commonly known as Brea 265, is generally bounded by Lambert Road/Carbon Canyon Road to the north, Carbon Canyon Regional Park to the east, Birch Street and Rose Drive to the South, and residential uses to the west.	
Project Description:	• A Tentative Tract Map for the subdivision of the project site for residential, parks and open space uses. The TTM would implement the approved Brea 265 Specific Plan.	
Project Planner:	• Planning Division (Planner@cityofbrea.net)	
Applicant:	• AERA ENERGY	
Approval Dates:	• Planning Commission approved the TTM for the project on September 27, 2022.	
Current Status:	• N/A	

ACCESSORY DWELLING UNIT AT 527 E ELM STREET ***(MAP ID: 6)***		
Case Type:	• Certificate of Compatibility	**PROJECT MAP:**
Project No.:	• CC No. 2022-01; **ACCELA No. PLN 2022-00019**	
Project Location:	• 527 E. Elm Street • Assessor's Parcel Number (APN): 284-213-36	
Project Description:	• The project establishes a new 1,496 square foot detached ADU.	
Project Planner:	• Planning Division (planner@cityofbrea.net)	
Applicant:	• Frederick Talactac	
Approval Dates:	• Planning Commission approved the project on October 25, 2022.	
Current Status:	• Under construction	

INDUSTRIAL BUILDING ***(MAP ID: 7)***		
Case Type:	• Plan Review, Environmental Impact Report Addendum	**PROJECT MAP:**
Project No.:	• PR No. 2022-04; EIR No. 5-81 Addendum No. 1; **ACCELA No. PLN 2022-00012**	
Project Location:	• 2727 E. Imperial Highway • Assessor's Parcel Number (APN): 320-091-66	
Project Description:	• The project includes demolition of an existing office building and development of a new warehouse with related site improvements. The building would be a total of 113,700 SF.	
Project Planner:	• Cristal Nava, Assistant Planner (cristaln@cityofbrea.net)	
Applicant:	• Prologis	
Approval Dates:	• Brea Community Development Director approved the project on March 27, 2023.	
Current Status:	• Under construction	

BREA MALL MIXED USE PROJECT ***(MAP ID. 8)***		
Project:	• EIR, General Plan Amendment, Zone Change, Development Agreement, Precise Development Plan, Tentative Parcel Map, and Conditional Use Permits	**PROJECT MAP:** 
Project No.:	• EIR 20-01, GPA No. 20-01; ZC No. 20-01, DA No. 20-01, TPM 22-113, PD No. 20-02, and CUP Nos. 20-06, 22-17, 22-18 and 22-19 **ACCELA No. PLN 2021-00008**	
Project Location:	• 100 Brea Mall; • Assessor's Parcel Number (APN): 319-101-37 19-100-26, -62, -63, -64, -71, -73, -75 -76, -79, -89 and 319-103-22 (Note: GPA No. 2020-01 and ZC No. 2020-01 apply to the entire Brea Mall site)	
Project Description:	• The project includes: (1) General Plan Amendment to change the General Plan Land Use designation of the Project site and the Brea Mall from Regional Commercial to Mixed Use I; (2) Zone Change to change the zoning designation of the site from Major Shopping Center (C-C) with a Precise Development (P-D) overlay to Mixed Use I (MU-I); (3) Development Agreement to define the terms of development proposed by vesting the City's approval while specifying public benefits and improvements; (4) Precise Development Plan to demolish the former Sears building and surface parking lot and allow a new mixed-use development that includes retail, restaurants, for-rent residential apartments, a resort-type fitness center and an outdoor gathering space; (5) Tentative Parcel Map for subdivision; and (6) Conditional Use Permits for shared parking, to establish the Brea Mall sign program, to allow on-site alcohol consumption of beer, wine and distilled spirts within dining establishments and to allow a fitness center	
Project Planner:	• Esteban Rubiano, Assistant Planner (estebanr@cityofbrea.net)	
Applicant:	• Simon Properties	
Approval Dates:	• Planning Commission Study Session (Project Preview) was held on September 27, 2022. • Planning Commission Public Hearing (Project Introduction) was held on October 25, 2022. • Planning Commission recommended approval of the project to the City Council on December 13, 2022. • City Council Public Hearing (1st reading) was held on May 2, 2023. • City Council approved the project during the 2nd reading on May 16, 2023.	
Current Status:	• Under construction	

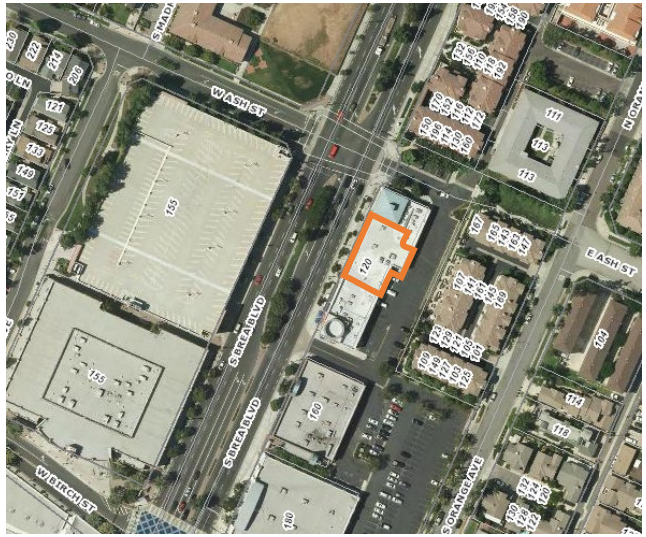
GASLIGHT SQUARE REDEVELOPMENT ***(MAP ID: 9)***		
Case Type:	• Precise Development, Conditional Use Permit, General Plan Amendment, Zone Change, Conditional Use Permit	**PROJECT MAP:**
Project No.:	• PD No. 22-01; CUP No. 22-03; GPA No. 22-02; ZC No. 22-02; CUP 22-13 (Amend CUP 90-20); **ACCELA No. PLN 2022-00011**	
Project Location:	• 255 E. Imperial Highway • Assessor's Parcel Number (APN): 319-292-31, 319-292-33, 319-292-35, 319-292-36	
Project Description:	• The Project retains two of the existing five buildings that are currently used for medical uses. The remaining three commercial buildings totaling 18,286 square feet would be demolished and a new 2,000 square foot drive-through restaurant with an outdoor seating area and a 6,000 square foot commercial building consisting of 2,400 square feet of restaurant and 3,600 square feet of medical or retail space would be constructed.	
Project Planner:	• Cristal Nava, Assistant Planner (cristaln@cityofbrea.net)	
Applicant:	• Dwight Manley	
Approval Dates:	• Planning Commission Public Hearing (Intro to Project) held on January 24, 2023. • Planning Commission recommended approval of the project to City Council on April 11, 2023. • City Council Public Hearing (1st reading) held on May 16, 2023. • City Council approved the project during the 2nd reading on June 6, 2023.	
Current Status	• Under construction	

SOUTHLANDS CHURCH FENCE HEIGHT ***(MAP ID: 10)***		
Case Type:	• Administrative Adjustment	**PROJECT MAP:** 
Project No.:	• AR 2023-01; **ACCELA No. PLN 2022-00027**	
Project Location:	• 2950 E. Imperial Highway • Assessor's Parcel Number (APN): 336-631-21	
Project Description:	• The Project increases the height of the fence along Imperial Highway from 30 inches to 42 inches.	
Project Planner:	• Planning Division (planner@cityofbrea.net)	
Applicant:	• Southlands Church	
Approval Dates:	• Community Development Director approved the application on February 1, 2023	
Current Status	• In building permit plan check process	

BOILING CRAB OUTDOOR PATIO ***(MAP ID: 11)***		
Case Type:	• Plan Review	**PROJECT MAP:**
Project No.:	• PR 2023-03; **ACCELA No. PLN 2023-00017**	
Project Location:	• 120 S. Brea Boulevard, Suite 106 • Assessor's Parcel Number (APN): 296-364-25	
Project Description:	• The Project include a new outdoor patio for a new business, Boiling Crab	
Project Planner:	• Cristal Nava, Assistant Planner (cristaln@cityofbrea.net)	
Applicant:	• Aejandra Zoquipa	
Approval Dates:	• Community Development Director approved the application on June 6, 2023	
Current Status	• Under construction	

BREA PLAZA REMODEL (BUILDINGS E – G) ***(MAP ID: 12)***		
Case Type:	• Conditional Use Permit, Precise Development	**PROJECT MAP:**
Project No.:	• CUP No. 2022-23; PD No. 2022-12; **ACCELA No: PLN-2022-00078**	
Project Location:	• Assessor's Parcel Number (APN): 319-391-01 • 1639 E Imperial Hwy	
Project Description:	• The project includes demolition of a 18,425 square foot theater (Building F) and remodeling Buildings E & G for retail ground floor use and a new second floor for office use. Building E would add 7,787 square feet to the ground floor and a new 6,500 square foot second floor with a 3,028 square foot outdoor patio, and a new loading area to the rear of the building. Building G would add a new 8,480 square foot second floor with a 1,048 square foot outdoor patio.	
Project Planner:	• Jessica Newton, Senior Planner (jessican@cityofbrea.net)	
Applicant:	• Waad J. Nadhir	
Approval Dates	• The Planning Commission approved the application on August 8, 2023	
Current Status:	• Under construction	

BOILING CRAB – ON-SITE ALCOHOL ***(MAP ID: 13)***		
Case Type:	• Conditional Use Permit	**PROJECT MAP:**
Project No.:	• CUP No. 2023-07; **ACCELA No: PLN-2023-00039**	
Project Location:	• Assessor's Parcel Number (APN): 296-364-25 • 120 S Brea Blvd, Suite 103	
Project Description:	• The project includes an on-sale beer and wine alcohol license at a sit-down restaurant (Boiling Crab).	
Project Planner:	• Cristal Nava, Assistant Planner (cristaln@cityofbrea.net)	
Applicant:	• Isac Uravo	
Approval Dates	• The Planning Commission approved the application on September 12, 2023	
Current Status:	• Restaurant is under construction	



SMARTE PARKE PET DAYCARE ***(MAP ID: 14)***		
Case Type:	• Conditional Use Permit	**PROJECT MAP:**
Project No.:	• CUP No. 2023-06; **ACCELA No: PLN-2023-00035**	
Project Location:	• Assessor's Parcel Number (APN): 319-104-14 • 835 E Birch St	
Project Description:	• The project establishes a luxury pet daycare and boarding facility (Smart Parke) within an existing commercial building.	
Project Planner:	• Cristal Nava, Assistant Planner (cristaln@cityofbrea.net)	
Applicant:	• Josh Drake (Smart Parke)	
Approval Dates	• The Planning Commission approved the application on September 26, 2023.	
Current Status:	• Under construction	

BREA PLACE SIGN PROGRAM AMENDMENT ***(MAP ID: 15)***		
Case Type:	• Conditional Use Permit	**PROJECT MAP:**
Project No.:	• CUP No. 2023-08; **ACCELA No: PLN-2023-00042**	
Project Location:	• Assessor's Parcel Number (APN): 319-322-07, 319-322-08, 319-322-02, 319-331-18, 319-332-03, 319-331-19, 319-331-17 • 100-145 S State College Blvd	
Project Description:	• The project amends the existing Brea Place master sign program.	
Project Planner:	• Jessica Newton, Senior Planner (jessican@cityofbrea.net)	
Applicant:	• Ashley Yu (JB3D)	
Approval Dates	• The Planning Commission approved the application on September 26, 2023.	
Current Status:	• Pending submittal of a building permit plan check	

WIRELESS FACILITY CO-LOCATION ***(MAP ID: 16)***		
Case Type:	• Plan Review	**PROJECT MAP:**
Project No.:	• PR 2023-07; **ACCELA No: PLN-2023-00047**	
Project Location:	• Assessor's Parcel Number (APN): 319-331-12 • 145 S. State College Boulevard	
Project Description:	• The project modifies an existing wireless facility to add additional antennas and support equipment.	
Project Planner:	• Cristal Nava, Assistant Planner (cristaln@cityofbrea.net)	
Applicant:	• Meghan Graham	
Approval Dates	• The Community Development Director approved the application on October 10, 2023.	
Current Status:	• Under Building plan check process.	

*CALIFORNIA SPINE INSTITUTE (**MAP ID: 17**)*		
Case Type:	• Conditional Use Permit, Administrative Remedy	**PROJECT MAP:**
Project No.:	• CUP No. 2023-05; AR No. 2023-04; **ACCELA No: PLN-2023-00030**	
Project Location:	• Assessor's Parcel Number (APN): 319-314-07 • 721 E Imperial Hwy	
Project Description:	• The project includes a second story addition to an existing office building along with related site improvements.	
Project Planner:	• Cristal Nava, Assistant Planner (cristaln@cityofbrea.net)	
Applicant:	• Raed Ali and Eric Lin	
Approval Dates	• December 12, 2023	
Current Status:	• Under Building plan check process	

MACALLANS PUBLIC HOUSE – EXPANSION OF ON-SITE ALCOHOL AND NEW OUTDOOR PATIOS ***(MAP ID: 18)***		
Case Type:	• Conditional Use Permit and Plan Review	**PROJECT MAP:**
Project No.:	• CUP 2023-12; PR 2023-12 **ACCELA No: PLN-2023-00072**	
Project Location:	• Assessor's Parcel Number (APN): 296-376-18 • 330 W. Birch Street, Suite 1	
Project Description:	• The project expands the on-site alcohol service to a new private dining space and construct two new outdoor patio areas.	
Project Planner:	• Jessica Newton, Senior Planner (jessican@cityofbrea.net)	
Applicant:	• Douglas Vincent	
Approval Date	• December 12, 2023	
Current Status:	• Under construction	

DR. SQUATCH FENCE HEIGHT ***(MAP ID: 19)***		
Case Type:	• Administrative Remedy	**PROJECT MAP:**
Project No.:	• AR No. 2024-01 **ACCELA No: PLN-2024-00007**	
Project Location:	• Assessor's Parcel Number (APN): 296-141-01 • 114 N. Berry Street	
Project Description:	• The project increases the height of a new screening fencing from 7 feet to 8 feet.	
Project Planner:	• Jessica Newton, Senior Planner (jessican@cityofbrea.net)	
Applicant:	• Christopher Clay	
Approval Date	• February 6, 2024	
Current Status:	• Under construction	

SUPER JUICY DUMPLING – ON-SITE ALCOHOL ***(MAP ID: 20)***		
Case Type:	• Conditional Use Permit	**PROJECT MAP:**
Project No.:	• CUP 2023-11; **ACCELA No: PLN-2023-00058**	
Project Location:	• Assessor's Parcel Number (APN): 320-331-05 • 2445 E. Imperial Highway #A	
Project Description:	• The applicant is proposing on-sale beer and wine alcohol license at an existing sit-down restaurant (Super Juicy Dumpling).	
Project Planner:	• Graham Bultema, Assistant Planner (grahamb@cityofbrea.net)	
Applicant:	• Mingfeng Liu	
Approval Date	• February 27, 2024	
Current Status:	• N/A	

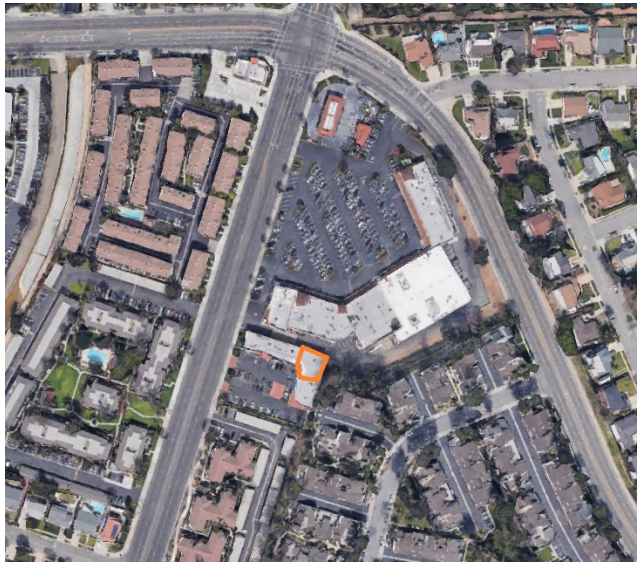
WIRELESS FACILITY MODIFICATION ***(MAP ID: 21)***		
Case Type:	• Plan Review	**PROJECT MAP:**
Project No.:	• PR 2023-02; **ACCELA No: PLN-2023-00012**	
Project Location:	• Assessor's Parcel Number (APN): 284-333-42 • 185 E. Alder	
Project Description:	• The applicant is proposing to modify an existing wireless facility to replace antennas and ancillary equipment.	
Project Planner:	• Esteban Rubiano, Assistant Planner (estebanr@cityofbrea.net)	
Applicant:	• Stephanie Rudolph	
Approval Date	• March 22, 2024	
Current Status:	• Pending submittal of a building permit application.	

SMOKE & CHAR (FORMERLY CORAZON MODERN KITCHEN) – EXPANSION OF ON-SITE ALCOHOL ***(MAP ID: 22)***		
Case Type:	• Conditional Use Permit	**PROJECT MAP:**
Project No.:	• CUP No. 2023-09; **ACCELA No: PLN-2023-00045**	
Project Location:	• Assessor's Parcel Number (APN): 296-364-25 • 120 S. Brea Blvd #106	
Project Description:	• The project expands the on-site alcohol from beer and wine to full service, and into the patio area. Also includes Public Convenience or Necessity determination.	
Project Planner:	• Esteban Rubiano, Assistant Planner (estebanr@cityofbrea.net)	
Applicant:	• Robert Griffin	
Approval Date	• April 23, 2024	
Current Status:	• N/A	

NEW WIRELESS FACILITY ***(MAP ID: 23)***		
Case Type:	• Plan Review	**PROJECT MAP:**
Project No.:	• PR No. 2024-02; **ACCELA No: PLN-2024-00019**	
Project Location:	• Assessor's Parcel Number (APN): 319-291-14 • 724 N. Brea Boulevard	
Project Description:	• The applicant is proposing a new roof mounted wireless facility for Dish Wireless.	
Project Planner:	• Esteban Rubiano, Assistant Planner (estebanr@cityofbrea.net)	
Applicant:	• Brian De La Ree of Butler America	
Approval Date	• April 25, 2024	
Current Status:	• Under Building plan check process	

BREA PLAZA SIGN PROGRAM AMENDMENT ***(MAP ID: 24)***		
Case Type:	• Conditional Use Permit	**PROJECT MAP:**
Project No.:	• CUP 2023-10; **ACCELA No: PLN-2023-00054**	
Project Location:	• Assessor's Parcel Number (APN): 319-102-25 • 1639 East Imperial Highway	
Project Description:	• The project amends the existing comprehensive sign program for Brea Plaza shopping center.	
Project Planner:	• Jessica Newton, Senior Planner (jessican@cityofbrea.net)	
Applicant:	• Jahn Nguyen	
Approval Date	• May 14, 2024	
Current Status:	• Pending submittal of a building permit plan check	

PACIFIC PAWS ANIMAL HOSPITAL ***(MAP ID: 25)***		
Case Type:	• Conditional Use Permit	**PROJECT MAP:**
Project No.:	• CUP No. 2024-01; **ACCELA No: PLN-2024-00015**	
Project Location:	• Assessor's Parcel Number (APN): 319-170-11 • 710 N. Brea Blvd. Suite E	
Project Description:	• The project includes establishment of a new animal hospital.	
Project Planner:	• Graham Bultema, Assistant Planner (grahamb@cityofbrea.net)	
Applicant:	• William Cowan of Pacific Paws Animal Hospital	
Approval Date:	• June 4, 2024	
Current Status:	• Pending submittal of a building permit plan check	



IMPERIAL MARINER TENTATIVE PARCEL MAP ***(MAP ID: 26)***		
Case Type:	• Tentative Parcel Map	**PROJECT MAP:**
Project No.:	• TPM No. 2022-179; **ACCELA No: PLN-20224-00016**	
Project Location:	• Assessor's Parcel Number (APN): 296-342-05 and 296-114-01 • 915, 955, 975 W. Imperial Hwy	
Project Description:	• The applicant is proposing to subdivide the existing property into four parcels.	
Project Planner:	• Rebecca Pennington, Senior Planner (rebeccap@cityofbrea.net)	
Applicant:	• James McGrade of Imperial Mariner, LLC	
Approval Date	• June 25, 2024	
Current Status:	• Pending submittal of a final map	

LIGHT INDUSTRIAL BUILDING ***(MAP ID: 27)***		
Case Type:	• Plan Review	**PROJECT MAP:**
Project No.:	• PR 2023-08; **ACCELA No: PLN-2023-00049**	
Project Location:	• Assessor's Parcel Number (APN): 320-303-11 • NW corner of Nasa Street and Surveyor Avenue	
Project Description:	• The applicant is proposing to construct a new 56,000 square-foot industrial building.	
Project Planner:	• Cristal Nava, Assistant Planner (cristaln@cityofbrea.net)	
Applicant:	• Dennis Roy	
Approval Date	• July 1, 2024	
Current Status:	• Pending building permit plan check submittal	

REPEALED/DENIED

(Within one year)

N/A