

Appendix A

Air Quality, Energy, and GHG Modeling Data

UC Riverside Tabs In Order

Tab Highlights	Sheets included
Post Processing	Emission Summary
	Energy Summary
CalEEMod Runs	Housing Construction
	Parking Construction
	PH3 Operations
	Existing Operations
CalEEMod Inputs	Caleemod Construction Inputs
	Caleemod Operational Inputs
Pre-Processing Calculation	VMT Calcs
	D1 Electricity
	D2 Electricity and Water Usage
	Electricity Usage by Phase
	D1 Water Usage by Source
	Water Usage by Phase
	Waste Generation by Phase

Emission Summaries and Tables

Table 4.1.3-1 Regional Construction Emissions						
Year	Max lb/day					
	VOC	NOx	CO	SOx	PM10	PM2.5
2027	6	72	63	0	30	9
2028	20	21	46	0	5	2
2029	50	7	11	0	1	0
Construction Maximum	50	72	63	0	30	9
SCAQMD Regional Thresholds	75	100	550	150	150	55
Exceeds Thresholds?	No	No	No	No	No	No

Table 4.1.3-2 Localized Construction Emissions				
Year	Max lb/day			
	NOx	CO	PM10	PM2.5
2027	56	57	23	9
2028	18	26	1	1
2029	6	10	0	0
Construction Maximum	56	57	23	9
SCAQMD Localized Thresholds	302	2178	40	10
Exceed Thresholds?	No	No	No	No

Thresholds for 6 acre site located in SRA 23, 50 meters from SR

Table 4.1.3-3 Regional Operational Emissions						
Source	Max lb/day					
	VOC	NOx	CO	SOx	PM10	PM2.5
Mobile	4	3	22	0	5	1
Area	12	0	26	0	0	0
Energy	0	0	0	0	0	0
Stationary	1	3	2	0	0	0
Total	16	6	49	0	5	1
SCAQMD Regional Thresholds	55	55	550	150	150	55
Exceeds Threshold?	No	No	No	No	No	No

Table 4.1.8-1 Construction GHG Emissions	
Year	MTCO ₂ e/year
2027	1237
2028	1059
2029	57
Total	2353
Amortized Emissions	78
Ph1 and Ph2	4012
Total	6365

Table 4.1.11 Operational GHG Emissions	
Sector	MTCO ₂ e/year
NND Phase 3	
Mobile	844
Area	8
Energy	0
Water	65
Waste	96
Refrigerants	0
Stationary	54
Amortized	78
Total	1146
NND Phase 1 and Phase 2	
Mobile	2088
Area	15
Energy	0
Water	116
Waste	543
Refrigerants	3
Amortized Construction	134
Total	2899
NND Full Buildout	
Mobile	2932
Area	23
Energy	0
Water	181
Waste	639
Refrigerants	4
Stationary	54
Amortized	212
Total	4045
PH3 Service Population:	1350
PH1 and PH2 Service Population	3106
Full Buildout Service Population:	4456
<i>GHG Emissions Per Capita (PH3)</i>	<i>0.8</i>
<i>GHG Emissions Per Capita (PH1 and PH2)</i>	<i>0.9</i>
<i>GHG Emissions Per Capita (Total)</i>	<i>0.9</i>

Table 4.1.3-3 Localized Construction Emissions

	Maximum Emissions (lbs/day)			
	NO _x	CO	PM ₁₀	PM _{2.5}
<u>Demolition</u> Maximum Daily Emissions	20	19	17	3
SCAQMD Localized Significance Thresholds (LSTs)	118	602	8	4
Threshold Exceeded?	No	No	No	No
<u>Site Preparation</u> Maximum Daily Emissions	28	28	8	5
SCAQMD Localized Significance Thresholds (LSTs)	220	1,230	21	7
Threshold Exceeded?	No	No	No	No
<u>Grading</u> Maximum Daily Emissions	26	27	5	2
SCAQMD Localized Significance Thresholds (LSTs)	237	1,346	23	8
Threshold Exceeded?	No	No	No	No
<u>Building Construction</u> Maximum Daily Emissions	9	13	0	0
SCAQMD Localized Significance Thresholds (LSTs)	118	602	8	4
Threshold Exceeded?	No	No	No	No
<u>Paving</u> Maximum Daily Emissions	7	10	0	0
SCAQMD Localized Significance Thresholds (LSTs)	118	602	8	4
Threshold Exceeded?	No	No	No	No
<u>Architectural Coating</u> Maximum Daily Emissions	1	1	0	0
SCAQMD Localized Significance Thresholds (LSTs)	118	602	8	4
Threshold Exceeded?	No	No	No	No

Notes: See Appendix A for modeling results. Some numbers may not add up precisely due to rounding considerations. Maximum on site emissions are the highest emissions that would occur on the project site from on-site sources, such as heavy construction equipment and architectural coatings, and excludes off-site emissions from sources such as construction worker vehicle trips and haul truck trips.

NO_x = nitrogen oxide; CO = carbon monoxide; PM₁₀ = Particulate matter 10 micrometers in diameter or less; PM_{2.5} = Fine particulate matter 2.5 micrometers in diameter or less; lbs/day = pounds per day

Proposed Project Energy Tables

UCR NDD

= from caleemod

= calculated

Construction Energy

Housing

Element	Fuel Assumed	MT CO2 from GHG Calcs	CO2 (kg)	fuel (Gallons)
Equipment	Diesel	676	675,542	66,165
Vendor and HaulTrucks	Diesel	293	293,135	28,711
Workers	Gasoline	633	633,217	72,120
Total	Diesel	969	968,677	94,875
	Gasoline	633	633,217	72,120

Parking

Element	Fuel Assumed	MT CO2 from GHG Calcs	CO2 (kg)	fuel (Gallons)
Equipment	Diesel	530	529,532	51,864
Vendor and HaulTrucks	Diesel	170	170,388	16,688
Workers	Gasoline	51	51,404	5,855
Total	Diesel	700	699,920	68,552
	Gasoline	51	51,404	5,855

Construction totals

Total	Diesel	1,669	1,668,598	163,428
	Gasoline	685	684,621	77,975

Transporation Energy

Phase	Fuel Assumed	MT CO2 from GHG Calcs	CO2 (kg)	fuel (Gallons)
PH1 and PH2	Gasoline	2,088	2,088,192	237,835
PH3	Gasoline	844	843,907	96,117

Conversions

MT to kg	1000	
CO2 to Gal gasoline	8.78 EPA 2024	gasoline
CO2 to gas diesel	10.21 EPA 2024	diesel

EPA 2024. GHG Emission Factor Hub (2024). Available: <https://www.epa.gov/climateleadership/ghg-emission-factors-hub>. Accessed August 5, 2024

Proposed Project (Ph3) Construction Schedules, Demolition, and Grading

Housing					
Phase	Days	Start Day	End Day	Work Days	
Demolition	15	4/1/2027	4/16/2027	12	80%
Site Prep	60	4/17/2027	6/16/2027	43	72%
Grading	60	6/17/2027	8/16/2027	43	72%
Building Construction	475	8/17/2027	12/17/2028	349	73%
Arch Coating	80	12/18/2028	3/8/2029	59	74%
Paving	70	3/9/2029	5/18/2029	51	73%
Source: PD					

Parking					
Phase	Days	Start Day	End Day	Work Days	
Demolition	10	1/1/2027	1/11/2027	7	70%
Site Prep	45	1/12/2027	2/26/2027	34	76%
Grading	30	2/27/2027	3/29/2027	21	70%
Building Construction	456.25	3/30/2027	6/30/2028	329	72%
Arch Coating	30	7/1/2028	7/31/2028	21	70%
Paving	30	8/1/2028	8/31/2028	23	77%
Source: PD					

Building SF by Land Use	
total	455000
housing	401280
parking	53720

Demolition					
Phase	To be demolished	SF	CY	tons	Source
NDD PH3 and CUP	plant material and hardscape	108290	4011	836	Calculated on Google Earth
PS	plant material and surface parking lot asphalt	179312	6641	1385	Calculated on Google Earth
Tons per CY:	0.2085			2221	

Grading:		
Caleemod Run	CY of Soil (imported)	Source
Housing	18000	PD
Parking	16,500	PD

Volume to Weight Conversion Table for Construction and Demolition Debris

2,000 pounds = 1 ton		
Material Type	Pounds/Cubic Yard	Tons/Cubic Yard
Mixed Construction and Demolition (C&D) Debris	417	.2085
Trash/Municipal Solid Waste (MSW)	417	.2085
Appliances (White Goods)	340	0.17
Bulky Items (mattresses, box springs, sofas, etc.)	80	0.04
Cardboard and Paper	100	0.05
Carpet	147	0.0735
Carpet Padding	63	0.0315
Concrete and Asphalt	1,400	0.7
Fiberglass Insulation	17	0.0085
Glass (Plate Glass)	1,400	0.7
Gypsum Board (sheetrock)	467	0.2335
Metal	225	0.1125
Plastic	40	0.02
Roofing materials	731	0.3655
Tires	200	0.1
Wood	169	0.0845

Operational CalEEMod Inputs for Existing and NDD Ph3

NDD Phase 1 and 2					
Land Use Type	Metric	Size	Building SF	Acres	Source
General Light Industrial	1000 SF	13	13000	0.3	NDD PH1 Addendum Appendix
Parking Lot	Spaces	695	278000	6.25	
High Turnover (sit down restaurant)	1000 SF	2.9	2900	0.07	
Apartments Mid Rise	Dwelling Unit	416	529242	10.95	
Apartments Mid Rise	Dwelling Unit	440	450000	4.6	
Fast food rest w/o drive thru	1000 SF	2.5	2500	0.06	NDD PH2 Addendum Appendix
city park	Acre	2.4	0	2.4	
user defined recreational	User Defined Unit	252	0	5.8	
parking lot	1000 SF	429	0	9.85	
other non-asphalt surfaces	Acre	3.29	0	3.29	

Operational Year: 2025 From NDD2 addendum

Utilities Usage			
Utility	Units	Usage	Source
Electricity	Kwh/year	0	Offset my renewables
Water	Gallons/year	31,108,033	Client Provided
Waste	Tons/year	1739	Client Provided

VMT	
Daily Trips	2828
Daily VMT	14988.4
Annual Trips	1,032,220
Annual VMT	5,470,766

Mitigation Measured from Ph1 and Ph2 addendums
AS-1 Use Low-VOC Cleaning Supplies (from Ph2 addendum)

RPU Power Content Label (2024): 763 Lbs CO2e per MWh
Caleemod Default (2025): 599.8

NDD Phase 3				
Land Use Type	Metric	Size	Building SF	Acres
Apartments Mid Rise	Dwelling Units	418	401280	11
Enclosed Parking With Elevator	Spaces	2000	53720	18

Stationary Sources					
Stationary Source	Quantity	Units	Power Usage	Usage	Source:
Emergency Generator	1	HP	1412	100 hours/year	https://www.generac.com/industrial-products/st

Utilities Usage			
Utility	Units	Usage	Source
Electricity	Kwh/year	0	offset by renewables
Water	Gallons/year	17,001,638	Caleemod
Waste	Tons/year	309	Caleemod

VMT	
Daily Trips	1242
Daily VMT	6583
Annual Trips	453,349
Annual VMT	2,402,747

Operational Year (when construction ends): 2029

RPU Power Content Label (2024): 763 Lbs CO2e per MWh
Caleemod Default (2029): 413

VMT Calculations - Data Provided by Fehr and Peers

Daily VMT and ADT					
Phase	Beds	Trip Gen	Trip Length	VMT	Source
Phase 1 and 2	3074	2828	5.3	14988.4	Fehr & Peers Data
3 and future	2126	1956	5.3	10366.8	Fehr & Peers Data
Just Phase 3	1350	1242	5.3	6583	Calculated with Trip length per bed
trip gen per bed	0.920038				

Annual VMT and ADT					
Phase	Beds	Trip Gen	Trip Length	VMT	Source
Phase 1 and 2	3074	1,032,220	5.3	5,470,766	Calculated annual from daily
3 and future	2126	713,940	5.3	3,783,882	Calculated annual from daily
Just Phase 3	1350	453,349	5.3	2,402,747	Calculated annual from daily

Existing North District 1 Electricity Usage By Meter - Raw Data Provided by UC Riverside

733 - 3						733 - 2					
Read Date	Meter #	Usage Read Unit	Other Unit	Read Type		Read Date	Meter #	Usage Read Unit	Other Unit	Read Type	
12/26/2025	137472638	22400	kWh	22400.00 kWh	kWh	12/26/2025	137472647	46400	kWh	46400.00 kWh	kWh
11/25/2025	137472638	28000	kWh	28000.00 kWh	kWh	11/25/2025	137472647	57200	kWh	57200.00 kWh	kWh
10/28/2025	137472638	32000	kWh	32000.00 kWh	kWh	10/28/2025	137472647	63600	kWh	63600.00 kWh	kWh
9/26/2025	137472638	16000	kWh	16000.00 kWh	kWh	9/26/2025	137472647	36400	kWh	36400.00 kWh	kWh
8/27/2025	137472638	16800	kWh	16800.00 kWh	kWh	8/27/2025	137472647	35600	kWh	35600.00 kWh	kWh
7/28/2025	137472638	17200	kWh	17200.00 kWh	kWh	7/28/2025	137472647	37200	kWh	37200.00 kWh	kWh
6/26/2025	137472638	24000	kWh	24000.00 kWh	kWh	6/26/2025	137472647	49200	kWh	49200.00 kWh	kWh
5/28/2025	137472638	33200	kWh	33200.00 kWh	kWh	5/28/2025	137472647	68800	kWh	68800.00 kWh	kWh
4/25/2025	137472638	28000	kWh	28000.00 kWh	kWh	4/25/2025	137472647	58400	kWh	58400.00 kWh	kWh
3/26/2025	137472638	28800	kWh	28800.00 kWh	kWh	3/26/2025	137472647	58400	kWh	58400.00 kWh	kWh
2/25/2025	137472638	32400	kWh	32400.00 kWh	kWh	2/25/2025	137472647	69200	kWh	69200.00 kWh	kWh
1/24/2025	137472638	24400	kWh	24400.00 kWh	kWh	1/24/2025	137472647	53200	kWh	53200.00 kWh	kWh
12/23/2024	137472638	24800	kWh	24800.00 kWh	kWh	12/23/2024	137472647	51600	kWh	51600.00 kWh	kWh
11/22/2024	137472638	28800	kWh	28800.00 kWh	kWh	11/22/2024	137472647	59200	kWh	59200.00 kWh	kWh
10/25/2024	137472638	30000	kWh	30000.00 kWh	kWh	10/25/2024	137472647	62800	kWh	62800.00 kWh	kWh
9/25/2024	137472638	16800	kWh	16800.00 kWh	kWh	9/25/2024	137472647	35600	kWh	35600.00 kWh	kWh
8/26/2024	137472638	17200	kWh	17200.00 kWh	kWh	8/26/2024	137472647	38000	kWh	38000.00 kWh	kWh
7/26/2024	137472638	17600	kWh	17600.00 kWh	kWh	7/26/2024	137472647	35200	kWh	35200.00 kWh	kWh
6/26/2024	137472638	23200	kWh	23200.00 kWh	kWh	6/26/2024	137472647	46800	kWh	46800.00 kWh	kWh
5/28/2024	137472638	30400	kWh	30400.00 kWh	kWh	5/28/2024	137472647	59200	kWh	59200.00 kWh	kWh
4/26/2024	137472638	29600	kWh	29600.00 kWh	kWh	4/26/2024	137472647	55200	kWh	55200.00 kWh	kWh
3/27/2024	137472638	30800	kWh	30800.00 kWh	kWh	3/27/2024	137472647	58800	kWh	58800.00 kWh	kWh
2/26/2024	137472638	35200	kWh	35200.00 kWh	kWh	2/26/2024	137472647	70400	kWh	70400.00 kWh	kWh
1/24/2024	137472638	26400	kWh	26400.00 kWh	kWh	1/24/2024	137472647	54000	kWh	54000.00 kWh	kWh
12/22/2023	137472638	26000	kWh	26000.00 kWh	kWh	12/22/2023	137472647	53200	kWh	53200.00 kWh	kWh
11/22/2023	137472638	28000	kWh	28000.00 kWh	kWh	11/22/2023	137472647	56800	kWh	56800.00 kWh	kWh
10/25/2023	137472638	29200	kWh	29200.00 kWh	kWh	10/25/2023	137472647	61200	kWh	61200.00 kWh	kWh
9/25/2023	137472638	17200	kWh	17200.00 kWh	kWh	9/25/2023	137472647	37200	kWh	37200.00 kWh	kWh
8/24/2023	137472638	17200	kWh	17200.00 kWh	kWh	8/24/2023	137472647	36000	kWh	36000.00 kWh	kWh
7/26/2023	137472638	18400	kWh	18400.00 kWh	kWh	7/26/2023	137472647	36400	kWh	36400.00 kWh	kWh
6/26/2023	137472638	27200	kWh	27200.00 kWh	kWh	6/26/2023	137472647	53600	kWh	53600.00 kWh	kWh
5/25/2023	137472638	28000	kWh	28000.00 kWh	kWh	5/25/2023	137472647	58400	kWh	58400.00 kWh	kWh
4/26/2023	137472638	25200	kWh	25200.00 kWh	kWh	4/26/2023	137472647	54000	kWh	54000.00 kWh	kWh
3/28/2023	137472638	31600	kWh	31600.00 kWh	kWh	3/28/2023	137472647	66800	kWh	66800.00 kWh	kWh
2/24/2023	137472638	32000	kWh	32000.00 kWh	kWh	2/24/2023	137472647	65600	kWh	65600.00 kWh	kWh
1/25/2023	137472638	25200	kWh	25200.00 kWh	kWh	1/25/2023	137472647	50400	kWh	50400.00 kWh	kWh
12/27/2022	137472638	22000	kWh	22000.00 kWh	kWh	12/27/2022	137472647	42800	kWh	42800.00 kWh	kWh
11/28/2022	137472638	30000	kWh	30000.00 kWh	kWh	11/28/2022	137472647	60400	kWh	60400.00 kWh	kWh
10/27/2022	137472638	29600	kWh	29600.00 kWh	kWh	10/27/2022	137472647	59600	kWh	59600.00 kWh	kWh
9/27/2022	137472638	21200	kWh	21200.00 kWh	kWh	9/27/2022	137472647	44400	kWh	44400.00 kWh	kWh
8/26/2022	137472638	11600	kWh	11600.00 kWh	kWh	8/26/2022	137472647	26000	kWh	26000.00 kWh	kWh
8/5/2022	110635	1600	kWh	1600.00 kWh	kWh	8/5/2022	110637	4000	kWh	4000.00 kWh	kWh
8/2/2022	110635	18800	kWh	18800.00 kWh	kWh	8/2/2022	110637	41600	kWh	41600.00 kWh	kWh
6/29/2022	110635	24400	kWh	24400.00 kWh	kWh	6/29/2022	110637	52000	kWh	52000.00 kWh	kWh
5/27/2022	110635	27600	kWh	27600.00 kWh	kWh	5/27/2022	110637	59600	kWh	59600.00 kWh	kWh
4/28/2022	110635	28000	kWh	28000.00 kWh	kWh	4/28/2022	110637	60400	kWh	60400.00 kWh	kWh
3/30/2022	110635	28400	kWh	28400.00 kWh	kWh	3/30/2022	110637	63200	kWh	63200.00 kWh	kWh
2/25/2022	110635	24400	kWh	24400.00 kWh	kWh	2/25/2022	110637	52800	kWh	52800.00 kWh	kWh
1/31/2022	110635	20400	kWh	20400.00 kWh	kWh	1/31/2022	110637	44800	kWh	44800.00 kWh	kWh
1/4/2022	110635	14000	kWh	14000.00 kWh	kWh	1/4/2022	110637	30000	kWh	30000.00 kWh	kWh
1221200						2531600					

kWh per year by Meter					
Year	Meter				
	733 - 3	733 - 2	733 - 1	755 - 2	755 - 1
2025	303200	633600	1143200	820000	652800
2024	310800	626800	1209600	818000	658800
2023	305200	629600	1180800	909600	673200
2022	302000	641600	1499600	1068800	612800
Total	1221200	2531600	5033200	3616400	2597600
QA/QC	Yes	Yes	Yes	Yes	Yes

Note: This is the sum of each meter's kWh per year

733 - 1					755 - 2						
Read Date	Meter #	Usage	Read Unit	Other Unit	Read Type	Read Date	Meter #	Usage	Read Unit	Other Unit	Read Type
12/26/2025	37472646	78400	kWh	0.00 kWh	kWh	12/26/2025	37472685	52800	kWh	0.00 kWh	kWh
11/25/2025	37472646	85200	kWh	0.00 kWh	kWh	11/25/2025	37472685	62400	kWh	0.00 kWh	kWh
10/28/2025	37472646	103200	kWh	0.00 kWh	kWh	10/28/2025	37472685	78000	kWh	0.00 kWh	kWh
9/26/2025	37472646	115600	kWh	0.00 kWh	kWh	9/26/2025	37472685	87600	kWh	0.00 kWh	kWh
8/27/2025	37472646	114800	kWh	0.00 kWh	kWh	8/27/2025	37472685	85200	kWh	0.00 kWh	kWh
7/28/2025	37472646	109600	kWh	0.00 kWh	kWh	7/28/2025	37472685	78000	kWh	0.00 kWh	kWh
6/26/2025	37472646	105600	kWh	0.00 kWh	kWh	6/26/2025	37472685	78400	kWh	0.00 kWh	kWh
5/28/2025	37472646	107200	kWh	0.00 kWh	kWh	5/28/2025	37472685	76800	kWh	0.00 kWh	kWh
4/25/2025	37472646	82000	kWh	0.00 kWh	kWh	4/25/2025	37472685	60000	kWh	0.00 kWh	kWh
3/26/2025	37472646	83600	kWh	0.00 kWh	kWh	3/26/2025	37472685	55600	kWh	0.00 kWh	kWh
2/25/2025	37472646	83200	kWh	0.00 kWh	kWh	2/25/2025	37472685	55600	kWh	0.00 kWh	kWh
1/24/2025	37472646	74800	kWh	0.00 kWh	kWh	1/24/2025	37472685	49600	kWh	0.00 kWh	kWh
12/23/2024	37472646	72000	kWh	0.00 kWh	kWh	12/23/2024	37472685	46800	kWh	0.00 kWh	kWh
11/22/2024	37472646	77200	kWh	0.00 kWh	kWh	11/22/2024	37472685	55200	kWh	0.00 kWh	kWh
10/25/2024	37472646	128000	kWh	0.00 kWh	kWh	10/25/2024	37472685	85600	kWh	0.00 kWh	kWh
9/25/2024	37472646	120000	kWh	0.00 kWh	kWh	9/25/2024	37472685	82800	kWh	0.00 kWh	kWh
8/26/2024	37472646	136800	kWh	0.00 kWh	kWh	8/26/2024	37472685	88800	kWh	0.00 kWh	kWh
7/26/2024	37472646	132800	kWh	0.00 kWh	kWh	7/26/2024	37472685	89200	kWh	0.00 kWh	kWh
6/26/2024	37472646	106400	kWh	0.00 kWh	kWh	6/26/2024	37472685	76000	kWh	0.00 kWh	kWh
5/28/2024	37472646	94800	kWh	0.00 kWh	kWh	5/28/2024	37472685	67200	kWh	0.00 kWh	kWh
4/26/2024	37472646	75200	kWh	0.00 kWh	kWh	4/26/2024	37472685	58800	kWh	0.00 kWh	kWh
3/27/2024	37472646	76400	kWh	0.00 kWh	kWh	3/27/2024	37472685	50400	kWh	0.00 kWh	kWh
2/26/2024	37472646	94000	kWh	0.00 kWh	kWh	2/26/2024	37472685	58800	kWh	0.00 kWh	kWh
1/24/2024	37472646	96000	kWh	0.00 kWh	kWh	1/24/2024	37472685	58400	kWh	0.00 kWh	kWh
12/22/2023	37472646	78000	kWh	0.00 kWh	kWh	12/22/2023	37472685	53200	kWh	0.00 kWh	kWh
11/22/2023	37472646	82000	kWh	0.00 kWh	kWh	11/22/2023	37472685	61600	kWh	0.00 kWh	kWh
10/25/2023	37472646	113200	kWh	0.00 kWh	kWh	10/25/2023	37472685	85200	kWh	0.00 kWh	kWh
9/25/2023	37472646	116400	kWh	0.00 kWh	kWh	9/25/2023	37472685	87600	kWh	0.00 kWh	kWh
8/24/2023	37472646	118800	kWh	0.00 kWh	kWh	8/24/2023	37472685	92000	kWh	0.00 kWh	kWh
7/26/2023	37472646	123600	kWh	0.00 kWh	kWh	7/26/2023	37472685	92400	kWh	0.00 kWh	kWh
6/26/2023	37472646	84000	kWh	0.00 kWh	kWh	6/26/2023	37472685	64800	kWh	0.00 kWh	kWh
5/25/2023	37472646	86400	kWh	0.00 kWh	kWh	5/25/2023	37472685	68400	kWh	0.00 kWh	kWh
4/26/2023	37472646	79200	kWh	0.00 kWh	kWh	4/26/2023	37472685	68400	kWh	0.00 kWh	kWh
3/28/2023	37472646	108400	kWh	0.00 kWh	kWh	3/28/2023	37472685	88400	kWh	0.00 kWh	kWh
2/24/2023	37472646	102000	kWh	0.00 kWh	kWh	2/24/2023	37472685	76000	kWh	0.00 kWh	kWh
1/25/2023	37472646	88800	kWh	0.00 kWh	kWh	1/25/2023	37472685	71600	kWh	0.00 kWh	kWh
12/27/2022	37472646	88000	kWh	0.00 kWh	kWh	12/27/2022	37472685	70800	kWh	0.00 kWh	kWh
11/28/2022	37472646	93200	kWh	0.00 kWh	kWh	11/28/2022	37472685	75200	kWh	0.00 kWh	kWh
10/27/2022	37472646	121600	kWh	0.00 kWh	kWh	10/27/2022	37472685	91600	kWh	0.00 kWh	kWh
9/27/2022	37472646	177600	kWh	0.00 kWh	kWh	9/27/2022	37472685	124000	kWh	0.00 kWh	kWh
8/26/2022	37472646	122800	kWh	0.00 kWh	kWh	8/26/2022	37472685	82800	kWh	0.00 kWh	kWh
8/5/2022	110611	17200	kWh	0.00 kWh	kWh	8/5/2022	109815	12400	kWh	0.00 kWh	kWh
8/2/2022	110611	166000	kWh	0.00 kWh	kWh	8/2/2022	109815	120400	kWh	0.00 kWh	kWh
6/29/2022	110611	139600	kWh	0.00 kWh	kWh	6/29/2022	109815	100000	kWh	0.00 kWh	kWh
5/27/2022	110611	93200	kWh	0.00 kWh	kWh	5/27/2022	109815	64000	kWh	0.00 kWh	kWh
4/28/2022	110611	88800	kWh	0.00 kWh	kWh	4/28/2022	109815	61200	kWh	0.00 kWh	kWh
3/30/2022	110611	104800	kWh	0.00 kWh	kWh	3/30/2022	109815	71200	kWh	0.00 kWh	kWh
2/25/2022	110611	89200	kWh	0.00 kWh	kWh	2/25/2022	109815	60800	kWh	0.00 kWh	kWh
1/31/2022	110611	88000	kWh	0.00 kWh	kWh	1/31/2022	109815	59600	kWh	0.00 kWh	kWh
1/4/2022	110611	109600	kWh	0.00 kWh	kWh	1/4/2022	109815	74800	kWh	0.00 kWh	kWh
5033200						3616400					

755 - 1					
Read Date	Meter #	Usage	Read Unit	Other Unit	Read Type
12/26/2025	337472648	48400	kWh	48400.00 kWh	kWh
11/25/2025	337472648	60800	kWh	60800.00 kWh	kWh
10/28/2025	337472648	67600	kWh	67600.00 kWh	kWh
9/26/2025	337472648	37600	kWh	37600.00 kWh	kWh
8/27/2025	337472648	37600	kWh	37600.00 kWh	kWh
7/28/2025	337472648	38800	kWh	38800.00 kWh	kWh
6/26/2025	337472648	49200	kWh	49200.00 kWh	kWh
5/28/2025	337472648	66800	kWh	66800.00 kWh	kWh
4/25/2025	337472648	60000	kWh	60000.00 kWh	kWh
3/26/2025	337472648	60400	kWh	60400.00 kWh	kWh
2/25/2025	337472648	70400	kWh	70400.00 kWh	kWh
1/24/2025	337472648	55200	kWh	55200.00 kWh	kWh
12/23/2024	337472648	54000	kWh	54000.00 kWh	kWh
11/22/2024	337472648	60400	kWh	60400.00 kWh	kWh
10/25/2024	337472648	63600	kWh	63600.00 kWh	kWh
9/25/2024	337472648	37200	kWh	37200.00 kWh	kWh
8/26/2024	337472648	40000	kWh	40000.00 kWh	kWh
7/26/2024	337472648	39200	kWh	39200.00 kWh	kWh
6/26/2024	337472648	51600	kWh	51600.00 kWh	kWh
5/28/2024	337472648	66000	kWh	66000.00 kWh	kWh
4/26/2024	337472648	59200	kWh	59200.00 kWh	kWh
3/27/2024	337472648	62000	kWh	62000.00 kWh	kWh
2/26/2024	337472648	72000	kWh	72000.00 kWh	kWh
1/24/2024	337472648	53600	kWh	53600.00 kWh	kWh
12/22/2023	337472648	56800	kWh	56800.00 kWh	kWh
11/22/2023	337472648	60400	kWh	60400.00 kWh	kWh
10/25/2023	337472648	67200	kWh	67200.00 kWh	kWh
9/25/2023	337472648	44000	kWh	44000.00 kWh	kWh
8/24/2023	337472648	46800	kWh	46800.00 kWh	kWh
7/26/2023	337472648	45200	kWh	45200.00 kWh	kWh
6/26/2023	337472648	58000	kWh	58000.00 kWh	kWh
5/25/2023	337472648	60000	kWh	60000.00 kWh	kWh
4/26/2023	337472648	54400	kWh	54400.00 kWh	kWh
3/28/2023	337472648	67200	kWh	67200.00 kWh	kWh
2/24/2023	337472648	64400	kWh	64400.00 kWh	kWh
1/25/2023	337472648	48800	kWh	48800.00 kWh	kWh
12/27/2022	337472648	46000	kWh	46000.00 kWh	kWh
11/28/2022	337472648	61600	kWh	61600.00 kWh	kWh
10/27/2022	337472648	63600	kWh	63600.00 kWh	kWh
9/27/2022	337472648	44400	kWh	44400.00 kWh	kWh
8/26/2022	337472648	23200	kWh	23200.00 kWh	kWh
8/5/2022	110564	3600	kWh	3600.00 kWh	kWh
8/2/2022	110564	37600	kWh	37600.00 kWh	kWh
6/29/2022	110564	46000	kWh	46000.00 kWh	kWh
5/27/2022	110564	53600	kWh	53600.00 kWh	kWh
4/28/2022	110564	54800	kWh	54800.00 kWh	kWh
3/30/2022	110564	56400	kWh	56400.00 kWh	kWh
2/25/2022	110564	49600	kWh	49600.00 kWh	kWh
1/31/2022	110564	42800	kWh	42800.00 kWh	kWh
1/4/2022	110564	29600	kWh	29600.00 kWh	kWh
		3E+06			

Existing North District 2 Electricity and Water Usage - Raw Data Provided by UC Riverside

2024 RPU Power Content Label			
763 lbs CO2e per MWh			
Estimated electricity emissions	2,643,795 lbs CO2e		
Unit conversion	2,205 lbs per MT		
Estimated electricity GHG	1,199.0	MT of CO2e	

2025 RPU Urban Water Management Plan			
Section 6.3 - Energy Use, Table 6-12			
Total electricity for water	45,402,291 kWh		
Total water volume	79,953 AF		
Water energy use intensity	568 kWh per AF		
Unit conversion	435.6 CCF per AF		
Estimated water GHG	5.7	MT of CO2e	

	Elec (kWh) 3420 Canyon Crest Dr Bldg D	Elec (kWh) 3422 Canyon Crest Dr Bldg D	Elec (kWh) 3424 Canyon Crest Dr Bldg C	Elec (kWh) 3426 Canyon Crest Dr Bldg C	Elec (kWh) 3428 Canyon Crest Dr Bldg C	Elec (kWh) 836 W Blaine St Parking	Wat/Sew (CCF) 3430 Canyon Crest Dr
Jul-25	72,400	24,800	28,800	45,600	39,600	7,600	265
Aug-25	85,600	38,000	50,800	63,200	45,200	7,600	329
Sep-25	65,600	50,400	10,800	54,000	95,200	7,600	360
Oct-25	64,800	60,400	81,600	48,400	45,600	11,200	2287
Nov-25	62,400	62,800	85,200	47,200	44,000	12,000	2424
Dec-25	47,600	49,200	66,400	34,000	30,000	15,200	123
Jan-26	64,000	59,200	78,000	41,600	41,200	16,400	1,125
Feb-26	75,600	64,400	86,000	49,600	48,800	14,000	1,946
Mar-26	72,400	60,000	78,800	51,600	51,200	12,800	1,336
Apr-26	58,000	56,400	73,200	38,800	41,200	12,800	984
Subtotal	668,400	525,600	639,600	474,000	482,000	117,200	11,179
May	72,100	44,800	57,900	49,800	44,300	10,200	729
June	72,100	44,800	57,900	49,800	44,300	10,200	729

Estimated Blaine Parking use in red using Sept data.
Riverside City College Students moved in Aug 2025
UCR students moved in September 2025

Assume Dec water bill low because November was estimated and total trued up.

Estimated electricity and water using average of July, Aug, Mar, & Apr.

Estimated Subtotals	812,600	615,200	755,400	573,600	570,600	137,600	12,636
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Estimated electricity total (MWh) 3,465

Estimated water/sewer consumption total (AF) 29

Electricity Usage by District

District 1 kWh by year by meter			
Meter	Total kWh (2022-2025)	kWh/year (average)	MW/year
733 -3	1221200	305300	305.3
733 - 2	2531600	632900	632.9
733 - 1	5033200	1258300	1258.3
755 - 2	3616400	904100	904.1
755 - 1	2597600	649400	649.4
Total	15,000,000	3,750,000	3750

District 2 kWh/year by building		
Building	kWh/year	MW
3420 Canyon Crest Dr Bldg D	812,600	812.6
3422 Canyon Crest Dr Bldg D	615,200	615.2
3424 Canyon Crest Dr Bldg C	755,400	755.4
3426 Canyon Crest Dr Bldg C	573,600	573.6
3428 Canyon Crest Dr Bldg C	570,600	570.6
836 W Blaine St Parking	137,600	137.6
Total	3,465,000	3465

kWh per bed per District				
District	kWh/year	kWh/year per bed	kWh/year per SF	Source
1	3,750,000	2,490.04	6.88	Calculated using Client provided data
2	3,465,000	2,209.82	7.70	Calculated using Client provided data
3	4,143,249	3,069.07	9.11	Caleemod Default for project
Total	11,358,249			

Removal of Natural Gas Calculations		
Calculation	Value	Units
1 kBTU:	0.29307107	kWh
Caleemod Default kWh/year for project:	2,563,832	kWh per year
Caleemod Default kBTU/year for Project:	5,389,196	kBTU/year
kWh/year from kBTU:	1,579,417.32	kWh per year
New total kWh/year:	4,143,249.40	kWh per year

Conversion source: <https://www.freeconvert.com/unit/kbtu-to-kilowatt-hour>

Operations					
Energy Use					
Total Annual Consumption					
Annual Consumption by Title 24 Category					
Subject to Title 24 Standards			Not Subject to Title 24		
Land Use Subtype	Electricity (kWh/year)	Natural Gas (kBtu/year)	Electricity (kWh/year)	Natural Gas (kBtu/year)	Electricity (kWh/year)
Apartments Mid Rise	2,365,528.38	5,389,195.58	1,001,975.49	4,825,315.68	1,363,552.89
Enclosed Parking with Elevator	198,303.7	0	188,096.9	0	10,206.8

Source: Caleemod Default Value for project

Existing North District 1 Water Usage By Source - Raw Data Provided by UC Riverside

Account Number 228978001
Customer Name CHF RIVERSIDE II, LLC

Meter Number 310164E
Meter Type IRRIGATION
Meter Location DEFAULT

Read Date	Meter #	Irrigation		Other Unit	Read Type
		Usage	Read Unit		
2/27/2026	310164E	321	CCF	240124.66 Gallons	CCF
1/27/2026	310164E	248	CCF	185516.87 Gallons	CCF
12/26/2025	310164E	259	CCF	193745.44 Gallons	CCF
11/25/2025	310164E	271	CCF	202722.06 Gallons	CCF
10/28/2025	310164E	408	CCF	305205.18 Gallons	CCF
9/26/2025	310164E	715	CCF	534857.11 Gallons	CCF
8/27/2025	310164E	894	CCF	668758.40 Gallons	CCF
7/28/2025	310164E	831	CCF	621631.13 Gallons	CCF
6/26/2025	310164E	564	CCF	421901.27 Gallons	CCF
5/28/2025	310164E	557	CCF	416664.91 Gallons	CCF
4/25/2025	310164E	492	CCF	368041.53 Gallons	CCF
3/26/2025	310164E	209	CCF	156342.85 Gallons	CCF
2/25/2025	310164E	184	CCF	137641.55 Gallons	CCF
1/24/2025	310164E	701	CCF	524384.38 Gallons	CCF
12/31/2024	310164E	415	CCF	310441.54 Gallons	CCF
12/23/2024	310164E	329	CCF	246109.08 Gallons	CCF
11/22/2024	310164E	437	CCF	326898.68 Gallons	CCF
10/25/2024	310164E	637	CCF	476509.06 Gallons	CCF
9/25/2024	310164E	693	CCF	518399.97 Gallons	CCF
8/26/2024	310164E	747	CCF	558794.77 Gallons	CCF
7/26/2024	310164E	673	CCF	503438.93 Gallons	CCF
6/26/2024	310164E	643	CCF	480997.37 Gallons	CCF
5/28/2024	310164E	464	CCF	347096.08 Gallons	CCF
4/26/2024	310164E	378	CCF	282763.62 Gallons	CCF
3/27/2024	310164E	348	CCF	260322.06 Gallons	CCF
2/26/2024	310164E	172	CCF	128664.93 Gallons	CCF
1/24/2024	310164E	283	CCF	211698.69 Gallons	CCF
12/21/2023	310164E	995	CCF	744311.64 Gallons	CCF
11/21/2023	310164E	623	CCF	466036.33 Gallons	CCF
10/25/2023	310164E	701	CCF	524384.38 Gallons	CCF
9/25/2023	310164E	763	CCF	570763.60 Gallons	CCF
8/23/2023	310164E	771	CCF	576748.01 Gallons	CCF
7/26/2023	310164E	897	CCF	671002.55 Gallons	CCF
6/26/2023	310164E	754	CCF	564031.13 Gallons	CCF
5/24/2023	310164E	597	CCF	446586.98 Gallons	CCF
4/26/2023	310164E	416	CCF	311189.59 Gallons	CCF
3/28/2023	310164E	145	CCF	108467.53 Gallons	CCF
2/24/2023	310164E	208	CCF	155594.80 Gallons	CCF
1/25/2023	310164E	224	CCF	167563.63 Gallons	CCF
12/27/2022	310164E	394	CCF	294732.45 Gallons	CCF
11/28/2022	310164E	535	CCF	400207.77 Gallons	CCF
10/26/2022	310164E	310	CCF	231896.09 Gallons	CCF
9/27/2022	310164E	1452	CCF	1086171.36 Gallons	CCF
8/26/2022	310164E	1894	CCF	1416810.30 Gallons	CCF
7/28/2022	310164E	1883	CCF	1408581.73 Gallons	CCF
6/29/2022	310164E	1659	CCF	1241018.10 Gallons	CCF
5/27/2022	310164E	1193	CCF	892425.92 Gallons	CCF
4/28/2022	310164E	1070	CCF	800415.53 Gallons	CCF
4/5/2022	310164E	1464	CCF	1095147.98 Gallons	CCF
3/30/2022	310164E	1225	CCF	916363.58 Gallons	CCF
2/25/2022	310164E	825	CCF	617142.82 Gallons	CCF
2/3/2022	310164E	406	CCF	303709.07 Gallons	CCF
1/31/2022	310164E	365	CCF	273038.94 Gallons	CCF
1/10/2022	310164E	128	CCF	95750.64 Gallons	CCF
1/4/2022	310164E	104	CCF	77797.40 Gallons	CCF
12/9/2021	310164E	1235	CCF	923844.10 Gallons	CCF
11/8/2021	310164E	1884	CCF	1409329.78 Gallons	CCF
10/8/2021	310164E	1883	CCF	1408581.73 Gallons	CCF
9/8/2021	310164E	1393	CCF	1042036.30 Gallons	CCF

34305

Account Number 228978001
Customer Name CHF RIVERSIDE II, LLC

Meter Number 310172I
Meter Type DOMESTIC-WATER ONLY
Meter Location DEFAULT

Read Date	Meter #	Domestic 2		Other Unit	Read Type
		Usage	Read Unit		
2/27/2026	310172I	1357	CCF	1015106.43 Gallons	CCF
1/27/2026	310172I	1243	CCF	929828.51 Gallons	CCF
12/26/2025	310172I	1148	CCF	858763.58 Gallons	CCF
11/25/2025	310172I	1414	CCF	1057745.39 Gallons	CCF
10/28/2025	310172I	1305	CCF	976207.73 Gallons	CCF
9/26/2025	310172I	409	CCF	305953.23 Gallons	CCF
8/27/2025	310172I	278	CCF	207958.43 Gallons	CCF
7/28/2025	310172I	469	CCF	350836.34 Gallons	CCF
6/26/2025	310172I	1563	CCF	1169205.12 Gallons	CCF
5/28/2025	310172I	1985	CCF	1484883.02 Gallons	CCF
4/25/2025	310172I	1363	CCF	1019594.74 Gallons	CCF
3/26/2025	310172I	1291	CCF	965735.00 Gallons	CCF
2/25/2025	310172I	1497	CCF	1119833.69 Gallons	CCF
1/24/2025	310172I	923	CCF	690451.90 Gallons	CCF
12/23/2024	310172I	910	CCF	680727.23 Gallons	CCF
11/22/2024	310172I	1257	CCF	940301.24 Gallons	CCF
11/1/2024	310172I	1654	CCF	1237277.84 Gallons	CCF
10/25/2024	310172I	1326	CCF	991916.82 Gallons	CCF
9/25/2024	310172I	361	CCF	270046.74 Gallons	CCF
8/26/2024	310172I	305	CCF	228155.83 Gallons	CCF
7/26/2024	310172I	392	CCF	293236.34 Gallons	CCF
6/26/2024	310172I	944	CCF	706160.99 Gallons	CCF
5/28/2024	310172I	1258	CCF	941049.29 Gallons	CCF
4/26/2024	310172I	1235	CCF	923844.10 Gallons	CCF
3/27/2024	310172I	1532	CCF	1146015.51 Gallons	CCF
2/26/2024	310172I	1819	CCF	1360706.41 Gallons	CCF
1/24/2024	310172I	731	CCF	546825.94 Gallons	CCF
12/21/2023	310172I	830	CCF	620883.08 Gallons	CCF
11/21/2023	310172I	851	CCF	636592.17 Gallons	CCF
10/25/2023	310172I	923	CCF	690451.90 Gallons	CCF
9/25/2023	310172I	292	CCF	218431.15 Gallons	CCF
8/23/2023	310172I	287	CCF	214690.90 Gallons	CCF
7/26/2023	310172I	426	CCF	318670.11 Gallons	CCF
6/26/2023	310172I	876	CCF	655293.46 Gallons	CCF
5/24/2023	310172I	980	CCF	733090.86 Gallons	CCF
4/26/2023	310172I	688	CCF	514659.71 Gallons	CCF
3/28/2023	310172I	875	CCF	654545.41 Gallons	CCF
2/24/2023	310172I	716	CCF	535605.16 Gallons	CCF
1/25/2023	310172I	450	CCF	336623.36 Gallons	CCF
12/27/2022	310172I	417	CCF	311937.64 Gallons	CCF
12/1/2022	310172I	859	CCF	642576.58 Gallons	CCF
11/28/2022	310172I	787	CCF	588716.85 Gallons	CCF
11/1/2022	310172I	858	CCF	641828.53 Gallons	CCF
10/26/2022	310172I	711	CCF	531864.90 Gallons	CCF
10/4/2022	310172I	613	CCF	458555.81 Gallons	CCF
9/27/2022	310172I	503	CCF	376270.11 Gallons	CCF
8/26/2022	310172I	146	CCF	109215.58 Gallons	CCF
7/28/2022	310172I	140	CCF	104727.27 Gallons	CCF
6/29/2022	310172I	309	CCF	231148.04 Gallons	CCF
5/27/2022	310172I	483	CCF	361309.07 Gallons	CCF
4/28/2022	310172I	505	CCF	377766.21 Gallons	CCF
3/30/2022	310172I	526	CCF	393475.30 Gallons	CCF
2/25/2022	310172I	468	CCF	350088.29 Gallons	CCF
2/3/2022	310172I	587	CCF	439106.47 Gallons	CCF
1/31/2022	310172I	528	CCF	394971.40 Gallons	CCF
1/10/2022	310172I	468	CCF	350088.29 Gallons	CCF
1/4/2022	310172I	380	CCF	284259.72 Gallons	CCF
12/9/2021	310172I	772	CCF	577496.07 Gallons	CCF
11/8/2021	310172I	1062	CCF	794431.12 Gallons	CCF
10/8/2021	310172I	646	CCF	483241.53 Gallons	CCF

44851

Account Nur 228978001
Customer Name CHF RIVERSIDE II, LLC

Meter Number 3101681
Meter Type DOMESTIC-WATER ONLY
Meter Location DEFAULT

Read Date	Meter #	Usage	Read Unit	Other Unit	Read Type
2/27/2026	3101681	613	CCF	458555.81 Gallons	CCF
1/27/2026	3101681	532	CCF	397963.61 Gallons	CCF
12/26/2025	3101681	436	CCF	326150.63 Gallons	CCF
11/25/2025	3101681	666	CCF	498202.57 Gallons	CCF
10/28/2025	3101681	797	CCF	596197.36 Gallons	CCF
9/26/2025	3101681	171	CCF	127916.87 Gallons	CCF
8/27/2025	3101681	40	CCF	29922.08 Gallons	CCF
7/28/2025	3101681	100	CCF	74805.19 Gallons	CCF
6/26/2025	3101681	561	CCF	419657.12 Gallons	CCF
5/28/2025	3101681	615	CCF	460051.92 Gallons	CCF
4/25/2025	3101681	857	CCF	641080.48 Gallons	CCF
3/26/2025	3101681	633	CCF	473516.85 Gallons	CCF
2/25/2025	3101681	757	CCF	566275.29 Gallons	CCF
1/24/2025	3101681	592	CCF	442846.72 Gallons	CCF
12/31/2024	3101681	408	CCF	305205.18 Gallons	CCF
12/23/2024	3101681	324	CCF	242368.82 Gallons	CCF
11/22/2024	3101681	771	CCF	576748.01 Gallons	CCF
10/31/2024	3101681	4519	CCF	3380446.54 Gallons	CCF
10/25/2024	3101681	916	CCF	685215.54 Gallons	CCF
9/25/2024	3101681	146	CCF	109215.58 Gallons	CCF
8/26/2024	3101681	64	CCF	47875.32 Gallons	CCF
7/26/2024	3101681	113	CCF	84529.86 Gallons	CCF
6/26/2024	3101681	632	CCF	472768.80 Gallons	CCF
5/28/2024	3101681	852	CCF	637340.22 Gallons	CCF
4/26/2024	3101681	564	CCF	421901.27 Gallons	CCF
3/27/2024	3101681	320	CCF	239376.61 Gallons	CCF
2/26/2024	3101681	512	CCF	383002.57 Gallons	CCF
1/24/2024	3101681	491	CCF	367293.48 Gallons	CCF
12/21/2023	3101681	581	CCF	434618.15 Gallons	CCF
11/21/2023	3101681	874	CCF	653797.36 Gallons	CCF
10/25/2023	3101681	970	CCF	725610.34 Gallons	CCF
9/25/2023	3101681	231	CCF	172799.99 Gallons	CCF
8/23/2023	3101681	230	CCF	172051.94 Gallons	CCF
7/26/2023	3101681	396	CCF	296228.55 Gallons	CCF
6/26/2023	3101681	881	CCF	659033.72 Gallons	CCF
5/24/2023	3101681	855	CCF	639584.37 Gallons	CCF
4/26/2023	3101681	784	CCF	586472.69 Gallons	CCF
3/28/2023	3101681	910	CCF	680727.23 Gallons	CCF
2/24/2023	3101681	1019	CCF	762264.89 Gallons	CCF
1/25/2023	3101681	656	CCF	490722.05 Gallons	CCF
12/27/2022	3101681	405	CCF	302961.02 Gallons	CCF
11/28/2022	3101681	945	CCF	706909.05 Gallons	CCF
10/26/2022	3101681	955	CCF	714389.56 Gallons	CCF
9/27/2022	3101681	466	CCF	348592.19 Gallons	CCF
8/26/2022	3101681	275	CCF	205714.27 Gallons	CCF
7/28/2022	3101681	259	CCF	193745.44 Gallons	CCF
6/29/2022	3101681	663	CCF	495958.41 Gallons	CCF
5/27/2022	3101681	1055	CCF	789194.75 Gallons	CCF
4/28/2022	3101681	1090	CCF	815376.57 Gallons	CCF
4/5/2022	3101681	1260	CCF	942545.39 Gallons	CCF
3/30/2022	3101681	1035	CCF	774233.72 Gallons	CCF
2/25/2022	3101681	861	CCF	644072.69 Gallons	CCF
2/3/2022	3101681	626	CCF	468280.49 Gallons	CCF
1/31/2022	3101681	563	CCF	421153.22 Gallons	CCF
1/10/2022	3101681	519	CCF	388238.94 Gallons	CCF
1/4/2022	3101681	421	CCF	314929.85 Gallons	CCF
12/9/2021	3101681	1125	CCF	841558.39 Gallons	CCF
11/8/2021	3101681	851	CCF	636592.17 Gallons	CCF
10/8/2021	3101681	575	CCF	430129.84 Gallons	CCF

Water Usage by District

District 1			
	Meter		
Year	Irrigation	Domestic 2	Domestic 1
2025	6085	13645	6225
2024	6219	13724	10632
2023	7094	8194	8387
2022	14907	9288	11398
Total	34305	44851	36642
Average Per year	8576	11213	9161
		115798	Total water usage (CCF)
		28950	Annual Water usage for all of D1 (CCF)

Conversion
CCF=centum cubic feed
100 CCF
74805 Gallons

District 2	
Annual Gallons	9,452,360
CCF	12,636

Calculated
Client Provided

District 3	
Annual Gallons	17,001,638
CCF	22,728

caleemod default
Calculated

District	Annual CCF	CCF per bed	CCF per SF	Source
1	28950	19.2	0.05	Provided by Client
2	12636	8.1	0.03	Provided by Client
3	22728	16.8	0.05	Caleemod Default for project
Total	64313			

48109671.28 Annual gallons

41586

Operations

Water and Waste Water

Land Use

Subtype

Indoor Water Use

(gals/year)

Include

Precipitation?

Apartment Mid Rise

17,001,638

Enclosed Parking with Elevator

0

Solid Waste Generation by District

District 1

90 yards of landfill and 90 yards of recycling per week, uncompacted
Source: Toshio Ishida Email on 5.27.26

Landfill waste (cubic yards)	90
Landfill waste (weekly tons)	4.1
Landfill waste (yearly tons)	210.6
Recycling waste (cubic yards)	90
Recycling waste (weekly tons)	21.8
Recycling waste (annual tons)	1133.2
Total Waste (annual Tons)	1343.8 annual tons

District 2	
Data from Ph2 Appendix (caleemod run)	
Land Use	Waste (tons/year)
Mid Rise Apartments	366
Fast Food Restaurant	28.8
City Park	0.21
Total	395.01

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)
Apartments Mid Rise	366
Fast Food Restaurant w/o Drive Thru	28.8
City Park	0.21
User Defined Recreational	0.00
Parking Lot	0.00
Other Non-Asphalt Surfaces	0.00

Source: Ph2 Addendum Caleemod run from Appendix

District 3 (caleemod Default)	
Waste per year (tons)	309.06

Solid Waste Totals		
Phase	Annual Tons/year	Source
D1	1343.8	Client Provided Data
D2	395.01	NDD Ph2 Addendum
D3	309.06	Caleemod Defaults for project
Total	2047.9	
units:	5000	
Tons/unit/year	0.409572595	

Trash

Campus waste (loose) (2)	90 pounds/cubic yard	22.22 cubic yards/ton
Campus Waste (compacted):	300 pounds/ cubic yard	6.67 cubic yards/ton
Residential waste (loose):	225 pounds/cubic yard	8.88 cubic yards/ton
Commercial/industrial waste (loose):	450 pounds/cubic yard	4.44 cubic yards/ton

Source: <https://archive.epa.gov/wastes/conserve/tools/rogo/web/pdf/volume-weight-conversions.pdf>

Conversions	
22.22	cubic yard of loose campus waste
1	ton of waste
4.13	cubic yard of mixed paper waste
1	ton of waste

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	UCR NDD3 Housing
Construction Start Date	4/1/2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50000
Precipitation (days)	14.2000
Location	33.98029944610998, -117.32949511770522
County	Riverside-South Coast
City	Riverside
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5481
EDFZ	11
Electric Utility	City of Riverside
Gas Utility	Southern California Gas
App Version	2022.1.1.47

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Mid Rise	418.000	Dwelling Unit	11.0000	401,280	40,128.0	—	1,350.00	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

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.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	49.5985	49.5730	29.4321	33.3628	0.08515	1.17173	5.33956	6.51130	1.07799	2.68025	3.75825	—	10,342.9	10,342.9	0.33764	0.60635	16.0180	10,539.5
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	49.5865	49.5365	12.0150	28.4955	0.03345	0.35667	4.31614	4.67281	0.32974	1.02771	1.35745	—	7,465.18	7,465.18	0.18026	0.35992	0.41560	7,577.36
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	7.04050	7.01582	10.7510	19.7221	0.02609	0.39163	2.95174	3.17941	0.36144	0.76910	1.13054	—	5,152.31	5,152.31	0.11969	0.24846	4.28879	5,233.63

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.28489	1.28039	1.96206	3.59929	0.00476	0.07147	0.53869	0.58024	0.06596	0.14036	0.20632	—	853.023	853.023	0.01982	0.04113	0.71006	866.487

2.2. Construction Emissions by Year

2.2.1. Total Construction Emissions by Year, Unmitigated

Includes both onsite and offsite emissions.

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	3.74663	3.12192	29.4321	33.3628	0.08515	1.17173	5.33956	6.51130	1.07799	2.68025	3.75825	—	10,342.9	10,342.9	0.33764	0.60635	16.0180	10,539.5
2028	2.55493	2.18698	11.2773	31.9898	0.03345	0.32033	4.31614	4.63648	0.29632	1.02771	1.32403	—	7,685.70	7,685.70	0.16458	0.35992	14.3998	7,811.47
2029	49.5985	49.5730	0.97463	4.59356	0.00173	0.01284	0.78677	0.79961	0.01181	0.18442	0.19623	—	918.846	918.846	0.01338	0.02961	2.02561	930.031
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	2.57998	2.19691	12.0150	28.4955	0.03344	0.35667	4.31614	4.67281	0.32974	1.02771	1.35745	—	7,465.18	7,465.18	0.18026	0.35991	0.41560	7,577.36
2028	2.37050	2.11866	11.4752	27.4623	0.03345	0.32033	4.31614	4.63648	0.29632	1.02771	1.32403	—	7,366.31	7,366.31	0.17122	0.35992	0.37406	7,478.22
2029	49.5865	49.5365	6.50992	10.5704	0.01395	0.23904	0.78677	0.79961	0.21992	0.18442	0.26588	—	1,690.69	1,690.69	0.06359	0.02961	0.05266	1,698.06
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.65976	1.39449	10.7510	15.3772	0.02609	0.39163	2.44267	2.83429	0.36144	0.76910	1.13054	—	4,037.39	4,037.39	0.11949	0.18106	2.31426	4,096.65

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Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2028	1.65289	1.47580	8.09282	19.7221	0.02342	0.22766	2.95174	3.17941	0.21056	0.70250	0.91305	—	5,152.31	5,152.31	0.11969	0.24846	4.28879	5,233.63
2029	7.04050	7.01582	0.99353	1.93297	0.00207	0.03314	0.13440	0.16754	0.03049	0.03148	0.06197	—	342.855	342.855	0.01039	0.00668	0.15070	345.255
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.30291	0.25449	1.96206	2.80634	0.00476	0.07147	0.44579	0.51726	0.06596	0.14036	0.20632	—	668.436	668.436	0.01978	0.02998	0.38315	678.247
2028	0.30165	0.26933	1.47694	3.59929	0.00427	0.04155	0.53869	0.58024	0.03843	0.12821	0.16663	—	853.023	853.023	0.01982	0.04113	0.71006	866.487
2029	1.28489	1.28039	0.18132	0.35277	0.00038	0.00605	0.02453	0.03058	0.00556	0.00575	0.01131	—	56.7636	56.7636	0.00172	0.00111	0.02495	57.1610

2.2.2. Onsite 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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	3.63178	3.05170	27.9724	28.2794	0.06093	1.17173	5.11082	6.28256	1.07799	2.62664	3.70463	—	6,598.08	6,598.08	0.26765	0.05353	0.00000	6,620.72
2028	1.18481	0.99143	8.92495	12.9352	0.02340	0.30024	0.00000	0.30024	0.27622	0.00000	0.27622	—	2,397.46	2,397.46	0.09725	0.01945	0.00000	2,405.68
2029	49.3715	49.3500	0.79416	1.11216	0.00173	0.01284	0.00000	0.01284	0.01181	0.00000	0.01181	—	133.510	133.510	0.00542	0.00108	0.00000	133.968
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.23076	1.02988	9.39093	12.9379	0.02340	0.33657	0.00000	0.33657	0.30965	0.00000	0.30965	—	2,397.08	2,397.08	0.09724	0.01945	0.00000	2,405.30
2028	1.18481	0.99143	8.92495	12.9352	0.02340	0.30024	0.00000	0.30024	0.27622	0.00000	0.27622	—	2,397.46	2,397.46	0.09725	0.01945	0.00000	2,405.68
2029	49.3715	49.3500	6.45817	9.91841	0.01395	0.23904	0.00000	0.23904	0.21992	0.00000	0.21992	—	1,510.63	1,510.63	0.06128	0.01226	0.00000	1,515.81
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2027	1.25754	1.05544	9.48092	10.6267	0.02028	0.37733	1.11124	1.48856	0.34714	0.44729	0.79443	—	2,156.76	2,156.76	0.08749	0.01750	0.00000	2,164.16
2028	0.83850	0.70172	6.32949	9.18189	0.01650	0.21382	0.00000	0.21382	0.19671	0.00000	0.19671	—	1,692.88	1,692.88	0.06867	0.01373	0.00000	1,698.68
2029	7.00344	6.98368	0.95773	1.45585	0.00207	0.03314	0.00000	0.03314	0.03049	0.00000	0.03049	—	216.721	216.721	0.00879	0.00176	0.00000	217.465
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.22950	0.19262	1.73027	1.93938	0.00370	0.06886	0.20280	0.27166	0.06335	0.08163	0.14498	—	357.076	357.076	0.01448	0.00290	0.00000	358.302
2028	0.15303	0.12806	1.15513	1.67570	0.00301	0.03902	0.00000	0.03902	0.03590	0.00000	0.03590	—	280.275	280.275	0.01137	0.00227	0.00000	281.237
2029	1.27813	1.27452	0.17479	0.26569	0.00038	0.00605	0.00000	0.00605	0.00556	0.00000	0.00556	—	35.8806	35.8806	0.00146	0.00029	0.00000	36.0038

2.2.3. Offsite 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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.41656	1.23536	3.85204	20.4248	0.02423	0.06921	4.31614	4.33624	0.06921	1.02771	1.04781	—	5,394.20	5,394.20	0.07738	0.55282	16.0180	5,513.62
2028	1.37012	1.19555	2.35233	19.0546	0.01005	0.02010	4.31614	4.33624	0.02010	1.02771	1.04781	—	5,288.24	5,288.24	0.06733	0.34046	14.3998	5,405.78
2029	0.22692	0.22294	0.18047	3.48140	0.00000	0.00000	0.78677	0.78677	0.00000	0.18442	0.18442	—	785.336	785.336	0.00796	0.02853	2.02561	796.063
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.34923	1.16704	2.62404	15.5575	0.01005	0.02010	4.31614	4.33624	0.02010	1.02771	1.04781	—	5,068.11	5,068.11	0.08303	0.34046	0.41560	5,172.06
2028	1.18568	1.12723	2.55022	14.5270	0.01005	0.02010	4.31614	4.33624	0.02010	1.02771	1.04781	—	4,968.85	4,968.85	0.07396	0.34046	0.37406	5,072.53
2029	0.21498	0.18644	0.20768	2.61619	0.00000	0.00000	0.78677	0.78677	0.00000	0.18442	0.18442	—	722.546	722.546	0.00929	0.02853	0.05266	731.333

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.40221	0.33905	1.27011	4.75044	0.00581	0.01430	1.33143	1.34573	0.01430	0.32181	0.33611	—	1,880.63	1,880.63	0.03200	0.16356	2.31426	1,932.48
2028	0.81439	0.77409	1.76333	10.5402	0.00692	0.01384	2.95174	2.96559	0.01384	0.70250	0.71634	—	3,459.43	3,459.43	0.05102	0.23472	4.28879	3,534.94
2029	0.03706	0.03214	0.03580	0.47711	0.00000	0.00000	0.13440	0.13440	0.00000	0.03148	0.03148	—	126.134	126.134	0.00160	0.00492	0.15070	127.791
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.07340	0.06188	0.23179	0.86696	0.00106	0.00261	0.24299	0.24560	0.00261	0.05873	0.06134	—	311.360	311.360	0.00530	0.02708	0.38315	319.945
2028	0.14863	0.14127	0.32181	1.92359	0.00126	0.00253	0.53869	0.54122	0.00253	0.12821	0.13073	—	572.748	572.748	0.00845	0.03886	0.71006	585.250
2029	0.00676	0.00587	0.00653	0.08707	0.00000	0.00000	0.02453	0.02453	0.00000	0.00575	0.00575	—	20.8829	20.8829	0.00027	0.00081	0.02495	21.1572

3. Construction Emissions Details

3.1. Demolition (2027)

3.1.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.63907	2.21478	19.9005	18.6307	0.03253	0.79594	—	0.79594	0.73226	—	0.73226	—	3,426.90	3,426.90	0.13901	0.02780	—	3,438.66

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Demolition	—	—	—	—	—	—	0.96287	0.96287	—	0.14581	0.14581	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.08676	0.07281	0.65426	0.61252	0.00107	0.02617	—	0.02617	0.02407	—	0.02407	—	112.665	112.665	0.00457	0.00091	—	113.052
Demolition	—	—	—	—	—	—	0.03166	0.03166	—	0.00479	0.00479	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01583	0.01329	0.11940	0.11178	0.00020	0.00478	—	0.00478	0.00439	—	0.00439	—	18.6530	18.6530	0.00076	0.00015	—	18.7170
Demolition	—	—	—	—	—	—	0.00578	0.00578	—	0.00087	0.00087	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.2. Offsite - Unmitigated

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

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06763	0.06019	0.05208	0.99638	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	203.036	203.036	0.00231	0.00711	0.63077	205.844
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.05030	0.01920	1.25904	0.31140	0.00806	0.02304	0.31523	0.33826	0.02304	0.08841	0.11144	—	1,156.35	1,156.35	0.02227	0.18085	2.22926	1,213.03
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00211	0.00187	0.00214	0.02599	0.00000	0.00000	0.00639	0.00639	0.00000	0.00150	0.00150	—	6.21686	6.21686	0.00009	0.00023	0.00895	6.29764
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00163	0.00062	0.04361	0.01030	0.00027	0.00076	0.01029	0.01105	0.00076	0.00289	0.00365	—	38.0260	38.0260	0.00073	0.00595	0.03166	39.8478
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00039	0.00034	0.00039	0.00474	0.00000	0.00000	0.00117	0.00117	0.00000	0.00027	0.00027	—	1.02927	1.02927	0.00001	0.00004	0.00148	1.04265
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00030	0.00011	0.00796	0.00188	0.00005	0.00014	0.00188	0.00202	0.00014	0.00053	0.00067	—	6.29564	6.29564	0.00012	0.00098	0.00524	6.59726

3.2. Site Preparation (2027)

3.2.1. Onsite - Unmitigated

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

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.63178	3.05170	27.9724	28.2794	0.04891	1.17173	—	1.17173	1.07799	—	1.07799	—	5,297.82	5,297.82	0.21490	0.04298	—	5,316.00
Dust From Material Movement	—	—	—	—	—	—	5.11082	5.11082	—	2.62664	2.62664	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42785	0.35952	3.29538	3.33154	0.00576	0.13804	—	0.13804	0.12700	—	0.12700	—	624.127	624.127	0.02532	0.00506	—	626.268
Dust From Material Movement	—	—	—	—	—	—	0.60210	0.60210	—	0.30944	0.30944	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07808	0.06561	0.60141	0.60801	0.00105	0.02519	—	0.02519	0.02318	—	0.02318	—	103.331	103.331	0.00419	0.00084	—	103.686

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Movement	—	—	—	—	—	—	0.10988	0.10988	—	0.05647	0.05647	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07890	0.07022	0.06076	1.16244	0.00000	0.00000	0.22874	0.22874	0.00000	0.05362	0.05362	—	236.876	236.876	0.00270	0.00829	0.73589	240.151
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00884	0.00782	0.00893	0.10865	0.00000	0.00000	0.02670	0.02670	0.00000	0.00626	0.00626	—	25.9899	25.9899	0.00036	0.00098	0.03740	26.3276
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00161	0.00143	0.00163	0.01983	0.00000	0.00000	0.00487	0.00487	0.00000	0.00114	0.00114	—	4.30293	4.30293	0.00006	0.00016	0.00619	4.35884

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3. Grading (2027)

3.3.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.50534	2.94546	25.5801	27.2816	0.06093	1.04307	—	1.04307	0.95962	—	0.95962	—	6,598.08	6,598.08	0.26765	0.05353	—	6,620.72
Dust From Material Movement	—	—	—	—	—	—	4.05305	4.05305	—	1.12948	1.12948	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.41296	0.34700	3.01355	3.21400	0.00718	0.12288	—	0.12288	0.11305	—	0.11305	—	777.308	777.308	0.03153	0.00631	—	779.975

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Dust From Material Movement	—	—	—	—	—	—	0.47748	0.47748	—	0.13306	0.13306	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.07536	0.06333	0.54997	0.58656	0.00131	0.02243	—	0.02243	0.02063	—	0.02063	—	128.692	128.692	0.00522	0.00104	—	129.134
Dust From Material Movement	—	—	—	—	—	—	0.08714	0.08714	—	0.02428	0.02428	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09017	0.08025	0.06945	1.32851	0.00000	0.00000	0.26142	0.26142	0.00000	0.06128	0.06128	—	270.715	270.715	0.00309	0.00948	0.84102	274.459
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.15112	0.05768	3.78259	0.93555	0.02423	0.06921	0.94704	1.01626	0.06921	0.26560	0.33482	—	3,474.08	3,474.08	0.06691	0.54334	6.69746	3,644.36

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01010	0.00893	0.01021	0.12417	0.00000	0.00000	0.03052	0.03052	0.00000	0.00715	0.00715	—	29.7028	29.7028	0.00042	0.00112	0.04274	30.0887
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.01753	0.00666	0.46954	0.11090	0.00285	0.00815	0.11078	0.11893	0.00815	0.03109	0.03925	—	409.371	409.371	0.00788	0.06401	0.34087	428.984
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00184	0.00163	0.00186	0.02266	0.00000	0.00000	0.00557	0.00557	0.00000	0.00130	0.00130	—	4.91764	4.91764	0.00007	0.00018	0.00708	4.98153
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00320	0.00122	0.08569	0.02024	0.00052	0.00149	0.02022	0.02170	0.00149	0.00567	0.00716	—	67.7760	67.7760	0.00131	0.01060	0.05644	71.0232

3.4. Building Construction (2027)

3.4.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23076	1.02988	9.39093	12.9379	0.02340	0.33657	—	0.33657	0.30965	—	0.30965	—	2,397.08	2,397.08	0.09724	0.01945	—	2,405.30
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23076	1.02988	9.39093	12.9379	0.02340	0.33657	—	0.33657	0.30965	—	0.30965	—	2,397.08	2,397.08	0.09724	0.01945	—	2,405.30
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.32997	0.27611	2.51773	3.46869	0.00627	0.09024	—	0.09024	0.08302	—	0.08302	—	642.661	642.661	0.02607	0.00521	—	644.866
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06022	0.05039	0.45948	0.63304	0.00114	0.01647	—	0.01647	0.01515	—	0.01515	—	106.400	106.400	0.00432	0.00086	—	106.765
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.35686	1.20758	1.04502	19.9914	0.00000	0.00000	3.93383	3.93383	0.00000	0.92208	0.92208	—	4,073.72	4,073.72	0.04645	0.14265	12.6557	4,130.05

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.05970	0.02778	1.38114	0.43345	0.01005	0.02010	0.38231	0.40241	0.02010	0.10563	0.12572	—	1,320.48	1,320.48	0.03093	0.19781	3.36233	1,383.56
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.29051	1.14123	1.18104	15.1113	0.00000	0.00000	3.93383	3.93383	0.00000	0.92208	0.92208	—	3,746.62	3,746.62	0.05308	0.14265	0.32824	3,790.79
Vendor	0.05871	0.02581	1.44300	0.44626	0.01005	0.02010	0.38231	0.40241	0.02010	0.10563	0.12572	—	1,321.49	1,321.49	0.02995	0.19781	0.08736	1,381.27
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.34599	0.30596	0.34955	4.25237	0.00000	0.00000	1.04505	1.04505	0.00000	0.24481	0.24481	—	1,017.19	1,017.19	0.01423	0.03825	1.46356	1,030.40
Vendor	0.01601	0.00718	0.38613	0.11806	0.00269	0.00539	0.10171	0.10710	0.00539	0.02812	0.03351	—	354.137	354.137	0.00829	0.05303	0.38909	370.537
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06314	0.05584	0.06379	0.77606	0.00000	0.00000	0.19072	0.19072	0.00000	0.04468	0.04468	—	168.407	168.407	0.00236	0.00633	0.24231	170.595
Vendor	0.00292	0.00131	0.07047	0.02155	0.00049	0.00098	0.01856	0.01955	0.00098	0.00513	0.00612	—	58.6314	58.6314	0.00137	0.00878	0.06442	61.3466
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5. Building Construction (2028)

3.5.1. Onsite - Unmitigated

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

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18481	0.99143	8.92495	12.9352	0.02340	0.30024	—	0.30024	0.27622	—	0.27622	—	2,397.46	2,397.46	0.09725	0.01945	—	2,405.68
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18481	0.99143	8.92495	12.9352	0.02340	0.30024	—	0.30024	0.27622	—	0.27622	—	2,397.46	2,397.46	0.09725	0.01945	—	2,405.68
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81615	0.68294	6.14791	8.91039	0.01612	0.20682	—	0.20682	0.19027	—	0.19027	—	1,651.48	1,651.48	0.06699	0.01340	—	1,657.14
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.14895	0.12464	1.12199	1.62615	0.00294	0.03774	—	0.03774	0.03472	—	0.03472	—	273.421	273.421	0.01109	0.00222	—	274.359
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.31042	1.16777	1.03838	18.6312	0.00000	0.00000	3.93383	3.93383	0.00000	0.92208	0.92208	—	3,997.66	3,997.66	0.04645	0.14265	11.3392	4,052.67
Vendor	0.05970	0.02778	1.31395	0.42340	0.01005	0.02010	0.38231	0.40241	0.02010	0.10563	0.12572	—	1,290.58	1,290.58	0.02088	0.19781	3.06058	1,353.11
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	1.12796	1.10142	1.17440	14.0928	0.00000	0.00000	3.93383	3.93383	0.00000	0.92208	0.92208	—	3,677.24	3,677.24	0.05308	0.14265	0.29489	3,721.38
Vendor	0.05773	0.02581	1.37582	0.43424	0.01005	0.02010	0.38231	0.40241	0.02010	0.10563	0.12572	—	1,291.61	1,291.61	0.02088	0.19781	0.07917	1,351.16
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.77242	0.75413	0.80898	10.2242	0.00000	0.00000	2.68509	2.68509	0.00000	0.62900	0.62900	—	2,565.04	2,565.04	0.03656	0.09827	3.37347	2,598.61
Vendor	0.04044	0.01846	0.95275	0.29573	0.00692	0.01384	0.26133	0.27518	0.01384	0.07225	0.08610	—	889.310	889.310	0.01439	0.13626	0.90863	931.185
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.14097	0.13763	0.14764	1.86592	0.00000	0.00000	0.49003	0.49003	0.00000	0.11479	0.11479	—	424.671	424.671	0.00605	0.01627	0.55852	430.229
Vendor	0.00738	0.00337	0.17388	0.05397	0.00126	0.00253	0.04769	0.05022	0.00253	0.01319	0.01571	—	147.235	147.235	0.00238	0.02256	0.15043	154.168
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6. Paving (2028)

3.6.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81550	0.68524	6.62754	9.90989	0.01395	0.25554	—	0.25554	0.23510	—	0.23510	—	1,511.03	1,511.03	0.06129	0.01226	—	1,516.22
Paving	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02234	0.01877	0.18158	0.27150	0.00038	0.00700	—	0.00700	0.00644	—	0.00644	—	41.3981	41.3981	0.00168	0.00034	—	41.5402
Paving	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00408	0.00343	0.03314	0.04955	0.00007	0.00128	—	0.00128	0.00118	—	0.00118	—	6.85393	6.85393	0.00028	0.00006	—	6.87745

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Paving	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05622	0.05490	0.05853	0.70239	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	183.276	183.276	0.00265	0.00711	0.01470	185.475
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00153	0.00149	0.00160	0.02027	0.00000	0.00000	0.00532	0.00532	0.00000	0.00125	0.00125	—	5.08466	5.08466	0.00007	0.00019	0.00669	5.15120
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00028	0.00027	0.00029	0.00370	0.00000	0.00000	0.00097	0.00097	0.00000	0.00023	0.00023	—	0.84182	0.84182	0.00001	0.00003	0.00111	0.85284
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7. Paving (2029)

3.7.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.80047	0.67262	6.45817	9.91841	0.01395	0.23904	—	0.23904	0.21992	—	0.21992	—	1,510.63	1,510.63	0.06128	0.01226	—	1,515.81
Paving	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.10495	0.08819	0.84677	1.30046	0.00183	0.03134	—	0.03134	0.02883	—	0.02883	—	198.066	198.066	0.00803	0.00161	—	198.746
Paving	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01915	0.01609	0.15453	0.23733	0.00033	0.00572	—	0.00572	0.00526	—	0.00526	—	32.7921	32.7921	0.00133	0.00027	—	32.9047

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Paving	0.00000	0.00000	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05357	0.04646	0.05175	0.65196	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	180.060	180.060	0.00231	0.00711	0.01312	182.250
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00702	0.00609	0.00679	0.09043	0.00000	0.00000	0.02547	0.02547	0.00000	0.00597	0.00597	—	23.9056	23.9056	0.00030	0.00093	0.02856	24.2196
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00128	0.00111	0.00124	0.01650	0.00000	0.00000	0.00465	0.00465	0.00000	0.00109	0.00109	—	3.95785	3.95785	0.00005	0.00015	0.00473	4.00983
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.8. Architectural Coating (2029)

3.8.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12385	0.10236	0.79416	1.11216	0.00173	0.01284	—	0.01284	0.01181	—	0.01181	—	133.510	133.510	0.00542	0.00108	—	133.968
Architectural Coatings	49.2477	49.2477	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12385	0.10236	0.79416	1.11216	0.00173	0.01284	—	0.01284	0.01181	—	0.01181	—	133.510	133.510	0.00542	0.00108	—	133.968
Architectural Coatings	49.2477	49.2477	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.01731	0.01430	0.11096	0.15540	0.00024	0.00179	—	0.00179	0.00165	—	0.00165	—	18.6548	18.6548	0.00076	0.00015	—	18.7188
Architectural Coatings	6.88118	6.88118	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00316	0.00261	0.02025	0.02836	0.00004	0.00033	—	0.00033	0.00030	—	0.00030	—	3.08851	3.08851	0.00013	0.00003	—	3.09911
Architectural Coatings	1.25582	1.25582	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.8.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.22692	0.22294	0.18047	3.48140	0.00000	0.00000	0.78677	0.78677	0.00000	0.18442	0.18442	—	785.336	785.336	0.00796	0.02853	2.02561	796.063
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.21498	0.18644	0.20768	2.61619	0.00000	0.00000	0.78677	0.78677	0.00000	0.18442	0.18442	—	722.546	722.546	0.00929	0.02853	0.05266	731.333
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03004	0.02605	0.02902	0.38669	0.00000	0.00000	0.10893	0.10893	0.00000	0.02552	0.02552	—	102.228	102.228	0.00130	0.00399	0.12214	103.571
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00548	0.00475	0.00530	0.07057	0.00000	0.00000	0.01988	0.01988	0.00000	0.00466	0.00466	—	16.9251	16.9251	0.00021	0.00066	0.02022	17.1473
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4. Operations Emissions Details

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	TOG	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	TOG	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	TOG	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
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	4/1/2027	4/16/2027	5.00000	12.0000	—
Site Preparation	Site Preparation	4/17/2027	6/16/2027	5.00000	43.0000	—
Grading	Grading	6/17/2027	8/16/2027	5.00000	43.0000	—
Building Construction	Building Construction	8/17/2027	12/17/2028	5.00000	349.000	—
Paving	Paving	12/18/2028	3/8/2029	5.00000	59.0000	—
Architectural Coating	Architectural Coating	3/9/2029	5/18/2029	5.00000	51.0000	—

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	1.000000	8.00000	33.0000	0.73000
Demolition	Excavators	Diesel	Average	3.00000	8.00000	36.0000	0.38000
Demolition	Rubber Tired Dozers	Diesel	Average	2.00000	8.00000	367.000	0.40000
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00000	8.00000	367.000	0.40000
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00000	8.00000	84.0000	0.37000
Grading	Excavators	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Grading	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000
Grading	Rubber Tired Dozers	Diesel	Average	1.000000	8.00000	367.000	0.40000
Grading	Scrapers	Diesel	Average	2.00000	8.00000	423.000	0.48000
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00000	8.00000	84.0000	0.37000
Building Construction	Cranes	Diesel	Average	1.000000	7.00000	367.000	0.29000
Building Construction	Forklifts	Diesel	Average	3.00000	8.00000	82.0000	0.20000
Building Construction	Generator Sets	Diesel	Average	1.000000	8.00000	14.0000	0.74000
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00000	7.00000	84.0000	0.37000
Building Construction	Welders	Diesel	Average	1.000000	8.00000	46.0000	0.45000
Paving	Pavers	Diesel	Average	2.00000	8.00000	81.0000	0.42000
Paving	Paving Equipment	Diesel	Average	2.00000	8.00000	89.0000	0.36000

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Paving	Rollers	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Architectural Coating	Air Compressors	Diesel	Average	1.000000	6.00000	37.0000	0.48000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2000	HHDT,MHDT
Demolition	Hauling	17.4167	20.0000	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	Worker	17.5000	18.5000	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2000	HHDT,MHDT
Site Preparation	Hauling	0.00000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	Worker	20.0000	18.5000	LDA,LDT1,LDT2
Grading	Vendor	—	10.2000	HHDT,MHDT
Grading	Hauling	52.3256	20.0000	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	Worker	300.960	18.5000	LDA,LDT1,LDT2
Building Construction	Vendor	44.6842	10.2000	HHDT,MHDT

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	Hauling	0.00000	20.0000	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Paving	Vendor	—	10.2000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	Worker	60.1920	18.5000	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2000	HHDT,MHDT
Architectural Coating	Hauling	0.00000	20.0000	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Apply dust suppressants to unpaved roads	84%	84%

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	812,592	270,864	0.00000	0.00000	—

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (Ton of Debris)	Acres Paved (acres)
Demolition	0.00000	0.00000	0.00000	836.000	0.00000
Site Preparation	0.00000	—	64.5000	0.00000	0.00000
Grading	18,000.0	—	129.000	0.00000	0.00000
Paving	0.00000	0.00000	0.00000	0.00000	—

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	3	74%	74%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Paving	Apartments Mid Rise	—	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00000	439.020	0.03300	0.00400

Year	kWh per Year	CO2	CH4	N2O
2028	0.00000	429.598	0.03300	0.00400
2029	0.00000	412.752	0.03300	0.00400

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
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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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	26.3100	annual days of extreme heat
Extreme Precipitation	2.65000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	1.71000	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 $\frac{3}{4}$ 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	3	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

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
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	3	1	1	3
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	97.5980
AQ-PM	79.4400
AQ-DPM	88.9359
Drinking Water	77.3698
Lead Risk Housing	43.1002
Pesticides	0.00000
Toxic Releases	54.6887
Traffic	85.6125
Effect Indicators	—
CleanUp Sites	46.9578
Groundwater	0.00000
Haz Waste Facilities/Generators	75.9629

Indicator	Result for Project Census Tract
Impaired Water Bodies	0.00000
Solid Waste	52.8981
Sensitive Population	—
Asthma	23.8410
Cardio-vascular	16.9367
Low Birth Weights	87.9651
Socioeconomic Factor Indicators	—
Education	53.4042
Housing	98.5425
Linguistic	76.0725
Poverty	96.6583
Unemployment	99.0500

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	—
Employed	—
Median HI	—
Education	—

Indicator	Result for Project Census Tract
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—
Social	—
2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—

Indicator	Result for Project Census Tract
Health Outcomes	—
Insured adults	—
Arthritis	99.7
Asthma ER Admissions	57.0
High Blood Pressure	99.4
Cancer (excluding skin)	99.8
Asthma	12.1
Coronary Heart Disease	99.7
Chronic Obstructive Pulmonary Disease	96.5
Diagnosed Diabetes	99.6
Life Expectancy at Birth	0.0
Cognitively Disabled	66.4
Physically Disabled	96.9
Heart Attack ER Admissions	76.0
Mental Health Not Good	18.5
Chronic Kidney Disease	99.6
Obesity	86.4
Pedestrian Injuries	0.0
Physical Health Not Good	82.3
Stroke	99.7
Health Risk Behaviors	—

Indicator	Result for Project Census Tract
Binge Drinking	63.5
Current Smoker	26.1
No Leisure Time for Physical Activity	36.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	87.9
Elderly	99.5
English Speaking	0.0
Foreign-born	0.0
Outdoor Workers	86.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	74.8
Traffic Density	0.0
Traffic Access	55.8
Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	82.0000
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
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

8.1. Justifications

Screen	Justification
Construction: Construction Phases	<p>Approximately 15 days)</p> <p>Foundation (approximately 60 days)</p> <p>Grading (approximately 60 days)</p> <p>Foundation (approximately 16 months)</p> <p>Foundation (approximately 80 days)</p> <p>Grading (approximately 70 days)</p>

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Demolition	Demolition	End Date	4/29/2027	4/16/2027
Demolition	Demolition	Work Days per Phase	20.0000	12.0000
Site Preparation	Site Preparation	Start Date	4/30/2027	4/17/2027
Site Preparation	Site Preparation	End Date	5/14/2027	6/16/2027
Site Preparation	Site Preparation	Work Days per Phase	10.00000	43.0000
Grading	Grading	Start Date	5/15/2027	6/17/2027
Grading	Grading	End Date	6/26/2027	8/16/2027
Grading	Grading	Work Days per Phase	30.0000	43.0000
Building Construction	Building Construction	Start Date	6/27/2027	8/17/2027
Building Construction	Building Construction	End Date	8/20/2028	12/17/2028
Building Construction	Building Construction	Work Days per Phase	300.000	349.000
Paving	Paving	Start Date	8/21/2028	12/18/2028
Paving	Paving	End Date	9/18/2028	3/8/2029

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Paving	Paving	Work Days per Phase	20.0000	59.0000
Architectural Coating	Architectural Coating	Start Date	9/19/2028	3/9/2029
Architectural Coating	Architectural Coating	End Date	10/17/2028	5/18/2029
Architectural Coating	Architectural Coating	Work Days per Phase	20.0000	51.0000

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	UCR NDD3 Parking
Construction Start Date	1/1/2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50000
Precipitation (days)	14.2000
Location	33.97865996032428, -117.32828873287608
County	Riverside-South Coast
City	Riverside
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5481
EDFZ	11
Electric Utility	City of Riverside
Gas Utility	Southern California Gas
App Version	2022.1.1.47

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
Unenclosed Parking with Elevator	2,000.00	Space	18.0000	53,720.0	0.00000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

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.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	17.5355	17.5108	9.74142	14.5221	0.02538	0.34053	0.37024	0.71078	0.31361	0.08994	0.40355	—	2,962.67	2,962.67	0.10681	0.06912	1.61130	2,987.55
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	3.86616	3.12093	42.2843	30.0726	0.16898	1.18578	21.8160	23.0018	1.12211	4.00806	5.13016	—	23,191.7	23,191.7	0.51850	3.10166	0.99565	24,129.9
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.74019	1.65935	10.6308	12.6312	0.02767	0.38397	1.56692	1.95089	0.35462	0.59932	0.95394	—	3,322.88	3,322.88	0.11125	0.16392	1.05759	3,375.56

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.31758	0.30283	1.94011	2.30519	0.00505	0.07007	0.28596	0.35604	0.06472	0.10938	0.17409	—	550.140	550.140	0.01842	0.02714	0.17510	558.863

2.2. Construction Emissions by Year

2.2.1. Total Construction Emissions by Year, Unmitigated

Includes both onsite and offsite emissions.

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

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.34424	1.12588	9.74142	14.5221	0.02538	0.34053	0.37024	0.71078	0.31361	0.08994	0.40355	—	2,962.67	2,962.67	0.10681	0.06912	1.61130	2,987.55
2028	17.5355	17.5108	9.26170	14.4154	0.02538	0.30420	0.37024	0.67444	0.28018	0.08994	0.37012	—	2,951.45	2,951.45	0.10485	0.06912	1.45315	2,976.13
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	3.86616	3.12093	42.2843	30.0726	0.16898	1.18578	21.8160	23.0018	1.12211	4.00806	5.13016	—	23,191.7	23,191.7	0.51850	3.10166	0.99565	24,129.9
2028	1.28075	1.07909	9.28409	14.0773	0.02538	0.30420	0.37024	0.67444	0.28018	0.08994	0.37012	—	2,927.64	2,927.64	0.10535	0.06912	0.03771	2,950.90
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.36188	1.12756	10.6308	12.6312	0.02767	0.38397	1.56692	1.95089	0.35462	0.59932	0.95394	—	3,322.88	3,322.88	0.11125	0.16392	1.05759	3,375.56
2028	1.74019	1.65935	3.74388	5.73073	0.00995	0.12401	0.14556	0.26958	0.11421	0.03522	0.14943	—	1,153.46	1,153.46	0.04159	0.02594	0.24200	1,162.47
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
2027	0.24854	0.20578	1.94011	2.30519	0.00505	0.07007	0.28596	0.35604	0.06472	0.10938	0.17409	—	550.140	550.140	0.01842	0.02714	0.17510	558.863
2028	0.31758	0.30283	0.68326	1.04586	0.00182	0.02263	0.02657	0.04920	0.02084	0.00643	0.02727	—	190.969	190.969	0.00689	0.00429	0.04007	192.461

2.2.2. Onsite 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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.23076	1.02988	9.39093	12.9379	0.02340	0.33657	0.00000	0.33657	0.30965	0.00000	0.30965	—	2,397.08	2,397.08	0.09724	0.01945	0.00000	2,405.30
2028	17.5159	17.4933	8.92495	12.9352	0.02340	0.30024	0.00000	0.30024	0.27622	0.00000	0.27622	—	2,397.46	2,397.46	0.09725	0.01945	0.00000	2,405.68
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	3.63178	3.05170	27.9724	28.2794	0.06093	1.17173	16.2859	17.0818	1.07799	3.87888	4.95687	—	6,598.08	6,598.08	0.26765	0.05353	0.00000	6,620.72
2028	1.18481	0.99143	8.92495	12.9352	0.02340	0.30024	0.00000	0.30024	0.27622	0.00000	0.27622	—	2,397.46	2,397.46	0.09725	0.01945	0.00000	2,405.68
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.25775	1.05448	9.54962	11.5745	0.02137	0.36687	1.12511	1.49198	0.33752	0.48468	0.82221	—	2,238.23	2,238.23	0.09079	0.01816	0.00000	2,245.91
2028	1.70185	1.62406	3.61098	5.24770	0.00925	0.12260	0.00000	0.12260	0.11280	0.00000	0.11280	—	949.238	949.238	0.03851	0.00770	0.00000	952.496
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.22954	0.19244	1.74281	2.11235	0.00390	0.06695	0.20533	0.27229	0.06160	0.08845	0.15005	—	370.564	370.564	0.01503	0.00301	0.00000	371.836
2028	0.31059	0.29639	0.65900	0.95771	0.00169	0.02238	0.00000	0.02238	0.02059	0.00000	0.02059	—	157.157	157.157	0.00637	0.00127	0.00000	157.697

2.2.3. Offsite 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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.11348	0.09600	0.35049	1.58412	0.00198	0.00396	0.37024	0.37420	0.00396	0.08994	0.09390	—	565.591	565.591	0.00958	0.04967	1.61130	582.244
2028	0.11000	0.09302	0.33675	1.48017	0.00198	0.00396	0.37024	0.37420	0.00396	0.08994	0.09390	—	553.997	553.997	0.00760	0.04967	1.45315	570.443
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.88948	0.35576	22.3837	6.11346	0.13644	0.38984	5.53012	5.91996	0.38984	1.54190	1.93174	—	19,764.8	19,764.8	0.37949	3.07385	0.99565	20,691.3
2028	0.09594	0.08766	0.35914	1.14208	0.00198	0.00396	0.37024	0.37420	0.00396	0.08994	0.09390	—	530.178	530.178	0.00809	0.04967	0.03771	545.220
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.10413	0.07309	1.08114	1.05667	0.00631	0.01710	0.44181	0.45891	0.01710	0.11464	0.13173	—	1,084.65	1,084.65	0.02046	0.14576	1.05759	1,129.65
2028	0.03834	0.03529	0.13290	0.48302	0.00071	0.00141	0.14556	0.14697	0.00141	0.03522	0.03663	—	204.225	204.225	0.00309	0.01824	0.24200	209.978
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.01900	0.01334	0.19731	0.19284	0.00115	0.00312	0.08063	0.08375	0.00312	0.02092	0.02404	—	179.576	179.576	0.00339	0.02413	0.17510	187.027
2028	0.00700	0.00644	0.02425	0.08815	0.00013	0.00026	0.02657	0.02682	0.00026	0.00643	0.00669	—	33.8117	33.8117	0.00051	0.00302	0.04007	34.7643

3. Construction Emissions Details

3.1. Demolition (2027)

3.1.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.63907	2.21478	19.9005	18.6307	0.03253	0.79594	—	0.79594	0.73226	—	0.73226	—	3,426.90	3,426.90	0.13901	0.02780	—	3,438.66
Demolition	—	—	—	—	—	—	16.2859	16.2859	—	2.46615	2.46615	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05061	0.04248	0.38165	0.35730	0.00062	0.01526	—	0.01526	0.01404	—	0.01404	—	65.7213	65.7213	0.00267	0.00053	—	65.9468
Demolition	—	—	—	—	—	—	0.31233	0.31233	—	0.04730	0.04730	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00924	0.00775	0.06965	0.06521	0.00011	0.00279	—	0.00279	0.00256	—	0.00256	—	10.8809	10.8809	0.00044	0.00009	—	10.9183
Demolition	—	—	—	—	—	—	0.05700	0.05700	—	0.00863	0.00863	—	—	—	—	—	—	—

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06432	0.05688	0.05886	0.75315	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	186.733	186.733	0.00265	0.00711	0.01636	188.935
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.82516	0.29888	22.3249	5.36030	0.13644	0.38984	5.33405	5.72389	0.38984	1.49595	1.88579	—	19,578.1	19,578.1	0.37685	3.06674	0.97929	20,502.3
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00123	0.00109	0.00125	0.01516	0.00000	0.00000	0.00373	0.00373	0.00000	0.00087	0.00087	—	3.62650	3.62650	0.00005	0.00014	0.00522	3.67362
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.01607	0.00611	0.43052	0.10168	0.00262	0.00748	0.10157	0.10904	0.00748	0.02851	0.03598	—	375.348	375.348	0.00723	0.05869	0.31254	393.330
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00023	0.00020	0.00023	0.00277	0.00000	0.00000	0.00068	0.00068	0.00000	0.00016	0.00016	—	0.60041	0.60041	0.00001	0.00002	0.00086	0.60821
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00293	0.00111	0.07857	0.01856	0.00048	0.00136	0.01854	0.01990	0.00136	0.00520	0.00657	—	62.1431	62.1431	0.00120	0.00972	0.05174	65.1204

3.2. Site Preparation (2027)

3.2.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.63178	3.05170	27.9724	28.2794	0.04891	1.17173	—	1.17173	1.07799	—	1.07799	—	5,297.82	5,297.82	0.21490	0.04298	—	5,316.00
Dust From Material Movement	—	—	—	—	—	—	7.10058	7.10058	—	3.87888	3.87888	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33830	0.28427	2.60565	2.63424	0.00456	0.10915	—	0.10915	0.10042	—	0.10042	—	493.495	493.495	0.02002	0.00400	—	495.189
Dust From Material Movement	—	—	—	—	—	—	0.66142	0.66142	—	0.36132	0.36132	—	—	—	—	—	—	—

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06174	0.05188	0.47553	0.48075	0.00083	0.01992	—	0.01992	0.01833	—	0.01833	—	81.7038	81.7038	0.00331	0.00066	—	81.9842
Dust From Material Movement	—	—	—	—	—	—	0.12071	0.12071	—	0.06594	0.06594	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.07504	0.06636	0.06867	0.87868	0.00000	0.00000	0.22874	0.22874	0.00000	0.05362	0.05362	—	217.856	217.856	0.00309	0.00829	0.01909	220.424
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Worker	0.00699	0.00618	0.00706	0.08591	0.00000	0.00000	0.02111	0.02111	0.00000	0.00495	0.00495	—	20.5502	20.5502	0.00029	0.00077	0.02957	20.8172
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00128	0.00113	0.00129	0.01568	0.00000	0.00000	0.00385	0.00385	0.00000	0.00090	0.00090	—	3.40232	3.40232	0.00005	0.00013	0.00490	3.44653
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3. Grading (2027)

3.3.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.50534	2.94546	25.5801	27.2816	0.06093	1.04307	—	1.04307	0.95962	—	0.95962	—	6,598.08	6,598.08	0.26765	0.05353	—	6,620.72
Dust From Material Movement	—	—	—	—	—	—	2.63065	2.63065	—	1.32214	1.32214	—	—	—	—	—	—	—

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.20168	0.16946	1.47173	1.56963	0.00351	0.06001	—	0.06001	0.05521	—	0.05521	—	379.615	379.615	0.01540	0.00308	—	380.918
Dust From Material Movement	—	—	—	—	—	—	0.15135	0.15135	—	0.07607	0.07607	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.03681	0.03093	0.26859	0.28646	0.00064	0.01095	—	0.01095	0.01008	—	0.01008	—	62.8497	62.8497	0.00255	0.00051	—	63.0654
Dust From Material Movement	—	—	—	—	—	—	0.02762	0.02762	—	0.01388	0.01388	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.2. Offsite - Unmitigated

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

UCR NDD3 Parking Detailed Report, 10/27/2026

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08576	0.07584	0.07848	1.00421	0.00000	0.00000	0.26142	0.26142	0.00000	0.06128	0.06128	—	248.978	248.978	0.00353	0.00948	0.02181	251.913
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.27505	0.09963	7.44162	1.78677	0.04548	0.12995	1.77802	1.90796	0.12995	0.49865	0.62860	—	6,526.02	6,526.02	0.12562	1.02225	0.32643	6,834.11
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00493	0.00436	0.00498	0.06064	0.00000	0.00000	0.01490	0.01490	0.00000	0.00349	0.00349	—	14.5060	14.5060	0.00020	0.00055	0.02087	14.6945
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.01607	0.00611	0.43052	0.10168	0.00262	0.00748	0.10157	0.10904	0.00748	0.02851	0.03598	—	375.348	375.348	0.00723	0.05869	0.31254	393.330
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00090	0.00080	0.00091	0.01107	0.00000	0.00000	0.00272	0.00272	0.00000	0.00064	0.00064	—	2.40164	2.40164	0.00003	0.00009	0.00346	2.43284
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00293	0.00111	0.07857	0.01856	0.00048	0.00136	0.01854	0.01990	0.00136	0.00520	0.00657	—	62.1431	62.1431	0.00120	0.00972	0.05174	65.1204

3.4. Building Construction (2027)

3.4.1. Onsite - Unmitigated

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

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23076	1.02988	9.39093	12.9379	0.02340	0.33657	—	0.33657	0.30965	—	0.30965	—	2,397.08	2,397.08	0.09724	0.01945	—	2,405.30
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.23076	1.02988	9.39093	12.9379	0.02340	0.33657	—	0.33657	0.30965	—	0.30965	—	2,397.08	2,397.08	0.09724	0.01945	—	2,405.30
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.66716	0.55827	5.09058	7.01333	0.01268	0.18245	—	0.18245	0.16785	—	0.16785	—	1,299.39	1,299.39	0.05271	0.01054	—	1,303.85
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12176	0.10188	0.92903	1.27993	0.00231	0.03330	—	0.03330	0.03063	—	0.03063	—	215.130	215.130	0.00873	0.00175	—	215.868
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10172	0.09053	0.07834	1.49871	0.00000	0.00000	0.29491	0.29491	0.00000	0.06913	0.06913	—	305.399	305.399	0.00348	0.01069	0.94877	309.622
Vendor	0.01176	0.00547	0.27214	0.08541	0.00198	0.00396	0.07533	0.07929	0.00396	0.02081	0.02477	—	260.191	260.191	0.00610	0.03898	0.66252	272.622
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09675	0.08556	0.08854	1.13286	0.00000	0.00000	0.29491	0.29491	0.00000	0.06913	0.06913	—	280.877	280.877	0.00398	0.01069	0.02461	284.188
Vendor	0.01157	0.00509	0.28433	0.08793	0.00198	0.00396	0.07533	0.07929	0.00396	0.02081	0.02477	—	260.390	260.390	0.00590	0.03898	0.01721	272.170
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05244	0.04638	0.05298	0.64457	0.00000	0.00000	0.15841	0.15841	0.00000	0.03711	0.03711	—	154.183	154.183	0.00216	0.00580	0.22184	156.186
Vendor	0.00638	0.00286	0.15384	0.04703	0.00107	0.00215	0.04052	0.04267	0.00215	0.01120	0.01335	—	141.088	141.088	0.00330	0.02113	0.15501	147.622
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00957	0.00846	0.00967	0.11763	0.00000	0.00000	0.02891	0.02891	0.00000	0.00677	0.00677	—	25.5267	25.5267	0.00036	0.00096	0.03673	25.8584
Vendor	0.00116	0.00052	0.02807	0.00858	0.00020	0.00039	0.00740	0.00779	0.00039	0.00204	0.00244	—	23.3588	23.3588	0.00055	0.00350	0.02566	24.4406
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5. Building Construction (2028)

3.5.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18481	0.99143	8.92495	12.9352	0.02340	0.30024	—	0.30024	0.27622	—	0.27622	—	2,397.46	2,397.46	0.09725	0.01945	—	2,405.68
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.18481	0.99143	8.92495	12.9352	0.02340	0.30024	—	0.30024	0.27622	—	0.27622	—	2,397.46	2,397.46	0.09725	0.01945	—	2,405.68
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.42199	0.35311	3.17875	4.60708	0.00833	0.10693	—	0.10693	0.09838	—	0.09838	—	853.889	853.889	0.03464	0.00693	—	856.819
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.07701	0.06444	0.58012	0.84079	0.00152	0.01952	—	0.01952	0.01795	—	0.01795	—	141.371	141.371	0.00573	0.00115	—	141.856
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.5.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09824	0.08755	0.07785	1.39674	0.00000	0.00000	0.29491	0.29491	0.00000	0.06913	0.06913	—	299.697	299.697	0.00348	0.01069	0.85008	303.821
Vendor	0.01176	0.00547	0.25890	0.08343	0.00198	0.00396	0.07533	0.07929	0.00396	0.02081	0.02477	—	254.301	254.301	0.00412	0.03898	0.60307	266.622
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.08456	0.08257	0.08804	1.05651	0.00000	0.00000	0.29491	0.29491	0.00000	0.06913	0.06913	—	275.676	275.676	0.00398	0.01069	0.02211	278.985
Vendor	0.01137	0.00509	0.27109	0.08556	0.00198	0.00396	0.07533	0.07929	0.00396	0.02081	0.02477	—	254.502	254.502	0.00412	0.03898	0.01560	266.236
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.02994	0.02923	0.03136	0.39631	0.00000	0.00000	0.10408	0.10408	0.00000	0.02438	0.02438	—	99.4258	99.4258	0.00142	0.00381	0.13076	100.727
Vendor	0.00412	0.00188	0.09707	0.03013	0.00071	0.00141	0.02662	0.02803	0.00141	0.00736	0.00877	—	90.6031	90.6031	0.00147	0.01388	0.09257	94.8692
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00546	0.00533	0.00572	0.07233	0.00000	0.00000	0.01899	0.01899	0.00000	0.00445	0.00445	—	16.4611	16.4611	0.00023	0.00063	0.02165	16.6765
Vendor	0.00075	0.00034	0.01771	0.00550	0.00013	0.00026	0.00486	0.00512	0.00026	0.00134	0.00160	—	15.0004	15.0004	0.00024	0.00230	0.01533	15.7067
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6. Paving (2028)

3.6.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.81550	0.68524	6.62754	9.90989	0.01395	0.25554	—	0.25554	0.23510	—	0.23510	—	1,511.03	1,511.03	0.06129	0.01226	—	1,516.22
Paving	2.24571	2.24571	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04692	0.03942	0.38131	0.57016	0.00080	0.01470	—	0.01470	0.01353	—	0.01353	—	86.9360	86.9360	0.00353	0.00071	—	87.2343

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Paving	0.12921	0.12921	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00856	0.00720	0.06959	0.10405	0.00015	0.00268	—	0.00268	0.00247	—	0.00247	—	14.3932	14.3932	0.00058	0.00012	—	14.4426
Paving	0.02358	0.02358	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.6.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06531	0.05820	0.05175	0.92859	0.00000	0.00000	0.19606	0.19606	0.00000	0.04596	0.04596	—	199.245	199.245	0.00231	0.00711	0.56515	201.987
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00322	0.00314	0.00337	0.04256	0.00000	0.00000	0.01118	0.01118	0.00000	0.00262	0.00262	—	10.6778	10.6778	0.00015	0.00041	0.01404	10.8175

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00059	0.00057	0.00061	0.00777	0.00000	0.00000	0.00204	0.00204	0.00000	0.00048	0.00048	—	1.76783	1.76783	0.00003	0.00007	0.00233	1.79096
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7. Architectural Coating (2028)

3.7.1. Onsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12985	0.10731	0.80814	1.11833	0.00173	0.01536	—	0.01536	0.01413	—	0.01413	—	133.517	133.517	0.00542	0.00108	—	133.975
Architectural Coatings	17.3860	17.3860	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00818	0.00676	0.05092	0.07047	0.00011	0.00097	—	0.00097	0.00089	—	0.00089	—	8.41340	8.41340	0.00034	0.00007	—	8.44227
Architectural Coatings	1.09556	1.09556	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00149	0.00123	0.00929	0.01286	0.00002	0.00018	—	0.00018	0.00016	—	0.00016	—	1.39293	1.39293	0.00006	0.00001	—	1.39771
Architectural Coatings	0.19994	0.19994	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.7.2. Offsite - Unmitigated

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

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01965	0.01751	0.01557	0.27935	0.00000	0.00000	0.05898	0.05898	0.00000	0.01383	0.01383	—	59.9393	59.9393	0.00070	0.00214	0.17002	60.7642
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00106	0.00103	0.00111	0.01402	0.00000	0.00000	0.00368	0.00368	0.00000	0.00086	0.00086	—	3.51814	3.51814	0.00005	0.00013	0.00463	3.56419
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00019	0.00019	0.00020	0.00256	0.00000	0.00000	0.00067	0.00067	0.00000	0.00016	0.00016	—	0.58247	0.58247	0.00001	0.00002	0.00077	0.59009
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4. Operations Emissions Details

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	TOG	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	TOG	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	TOG	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
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	1/1/2027	1/11/2027	5.00000	7.00000	—
Site Preparation	Site Preparation	1/12/2027	2/26/2027	5.00000	34.0000	—
Grading	Grading	2/27/2027	3/29/2027	5.00000	21.0000	—
Building Construction	Building Construction	3/30/2027	6/30/2028	5.00000	329.000	—
Paving	Paving	7/1/2028	7/31/2028	5.00000	21.0000	—
Architectural Coating	Architectural Coating	8/1/2028	8/31/2028	5.00000	23.0000	—

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	1.000000	8.00000	33.0000	0.73000
Demolition	Excavators	Diesel	Average	3.00000	8.00000	36.0000	0.38000
Demolition	Rubber Tired Dozers	Diesel	Average	2.00000	8.00000	367.000	0.40000
Site Preparation	Rubber Tired Dozers	Diesel	Average	3.00000	8.00000	367.000	0.40000
Site Preparation	Tractors/Loaders/Backhoes	Diesel	Average	4.00000	8.00000	84.0000	0.37000
Grading	Excavators	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Grading	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000
Grading	Rubber Tired Dozers	Diesel	Average	1.000000	8.00000	367.000	0.40000
Grading	Scrapers	Diesel	Average	2.00000	8.00000	423.000	0.48000
Grading	Tractors/Loaders/Backhoes	Diesel	Average	2.00000	8.00000	84.0000	0.37000
Building Construction	Cranes	Diesel	Average	1.000000	7.00000	367.000	0.29000
Building Construction	Forklifts	Diesel	Average	3.00000	8.00000	82.0000	0.20000
Building Construction	Generator Sets	Diesel	Average	1.000000	8.00000	14.0000	0.74000
Building Construction	Tractors/Loaders/Backhoes	Diesel	Average	3.00000	7.00000	84.0000	0.37000
Building Construction	Welders	Diesel	Average	1.000000	8.00000	46.0000	0.45000
Paving	Pavers	Diesel	Average	2.00000	8.00000	81.0000	0.42000
Paving	Paving Equipment	Diesel	Average	2.00000	8.00000	89.0000	0.36000

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Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Paving	Rollers	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Architectural Coating	Air Compressors	Diesel	Average	1.000000	6.00000	37.0000	0.48000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Demolition	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Demolition	Vendor	—	10.2000	HHDT,MHDT
Demolition	Hauling	294.714	20.0000	HHDT
Demolition	Onsite truck	—	—	HHDT
Site Preparation	Worker	17.5000	18.5000	LDA,LDT1,LDT2
Site Preparation	Vendor	—	10.2000	HHDT,MHDT
Site Preparation	Hauling	0.00000	20.0000	HHDT
Site Preparation	Onsite truck	—	—	HHDT
Grading	Worker	20.0000	18.5000	LDA,LDT1,LDT2
Grading	Vendor	—	10.2000	HHDT,MHDT
Grading	Hauling	98.2381	20.0000	HHDT
Grading	Onsite truck	—	—	HHDT
Building Construction	Worker	22.5624	18.5000	LDA,LDT1,LDT2
Building Construction	Vendor	8.80471	10.2000	HHDT,MHDT

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Building Construction	Hauling	0.00000	20.0000	HHDT
Building Construction	Onsite truck	—	—	HHDT
Paving	Worker	15.0000	18.5000	LDA,LDT1,LDT2
Paving	Vendor	—	10.2000	HHDT,MHDT
Paving	Hauling	0.00000	20.0000	HHDT
Paving	Onsite truck	—	—	HHDT
Architectural Coating	Worker	4.51248	18.5000	LDA,LDT1,LDT2
Architectural Coating	Vendor	—	10.2000	HHDT,MHDT
Architectural Coating	Hauling	0.00000	20.0000	HHDT
Architectural Coating	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Control Strategies Applied	PM10 Reduction	PM2.5 Reduction
Apply dust suppressants to unpaved roads	84%	84%
Limit vehicle speeds on unpaved roads to 25 mph	44%	44%

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
Architectural Coating	0.00000	0.00000	35,283.6	3,920.40	47,044.8

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	0.00000	0.00000	0.00000	179,312	0.00000
Site Preparation	—	—	4.50000	0.00000	0.00000
Grading	—	16,500.0	4.50000	0.00000	0.00000
Paving	0.00000	0.00000	0.00000	0.00000	18.0000

5.6.2. Construction Earthmoving Control Strategies

Control Strategies Applied	Frequency (per day)	PM10 Reduction	PM2.5 Reduction
Water Exposed Area	2	61%	61%
Water Demolished Area	2	36%	36%

5.7. Construction Paving

Phase Name	Land Use	Area Paved (acres)	% Asphalt
Paving	Unenclosed Parking with Elevator	18.0000	100%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	0.00000	873.194	0.03300	0.00400

Year	kWh per Year	CO2	CH4	N2O
2028	0.00000	873.194	0.03300	0.00400

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
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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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	26.3100	annual days of extreme heat
Extreme Precipitation	2.65000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	1.71000	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 $\frac{3}{4}$ 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	3	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

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
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	3	1	1	3
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	97.5980
AQ-PM	79.4400
AQ-DPM	88.9359
Drinking Water	77.3698
Lead Risk Housing	43.1002
Pesticides	0.00000
Toxic Releases	54.6887
Traffic	85.6125
Effect Indicators	—
CleanUp Sites	46.9578
Groundwater	0.00000
Haz Waste Facilities/Generators	75.9629

Indicator	Result for Project Census Tract
Impaired Water Bodies	0.00000
Solid Waste	52.8981
Sensitive Population	—
Asthma	23.8410
Cardio-vascular	16.9367
Low Birth Weights	87.9651
Socioeconomic Factor Indicators	—
Education	53.4042
Housing	98.5425
Linguistic	76.0725
Poverty	96.6583
Unemployment	99.0500

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	—
Employed	—
Median HI	—
Education	—

Indicator	Result for Project Census Tract
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—
Social	—
2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—

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Indicator	Result for Project Census Tract
Health Outcomes	—
Insured adults	—
Arthritis	99.7
Asthma ER Admissions	57.0
High Blood Pressure	99.4
Cancer (excluding skin)	99.8
Asthma	12.1
Coronary Heart Disease	99.7
Chronic Obstructive Pulmonary Disease	96.5
Diagnosed Diabetes	99.6
Life Expectancy at Birth	0.0
Cognitively Disabled	66.4
Physically Disabled	96.9
Heart Attack ER Admissions	76.0
Mental Health Not Good	18.5
Chronic Kidney Disease	99.6
Obesity	86.4
Pedestrian Injuries	0.0
Physical Health Not Good	82.3
Stroke	99.7
Health Risk Behaviors	—

Indicator	Result for Project Census Tract
Binge Drinking	63.5
Current Smoker	26.1
No Leisure Time for Physical Activity	36.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	87.9
Elderly	99.5
English Speaking	0.0
Foreign-born	0.0
Outdoor Workers	86.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	74.8
Traffic Density	0.0
Traffic Access	55.8
Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	82.0000
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
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

8.1. Justifications

Screen	Justification
Land Use	2000 space parking structure

Screen	Justification
Construction: Construction Phases	<p>Approximately 10 days)</p> <p>Foundation (approximately 45 days)</p> <p>Grading (approximately 30 days)</p> <p>Excavation (approximately 15 months)</p> <p>Final Gravel Coating (approximately 30 days)</p> <p>Sealing (approximately 30 days)</p>
Construction: Dust From Material Movement	4.5 acres graded and 16,500 CY of soil exported

8.3. Land Use

Model Parameter	Units	Default Value	New Value
Building Area	sq. ft	800,000	53,720.0
Landscape Area	sq. ft	—	0.00000

8.4. Construction

8.4.1. Construction Phases

Phase Type	Phase Name	Model Parameter	Default Value	New Value
Demolition	Demolition	End Date	1/29/2027	1/11/2027
Demolition	Demolition	Work Days per Phase	20.0000	7.00000
Site Preparation	Site Preparation	Start Date	1/30/2027	1/12/2027
Site Preparation	Site Preparation	End Date	2/13/2027	2/26/2027
Site Preparation	Site Preparation	Work Days per Phase	10.00000	34.0000
Grading	Grading	Start Date	2/14/2027	2/27/2027
Grading	Grading	End Date	3/28/2027	3/29/2027

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Phase Type	Phase Name	Model Parameter	Default Value	New Value
Grading	Grading	Work Days per Phase	30.0000	21.0000
Building Construction	Building Construction	Start Date	3/29/2027	3/30/2027
Building Construction	Building Construction	End Date	5/22/2028	6/30/2028
Building Construction	Building Construction	Work Days per Phase	300.000	329.000
Paving	Paving	Start Date	5/23/2028	7/1/2028
Paving	Paving	End Date	6/20/2028	7/31/2028
Paving	Paving	Work Days per Phase	20.0000	21.0000
Architectural Coating	Architectural Coating	Start Date	6/21/2028	8/1/2028
Architectural Coating	Architectural Coating	End Date	7/19/2028	8/31/2028
Architectural Coating	Architectural Coating	Work Days per Phase	20.0000	23.0000

8.4.4. Dust from Material Movement

Phase Name	Model Parameter	Units	Default Value	New Value
Site Preparation	Total Acres Graded	acres	51.0000	4.50000
Grading	Material Exported	Cubic Yards	—	16,500.0
Grading	Total Acres Graded	acres	63.0000	4.50000

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	UCR NDD3 Operations
Operational Year	2029
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50000
Precipitation (days)	14.2000
Location	33.97897727387054, -117.32739301185416
County	Riverside-South Coast
City	Riverside
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5481
EDFZ	11
Electric Utility	City of Riverside
Gas Utility	Southern California Gas
App Version	2022.1.1.46

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Apartments Mid Rise	418.000	Dwelling Unit	11.0000	401,280	40,128.0	—	1,350.00	—
Enclosed Parking with Elevator	2,000.00	Space	18.0000	53,720.0	0.00000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.3. 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.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.8568	16.4155	5.46240	49.3636	0.05573	0.14447	4.65984	4.80431	0.13856	1.18247	1.32102	199.146	5,917.88	6,117.03	20.2790	0.34597	16.2520	6,743.35
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	14.0260	13.7272	5.38302	20.7886	0.05149	0.12943	4.65984	4.78927	0.12720	1.18247	1.30967	199.146	5,533.65	5,732.80	20.2924	0.35360	3.22085	6,348.70
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Unmit.	15.7591	15.3584	5.58134	39.2583	0.05273	0.13973	4.61743	4.75717	0.13498	1.17187	1.30685	199.146	5,628.60	5,827.75	20.2951	0.35606	8.65049	6,449.88
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	2.87603	2.80290	1.01860	7.16464	0.00962	0.02550	0.84268	0.86818	0.02463	0.21387	0.23850	32.9709	931.880	964.850	3.36009	0.05895	1.43219	1,067.85

2.4. 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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	4.12365	3.89285	2.38086	21.6310	0.05151	0.03600	4.65984	4.69584	0.03377	1.18247	1.21624	—	5,269.54	5,269.54	0.26369	0.26213	13.3780	5,367.63
Area	12.0356	11.8879	0.24254	26.1139	0.00117	0.01508	—	0.01508	0.01140	—	0.01140	0.00000	73.0129	73.0129	0.00305	0.00061	—	73.2706
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	32.5791	250.562	283.141	3.35146	0.08069	—	390.972
Waste	—	—	—	—	—	—	—	—	—	—	—	166.567	0.00000	166.567	16.6477	0.00000	—	582.760
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.87397	2.87397
Stationary	0.69754	0.63476	2.83899	1.61872	0.00305	0.09339	0.00000	0.09339	0.09339	0.00000	0.09339	0.00000	324.765	324.765	0.01304	0.00254	0.00000	325.850
Total	16.8568	16.4155	5.46240	49.3636	0.05573	0.14447	4.65984	4.80431	0.13856	1.18247	1.32102	199.146	5,917.88	6,117.03	20.2790	0.34597	16.2520	6,743.35
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.88174	3.64567	2.54403	19.1699	0.04844	0.03604	4.65984	4.69588	0.03381	1.18247	1.21628	—	4,958.32	4,958.32	0.28020	0.27037	0.34688	5,046.25
Area	9.44673	9.44673	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	32.5791	250.562	283.141	3.35146	0.08069	—	390.972
Waste	—	—	—	—	—	—	—	—	—	—	—	166.567	0.00000	166.567	16.6477	0.00000	—	582.760
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.87397	2.87397
Stationary	0.69754	0.63476	2.83899	1.61872	0.00305	0.09339	0.00000	0.09339	0.09339	0.00000	0.09339	0.00000	324.765	324.765	0.01304	0.00254	0.00000	325.850
Total	14.0260	13.7272	5.38302	20.7886	0.05149	0.12943	4.65984	4.78927	0.12720	1.18247	1.30967	199.146	5,533.65	5,732.80	20.2924	0.35360	3.22085	6,348.70
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	3.84162	3.60482	2.57623	19.7534	0.04888	0.03602	4.61743	4.65345	0.03379	1.17187	1.20565	—	5,003.27	5,003.27	0.28078	0.27242	5.77652	5,097.24
Area	11.2199	11.1188	0.16613	17.8862	0.00080	0.01033	—	0.01033	0.00781	—	0.00781	0.00000	50.0088	50.0088	0.00209	0.00042	—	50.1853
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	32.5791	250.562	283.141	3.35146	0.08069	—	390.972
Waste	—	—	—	—	—	—	—	—	—	—	—	166.567	0.00000	166.567	16.6477	0.00000	—	582.760
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.87397	2.87397
Stationary	0.69754	0.63476	2.83899	1.61872	0.00305	0.09339	0.00000	0.09339	0.09339	0.00000	0.09339	0.00000	324.765	324.765	0.01304	0.00254	0.00000	325.850
Total	15.7591	15.3584	5.58134	39.2583	0.05273	0.13973	4.61743	4.75717	0.13498	1.17187	1.30685	199.146	5,628.60	5,827.75	20.2951	0.35606	8.65049	6,449.88
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	0.70109	0.65788	0.47016	3.60499	0.00892	0.00657	0.84268	0.84925	0.00617	0.21387	0.22003	—	828.348	828.348	0.04649	0.04510	0.95637	843.907
Area	2.04764	2.02918	0.03032	3.26423	0.00015	0.00189	—	0.00189	0.00142	—	0.00142	0.00000	8.27954	8.27954	0.00035	0.00007	—	8.30876
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	5.39385	41.4834	46.8772	0.55487	0.01336	—	64.7298

Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Waste	—	—	—	—	—	—	—	—	—	—	—	27.5770	0.00000	27.5770	2.75622	0.00000	—	96.4826
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.47582	0.47582
Stationary	0.12730	0.11584	0.51812	0.29542	0.00056	0.01704	0.00000	0.01704	0.01704	0.00000	0.01704	0.00000	53.7686	53.7686	0.00216	0.00042	0.00000	53.9481
Total	2.87603	2.80290	1.01860	7.16464	0.00962	0.02550	0.84268	0.86818	0.02463	0.21387	0.23850	32.9709	931.880	964.850	3.36009	0.05895	1.43219	1,067.85

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Enclosed Parking with Elevator	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Enclosed Parking with Elevator	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Enclosed Parking with Elevator	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Consumer Products	8.64906	8.64906	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.79767	0.79767	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	2.58885	2.44120	0.24254	26.1139	0.00117	0.01508	—	0.01508	0.01140	—	0.01140	—	73.0129	73.0129	0.00305	0.00061	—	73.2706
Total	12.0356	11.8879	0.24254	26.1139	0.00117	0.01508	—	0.01508	0.01140	—	0.01140	0.00000	73.0129	73.0129	0.00305	0.00061	—	73.2706

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Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Consumer Products	8.64906	8.64906	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.79767	0.79767	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	9.44673	9.44673	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Consumer Products	1.57845	1.57845	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.14558	0.14558	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.32361	0.30515	0.03032	3.26423	0.00015	0.00189	—	0.00189	0.00142	—	0.00142	—	8.27954	8.27954	0.00035	0.00007	—	8.30876
Total	2.04764	2.02918	0.03032	3.26423	0.00015	0.00189	—	0.00189	0.00142	—	0.00142	0.00000	8.27954	8.27954	0.00035	0.00007	—	8.30876

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)

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	32.5791	250.562	283.141	3.35146	0.08069	—	390.972
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	32.5791	250.562	283.141	3.35146	0.08069	—	390.972
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	32.5791	250.562	283.141	3.35146	0.08069	—	390.972
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	32.5791	250.562	283.141	3.35146	0.08069	—	390.972
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	5.39385	41.4834	46.8772	0.55487	0.01336	—	64.7298

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	5.39385	41.4834	46.8772	0.55487	0.01336	—	64.7298

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	166.567	0.00000	166.567	16.6477	0.00000	—	582.760
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	166.567	0.00000	166.567	16.6477	0.00000	—	582.760
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	166.567	0.00000	166.567	16.6477	0.00000	—	582.760
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	166.567	0.00000	166.567	16.6477	0.00000	—	582.760
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	27.5770	0.00000	27.5770	2.75622	0.00000	—	96.4826
Enclosed Parking with Elevator	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	27.5770	0.00000	27.5770	2.75622	0.00000	—	96.4826

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

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.87397	2.87397
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.87397	2.87397
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.87397	2.87397
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2.87397	2.87397
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.47582	0.47582
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.47582	0.47582

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

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.69754	0.63476	2.83899	1.61872	0.00305	0.09339	0.00000	0.09339	0.09339	0.00000	0.09339	0.00000	324.765	324.765	0.01304	0.00254	0.00000	325.850
Total	0.69754	0.63476	2.83899	1.61872	0.00305	0.09339	0.00000	0.09339	0.09339	0.00000	0.09339	0.00000	324.765	324.765	0.01304	0.00254	0.00000	325.850
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.69754	0.63476	2.83899	1.61872	0.00305	0.09339	0.00000	0.09339	0.09339	0.00000	0.09339	0.00000	324.765	324.765	0.01304	0.00254	0.00000	325.850
Total	0.69754	0.63476	2.83899	1.61872	0.00305	0.09339	0.00000	0.09339	0.09339	0.00000	0.09339	0.00000	324.765	324.765	0.01304	0.00254	0.00000	325.850

Equipment Type	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Emergency Generator	0.12730	0.11584	0.51812	0.29542	0.00056	0.01704	0.00000	0.01704	0.01704	0.00000	0.01704	0.00000	53.7686	53.7686	0.00216	0.00042	0.00000	53.9481
Total	0.12730	0.11584	0.51812	0.29542	0.00056	0.01704	0.00000	0.01704	0.01704	0.00000	0.01704	0.00000	53.7686	53.7686	0.00216	0.00042	0.00000	53.9481

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	TOG	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	TOG	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	TOG	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Remove d	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

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
Total all Land Uses	1,242.05	1,242.05	1,242.05	453,349	6,582.87	6,582.87	6,582.87	2,402,747

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
Apartments Mid Rise	Wood Fireplaces	0	0
Apartments Mid Rise	Gas Fireplaces	0	0
Apartments Mid Rise	Propane Fireplaces	0	0
Apartments Mid Rise	Electric Fireplaces	0	0
Apartments Mid Rise	No Fireplaces	42	42
Apartments Mid Rise	Conventional Wood Stoves	0	0
Apartments Mid Rise	Catalytic Wood Stoves	21	21
Apartments Mid Rise	Non-Catalytic Wood Stoves	21	21
Apartments Mid Rise	Pellet Wood Stoves	0	0
Enclosed Parking with Elevator	Wood Fireplaces	0	0
Enclosed Parking with Elevator	Gas Fireplaces	0	0
Enclosed Parking with Elevator	Propane Fireplaces	0	0
Enclosed Parking with Elevator	Electric Fireplaces	0	0
Enclosed Parking with Elevator	No Fireplaces	0	0
Enclosed Parking with Elevator	Conventional Wood Stoves	0	0
Enclosed Parking with Elevator	Catalytic Wood Stoves	0	0
Enclosed Parking with Elevator	Non-Catalytic Wood Stoves	0	0
Enclosed Parking with Elevator	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
812,592	270,864	35,283.6	3,920.40	47,044.8

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	250.000

5.11. Operational Energy Consumption

5.11.1. Unmitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
Apartments Mid Rise	0.00000	763.000	0.0330	0.0040	0.00000
Enclosed Parking with Elevator	0.00000	763.000	0.0330	0.0040	0.00000

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Apartments Mid Rise	17,001,638	777,649

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Enclosed Parking with Elevator	0.00000	0.00000

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Apartments Mid Rise	309.064	0.00000
Enclosed Parking with Elevator	0.00000	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088.00	0.00225	2.50000	2.50000	10.00000
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430.00	0.11538	0.60000	0.00000	1.000000

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

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
Emergency Generator	Diesel	1.000000	0.27397	100.0000	1,412.00	0.73000

5.16.2. Process Boilers

5.17. User Defined

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
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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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	26.3100	annual days of extreme heat
Extreme Precipitation	2.65000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	1.71000	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	3	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	3	1	1	3
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

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
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	97.5980
AQ-PM	79.4400
AQ-DPM	88.9359
Drinking Water	77.3698
Lead Risk Housing	43.1002
Pesticides	0.00000

Indicator	Result for Project Census Tract
Toxic Releases	54.6887
Traffic	85.6125
Effect Indicators	—
CleanUp Sites	46.9578
Groundwater	0.00000
Haz Waste Facilities/Generators	75.9629
Impaired Water Bodies	0.00000
Solid Waste	52.8981
Sensitive Population	—
Asthma	23.8410
Cardio-vascular	16.9367
Low Birth Weights	87.9651
Socioeconomic Factor Indicators	—
Education	53.4042
Housing	98.5425
Linguistic	76.0725
Poverty	96.6583
Unemployment	99.0500

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	—
Employed	—
Median HI	—
Education	—
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—
Social	—
2-parent households	—
Voting	—
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—

Indicator	Result for Project Census Tract
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	99.7
Asthma ER Admissions	57.0
High Blood Pressure	99.4
Cancer (excluding skin)	99.8
Asthma	12.1
Coronary Heart Disease	99.7
Chronic Obstructive Pulmonary Disease	96.5
Diagnosed Diabetes	99.6
Life Expectancy at Birth	0.0
Cognitively Disabled	66.4
Physically Disabled	96.9
Heart Attack ER Admissions	76.0
Mental Health Not Good	18.5
Chronic Kidney Disease	99.6

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Indicator	Result for Project Census Tract
Obesity	86.4
Pedestrian Injuries	0.0
Physical Health Not Good	82.3
Stroke	99.7
Health Risk Behaviors	—
Binge Drinking	63.5
Current Smoker	26.1
No Leisure Time for Physical Activity	36.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	87.9
Elderly	99.5
English Speaking	0.0
Foreign-born	0.0
Outdoor Workers	86.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	74.8
Traffic Density	0.0
Traffic Access	55.8
Other Indices	—

Indicator	Result for Project Census Tract
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	82.0000
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
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

8.1. Justifications

Screen	Justification
Characteristics: Utility Information	RPU Power Content Label most recent data available (2024)
Land Use	1,350 beds and 2000 parking spaces with 455,000 total building SF
Operations: Hearths	no fireplace or wood stoves in dorm rooms
Operations: Energy Use	No natural gas, and all building GHG emission will be offset by renewable energy offset requirements.

8.2. Project Characteristics

8.2.2. Utility Information

Model Parameter	Units	Default Value	New Value
CO2	lb/MWh	412.752	763.000

8.3. Land Use

Model Parameter	Units	Default Value	New Value
Building Area	sq. ft	800,000	53,720.0
Landscape Area	sq. ft	—	0.00000

8.5. Operations

8.5.2. Area Sources

8.5.2.1. Hearths

Land Use	Model Parameter	Units	Default Value	New Value
Apartments Mid Rise	Wood Fireplaces	—	21	0
Apartments Mid Rise	Gas Fireplaces	—	355	0
Apartments Mid Rise	Wood Mass	lb/year	1,019	0
Apartments Mid Rise	Wood Mass	lb/year	1,000	0

8.5.3. Energy Usage

Land Use	Model Parameter	Units	Default Value	New Value
Apartments Mid Rise	Electricity	kWh/yr	2,365,528	0.00000
Apartments Mid Rise	Electricity (Subject to Title 24)	kWh/yr	1,001,975	0.00000
Apartments Mid Rise	Electricity (Not Subject to Title 24)	kWh/yr	1,363,553	0.00000
Apartments Mid Rise	Natural Gas	kBTU/yr	5,389,196	0.00000
Apartments Mid Rise	Natural Gas (Subject to Title 24)	kBTU/yr	4,825,316	0.00000
Apartments Mid Rise	Natural Gas (Not Subject to Title 24)	kBTU/yr	563,880	0.00000
Enclosed Parking with Elevator	Electricity	kWh/yr	198,304	0.00000
Enclosed Parking with Elevator	Electricity (Subject to Title 24)	kWh/yr	188,097	0.00000
Enclosed Parking with Elevator	Electricity (Not Subject to Title 24)	kWh/yr	10,206.8	0.00000

UCR NDD PH1 and PH2 Ops Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	UCR NDD PH1 and PH2 Ops
Operational Year	2025
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.50000
Precipitation (days)	14.2000
Location	900 University Ave, Riverside, CA 92521, USA
County	Riverside-South Coast
City	Riverside
Air District	South Coast AQMD
Air Basin	South Coast
TAZ	5481
EDFZ	11
Electric Utility	City of Riverside
Gas Utility	Southern California Gas
App Version	2022.1.1.46

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
General Light Industry	13.0000	1000sqft	0.30000	13,000.0	0.00000	—	—	—
Parking Lot	695.000	Space	6.25500	0.00000	0.00000	—	—	—
High Turnover (Sit Down Restaurant)	2.90000	1000sqft	0.07000	2,900.00	0.00000	—	—	—
Apartments Mid Rise	416.000	Dwelling Unit	10.9474	529,242	0.00000	—	1,502.00	—
Apartments Mid Rise	440.000	Dwelling Unit	11.5789	450,000	0.00000	—	1,600.00	—
Fast Food Restaurant w/o Drive Thru	2.50000	1000sqft	0.05739	2,500.00	0.00000	—	—	—
City Park	2.40000	Acre	2.40000	0.00000	0.00000	0.00000	—	—
User Defined Recreational	252.000	User Defined Unit	5.80000	0.00000	0.00000	—	—	—
Parking Lot	429.000	1000sqft	9.84848	0.00000	0.00000	—	—	—
Other Non-Asphalt Surfaces	3.29000	Acre	3.29000	0.00000	0.00000	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Area Sources	AS-1	Use Low-VOC Cleaning Supplies

2. Emissions Summary

2.3. 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.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	39.4604	38.5783	7.37362	109.136	0.12952	0.12591	10.6198	10.7457	0.11341	2.69588	2.80930	996.760	13,601.6	14,598.4	100.518	0.81575	67.0017	17,421.4
Mit.	37.8642	36.9821	7.37362	109.136	0.12952	0.12591	10.6198	10.7457	0.11341	2.69588	2.80930	996.760	13,601.6	14,598.4	100.518	0.81575	67.0017	17,421.4
% Reduced	4%	4%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	33.8990	33.2519	7.36954	53.0228	0.11973	0.10020	10.6198	10.7200	0.09400	2.69588	2.78988	996.760	12,696.5	13,693.2	100.560	0.83700	20.0877	16,476.7
Mit.	32.3028	31.6557	7.36954	53.0228	0.11973	0.10020	10.6198	10.7200	0.09400	2.69588	2.78988	996.760	12,696.5	13,693.2	100.560	0.83700	20.0877	16,476.7
% Reduced	5%	5%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	37.0494	36.2280	7.81209	88.4298	0.12231	0.11782	10.5233	10.6411	0.10731	2.67174	2.77905	996.760	12,899.6	13,896.3	100.566	0.84348	39.6352	16,701.4
Mit.	35.4532	34.6317	7.81209	88.4298	0.12231	0.11782	10.5233	10.6411	0.10731	2.67174	2.77905	996.760	12,899.6	13,896.3	100.566	0.84348	39.6352	16,701.4
% Reduced	4%	4%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	6.76152	6.61160	1.42571	16.1384	0.02232	0.02150	1.92050	1.94200	0.01958	0.48759	0.50718	165.025	2,135.67	2,300.69	16.6498	0.13965	6.56206	2,765.12
Mit.	6.47021	6.32029	1.42571	16.1384	0.02232	0.02150	1.92050	1.94200	0.01958	0.48759	0.50718	165.025	2,135.67	2,300.69	16.6498	0.13965	6.56206	2,765.12

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
% Reduced	4%	4%	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2.4. 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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	11.5076	10.8764	6.89220	59.8760	0.12736	0.10007	10.6198	10.7199	0.09387	2.69588	2.78975	—	13,025.8	13,025.8	0.71568	0.66710	48.1628	13,290.7
Area	27.9528	27.7019	0.48142	49.2600	0.00215	0.02584	—	0.02584	0.01954	—	0.01954	0.00000	133.135	133.135	0.00557	0.00111	—	133.604
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	59.6103	442.671	502.281	6.13150	0.14755	—	699.538
Waste	—	—	—	—	—	—	—	—	—	—	—	937.150	0.00000	937.150	93.6648	0.00000	—	3,278.77
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.8389	18.8389
Total	39.4604	38.5783	7.37362	109.136	0.12952	0.12591	10.6198	10.7457	0.11341	2.69588	2.80930	996.760	13,601.6	14,598.4	100.518	0.81575	67.0017	17,421.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	10.6927	10.0456	7.36954	53.0228	0.11973	0.10020	10.6198	10.7200	0.09400	2.69588	2.78988	—	12,253.8	12,253.8	0.76361	0.68946	1.24881	12,479.6
Area	23.2063	23.2063	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	59.6103	442.671	502.281	6.13150	0.14755	—	699.538
Waste	—	—	—	—	—	—	—	—	—	—	—	937.150	0.00000	937.150	93.6648	0.00000	—	3,278.77

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Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.8389	18.8389
Total	33.8990	33.2519	7.36954	53.0228	0.11973	0.10020	10.6198	10.7200	0.09400	2.69588	2.78988	996.760	12,696.5	13,693.2	100.560	0.83700	20.0877	16,476.7
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	10.5921	9.94250	7.48235	54.6900	0.12084	0.10012	10.5233	10.6234	0.09392	2.67174	2.76567	—	12,365.7	12,365.7	0.76549	0.69518	20.7963	12,612.8
Area	26.4573	26.2855	0.32974	33.7397	0.00148	0.01770	—	0.01770	0.01339	—	0.01339	0.00000	91.1884	91.1884	0.00381	0.00076	—	91.5094
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	59.6103	442.671	502.281	6.13150	0.14755	—	699.538
Waste	—	—	—	—	—	—	—	—	—	—	—	937.150	0.00000	937.150	93.6648	0.00000	—	3,278.77
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.8389	18.8389
Total	37.0494	36.2280	7.81209	88.4298	0.12231	0.11782	10.5233	10.6411	0.10731	2.67174	2.77905	996.760	12,899.6	13,896.3	100.566	0.84348	39.6352	16,701.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.93305	1.81451	1.36553	9.98093	0.02205	0.01827	1.92050	1.93877	0.01714	0.48759	0.50473	—	2,047.28	2,047.28	0.12674	0.11509	3.44307	2,088.19
Area	4.82847	4.79710	0.06018	6.15750	0.00027	0.00323	—	0.00323	0.00244	—	0.00244	0.00000	15.0973	15.0973	0.00063	0.00013	—	15.1504
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	9.86917	73.2892	83.1584	1.01514	0.02443	—	115.816
Waste	—	—	—	—	—	—	—	—	—	—	—	155.156	0.00000	155.156	15.5073	0.00000	—	542.838
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.11899	3.11899
Total	6.76152	6.61160	1.42571	16.1384	0.02232	0.02150	1.92050	1.94200	0.01958	0.48759	0.50718	165.025	2,135.67	2,300.69	16.6498	0.13965	6.56206	2,765.12

2.5. 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)

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Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	11.5076	10.8764	6.89220	59.8760	0.12736	0.10007	10.6198	10.7199	0.09387	2.69588	2.78975	—	13,025.8	13,025.8	0.71568	0.66710	48.1628	13,290.7
Area	26.3566	26.1056	0.48142	49.2600	0.00215	0.02584	—	0.02584	0.01954	—	0.01954	0.00000	133.135	133.135	0.00557	0.00111	—	133.604
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	59.6103	442.671	502.281	6.13150	0.14755	—	699.538
Waste	—	—	—	—	—	—	—	—	—	—	—	937.150	0.00000	937.150	93.6648	0.00000	—	3,278.77
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.8389	18.8389
Total	37.8642	36.9821	7.37362	109.136	0.12952	0.12591	10.6198	10.7457	0.11341	2.69588	2.80930	996.760	13,601.6	14,598.4	100.518	0.81575	67.0017	17,421.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	10.6927	10.0456	7.36954	53.0228	0.11973	0.10020	10.6198	10.7200	0.09400	2.69588	2.78988	—	12,253.8	12,253.8	0.76361	0.68946	1.24881	12,479.6
Area	21.6101	21.6101	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	59.6103	442.671	502.281	6.13150	0.14755	—	699.538
Waste	—	—	—	—	—	—	—	—	—	—	—	937.150	0.00000	937.150	93.6648	0.00000	—	3,278.77
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.8389	18.8389
Total	32.3028	31.6557	7.36954	53.0228	0.11973	0.10020	10.6198	10.7200	0.09400	2.69588	2.78988	996.760	12,696.5	13,693.2	100.560	0.83700	20.0877	16,476.7
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	10.5921	9.94250	7.48235	54.6900	0.12084	0.10012	10.5233	10.6234	0.09392	2.67174	2.76567	—	12,365.7	12,365.7	0.76549	0.69518	20.7963	12,612.8
Area	24.8611	24.6892	0.32974	33.7397	0.00148	0.01770	—	0.01770	0.01339	—	0.01339	0.00000	91.1884	91.1884	0.00381	0.00076	—	91.5094

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Sector	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	59.6103	442.671	502.281	6.13150	0.14755	—	699.538
Waste	—	—	—	—	—	—	—	—	—	—	—	937.150	0.00000	937.150	93.6648	0.00000	—	3,278.77
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.8389	18.8389
Total	35.4532	34.6317	7.81209	88.4298	0.12231	0.11782	10.5233	10.6411	0.10731	2.67174	2.77905	996.760	12,899.6	13,896.3	100.566	0.84348	39.6352	16,701.4
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Mobile	1.93305	1.81451	1.36553	9.98093	0.02205	0.01827	1.92050	1.93877	0.01714	0.48759	0.50473	—	2,047.28	2,047.28	0.12674	0.11509	3.44307	2,088.19
Area	4.53715	4.50579	0.06018	6.15750	0.00027	0.00323	—	0.00323	0.00244	—	0.00244	0.00000	15.0973	15.0973	0.00063	0.00013	—	15.1504
Energy	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Water	—	—	—	—	—	—	—	—	—	—	—	9.86917	73.2892	83.1584	1.01514	0.02443	—	115.816
Waste	—	—	—	—	—	—	—	—	—	—	—	155.156	0.00000	155.156	15.5073	0.00000	—	542.838
Refrig.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.11899	3.11899
Total	6.47021	6.32029	1.42571	16.1384	0.02232	0.02150	1.92050	1.94200	0.01958	0.48759	0.50718	165.025	2,135.67	2,300.69	16.6498	0.13965	6.56206	2,765.12

4. Operations Emissions Details

4.1. Mobile Emissions by Land Use

4.1.1. Unmitigated

Mobile source emissions results are presented in Sections 2.6. No further detailed breakdown of emissions is available.

4.1.2. Mitigated

Mobile source emissions results are presented in Sections 2.5. No further detailed breakdown of emissions is available.

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
High Tur turner (Sit Down R estauran t)	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartme nts Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Re staurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreati onal	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non- Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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)

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Fast Food Restaurant w/o Drive Thru	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Apartments Mid Rise	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Parking Lot	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Apartments Mid Rise	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	—	0.00000	0.00000	0.00000	0.00000	—	0.00000

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

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Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Hearths	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Consumer Products	21.4160	21.4160	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	1.79034	1.79034	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	4.74650	4.49555	0.48142	49.2600	0.00215	0.02584	—	0.02584	0.01954	—	0.01954	—	133.135	133.135	0.00557	0.00111	—	133.604
Total	27.9528	27.7019	0.48142	49.2600	0.00215	0.02584	—	0.02584	0.01954	—	0.01954	0.00000	133.135	133.135	0.00557	0.00111	—	133.604
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Consumer Products	21.4160	21.4160	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	1.79034	1.79034	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	23.2063	23.2063	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Consumer Products	3.90842	3.90842	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Architectural Coatings	0.32674	0.32674	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.59331	0.56194	0.06018	6.15750	0.00027	0.00323	—	0.00323	0.00244	—	0.00244	—	15.0973	15.0973	0.00063	0.00013	—	15.1504
Total	4.82847	4.79710	0.06018	6.15750	0.00027	0.00323	—	0.00323	0.00244	—	0.00244	0.00000	15.0973	15.0973	0.00063	0.00013	—	15.1504

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Consumer Products	19.8198	19.8198	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	1.79034	1.79034	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	4.74650	4.49555	0.48142	49.2600	0.00215	0.02584	—	0.02584	0.01954	—	0.01954	—	133.135	133.135	0.00557	0.00111	—	133.604
Total	26.3566	26.1056	0.48142	49.2600	0.00215	0.02584	—	0.02584	0.01954	—	0.01954	0.00000	133.135	133.135	0.00557	0.00111	—	133.604
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Source	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Consumer Products	19.8198	19.8198	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	1.79034	1.79034	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	21.6101	21.6101	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Hearths	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Consumer Products	3.61710	3.61710	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Architectural Coatings	0.32674	0.32674	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Landscape Equipment	0.59331	0.56194	0.06018	6.15750	0.00027	0.00323	—	0.00323	0.00244	—	0.00244	—	15.0973	15.0973	0.00063	0.00013	—	15.1504
Total	4.53715	4.50579	0.06018	6.15750	0.00027	0.00323	—	0.00323	0.00244	—	0.00244	0.00000	15.0973	15.0973	0.00063	0.00013	—	15.1504

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)

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	59.6103	442.671	502.281	6.13150	0.14755	—	699.538
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	59.6103	442.671	502.281	6.13150	0.14755	—	699.538
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	59.6103	442.671	502.281	6.13150	0.14755	—	699.538
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	59.6103	442.671	502.281	6.13150	0.14755	—	699.538
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	9.86917	73.2892	83.1584	1.01514	0.02443	—	115.816
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	9.86917	73.2892	83.1584	1.01514	0.02443	—	115.816

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	59.6103	442.671	502.281	6.13150	0.14755	—	699.538
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	59.6103	442.671	502.281	6.13150	0.14755	—	699.538
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	59.6103	442.671	502.281	6.13150	0.14755	—	699.538
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	59.6103	442.671	502.281	6.13150	0.14755	—	699.538
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	9.86917	73.2892	83.1584	1.01514	0.02443	—	115.816
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

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Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	9.86917	73.2892	83.1584	1.01514	0.02443	—	115.816

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

UCR NDD PH1 and PH2 Ops Detailed Report, 9/28/2026

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	937.150	0.00000	937.150	93.6648	0.00000	—	3,278.77
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	937.150	0.00000	937.150	93.6648	0.00000	—	3,278.77

UCR NDD PH1 and PH2 Ops Detailed Report, 9/28/2026

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	937.150	0.00000	937.150	93.6648	0.00000	—	3,278.77
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

UCR NDD PH1 and PH2 Ops Detailed Report, 9/28/2026

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	937.150	0.00000	937.150	93.6648	0.00000	—	3,278.77
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	155.156	0.00000	155.156	15.5073	0.00000	—	542.838
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

UCR NDD PH1 and PH2 Ops Detailed Report, 9/28/2026

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Total	—	—	—	—	—	—	—	—	—	—	—	155.156	0.00000	155.156	15.5073	0.00000	—	542.838

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	937.150	0.00000	937.150	93.6648	0.00000	—	3,278.77
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

UCR NDD PH1 and PH2 Ops Detailed Report, 9/28/2026

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	937.150	0.00000	937.150	93.6648	0.00000	—	3,278.77
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	937.150	0.00000	937.150	93.6648	0.00000	—	3,278.77
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

UCR NDD PH1 and PH2 Ops Detailed Report, 9/28/2026

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	937.150	0.00000	937.150	93.6648	0.00000	—	3,278.77
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	155.156	0.00000	155.156	15.5073	0.00000	—	542.838
Parking Lot	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000

UCR NDD PH1 and PH2 Ops Detailed Report, 9/28/2026

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
User Defined Recreational	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Other Non-Asphalt Surfaces	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	155.156	0.00000	155.156	15.5073	0.00000	—	542.838

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	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.38396	3.38396
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.53344	4.53344

UCR NDD PH1 and PH2 Ops Detailed Report, 9/28/2026

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.01333	7.01333
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.90814	3.90814
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.8389	18.8389
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.38396	3.38396
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.53344	4.53344
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.01333	7.01333
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.90814	3.90814

UCR NDD PH1 and PH2 Ops Detailed Report, 9/28/2026

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.8389	18.8389
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.56025	0.56025
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.75056	0.75056
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.16114	1.16114
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.64704	0.64704
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.11899	3.11899

4.6.2. Mitigated

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

UCR NDD PH1 and PH2 Ops Detailed Report, 9/28/2026

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.38396	3.38396
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.53344	4.53344
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.01333	7.01333
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.90814	3.90814
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.8389	18.8389
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.38396	3.38396

UCR NDD PH1 and PH2 Ops Detailed Report, 9/28/2026

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	4.53344	4.53344
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	7.01333	7.01333
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.90814	3.90814
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	18.8389	18.8389
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
General Light Industry	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.56025	0.56025
High Turnover (Sit Down Restaurant)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.75056	0.75056
Apartments Mid Rise	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1.16114	1.16114

UCR NDD PH1 and PH2 Ops Detailed Report, 9/28/2026

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Fast Food Restaurant w/o Drive Thru	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.64704	0.64704
City Park	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	0.00000	0.00000
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3.11899	3.11899

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	TOG	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	TOG	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	TOG	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

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Equipment Type	TOG	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	TOG	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	TOG	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	TOG	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)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

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

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

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

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Species	TOG	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	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

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
Total all Land Uses	2,828.00	2,828.00	2,828.00	1,032,220	14,988.4	14,988.4	14,988.4	5,470,766

5.9.2. Mitigated

Land Use Type	Trips/Weekday	Trips/Saturday	Trips/Sunday	Trips/Year	VMT/Weekday	VMT/Saturday	VMT/Sunday	VMT/Year
Total all Land Uses	2,828.00	2,828.00	2,828.00	1,032,220	14,988.4	14,988.4	14,988.4	5,470,766

5.10. Operational Area Sources

5.10.1. Hearths

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
General Light Industry	Wood Fireplaces	0	0
General Light Industry	Gas Fireplaces	0	0
General Light Industry	Propane Fireplaces	0	0
General Light Industry	Electric Fireplaces	0	0
General Light Industry	No Fireplaces	0	0
General Light Industry	Conventional Wood Stoves	0	0
General Light Industry	Catalytic Wood Stoves	0	0
General Light Industry	Non-Catalytic Wood Stoves	0	0
General Light Industry	Pellet Wood Stoves	0	0
Parking Lot	Wood Fireplaces	0	0
Parking Lot	Gas Fireplaces	0	0
Parking Lot	Propane Fireplaces	0	0
Parking Lot	Electric Fireplaces	0	0
Parking Lot	No Fireplaces	0	0
Parking Lot	Conventional Wood Stoves	0	0
Parking Lot	Catalytic Wood Stoves	0	0
Parking Lot	Non-Catalytic Wood Stoves	0	0
Parking Lot	Pellet Wood Stoves	0	0
High Turnover (Sit Down Restaurant)	Wood Fireplaces	0	0

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Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
High Turnover (Sit Down Restaurant)	Gas Fireplaces	0	0
High Turnover (Sit Down Restaurant)	Propane Fireplaces	0	0
High Turnover (Sit Down Restaurant)	Electric Fireplaces	0	0
High Turnover (Sit Down Restaurant)	No Fireplaces	0	0
High Turnover (Sit Down Restaurant)	Conventional Wood Stoves	0	0
High Turnover (Sit Down Restaurant)	Catalytic Wood Stoves	0	0
High Turnover (Sit Down Restaurant)	Non-Catalytic Wood Stoves	0	0
High Turnover (Sit Down Restaurant)	Pellet Wood Stoves	0	0
Apartments Mid Rise	Wood Fireplaces	0	0
Apartments Mid Rise	Gas Fireplaces	0	0
Apartments Mid Rise	Propane Fireplaces	0	0
Apartments Mid Rise	Electric Fireplaces	0	0
Apartments Mid Rise	No Fireplaces	42	42
Apartments Mid Rise	Conventional Wood Stoves	0	0
Apartments Mid Rise	Catalytic Wood Stoves	21	21
Apartments Mid Rise	Non-Catalytic Wood Stoves	21	21
Apartments Mid Rise	Pellet Wood Stoves	0	0
Apartments Mid Rise	Wood Fireplaces	0	0
Apartments Mid Rise	Gas Fireplaces	0	0
Apartments Mid Rise	Propane Fireplaces	0	0
Apartments Mid Rise	Electric Fireplaces	0	0

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Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
Apartments Mid Rise	No Fireplaces	44	44
Apartments Mid Rise	Conventional Wood Stoves	0	0
Apartments Mid Rise	Catalytic Wood Stoves	22	22
Apartments Mid Rise	Non-Catalytic Wood Stoves	22	22
Apartments Mid Rise	Pellet Wood Stoves	0	0
Fast Food Restaurant w/o Drive Thru	Wood Fireplaces	0	0
Fast Food Restaurant w/o Drive Thru	Gas Fireplaces	0	0
Fast Food Restaurant w/o Drive Thru	Propane Fireplaces	0	0
Fast Food Restaurant w/o Drive Thru	Electric Fireplaces	0	0
Fast Food Restaurant w/o Drive Thru	No Fireplaces	0	0
Fast Food Restaurant w/o Drive Thru	Conventional Wood Stoves	0	0
Fast Food Restaurant w/o Drive Thru	Catalytic Wood Stoves	0	0
Fast Food Restaurant w/o Drive Thru	Non-Catalytic Wood Stoves	0	0
Fast Food Restaurant w/o Drive Thru	Pellet Wood Stoves	0	0
City Park	Wood Fireplaces	0	0
City Park	Gas Fireplaces	0	0
City Park	Propane Fireplaces	0	0
City Park	Electric Fireplaces	0	0
City Park	No Fireplaces	0	0
City Park	Conventional Wood Stoves	0	0
City Park	Catalytic Wood Stoves	0	0

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Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
City Park	Non-Catalytic Wood Stoves	0	0
City Park	Pellet Wood Stoves	0	0
User Defined Recreational	Wood Fireplaces	0	0
User Defined Recreational	Gas Fireplaces	0	0
User Defined Recreational	Propane Fireplaces	0	0
User Defined Recreational	Electric Fireplaces	0	0
User Defined Recreational	No Fireplaces	0	0
User Defined Recreational	Conventional Wood Stoves	0	0
User Defined Recreational	Catalytic Wood Stoves	0	0
User Defined Recreational	Non-Catalytic Wood Stoves	0	0
User Defined Recreational	Pellet Wood Stoves	0	0
Parking Lot	Wood Fireplaces	0	0
Parking Lot	Gas Fireplaces	0	0
Parking Lot	Propane Fireplaces	0	0
Parking Lot	Electric Fireplaces	0	0
Parking Lot	No Fireplaces	0	0
Parking Lot	Conventional Wood Stoves	0	0
Parking Lot	Catalytic Wood Stoves	0	0
Parking Lot	Non-Catalytic Wood Stoves	0	0
Parking Lot	Pellet Wood Stoves	0	0
Other Non-Asphalt Surfaces	Wood Fireplaces	0	0

Land Use	Hearth Type	Unmitigated (number)	Mitigated (number)
Other Non-Asphalt Surfaces	Gas Fireplaces	0	0
Other Non-Asphalt Surfaces	Propane Fireplaces	0	0
Other Non-Asphalt Surfaces	Electric Fireplaces	0	0
Other Non-Asphalt Surfaces	No Fireplaces	0	0
Other Non-Asphalt Surfaces	Conventional Wood Stoves	0	0
Other Non-Asphalt Surfaces	Catalytic Wood Stoves	0	0
Other Non-Asphalt Surfaces	Non-Catalytic Wood Stoves	0	0
Other Non-Asphalt Surfaces	Pellet Wood Stoves	0	0

5.10.2. Architectural Coatings

Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)
1,982,965	660,988	27,600.0	9,200.00	50,686.8

5.10.3. Landscape Equipment

Season	Unit	Value
Snow Days	day/yr	0.00000
Summer Days	day/yr	250.000

5.10.4. Landscape Equipment - Mitigated

Season	Unit	Value
Snow Days	day/yr	0.00000

Season	Unit	Value
Summer Days	day/yr	250.000

5.11. Operational Energy Consumption

5.11.1. Unmitigated

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

Land Use	Electricity (kWh/yr)	CO2	CH4	N2O	Natural Gas (kBTU/yr)
General Light Industry	0.00000	763.000	0.0330	0.0040	0.00000
Parking Lot	0.00000	763.000	0.0330	0.0040	0.00000
High Turnover (Sit Down Restaurant)	0.00000	763.000	0.0330	0.0040	0.00000
Apartments Mid Rise	0.00000	763.000	0.0330	0.0040	0.00000
Apartments Mid Rise	0.00000	763.000	0.0330	0.0040	0.00000
Fast Food Restaurant w/o Drive Thru	0.00000	763.000	0.0330	0.0040	0.00000
City Park	0.00000	763.000	0.0330	0.0040	0.00000
User Defined Recreational	0.00000	763.000	0.0330	0.0040	0.00000
Parking Lot	0.00000	763.000	0.0330	0.0040	0.00000
Other Non-Asphalt Surfaces	0.00000	763.000	0.0330	0.0040	0.00000

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)
General Light Industry	0.00000	763.000	0.0330	0.0040	0.00000
Parking Lot	0.00000	763.000	0.0330	0.0040	0.00000
High Turnover (Sit Down Restaurant)	0.00000	763.000	0.0330	0.0040	0.00000
Apartments Mid Rise	0.00000	763.000	0.0330	0.0040	0.00000
Apartments Mid Rise	0.00000	763.000	0.0330	0.0040	0.00000
Fast Food Restaurant w/o Drive Thru	0.00000	763.000	0.0330	0.0040	0.00000
City Park	0.00000	763.000	0.0330	0.0040	0.00000
User Defined Recreational	0.00000	763.000	0.0330	0.0040	0.00000
Parking Lot	0.00000	763.000	0.0330	0.0040	0.00000
Other Non-Asphalt Surfaces	0.00000	763.000	0.0330	0.0040	0.00000

5.12. Operational Water and Wastewater Consumption

5.12.1. Unmitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	31,108,033	0.00000
Parking Lot	0.00000	0.00000
High Turnover (Sit Down Restaurant)	0.00000	0.00000
Apartments Mid Rise	0.00000	0.00000
Apartments Mid Rise	0.00000	0.00000

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
Fast Food Restaurant w/o Drive Thru	0.00000	0.00000
City Park	0.00000	0.00000
User Defined Recreational	0.00000	0.00000
Parking Lot	0.00000	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000

5.12.2. Mitigated

Land Use	Indoor Water (gal/year)	Outdoor Water (gal/year)
General Light Industry	31,108,033	0.00000
Parking Lot	0.00000	0.00000
High Turnover (Sit Down Restaurant)	0.00000	0.00000
Apartments Mid Rise	0.00000	0.00000
Apartments Mid Rise	0.00000	0.00000
Fast Food Restaurant w/o Drive Thru	0.00000	0.00000
City Park	0.00000	0.00000
User Defined Recreational	0.00000	0.00000
Parking Lot	0.00000	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000

5.13. Operational Waste Generation

5.13.1. Unmitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	1,738.88	0.00000
Parking Lot	0.00000	0.00000
High Turnover (Sit Down Restaurant)	0.00000	0.00000
Apartments Mid Rise	0.00000	0.00000
Apartments Mid Rise	0.00000	0.00000
Fast Food Restaurant w/o Drive Thru	0.00000	0.00000
City Park	0.00000	0.00000
User Defined Recreational	0.00000	0.00000
Parking Lot	0.00000	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000

5.13.2. Mitigated

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
General Light Industry	1,738.88	0.00000
Parking Lot	0.00000	0.00000
High Turnover (Sit Down Restaurant)	0.00000	0.00000
Apartments Mid Rise	0.00000	0.00000
Apartments Mid Rise	0.00000	0.00000
Fast Food Restaurant w/o Drive Thru	0.00000	0.00000
City Park	0.00000	0.00000
User Defined Recreational	0.00000	0.00000

Land Use	Waste (ton/year)	Cogeneration (kWh/year)
Parking Lot	0.00000	0.00000
Other Non-Asphalt Surfaces	0.00000	0.00000

5.14. Operational Refrigeration and Air Conditioning Equipment

5.14.1. Unmitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088.00	0.30000	4.00000	4.00000	18.0000
High Turnover (Sit Down Restaurant)	Household refrigerators and/or freezers	R-134a	1,430.00	0.00000	0.60000	0.00000	1.000000
High Turnover (Sit Down Restaurant)	Other commercial A/C and heat pumps	R-410A	2,088.00	1.80000	4.00000	4.00000	18.0000
High Turnover (Sit Down Restaurant)	Walk-in refrigerators and freezers	R-404A	3,922.00	0.00040	7.50000	7.50000	20.0000
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088.00	0.00225	2.50000	2.50000	10.00000
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430.00	0.11538	0.60000	0.00000	1.000000
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088.00	0.00225	2.50000	2.50000	10.00000
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430.00	0.11538	0.60000	0.00000	1.000000

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Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Fast Food Restaurant w/o Drive Thru	Household refrigerators and/or freezers	R-134a	1,430.00	0.00000	0.60000	0.00000	1.000000
Fast Food Restaurant w/o Drive Thru	Other commercial A/C and heat pumps	R-410A	2,088.00	1.80000	4.00000	4.00000	18.0000
Fast Food Restaurant w/o Drive Thru	Walk-in refrigerators and freezers	R-404A	3,922.00	0.00040	7.50000	7.50000	20.0000
City Park	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430.00	0.03750	1.000000	0.00000	1.000000

5.14.2. Mitigated

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
General Light Industry	Other commercial A/C and heat pumps	R-410A	2,088.00	0.30000	4.00000	4.00000	18.0000
High Turnover (Sit Down Restaurant)	Household refrigerators and/or freezers	R-134a	1,430.00	0.00000	0.60000	0.00000	1.000000
High Turnover (Sit Down Restaurant)	Other commercial A/C and heat pumps	R-410A	2,088.00	1.80000	4.00000	4.00000	18.0000
High Turnover (Sit Down Restaurant)	Walk-in refrigerators and freezers	R-404A	3,922.00	0.00040	7.50000	7.50000	20.0000
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088.00	0.00225	2.50000	2.50000	10.00000

UCR NDD PH1 and PH2 Ops Detailed Report, 9/28/2026

Land Use	Equipment Type	Refrigerant	GWP	Quantity (kg)	Operations Leak Rate	Service Leak Rate	Times Serviced
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430.00	0.11538	0.60000	0.00000	1.000000
Apartments Mid Rise	Average room A/C & Other residential A/C and heat pumps	R-410A	2,088.00	0.00225	2.50000	2.50000	10.00000
Apartments Mid Rise	Household refrigerators and/or freezers	R-134a	1,430.00	0.11538	0.60000	0.00000	1.000000
Fast Food Restaurant w/o Drive Thru	Household refrigerators and/or freezers	R-134a	1,430.00	0.00000	0.60000	0.00000	1.000000
Fast Food Restaurant w/o Drive Thru	Other commercial A/C and heat pumps	R-410A	2,088.00	1.80000	4.00000	4.00000	18.0000
Fast Food Restaurant w/o Drive Thru	Walk-in refrigerators and freezers	R-404A	3,922.00	0.00040	7.50000	7.50000	20.0000
City Park	Other commercial A/C and heat pumps	R-410A	2,088.00	0.00180	4.00000	4.00000	18.0000
City Park	Stand-alone retail refrigerators and freezers	R-134a	1,430.00	0.03750	1.000000	0.00000	1.000000

5.15. Operational Off-Road Equipment

5.15.1. Unmitigated

5.15.2. Mitigated

5.16. Stationary Sources

5.16.1. Emergency Generators and Fire Pumps

5.16.2. Process Boilers

5.17. User Defined

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
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5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres
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5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres
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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)
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5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)
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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	26.3100	annual days of extreme heat
Extreme Precipitation	2.65000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	1.71000	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 $\frac{3}{4}$ 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	3	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	3	1	1	3
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	—

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Indicator	Result for Project Census Tract
AQ-Ozone	97.5980
AQ-PM	79.4400
AQ-DPM	88.9359
Drinking Water	77.3698
Lead Risk Housing	43.1002
Pesticides	0.00000
Toxic Releases	54.6887
Traffic	85.6125
Effect Indicators	—
CleanUp Sites	46.9578
Groundwater	0.00000
Haz Waste Facilities/Generators	75.9629
Impaired Water Bodies	0.00000
Solid Waste	52.8981
Sensitive Population	—
Asthma	23.8410
Cardio-vascular	16.9367
Low Birth Weights	87.9651
Socioeconomic Factor Indicators	—
Education	53.4042
Housing	98.5425

Indicator	Result for Project Census Tract
Linguistic	76.0725
Poverty	96.6583
Unemployment	99.0500

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	—
Employed	—
Median HI	—
Education	—
Bachelor's or higher	—
High school enrollment	—
Preschool enrollment	—
Transportation	—
Auto Access	—
Active commuting	—
Social	—
2-parent households	—
Voting	—

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Indicator	Result for Project Census Tract
Neighborhood	—
Alcohol availability	—
Park access	—
Retail density	—
Supermarket access	—
Tree canopy	—
Housing	—
Homeownership	—
Housing habitability	—
Low-inc homeowner severe housing cost burden	—
Low-inc renter severe housing cost burden	—
Uncrowded housing	—
Health Outcomes	—
Insured adults	—
Arthritis	99.7
Asthma ER Admissions	57.0
High Blood Pressure	99.4
Cancer (excluding skin)	99.8
Asthma	12.1
Coronary Heart Disease	99.7
Chronic Obstructive Pulmonary Disease	96.5

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Indicator	Result for Project Census Tract
Diagnosed Diabetes	99.6
Life Expectancy at Birth	0.0
Cognitively Disabled	66.4
Physically Disabled	96.9
Heart Attack ER Admissions	76.0
Mental Health Not Good	18.5
Chronic Kidney Disease	99.6
Obesity	86.4
Pedestrian Injuries	0.0
Physical Health Not Good	82.3
Stroke	99.7
Health Risk Behaviors	—
Binge Drinking	63.5
Current Smoker	26.1
No Leisure Time for Physical Activity	36.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	87.9
Elderly	99.5
English Speaking	0.0

Indicator	Result for Project Census Tract
Foreign-born	0.0
Outdoor Workers	86.7
Climate Change Adaptive Capacity	—
Impervious Surface Cover	74.8
Traffic Density	0.0
Traffic Access	55.8
Other Indices	—
Hardship	0.0
Other Decision Support	—
2016 Voting	0.0

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	82.0000
Healthy Places Index Score for Project Location (b)	—
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	Yes
Project Located in a Low-Income Community (Assembly Bill 1550)	Yes
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

8.1. Justifications

Screen	Justification
Characteristics: Utility Information	2024 RPU Power Content Label (763 lbs CO2/MWh)
Land Use	From NDD PH1 and PH2 caleemod runs
Operations: Hearths	SCAQMD Rule 445 no wood burning devices Wood burning devices added to gas devices
Operations: Energy Use	no natural gas usage. Electricity emissions to be offset by renewable energy credit requirements.
Operations: Water and Waste Water	Based on client totals for NDD PH1 and PH2 (31,108,033 gallons/year or 41,586 Annual CCF)
Operations: Solid Waste	client provided solid waste generation for NDD Ph1 and PH2 (1,738.8 tons/year)

8.2. Project Characteristics

8.2.2. Utility Information

Model Parameter	Units	Default Value	New Value
CO2	lb/MWh	599.818	763.000

8.3. Land Use

Model Parameter	Units	Default Value	New Value
Lot Area	acre	0.29844	0.30000
Landscape Area	sq. ft	—	0.00000
Lot Area	acre	0.06657	0.07000
Landscape Area	sq. ft	—	0.00000
Building Area	sq. ft	399,360	529,242
Landscape Area	sq. ft	—	0.00000
Population	people	1,344.00	1,502.00
Building Area	sq. ft	422,400	450,000
Landscape Area	sq. ft	—	0.00000
Population	people	1,421.00	1,600.00
Lot Area	acre	0.00000	5.80000
Landscape Area	sq. ft	—	0.00000

8.5. Operations

8.5.2. Area Sources

8.5.2.1. Hearths

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Land Use	Model Parameter	Units	Default Value	New Value
Apartments Mid Rise	Wood Fireplaces	—	21	0
Apartments Mid Rise	Gas Fireplaces	—	354	0
Apartments Mid Rise	Wood Mass	lb/year	1,019	0
Apartments Mid Rise	Wood Mass	lb/year	1,000	0
Apartments Mid Rise	Wood Fireplaces	—	22	0
Apartments Mid Rise	Gas Fireplaces	—	374	0
Apartments Mid Rise	Wood Mass	lb/year	1,019	0
Apartments Mid Rise	Wood Mass	lb/year	1,000	0

8.5.3. Energy Usage

Land Use	Model Parameter	Units	Default Value	New Value
General Light Industry	Electricity	kWh/yr	124,398	0.00000
General Light Industry	Electricity (Subject to Title 24)	kWh/yr	106,733	0.00000
General Light Industry	Electricity (Not Subject to Title 24)	kWh/yr	17,665.4	0.00000
General Light Industry	Natural Gas	kBTU/yr	558,354	0.00000
General Light Industry	Natural Gas (Subject to Title 24)	kBTU/yr	216,582	0.00000
General Light Industry	Natural Gas (Not Subject to Title 24)	kBTU/yr	341,772	0.00000
Parking Lot	Electricity	kWh/yr	238,682	0.00000
Parking Lot	Electricity (Subject to Title 24)	kWh/yr	238,682	0.00000
High Turnover (Sit Down Restaurant)	Electricity	kWh/yr	101,833	0.00000

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Land Use	Model Parameter	Units	Default Value	New Value
High Turnover (Sit Down Restaurant)	Electricity (Subject to Title 24)	kWh/yr	51,719.7	0.00000
High Turnover (Sit Down Restaurant)	Electricity (Not Subject to Title 24)	kWh/yr	50,113.5	0.00000
High Turnover (Sit Down Restaurant)	Natural Gas	kBTU/yr	330,771	0.00000
High Turnover (Sit Down Restaurant)	Natural Gas (Subject to Title 24)	kBTU/yr	62,749.7	0.00000
High Turnover (Sit Down Restaurant)	Natural Gas (Not Subject to Title 24)	kBTU/yr	268,021	0.00000
Apartments Mid Rise	Electricity	kWh/yr	2,354,210	0.00000
Apartments Mid Rise	Electricity (Subject to Title 24)	kWh/yr	997,181	0.00000
Apartments Mid Rise	Electricity (Not Subject to Title 24)	kWh/yr	1,357,029	0.00000
Apartments Mid Rise	Natural Gas	kBTU/yr	5,363,410	0.00000
Apartments Mid Rise	Natural Gas (Subject to Title 24)	kBTU/yr	4,802,228	0.00000
Apartments Mid Rise	Natural Gas (Not Subject to Title 24)	kBTU/yr	561,182	0.00000
Apartments Mid Rise	Electricity	kWh/yr	2,490,030	0.00000
Apartments Mid Rise	Electricity (Subject to Title 24)	kWh/yr	1,054,711	0.00000
Apartments Mid Rise	Electricity (Not Subject to Title 24)	kWh/yr	1,435,319	0.00000
Apartments Mid Rise	Natural Gas	kBTU/yr	5,672,837	0.00000
Apartments Mid Rise	Natural Gas (Subject to Title 24)	kBTU/yr	5,079,280	0.00000
Apartments Mid Rise	Natural Gas (Not Subject to Title 24)	kBTU/yr	593,558	0.00000
Fast Food Restaurant w/o Drive Thru	Electricity	kWh/yr	87,787.3	0.00000

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Land Use	Model Parameter	Units	Default Value	New Value
Fast Food Restaurant w/o Drive Thru	Electricity (Subject to Title 24)	kWh/yr	44,586.0	0.00000
Fast Food Restaurant w/o Drive Thru	Electricity (Not Subject to Title 24)	kWh/yr	43,201.3	0.00000
Fast Food Restaurant w/o Drive Thru	Natural Gas	kBTU/yr	285,147	0.00000
Fast Food Restaurant w/o Drive Thru	Natural Gas (Subject to Title 24)	kBTU/yr	54,094.6	0.00000
Fast Food Restaurant w/o Drive Thru	Natural Gas (Not Subject to Title 24)	kBTU/yr	231,052	0.00000
Parking Lot	Electricity	kWh/yr	375,804	0.00000
Parking Lot	Electricity (Subject to Title 24)	kWh/yr	375,804	0.00000

8.5.4. Water and Waste Water

Land Use	Model Parameter	Units	Default Value	New Value
General Light Industry	Indoor Water	gal/year	3,006,250	31,108,033
High Turnover (Sit Down Restaurant)	Indoor Water	gal/year	880,248	0.00000
Apartments Mid Rise	Indoor Water	gal/year	16,920,290	0.00000
Apartments Mid Rise	Indoor Water	gal/year	17,896,461	0.00000
Fast Food Restaurant w/o Drive Thru	Indoor Water	gal/year	758,834	0.00000

8.5.5. Solid Waste

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Land Use	Model Parameter	Units	Default Value	New Value
General Light Industry	Solid Waste Generation Rate	ton/1000sqft/yr	1.24000	133.760
High Turnover (Sit Down Restaurant)	Solid Waste Generation Rate	ton/1000sqft/yr	11.9000	0.00000
Apartments Mid Rise	Solid Waste Generation Rate	ton/resident/yr	0.22894	0.00000
Apartments Mid Rise	Solid Waste Generation Rate	ton/resident/yr	0.22894	0.00000
Fast Food Restaurant w/o Drive Thru	Solid Waste Generation Rate	ton/1000sqft/yr	11.5189	0.00000
City Park	Solid Waste Generation Rate	ton/acre/yr	0.08600	0.00000

Appendix B

Geotechnical Investigation Report - Proposed North District Student Housing



TWINING

Engineering a Better Tomorrow

Geotechnical Investigation Report

**Proposed North District Student Housing
University of California, Riverside
Riverside, California**

Prepared for:

University of California, Riverside
1223 University Avenue, Suite 240
Riverside, CA 92507

February 13, 2026
Project No.: 250974.3



111 Main Street, Unit A
Riverside CA 92501

Tel 909.383.6660
Fax 562.426.6424

February 13, 2026
Project No.: 250974.3

Ms. Melissa Garrety
Senior Campus Planner
Campus Planning
University of California, Riverside
Riverside, CA 92507

Subject: Geotechnical Investigation Report
Proposed North District Student Housing
University of California, Riverside
Riverside, California

Dear Ms. Garrety,

In accordance with your request and authorization, we are presenting the results of our geotechnical investigation for the proposed North District Student Housing project located at the northeast corner of Canyon Crest Drive and W. Linden Street at the University of California, Riverside in Riverside, California. The purpose of our investigation is to characterize subsurface conditions of the site and evaluate seismic and geologic hazards at the site.

This report was prepared in accordance with the requirements of the 2025 California Building Code (2025 CBC) and ASCE 7-22 (ASCE, 2022). The geotechnical engineer of record from the Design/Build team shall utilize this report and provide geotechnical recommendations for the construction and design of the proposed project.

We appreciate the opportunity to be of service on this project. Should you have any questions regarding this report or if we can be of further service, please do not hesitate to contact the undersigned.

Respectfully submitted,
TWINING, INC.

Jonathan Browning, PG 9012, CEG 2615
Engineering Geologist

Paul Soltis, PE 56140, GE 2606
Vice President, Geotechnical Engineering

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Appendices

Appendix A – Field Exploration
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1. INTRODUCTION

This report presents the results of the geotechnical investigation performed by Twining, Inc. (Twining) for the proposed Parking North District Student Housing project located at the northeast corner of Canyon Crest Drive and W. Linden Street at the University of California, Riverside in Riverside, California. A description of the site and the proposed improvements is provided in the following section. The objectives of this investigation have been to characterize subsurface conditions of the site and evaluate seismic and geologic hazards at the site. Our investigation was performed in conformance with the 2025 California Building Code (2025 CBC) and ASCE 7-22 (ASCE, 2022).

2. SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The project site is located at the existing vacant lot at the northeast corner of Canyon Crest Drive and W. Linden Street on the University of California, Riverside campus in Riverside, California, as shown on Figure 1 – Site Location Map. The approximate site coordinates are latitude 33.97986°N and longitude 117.32889°W, on the Riverside East, California 7½-Minute Quadrangle, according to the United States Geological Survey (USGS) topographic maps (USGS 2022). The site is bound by a vacant lot to the north, student housing buildings to the east, W. Linden Street to the south, and a new student housing buildings currently under construction to the west. The site covers approximately 5.14 acres. The site gently slopes from east to west, with a surface elevation that varies from approximately 1,065 feet mean sea level (msl) on the east side to 1,055 feet msl on the west side.

The proposed project will consist of the construction of student housing buildings. Associated improvements such as new parking and pavements, flatwork, landscape areas, and utilities are also expected. We note that a conceptual plan layout of the proposed development was not available at the time of preparation of this report. The scope of our report is to provide a comprehensive evaluation of the site; we note that additional borings/investigation may be required depending on the actual locations of the new structures relative to completed boring locations. A site plan and the locations of our borings are depicted on Figure 2 – Site Plan and Boring Location Map.

3. SCOPE OF WORK

Our scope of work included review of background information, pre-field activities and field exploration, laboratory testing, and report preparation. These tasks are described in the following subsections.

3.1. Literature Review

We reviewed readily available background data including published geologic maps, topographic maps, aerial photographs, seismic hazard maps and literature, and flood hazard maps relevant to the subject site. Relevant information has been incorporated into this report. A partial list of literature reviewed is presented in the “Selected References” section of this report.

3.2. Pre-Field Activities

Before starting our exploration program, we performed a geotechnical site reconnaissance to observe the general surficial conditions at the site and to select field exploration locations. After exploration locations were delineated, Underground Service Alert was notified of the planned locations a minimum of 72 hours prior to excavation.

3.3. Field Exploration

The field exploration consisted of drilling, testing, sampling, and logging of 9 exploratory borings (B-1 through B-6, P-1 through P-3) and percolation testing in 3 of the borings (P-1 through P-3) conducted at the site on January 12 and 13, 2026. The approximate exploration locations are shown on Figure 2 – Site Plan and Boring Location Map.

The borings were advanced to approximate depths of 5 to 51.5 feet below ground surface (bgs) using a CME-95 truck-mounted drill rig equipped with 8-inch-diameter hollow-stem-auger (HSA). All borings were first excavated to 5 feet bgs using a hand-auger to clear potential underground utilities.

Drive samples of the soils were obtained from the borings using a Standard Penetration Test (SPT) sampler without room for liner and a modified California split-spoon sampler. The samplers were driven using a 140-pound automatic hammer falling approximately 30 inches. The blow counts to drive the samplers were recorded, and subsurface conditions encountered in the borings were logged by a Twining field engineer or geologist under the supervision of a California Registered Geotechnical Engineer. Bulk samples were collected from the upper 5-foot soil cuttings. The samples were transported to Twining's geotechnical engineering laboratory in Long Beach, California for examination and testing.

In-situ percolation testing was performed in borings P-1 through P-3, which were advanced to 5, 20 and 40 feet bgs, respectively, to provide estimates of infiltration rate of the site soils. The results of the infiltration testing are discussed in Appendix A – Field Exploration.

Upon completion of exploration, the borings were backfilled with soil cuttings. The surface was repaired to match existing conditions.

Detailed descriptions of the field exploration and the soils encountered during the current and previous drilling are presented in Appendix A – Field Exploration.

Additionally, a geophysical contractor collected Refraction Microtremor (ReMi) and Multichannel Analysis of Surface Waves (MASW) data at the site to develop a one-dimensional (1-D) shear-wave velocity profile at the site. Their report is presented below in Appendix C – Geophysical Survey.

3.4. Geotechnical Laboratory Testing

Laboratory tests were performed on selected samples obtained from the borings to aid in soil classification and to evaluate the engineering properties of site soils. The following tests were performed in general accordance with ASTM and Caltrans standards:

- In-situ moisture and density (ASTM D2937),
- #200 Wash (ASTM D1140),
- Atterberg Limits (ASTM D4318),
- Expansion Index (ASTM D4829),
- Consolidation (ASTM D2435),
- Direct shear (ASTM D3080),
- Maximum dry density and optimum moisture content (ASTM D1557),
- Resistance value (R-value) (ASTM D2844), and
- Corrosivity (Caltrans test methods CT417, CT422, and CT 643).

Detailed laboratory test procedures and results are presented in Appendix B – Laboratory Testing.

3.5. Report Preparation

We compiled and analyzed the data collected from our field exploration and laboratory testing. We performed engineering analyses based on our literature review and data from field exploration and laboratory testing programs. Our analyses included the following:

- Site geology and subsurface conditions,
- Groundwater conditions,
- Geologic hazards and seismic design parameters, and
- Liquefaction potential and seismic settlement.

We prepared this report to present our conclusions from this investigation.

4. GEOLOGY AND SUBSURFACE CONDITIONS

The regional and site geology and subsurface conditions are described in this section, based on our data review and field investigation. A portion of the geologic map is reproduced as Figure 3 – Geologic Map. Detailed subsurface conditions are presented in Appendix A – Field Exploration.

4.1. Regional Geology

The project site is located within the central portion of the Perris Block, a relatively stable terrain which is bounded on the north by the Cucamonga fault zone, on the east by the San Jacinto fault zone, on the south by the San Felipe fault zone, and on the west by the Elsinore fault zone. The Perris Block, in turn, is situated within the northern portion of the Peninsular Ranges geomorphic province. The Peninsular Range province occupies the southwestern portion of the state, south of the Transverse Ranges and west of the Colorado geomorphic provinces.

The Peninsular Ranges province is characterized generally by northwest-trending mountains and valleys, traversed by northwest-trending faults. Within the Perris Block, the predominant rock exposures comprise a multitude of Cretaceous-age plutonic emplacements known collectively as the southern California batholith. Locally these plutons intruded Jurassic-age metavolcanic and metasedimentary rocks and Paleozoic-age limestone, schist, and gneiss. Valleys are mantled by Quaternary-age alluvial fan deposits and recent alluvium derived from erosion of the adjacent mountains.

According to geologic mapping published by the Dibblee Geological Foundation (Dibblee, 2003), the project site is underlain by Pleistocene-age alluvial fan deposits (map symbol: Qoa). These deposits are described as “deposits of sand, minor gravel, tan to light reddish brown.” A portion of this geologic map is reproduced as Figure 3, Regional Geologic Map.

4.2. Surface and Subsurface Conditions

Earth materials encountered during our subsurface investigation generally consist of a thin layer of undocumented fill underlain by alluvial fan deposits which extend to the total depth of exploration. Based on our field observations, the undocumented fill consists of silty sand on the order of 1 to 5 feet in thickness, with the depth being approximately 5 feet at B-4. It should be noted that the undocumented fill thickness may vary across the site. The alluvial deposits consist predominantly of medium dense to very dense sand with varying amounts of fines.

Detailed information regarding the exploratory excavations is presented in Appendix A - Field Exploration.

4.3. Groundwater

Groundwater was not encountered within our exploratory borings drilled to a maximum depth of approximately 51½ feet below the existing grade. Based on our review of the California Water Resource website, the groundwater level is reportedly situated at a depth greater than 100 feet below the ground surface. Groundwater conditions may vary across the site due to stratigraphic and hydrologic conditions and may change over time because of seasonal and meteorological fluctuations, or of activities by humans at this and nearby site.

5. GEOLOGIC HAZARDS AND SEISMIC DESIGN CONSIDERATIONS

The site is in a seismically active area, as is the majority of southern California, and the potential for strong ground motion in the project area is considered high during the design life of the proposed development. The hazards associated with seismic activity in the vicinity of the site area discussed in the following sections.

5.1. Active Faulting and Surface Fault Rupture

The subject site is not located within a State of California Alquist-Priolo Earthquake Fault Zone (Alquist-Priolo EFZ, formerly known as a Special Studies Zone) (Hart and Bryant, 1997). The closest known active fault to the site is the San Jacinto fault, located approximately 5 miles to the northeast from the project site. It is our opinion that the likelihood of fault rupture occurring at the site during the design life of the proposed improvements is low.

5.2. Liquefaction Potential

Liquefaction is the phenomenon in which loosely deposited granular soils with silt and clay contents of less than approximately 35 percent, and non-plastic silts located below the water table undergo rapid loss of shear strength when subjected to strong earthquake-induced ground shaking. Ground shaking of sufficient duration results in the loss of grain-to-grain contact due to a rapid rise in pore water pressure and causes the soil to behave as a fluid for a short period of time.

Liquefaction is generally known to occur in loose, saturated, relatively clean, fine-grained cohesionless soils at depths shallower than approximately 50 feet. Factors to consider in the evaluation of soil liquefaction potential include groundwater conditions, soil type, grain size distribution, relative density, degree of saturation, and both the intensity and duration of ground motion. Other phenomena associated with soil liquefaction include sand boils, ground oscillation, and loss of foundation bearing capacity.

The California Geological Survey (CGS) has not published literature or maps within the project site that would indicate a state-designated Zone of Required Investigation for Liquefaction. However, Riverside County has mapped the site in an area of "Low" concern for liquefaction. Based on the depth of groundwater greater than 100 feet bgs, and site subsurface conditions, it is our opinion that liquefaction potential at the site is low. A portion of this Riverside County map is reproduced as Figure 4, Liquefaction Zones Map.

5.3. Seismic Settlement Potential

Seismic settlement can occur when loose to medium dense granular materials densify during seismic shaking and liquefaction. Seismic settlement may occur in dry, unsaturated, as well as saturated soils. Based on the results of our field exploration, we believe that seismic settlement is possible at the site. The geotechnical engineer of record for the Design/Build team should evaluate the possibility of seismic settlement at the site.

5.4. Landslides

The area of the project site is not within an area with the potential for earthquake-induced landslides. Considering the site is relatively flat and not close to significant slopes, the potential for earthquake-induced landslides to occur at the site is considered negligible.

5.5. Flooding

The Federal Emergency Management Agency (FEMA) has prepared flood insurance rate maps (FIRMs) for use in administering the National Flood Insurance Program, effective September 26, 2008. Based on our review of online FEMA flood mapping, the site is located within Zone X with minimal flood hazard.

5.6. Deaggregated Seismic Source Parameters

We performed a seismic hazard de-aggregation analysis for the peak ground acceleration with a probability of exceedance of 2% in 50 years. The analysis used the USGS Unified Hazard Tool based on the 2023 USGS seismic source model. The results of the analysis indicate the controlling modal moment magnitude and fault distance are 7.7 Mw and 5.8 miles (9.4 km), respectively.

5.7. Site Class for Seismic Design

Based on the results of the geophysical testing performed, it is our opinion that Site Class C may be used for the project seismic design according to Chapter 20 of ASCE 7-22. The site classification was determined using the shear wave velocity (VS30) determined by the ReMi and MASW testing. The report prepared by the geophysical contractor is attached below in Appendix C – Geophysical Survey.

5.8. Seismic Design Parameters

Seismic Design Parameters according to ASCE 7-22 are provided in Table 1, based on coordinates of latitude 33.97986°N and longitude 117.32889°W. The 5%-damped multi-period MCER and design response spectra are provided in Table 2. The two-period MCER and design response spectra can be developed following Section 11.4.5.2 of ASCE 7-22.

Table 1 – ASCE 7-22 Seismic Design Parameters

Design Parameters	Value
Site Class	C
Mapped Spectral Acceleration Parameter at Period of 0.2-Second, S_s (g)	1.90
Mapped Spectral Acceleration Parameter at Period 1-Second, S_1 (g)	0.69
Adjusted MCE_R^1 Spectral Response Acceleration Parameter, S_{MS} (g)	2.00
Adjusted MCE_R^1 Spectral Response Acceleration Parameter, S_{M1} (g)	0.99
Design Spectral Response Acceleration Parameter, S_{DS} (g)	1.34
Design Spectral Response Acceleration Parameter, S_{D1} (g)	0.66
Peak Ground Acceleration, PGA_M (g)	0.73
Seismic Design Category	D
Long-Period Transition Period, T_L (seconds)	8

Table 4 – ASCE 7-22 Multi-Period Spectrum

Period, T (second)	5%-Damped Spectral Acceleration, S_a (g)	
	MCE_R Spectrum	Design Spectrum
0	0.87	0.58
0.01	0.88	0.58
0.02	0.88	0.59
0.03	0.95	0.63
0.05	1.17	0.78
0.075	1.47	0.98
0.1	1.68	1.12
0.15	1.98	1.32
0.2	2.21	1.47
0.25	2.23	1.48
0.3	2.09	1.39
0.4	1.87	1.24
0.5	1.69	1.13
0.75	1.28	0.85
1	0.99	0.66
1.5	0.66	0.44
2	0.49	0.33
3	0.33	0.22
4	0.26	0.17
5	0.21	0.14
7.5	0.13	0.086
10	0.085	0.057
S_a at other T values less than 10s should be determined by linear interpolation.		

6. LIMITATIONS

This report presents geotechnical data and seismic design criteria for the proposed project site. The information may be used by the project design team to develop recommendations based on the information provided. The designer should supplement this data with additional data as the deem necessary to provide thorough geotechnical design recommendations.

Due to the limited nature of our field explorations, conditions not observed and described in this report may be present on the site. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. It should be understood that conditions different from those anticipated in this report may be encountered during grading operations.

Site conditions, including groundwater elevation, can change with time as a result of natural processes or the activities of man at the subject site or at nearby sites. Changes to the applicable laws, regulations, codes, and standards of practice may occur as a result of government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Twining, Inc. has no control.

Twining performed its evaluation using the degree of care and skill ordinarily exercised under similar circumstances by reputable geotechnical professionals with experience in this area in similar soil conditions. No other warranty, either express or implied, is made as to the conclusions and recommendations contained in this report.

7. SELECTED REFERENCES

American Society of Civil Engineers, 2022, Minimum Design Loads and Associated Criteria for Buildings and Other Structures: ASCE Standard ASCE/SEI 7-22.

ASTM, current latest version, "Soil and Rock: American Society for Testing and Materials," vol. 4.08 for ASTM test methods D-420 to D-4914; and vol. 4.09 for ASTM test methods D-4943 to highest number.

California Buildings Standards Commission, 2025, 2025 California Building Code, California Code of Regulations, Title 24, Volume 2 of Part 2, Effective January 1, 2026.

California Geological Survey (CGS), 2008, Guidelines for Evaluating and Mitigating Seismic Hazards in California.

Dibblee, T.W., and Minch, J.A., 2003, "Geologic map of the Riverside East/South ½ of San Bernardino South quadrangles, San Bernardino and Riverside County, California," 1:24,000 scale, Dibblee Geological Foundation, Map DF-109.

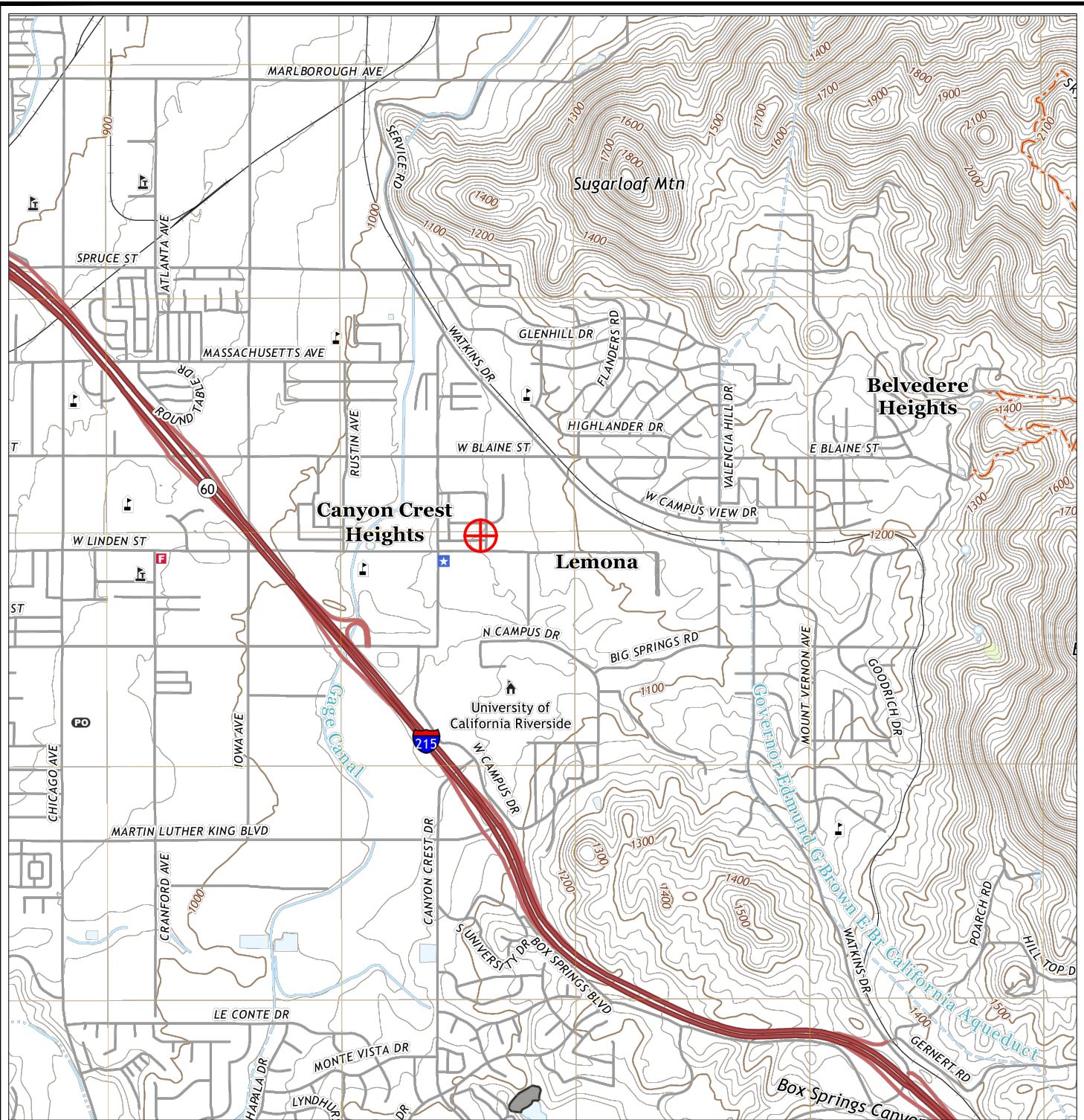
U.S. Geological Survey (USGS), 2022, USGS 1:24000-scale Riverside East Quadrangle, California, 7.5-Minute Series.



111 Main Street, Unit A
Riverside CA 92501

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FIGURES



APPROXIMATE LOCATION OF PROJECT

SCALE IN FEET



REFERENCE: USGS (2022)



TWINING

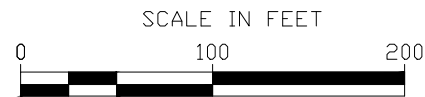
SITE LOCATION MAP

NORTH DISTRICT STUDENT HOUSING
UNIVERSITY OF CALIFORNIA, RIVERSIDE
RIVERSIDE, CA

PROJECT NO.
250974.3

REPORT DATE
February 2026

FIGURE 1



NOTE: ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE



REFERENCE: GOOGLE EARTH (2025)

LEGEND

- B-1**
TD=30.9'
- APPROXIMATE LOCATION OF
PROPOSED BORING BY TWINING
TOTAL DEPTH IN FEET
- P-1**
TD=5'
- APPROXIMATE LOCATION OF
PROPOSED PERCOLATION TEST
TOTAL DEPTH IN FEET

PROPOSED BORING LOCATION MAP

NORTH DISTRICT STUDENT HOUSING
UNIVERSITY OF CALIFORNIA, RIVERSIDE
RIVERSIDE, CA

PROJECT No.
250974.3

REPORT DATE
February 2026

FIGURE 1



- Qoa** OLDER ALLUVIUM
- Qg** GRAVEL AND SAND OF MAJOR STREAM CHANNELS
- Gr** GRANITE
- mig** METASEDIMENTARY ROCKS

APPROXIMATE SCALE IN FEET



TWINING

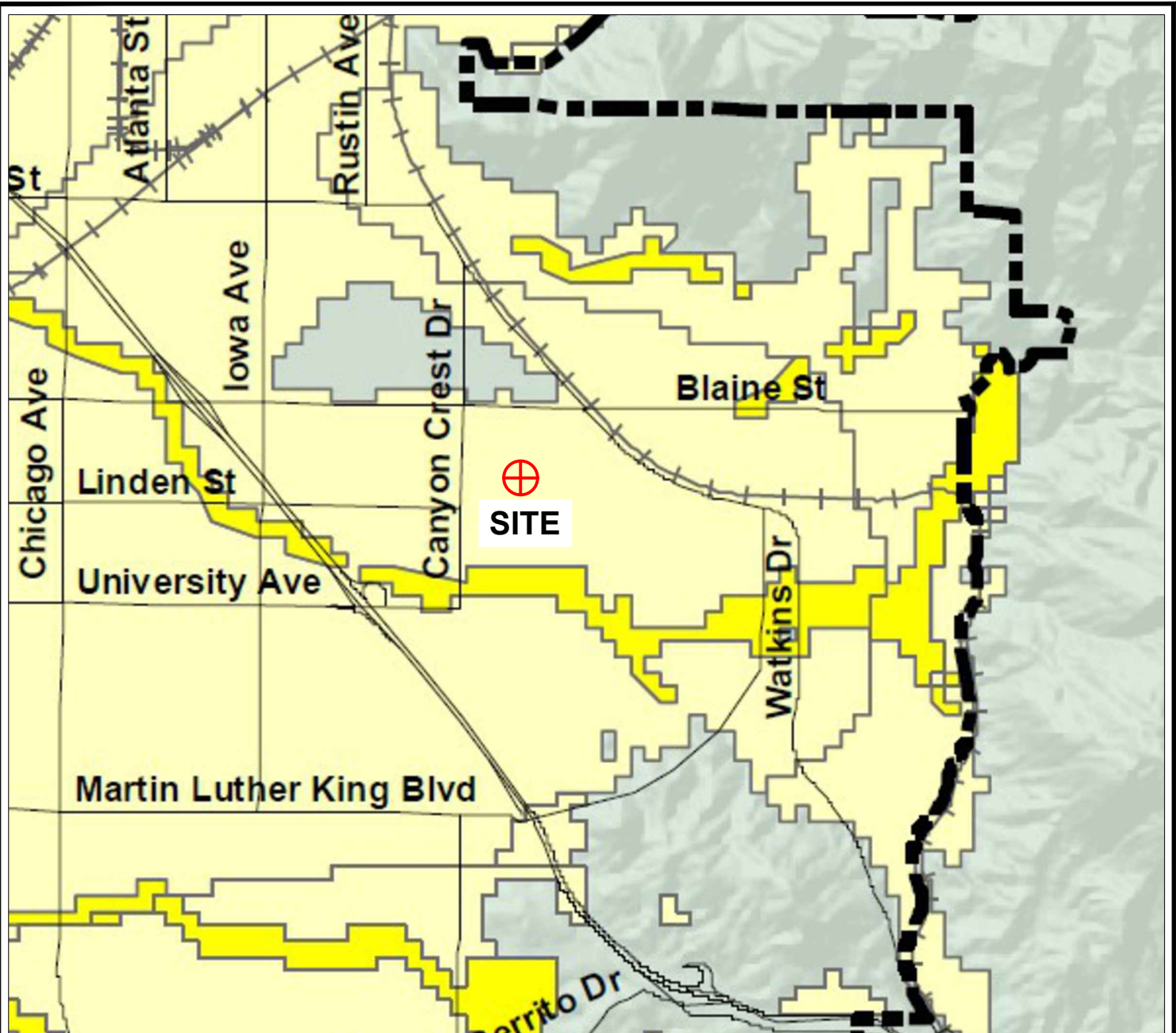
REGIONAL GEOLOGIC MAP

NORTH DISTRICT STUDENT HOUSING
UNIVERSITY OF CALIFORNIA, RIVERSIDE
RIVERSIDE, CALIFORNIA

PROJECT NO.
250974.3

REPORT DATE
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FIGURE 3



LEGEND

- VERY LOW
- LOW
- MODERATE
- HIGH
- VERY HIGH



REFERENCE: CITY OF RIVERSIDE COUNTY (2018)



LIQUEFACTION ZONES MAP

NORTH DISTRICT STUDENT HOUSING
UNIVERSITY OF CALIFORNIA, RIVERSIDE
RIVERSIDE, CALIFORNIA

PROJECT NO.
250974.3

REPORT DATE
February 2026

FIGURE 4



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APPENDIX A FIELD EXPLORATION

Appendix A Field Exploration

General

The field exploration for the proposed project consisted of drilling, testing, sampling, and logging of nine exploratory borings (B-1 through B-6, P-1 through P-3) and performing percolation testing in three of the borings (P-1 through P-3). The approximate locations of the exploration are shown on Figure 2 – Site Plan and Boring Location Map.

The borings were first excavated to 5 feet below ground surface (bgs) using a hand-auger to clear potential underground utilities. Upon completion of exploration, the borings were backfilled with soil cuttings. The surface of all locations was repaired to match existing conditions, and the paved locations were patched with Portland cement concrete to match existing conditions.

Exploratory Borings

Drilling operation for the borings was performed by Baja Exploration of Escondido, California using a CME-95 truck-mounted drill rig equipped with 8-inch diameter hollow-stem-auger (HSA). The borings were advanced to a maximum depth of 5.0 to 51.5 feet bgs on January 12 and 13, 2026.

An explanation of the boring logs is presented below. The boring logs from the current drilling follow. The boring logs describe the earth materials encountered, samples obtained, and show the field and laboratory tests performed. The logs also show the boring number, drilling date, and the name of the logger and drilling subcontractor. The borings were logged by a Twining engineer or geologist using the Unified Soil Classification System under the supervision of a registered California Geotechnical Engineer. The boundaries between soil types shown on the logs are approximate because the transition between different soil layers may be gradual. Drive and bulk samples of representative earth materials were obtained from the borings.

Disturbed samples were obtained from select depths using a Standard Penetration Test (SPT) sampler. This sampler consists of a 2-inch O.D., 1.4-inch I.D. split barrel shaft without room for liner. Soil samples obtained by the SPT sampler were retained in plastic bags. A California modified sampler was also used to obtain drive samples of the soils from select depths. This sampler consists of a 3-inch outside diameter (O.D.), 2.4-inch inside diameter (I.D.) split barrel shaft. The samples were retained in brass rings for laboratory testing.

When the boring was drilled to a select depth, the sampler was lowered to the bottom of the boring and then driven a total of 18 inches into the soil using an automatic hammer weighing 140 pounds dropped from a height of 30 inches. The number of blows required to drive the samplers the final 12 inches is presented on the boring logs. Where sampler refusal is encountered and the sampler does not advance 18 inches, the total number of blows per number of inches advanced is presented. The blow counts given are field raw blow counts that have not been modified to account for field and/or depth conditions.

Percolation Testing

Percolation testing were performed in borings P-1 through P-3. P-1 was advanced to 5 feet bgs using a hand-auger. Borings P-2 and P-3 were advanced to 5 feet bgs using a hand-auger and then was drilled to 20 and 40 feet bgs, respectively using an 8 inch-diameter, truck-mounted, hollow-stem auger. The borings were drilled under the observation of a field engineer or geologist who logged the subsurface conditions encountered and collected samples of the subsurface materials encountered.

The percolation test holes were prepared by placing approximately 1 inch of gravel at the bottom of the hole. A 3-inch diameter perforated PVC pipe was placed in the hole and the annular space around the pipe was backfilled with gravel.

After preparing the percolation test holes, the percolation was performed in accordance with the requirements of Riverside County Low Impact Development BMP Design Handbook. After presoaking, the test holes were filled with water to at least 20 inches above the bottom of the excavation. Measurements were recorded at 10-minute or 30-minute intervals depending on the results of the "sandy soil criteria test." A minimum of 6 intervals were measured. The drop that occurred during the last reading was used to determine the percolation rate at each test location. The percolation test results were converted to infiltration rates based on the Porchet Method. Detailed test data is attached to this appendix.

A reduction factor was not applied to the final measured infiltration rate per the direction of UCR. Based on the Riverside County Low Impact Development BMP Design Handbook, a minimum factor of safety of 3 should be applied to the design infiltration rate. A summary of test results is presented in Table A-1, and the detailed test data is attached as Appendix A.

Table A-1 – Infiltration Rate without a Reduction Factor

Location	Depth (feet)	Infiltration Rate (in/hour)
P-1	5	0.19
P-2	20	0.17
P-3	40	0.09



North District Student Housing

B-1

3398 Utah St, Riverside, CA 92507, USA

Page 1 of 1

Drilling Co.:	Baja Exploration	Project No.:	250974.3	Comments: No groundwater was encountered. Boring was backfilled with cuttings. Surface was patched to match existing conditions.	
Logged By:	DL	Date Drilled:	01/12/2026		
Checked By:	JAB	Boring Depth:	31.5'		
Equipment:	CME-95	Boring Elevation:	1055.0'		
Hammer Type:	Auto	Latitude, Longitude:33.980309, -117.329886			
Drilling Method:	8-inch Diameter Hollow Stem Auger	▽ Water Level At Time Of Drilling		N/A	
		Cave-in At Time Of Drilling		N/A	

Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-PI)
				SM	Artificial Fill: (SM) Silty SAND, dark brown, slightly moist, fine to medium sand, trace clay, minor gravel				
					Alluvium: (SM) Silty SAND, reddish brown, slightly moist, mostly fine sand with some coarse sand			49.3	NP
5			4 4 4		-- loose				
10			9 29 42		-- dense, medium brown, moist	9.7	128.0		
15			9 27 33		-- very dense				
20			24 50/4"		-- very dense, becomes tannish brown, fine to coarse sand	7.0	114.4		
25			14 24 35		-- very dense, mostly fine to medium sand, with some coarse sand				
30			26 50/5"		-- very dense	7.6	119.9		



North District Student Housing

B-2

3398 Utah St, Riverside, CA 92507, USA

Page 1 of 1

Drilling Co.:	Baja Exploration	Project No.:	250974.3	Comments: No groundwater was encountered. Boring was backfilled with cuttings. Surface was patched to match existing conditions.	
Logged By:	DL	Date Drilled:	01/12/2026		
Checked By:	JAB	Boring Depth:	31.5'		
Equipment:	CME-95	Boring Elevation:	1065.8'		
Hammer Type:	Auto	Latitude, Longitude:33.980328, -117.32816			
Drilling Method:	8-inch Diameter Hollow Stem Auger	▽ Water Level At Time Of Drilling		N/A	
		Cave-in At Time Of Drilling		N/A	

Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-PI)
					Approximately 4-inches of asphalt concrete over 8-inches of base				
				SM	Artificial Fill: (SM) Silty SAND with some Clay, reddish brown, slightly moist to moist, fine to medium sand, trace coarse angular sand				NP
					Alluvium: (SM) Silty SAND, medium brown, slightly moist to moist, fine to medium sand				
5		▲	4 8 13		-- medium dense	12.5	118.8		
10		⊗	7 10 14		-- medium dense			43.3	
15		▲	38 50/5"		-- very dense, dry to slightly moist, fine to coarse sand, trace subangular to angular gravel	5.8	119.8		
20		⊗	12 21 50		-- very dense				
25		▲	28 50/4"		-- very dense, becomes reddish brown, fine to medium sand, some coarse subangular sand	11.0	124.6		
30		⊗	15 18 28		-- dense				



North District Student Housing

B-3

3398 Utah St, Riverside, CA 92507, USA

Page 1 of 1

Drilling Co.:	Baja Exploration	Project No.:	250974.3	Comments: No groundwater was encountered. Boring was backfilled with cuttings. Surface was patched to match existing conditions.
Logged By:	JAB	Date Drilled:	01/13/2026	
Checked By:	JAB	Boring Depth:	31.5'	
Equipment:	CME-95	Boring Elevation:	1073.1'	
Hammer Type:	Auto	Latitude, Longitude:33.979479, -117.328163		
Drilling Method:	8-inch Diameter Hollow Stem Auger	▽ Water Level At Time Of Drilling		N/A
		Cave-in At Time Of Drilling		N/A

Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-PI)
				SM	Artificial Fill: (SM) Silty SAND, dark reddish brown, slightly moist, fine to coarse sand, some fine to coarse subangular gravel				
				SM	0.5-foot layer of asphalt				
5			15 16 22		-- dense, yellowish brown				
10			22 36 50/6"		-- very dense	6.9	126.0		
15			16 22 30		-- very dense, becomes reddish brown				
20			36 50/6"		-- very dense, dry to slightly moist	5.7	109.0		
25			13 20 25		-- dense				
30			20 32 43		-- very dense, moist	7.9	120.9		



North District Student Housing

B-4

3398 Utah St, Riverside, CA 92507, USA

Page 1 of 1

Drilling Co.:	Baja Exploration	Project No.:	250974.3	Comments: No groundwater was encountered. Boring was backfilled with cuttings. Surface was patched to match existing conditions.	
Logged By:	DJL	Date Drilled:	01/12/2026		
Checked By:	JAB	Boring Depth:	31.5'		
Equipment:	CME-95	Boring Elevation:	1057.1'		
Hammer Type:	Auto	Latitude, Longitude:33.979483, -117.329873			
Drilling Method:	8-inch Diameter Hollow Stem Auger	▽ Water Level At Time Of Drilling		N/A	
		Cave-in At Time Of Drilling		N/A	

Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-PI)
5			18 40 50/5"	SM	Artificial Fill: (SM) Silty SAND, medium brown, dry to slightly moist, fine to coarse sand, trace clay, trace gravel			40.6	NP
10			22 32 50/6"		Alluvium: (SM) Silty SAND, very dense, medium brown, moist, fine to medium sand, some coarse sand	9.4	127.8		
15			20 50/5"		-- very dense				
20			14 17 22		-- very dense	6.4	123.2		
25			23 50/5"		-- dense			34.5	
30			17 23 27		-- very dense, reddish brown	6.4	113.3		
					-- very dense, tan to medium brown				



North District Student Housing

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Drilling Co.:	Baja Exploration	Project No.:	250974.3	Comments: No groundwater was encountered. Boring was backfilled with cuttings. Surface was patched to match existing conditions.
Logged By:	DJL	Date Drilled:	01/12/2026	
Checked By:	JAB	Boring Depth:	31.5'	
Equipment:	CME-95	Boring Elevation:	1061.1'	
Hammer Type:	Auto	Latitude, Longitude:33.98001, -117.329257		
Drilling Method:	8-inch Diameter Hollow Stem Auger	▽ Water Level At Time Of Drilling		N/A
		Cave-in At Time Of Drilling		N/A

Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-PI)
5			4 7 12	SM	Artificial Fill: (SM) Silty SAND, tan to light brown, dry to slightly moist, fine to coarse sand			27.2	NP
					Alluvium: (SM) Silty SAND with some Clay, reddish brown, slightly moist, fine to coarse sand				
5			4 7 12	CL	(CL) Sandy LEAN CLAY, very stiff, reddish brown, dry to slightly moist, fine to coarse sand, calcium carbonate stringers			67.5	
10			24 29 32	SM	(SM) Silty SAND, dense, tan, dry, fine to coarse sand	3.8	118.2		
15			13 19 20		-- dense				
20			30 50/6"		-- very dense, tan to medium brown, dry to slightly moist	5.9	120.2		
25			4 29 33		-- very dense				
30			21 50/6"		-- very dense, dry	1.8	112.8		



North District Student Housing

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3398 Utah St, Riverside, CA 92507, USA

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Drilling Co.:	Baja Exploration	Project No.:	250974.3	Comments: No groundwater was encountered. Boring was backfilled with cuttings. Surface was patched to match existing conditions.
Logged By:	DJL	Date Drilled:	01/12/2026	
Checked By:	JAB	Boring Depth:	51.5'	
Equipment:	CME-95	Boring Elevation:	1066.2'	
Hammer Type:	Auto	Latitude, Longitude:33.97979, -117.328754		
Drilling Method:	8-inch Diameter Hollow Stem Auger	▽ Water Level At Time Of Drilling	N/A	
		Cave-in At Time Of Drilling	N/A	

Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-PI)
					Approximately 4-inches of asphalt over 6-inches of base				
				SM	Alluvium: (SM) Silty SAND, medium brown, dry to slightly moist, fine to medium sand			31.1	
5			21 30 32		-- dense, slightly moist	6.3	125.8		
10			10 14 16		-- dense				
15			10 15 27		-- medium dense	6.7	124.3		
20			13 15 18		-- dense				
25			24 50/5"		-- very dense	6.7	113.8		
30			21 25 36		-- very dense, tan to medium brown				



North District Student Housing

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3398 Utah St, Riverside, CA 92507, USA

Page 2 of 2

Drilling Co.:	Baja Exploration	Project No.:	250974.3	Comments: No groundwater was encountered. Boring was backfilled with cuttings. Surface was patched to match existing conditions.
Logged By:	DJL	Date Drilled:	01/12/2026	
Checked By:	JAB	Boring Depth:	51.5'	
Equipment:	CME-95	Boring Elevation:	1066.2'	
Hammer Type:	Auto	Latitude, Longitude:33.97979, -117.328754		
Drilling Method:	8-inch Diameter Hollow Stem Auger	▽ Water Level At Time Of Drilling		N/A
		Cave-in At Time Of Drilling		N/A

Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-PI)
35		▲	36 50/6"	SM	-- very dense, reddish brown, slightly moist	4.3	118.6		
40	⊗		20 24 27	SP-SM	(SP-SM) Poorly Graded SAND with Silt, very dense, tan, dry to slightly moist, fine to coarse sand				
45		▲	25 32 40	SP	(SP) Poorly Graded SAND, very dense, tan to medium brown, dry, fine to coarse sand	2.7	112.4		
50	⊗		18 24 32		-- very dense, trace fine gravel				
55									
60									

		North District Student Housing 3398 Utah St, Riverside, CA 92507, USA				P-1 Page 1 of 1			
Drilling Co.: Baja Exploration		Project No.: 250974.3		Comments: No groundwater was encountered. Boring was converted to percolation test. Boring was backfilled with cuttings. Surface was patched to match existing conditions.					
Logged By: JAB		Date Drilled: 01/13/2026							
Checked By: JAB		Boring Depth: 5'							
Equipment: CME-95		Boring Elevation: 1061.1'							
Hammer Type: Auto		Latitude, Longitude: 33.979501, -117.329277							
Drilling Method: 8-inch Diameter Hollow Stem Auger		▽ Water Level At Time Of Drilling N/A							
		Cave-in At Time Of Drilling N/A							
Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Graphic Log	Moisture Content (%)	Dry Density (PCF)	% Fines
5				SM	Artificial Fill: (SM) Silty SAND, reddish brown, moist, fine to coarse sand, trace asphalt and trash debris			16.60	
					Alluvium: (SM) Silty SAND, reddish brown, moist, fine to coarse sand				



North District Student Housing

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3398 Utah St, Riverside, CA 92507, USA

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Drilling Co.:	Baja Exploration	Project No.:	250974.3	Comments: No groundwater was encountered. Boring was converted to percolation test. Boring was backfilled with cuttings. Surface was patched to match existing conditions.
Logged By:	JAB	Date Drilled:	01/13/2026	
Checked By:	JAB	Boring Depth:	20'	
Equipment:	CME-95	Boring Elevation:	1066.8'	
Hammer Type:	Auto	Latitude, Longitude:33.979458, -117.328669		
Drilling Method:	8-inch Diameter Hollow Stem Auger	▽ Water Level At Time Of Drilling		N/A
		Cave-in At Time Of Drilling		N/A

Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-PI)
				SM	Artificial Fill: (SM) Silty SAND, dark gray, moist, fine to coarse sand, some fine to coarse subangular gravel, some asphalt debris				24-18-6
				SC	Alluvium: (SC) Clayey SAND, dark reddish brown, moist, fine to coarse sand				
5			40 50/4"	SM	(SM) Silty SAND, very dense, yellowish brown, slightly moist, fine to coarse sand			25.7	
10			11 26 50/5"	ML	(ML) Sandy SILT, hard, reddish brown, very moist, some clay	28.4	94.3	55.2	
15			9 17 22	SM	(SM) Silty SAND, dense, reddish brown, moist			36.6	
20			20 50/6"		-- very dense, light brown, slightly moist	9.6	126.7		



North District Student Housing

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3398 Utah St, Riverside, CA 92507, USA

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Drilling Co.:	Baja Exploration	Project No.:	250974.3	Comments: No groundwater was encountered. Boring was converted to percolation test. Boring was backfilled with cuttings. Surface was patched to match existing conditions.
Logged By:	JAB	Date Drilled:	01/13/2026	
Checked By:	JAB	Boring Depth:	40'	
Equipment:	CME-95	Boring Elevation:	1070.7'	
Hammer Type:	Auto	Latitude, Longitude:33.979449, -117.328395		
Drilling Method:	8-inch Diameter Hollow Stem Auger	▽ Water Level At Time Of Drilling		N/A
		Cave-in At Time Of Drilling		N/A

Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-PI)
				SM	Artificial Fill: (SM) Silty SAND, dark gray, slightly moist, fine to coarse sand, some fine to coarse subangular gravel				
				SM	0.5-foot layer of asphalt				
5			22 36 50/5"		-- very dense			29.6	
10			10 15 20		-- dense			34.1	
15			18 38 50/5"		-- very dense				
20			15 24 35		-- very dense, becomes light reddish brown			29.5	
25			15 26 40		-- dense, reddish brown				
30			14 24 26		-- very dense, becomes yellowish brown			30.6	

		North District Student Housing 3398 Utah St, Riverside, CA 92507, USA			P-3 Page 2 of 2				
Drilling Co.: Baja Exploration		Project No.: 250974.3		Comments: No groundwater was encountered. Boring was converted to percolation test. Boring was backfilled with cuttings. Surface was patched to match existing conditions.					
Logged By: JAB		Date Drilled: 01/13/2026							
Checked By: JAB		Boring Depth: 40'							
Equipment: CME-95		Boring Elevation: 1070.7'							
Hammer Type: Auto		Latitude, Longitude: 33.979449, -117.328395							
Drilling Method: 8-inch Diameter Hollow Stem Auger		▽ Water Level At Time Of Drilling N/A							
		Cave-in At Time Of Drilling N/A							
Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-PI)
35			29 50/6"	SM	-- very dense, becomes light reddish brown				
40			16 19 22		-- dense, slightly moist	5.7	116.9	20.7	
45									
50									
55									
60									

Infiltration Rate Calculation Sheet

Project :	UCR N Dist. Student Housing	Project No. :	250974.3	Date :	1/13/2026		
Test Hole No.:	P-1	Tested by :	DP				
Depth of Test Hole, D_T (in):	60.0	USCS Soil Classification :	SM				
Test Hole Dimension (inches)			Length	Width			
Diameter (if round) (inches) =	8.00	Sides (if rectangular) =					
Sandy Soil Criteria Test*							
Trial No.	Start Time	Stop Time	Time Interval (min.)	Initial Depth to Water (in.)	Final Depth to Water (in.)	Change in Water Level (in.)	Greater than or Equal to 6" ? (Y/N)
1	8:03 AM	8:28 AM	25	19.9	27.2	7.3	Y
1	8:40 AM	9:05 AM	25	21.4	27.5	6.1	Y
<p>*If a consecutive measurement shows that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".</p>							
			Δt	H_o	H_f	ΔH	
Trial No.	Start Time	Stop Time	Time Interval (min.)	Initial Water Height (inches)	Final Water Height (inches)	Change in Water Level (inches)	Tested Infiltration Rate
1	9:08 AM	9:18 AM	10	34.56	33.24	1.32	0.44
2	9:19 AM	9:29 AM	10	33.12	32.16	0.96	0.33
3	9:30 AM	9:40 AM	10	32.04	31.56	0.48	0.17
4	9:41 AM	9:51 AM	10	37.92	36.60	1.32	0.40
5	9:52 AM	10:02 AM	10	36.48	35.76	0.72	0.23
6	10:03 AM	10:13 AM	10	35.64	35.04	0.60	0.19
Raw Infiltration Rate (no factor of safety) = 0.19 inch /hr							

Reference: Appendix VII. Infiltration Rate Evaluation Protocol and Factor of Safety Recommendations dated 12/20/13

Infiltration Rate Calculation Sheet

Project :	UCR N Dist. Student Housing	Project No. :	250974.3	Date :	1/13/2026		
Test Hole No.:	P-2	Tested by :	DP				
Depth of Test Hole, D_T (in):	240.0	USCS Soil Classification :	SM				
Test Hole Dimension (inches)			Length	Width			
Diameter (if round) (inches) =	8.00	Sides (if rectangular) =					
Sandy Soil Criteria Test*							
Trial No.	Start Time	Stop Time	Time Interval (min.)	Initial Depth to Water (in.)	Final Depth to Water (in.)	Change in Water Level (in.)	Greater than or Equal to 6" ? (Y/N)
1	9:20 AM	9:45 AM	25	68.2	77.6	9.5	Y
1	9:46 AM	10:11 AM	25	77.9	84.2	6.4	Y
<p>*If a consecutive measurement shows that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".</p>							
			Δt	H_o	H_f	ΔH	
Trial No.	Start Time	Stop Time	Time Interval (min.)	Initial Water Height (inches)	Final Water Height (inches)	Change in Water Level (inches)	Tested Infiltration Rate
1	10:15 AM	10:23 AM	8	155.52	152.88	2.64	0.25
2	10:25 AM	10:35 AM	10	152.76	150.36	2.40	0.19
3	10:36 AM	10:46 AM	10	150.12	148.08	2.04	0.16
4	10:48 AM	10:58 AM	10	154.44	151.92	2.52	0.19
5	10:59 AM	11:09 AM	10	151.80	149.16	2.64	0.21
6	11:11 AM	11:21 AM	10	148.92	146.76	2.16	0.17
Raw Infiltration Rate (no factor of safety) = 0.17 inch /hr							

Reference: Appendix VII. Infiltration Rate Evaluation Protocol and Factor of Safety Recommendations dated 12/20/13

Infiltration Rate Calculation Sheet

Project :	UCR N Dist. Student Housing	Project No. :	250974.3	Date :	1/13/2026		
Test Hole No.:	P-3	Tested by :	DP				
Depth of Test Hole, D_T (in):	480.0	USCS Soil Classification :	SM				
Test Hole Dimension (inches)			Length	Width			
Diameter (if round) (inches) =	8.00	Sides (if rectangular) =					
Sandy Soil Criteria Test*							
Trial No.	Start Time	Stop Time	Time Interval (min.)	Initial Depth to Water (in.)	Final Depth to Water (in.)	Change in Water Level (in.)	Greater than or Equal to 6" ? (Y/N)
1	11:12 AM	11:37 AM	25	91.0	109.8	18.8	Y
1	11:39 AM	11:59 AM	20	110.0	117.6	7.6	Y
<p>*If a consecutive measurement shows that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".</p>							
			Δt	H_o	H_f	ΔH	
Trial No.	Start Time	Stop Time	Time Interval (min.)	Initial Water Height (inches)	Final Water Height (inches)	Change in Water Level (inches)	Tested Infiltration Rate
1	12:01 PM	12:11 PM	10	362.28	358.68	3.60	0.12
2	12:13 PM	12:23 PM	10	358.56	355.32	3.24	0.11
3	12:24 PM	12:34 PM	10	355.20	351.84	3.36	0.11
4	12:35 PM	12:45 PM	10	351.72	348.60	3.12	0.11
5	12:46 PM	12:56 PM	10	348.48	345.96	2.52	0.09
6	12:57 PM	1:07 PM	10	345.84	342.96	2.88	0.10
Raw Infiltration Rate (no factor of safety) = 0.10 inch /hr							

Reference: Appendix VII. Infiltration Rate Evaluation Protocol and Factor of Safety Recommendations dated 12/20/13



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Riverside CA 92501

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APPENDIX B

LABORATORY TESTING

Appendix B Laboratory Testing

Laboratory Moisture Content and Density Tests

The moisture content and dry densities of selected driven samples obtained from the exploratory borings were evaluated in general accordance with the latest version of ASTM D2937. The results are shown on the boring logs in Appendix A and summarized in Table B-1.

No. 200 Wash Sieve

The amount of fines passing the No. 200 sieve was evaluated in accordance with ASTM D1140. The results are presented in Table B-2.

Atterberg Limits

Tests were performed on selected representative fine-grained soil samples to evaluate the liquid limit, plastic limit, and plasticity index in general accordance with ASTM D 4318. These test results were utilized to evaluate the soil classification in accordance with the Unified Soil Classification System. The test results are summarized in Table B-3.

Resistance Value (R-value)

R-value testing was performed on a select bulk sample of the near-surface soils encountered at the site. The test was performed in general accordance with ASTM D2844. The result is summarized in Table B-4.

Maximum Dry Density-Optimum Moisture Content

One selected bulk sample was tested to evaluate the maximum dry density and its optimum moisture content. The test was performed in general accordance with ASTM test method D1557. The results are attached below.

Expansion Index

The expansion index of a select soil sample was evaluated in general accordance with ASTM D4829. The specimen was molded under a specified compactive energy at approximately 50 percent saturation. The prepared 1-inch thick by 4-inch diameter specimen was loaded with a surcharge of 144 pounds per square foot and was inundated with tap water. Readings of volumetric swell were made for a period of 24 hours. The results of expansion index test is presented in Table B-5.

Consolidation

Consolidation tests were performed on selected modified-California soil samples in general accordance with the latest version of ASTM D2435. The samples were inundated during testing to represent adverse field conditions. The percent consolidation for each load cycle was recorded as a ratio of the amount of vertical compression to the original height of the sample. Test results are attached below.

Direct Shear

Direct shear tests were performed on a remolded sample and representative modified-California soil samples in general accordance with the latest version of ASTM D3080 to evaluate the shear



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strength characteristics of the selected materials. The samples were inundated during shearing to represent adverse field conditions. Test results are attached below.

Corrosivity

Soil pH and resistivity tests were performed by Anaheim Test Lab, Inc. (ATLI) of Anaheim, California on a representative soil sample. The resistivity of the soil assumes saturated soil conditions. The chloride and sulfate contents of the selected samples were evaluated in general accordance with the latest versions of Caltrans test methods CT417, CT422, and CT 643. The test results are presented in Table B-6 and the ATLI report is included in this appendix.

Table B-1 - Moisture Content and Dry Density

Boring No.	Depth (feet)	Moisture Content (%)	Dry Density (pcf)
B-1	10	9.7	128.0
B-1	20	7.0	114.4
B-1	30	7.6	119.9
B-2	5	12.5	118.8
B-2	15	5.8	119.8
B-2	25	11.0	124.6
B-3	10	6.9	126.0
B-3	20	5.7	109.0
B-3	30	7.9	120.9
B-4	5	9.4	127.8
B-4	15	6.4	123.2
B-4	25	6.4	113.3
B-5	10	3.8	118.2
B-5	20	5.9	120.2
B-5	30	1.8	112.8
B-6	5	6.3	125.8
B-6	15	6.7	124.3
B-6	25	6.7	113.8
B-6	35	4.3	118.6
B-6	45	2.7	112.4
P-2	10	28.4	94.3
P-2	19	9.6	126.7
P-3	39	5.7	116.9

Table B-2 - No. 200 Wash Sieve

Boring No.	Depth (feet)	Percent Passing No. 200 Sieve
B-1	1-5	49.3
B-2	10	43.3
B-4	1-5	40.6
B-4	20	34.5
B-5	1-5	27.2
B-5	5	67.5
B-6	1-5	31.1
P-1	0-5	16.6
P-2	5	25.7
P-2	10	55.2
P-2	15	36.6
P-3	2.5-5	29.6
P-3	10	34.1
P-3	20	29.5
P-3	30	30.6
P-3	38.5	20.7

Table B-3 Atterberg Limits

Boring No.	Depth (feet)	Liquid Limit	Plastic Limit	Plasticity Index	U.S.C.S Classification
B-1	1-5	N/P	N/P	N/P	SM – Silty SAND
B-2	1-5	N/P	N/P	N/P	SM – Silty SAND
B-4	1-5	N/P	N/P	N/P	SM – Silty SAND
B-5	1-5	N/P	N/P	N/P	SM – Silty SAND
P-2	2-5	24	18	6	SM – Silty SAND

Table B-4 Resistance Value (R-value)

Boring No.	Depth (feet)	R Value
B-5	1-5	24
P-1	1-5	64



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Table B-5 - Expansion Index

Boring No.	Depth (feet)	Expansion Index	Expansion Potential
B-2	1-5	9	Very Low
B-5	1-5	12	Very Low
P-2	2-5	5	Very Low

Table B-6 - Corrosivity Test Results

Boring No.	Depth (feet)	pH	Minimum Resistivity (ohm-cm)	Water Soluble Sulfate (ppm)	Water Soluble Chloride (ppm)
B-2	1-5	7.7	5,100	106	47
B-5	1-5	7.5	570	1,600	29



Twining Inc
3310 Airport Way, Long Beach, CA 90806
Ph: 562.426.3355
Fax: 562.426.6424
www.twininginc.com

Consolidation Test Report

Report No: MAT:W01-26-01297

Printed Date: 2/2/2026 Issue No: 1

Customer: University of California, Riverside

Project: North District Student Housing

Project No: 250974.3

Permit No:

OSHPD:

DSA File #:

DSA AP #:

Distribution List:

Reviewed by: 
Doug Crayton
Sr. Staff Engineer

Sample Details

Sampled By: JAB
Date Sampled: 1/13/2026
Sample Location: B-3
Sample Depth: 20 feet
Sample Source:

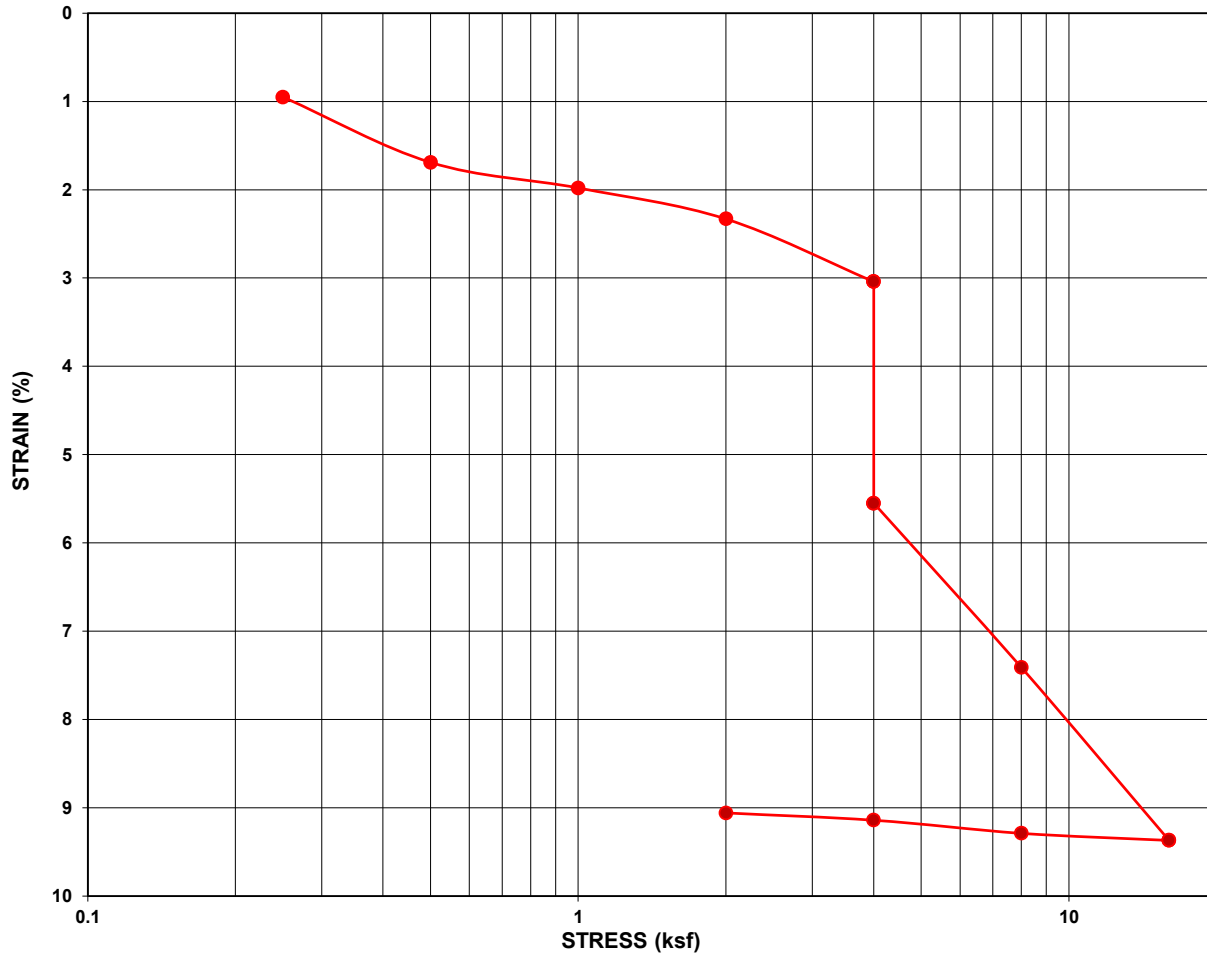
Date Received: 1/14/2026
Received By: Twining San Diego Lab
Sample Description: Silty SAND
Dry Density (pcf): 109.0
Moisture Content (%): 5.7

Test Details

Test Method: ASTM D2435

Date Tested: 1/20/2026

Tested By: R. Powney



Comments:

Water added at 4000 psf. Final moisture 13.1%.



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Consolidation Test Report

Report No: MAT:W01-26-01297

Printed Date: 2/2/2026 Issue No: 1

Customer: University of California, Riverside

Project: North District Student Housing

Project No: 250974.3

Permit No:

OSHPD:

DSA File #:

DSA AP #:

Distribution List:

Reviewed by: 
Doug Crayton
Sr. Staff Engineer

Sample Details

Sampled By: DL
Date Sampled: 1/12/2026
Sample Location: B-4
Sample Depth: 5 feet
Sample Source:

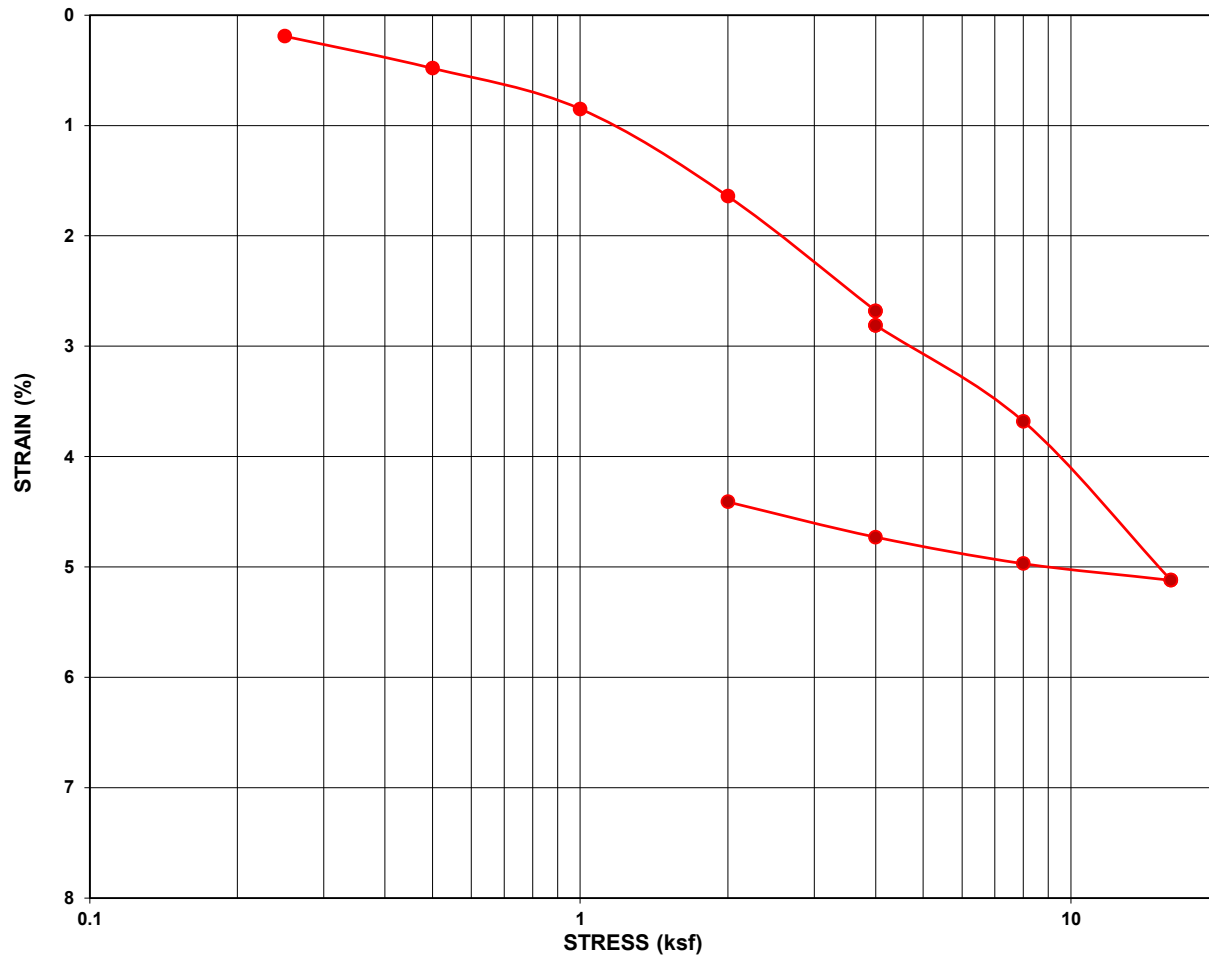
Date Received: 1/13/2026
Received By: Twining Long Beach Lab
Sample Description: Silty SAND
Dry Density (pcf): 127.8
Moisture Content (%): 9.4

Test Details

Test Method: ASTM D2435

Date Tested: 1/21/2026

Tested By: B. Vollnogle



Comments:

Water added at 4000 psf. Final moisture 11.1%.



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Fax: 562.426.6424
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Consolidation Test Report

Report No: MAT:W01-26-01297

Printed Date: 2/2/2026 Issue No: 1

Customer: University of California, Riverside

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Project No: 250974.3

Permit No:

OSHPD:

DSA File #:

DSA AP #:

Distribution List:

Reviewed by: 
Doug Crayton
Sr. Staff Engineer

Sample Details

Sampled By: DL
Date Sampled: 1/12/2026
Sample Location: B-5
Sample Depth: 10 feet
Sample Source:

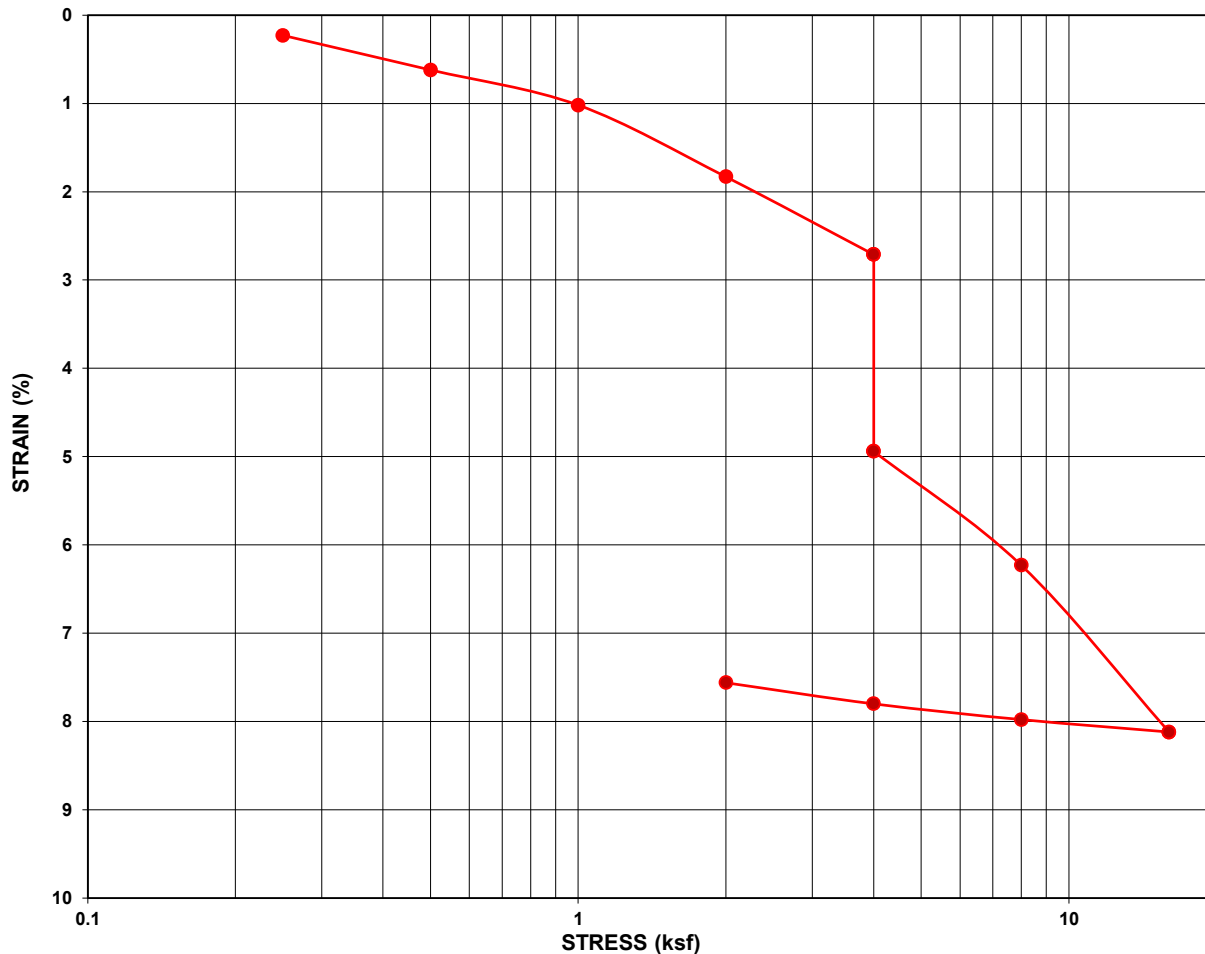
Date Received: 1/13/2026
Received By: Twining Long Beach Lab
Sample Description: Silty SAND
Dry Density (pcf): 118.2
Moisture Content (%): 3.8

Test Details

Test Method: ASTM D2435

Date Tested: 1/21/2026

Tested By: B. Vollnogle



Comments:

Water added at 4000 psf. Final moisture 13.1%.



Twining Inc
3310 Airport Way, Long Beach, CA 90806
Ph: 562.426.3355
Fax: 562.426.6424
www.twininginc.com

Consolidation Test Report

Report No: MAT:W01-26-01297

Printed Date: 2/2/2026 Issue No: 1

Customer: University of California, Riverside

Project: North District Student Housing

Project No: 250974.3

Permit No:

OSHPD:

DSA File #:

DSA AP #:

Distribution List:

Reviewed by: 
Doug Crayton
Sr. Staff Engineer

Sample Details

Sampled By: DL
Date Sampled: 1/12/2026
Sample Location: B-6
Sample Depth: 15 feet
Sample Source:

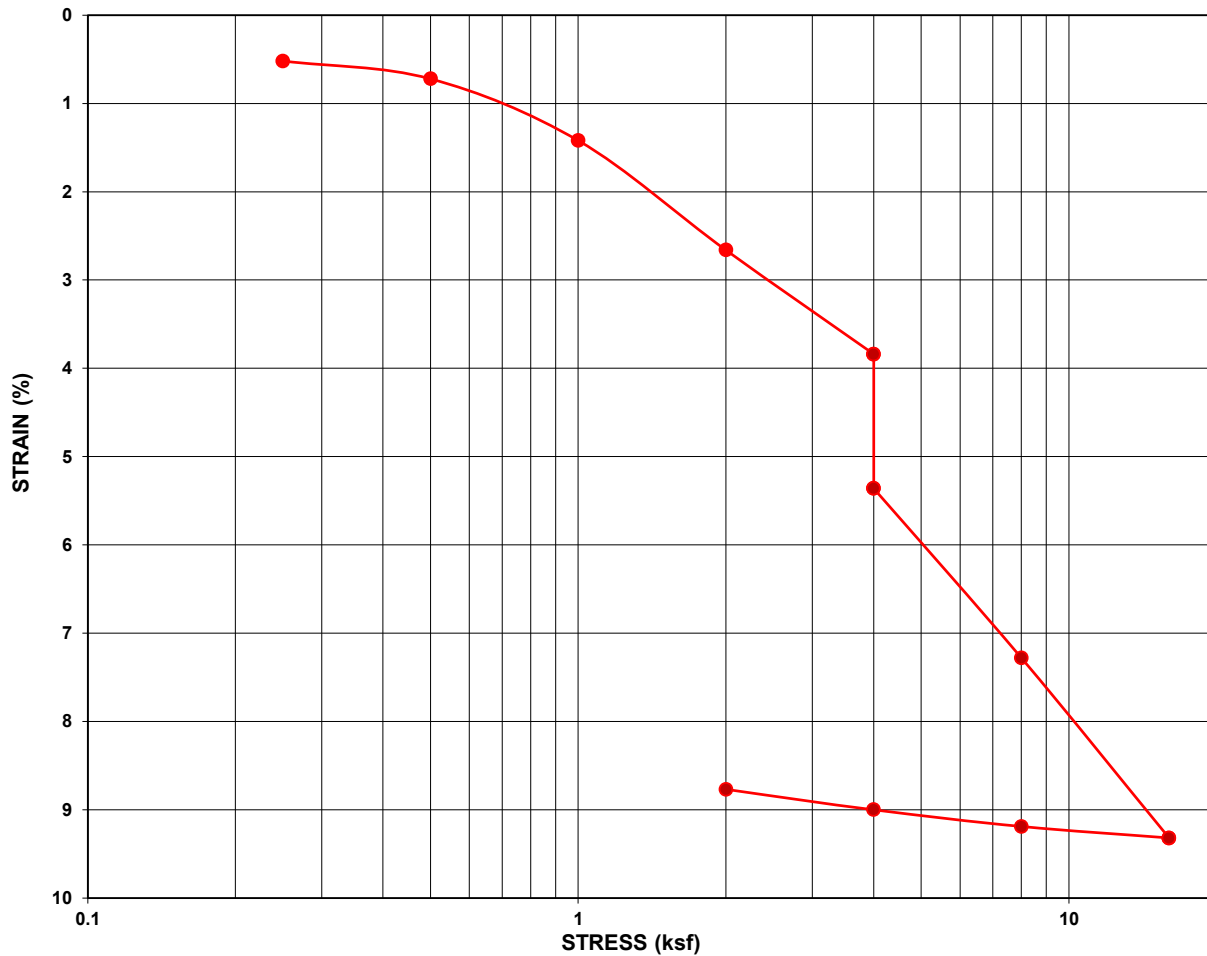
Date Received: 1/13/2026
Received By: Twining Long Beach Lab
Sample Description: Silty SAND
Dry Density (pcf): 124.3
Moisture Content (%): 6.7

Test Details

Test Method: ASTM D2435

Date Tested: 1/21/2026

Tested By: B. Vollnogle



Comments:

Water added at 4000 psf. Final moisture 13.1%.



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Consolidation Test Report

Report No: MAT:W01-26-01297

Printed Date: 2/2/2026 Issue No: 1

Customer: University of California, Riverside

Project: North District Student Housing

Project No: 250974.3

Permit No:

OSHPD:

DSA File #:

DSA AP #:

Distribution List:

Reviewed by: 
Doug Crayton
Sr. Staff Engineer

Sample Details

Sampled By: DL
Date Sampled: 1/12/2026
Sample Location: B-6
Sample Depth: 25 feet
Sample Source:

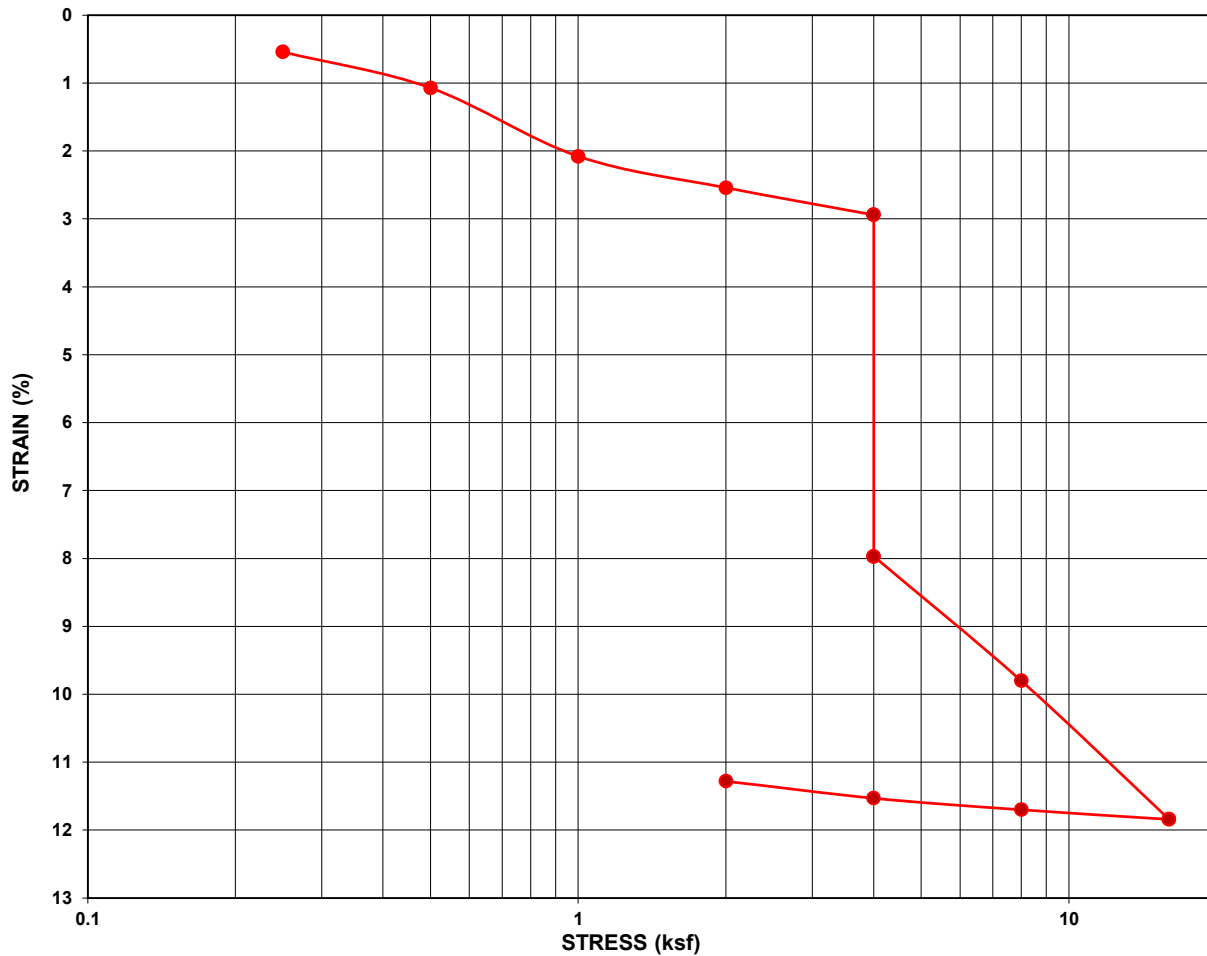
Date Received: 1/13/2026
Received By: Twining Long Beach Lab
Sample Description: Silty SAND
Dry Density (pcf): 113.8
Moisture Content (%): 6.7

Test Details

Test Method: ASTM D2435

Date Tested: 1/21/2026

Tested By: B. Vollnogle



Comments:

Water added at 4000 psf. Final moisture 13.1%.



Twining, Inc.- Long Beach Lab
 3310 Airport Way, Long Beach, CA 90806
 Ph: 562.426.3355
 Fax: 562.426.6424
 www.twininginc.com

Direct Shear Test Report

Report No: MAT:W01-26-01297
Printed Date: 2/12/2026 **Issue No: 1**

Customer: University of California, Riverside

Project No: 250974.3

Project: North District Student Housing

Permit No:

OSHPD:

DSA File #:

DSA AP #:

Jurisdiction:

Distribution List:

Approved by:  Doug Crayton
 Sr. Staff Engineer

Sample Details

Sampled By: DL
Date Sampled: 1/12/2026
Sample Location: B-2
Sample Depth: 1-5 feet
Sampling Method: BULK

Date Received: 1/13/2026
Received By: Twining, Inc.
Material Description: Silty SAND
Source:
Test Method: ASTM D3080

Test Details

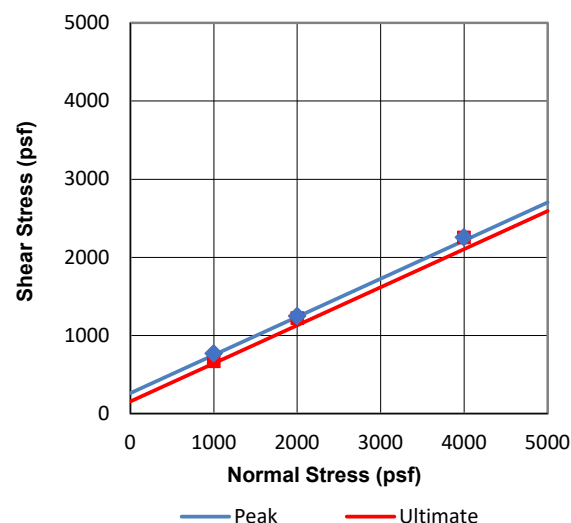
Preparation: Ring **% Compaction:** 90% **Shear Rate:** Slow: .005 (in/min)

Tested By: BV/KH **Date Tested:** 1/23/2026

Specimen #	Wet Density (pcf)	Dry Density (pcf)	Initial Moisture (%)	Final Moisture (%)
1	123.8	114.8	7.8	16.1
2	123.8	114.8	7.8	15.3
3	123.8	114.8	7.8	14.6

Specimen #	Load (psf)	Peak (psf)	Ultimate (psf)
1	1000	768	672
2	2000	1248	1224
3	4000	2256	2256

	Peak	Ultimate
Friction Angle (degrees):	26	26
Cohesion, C (psf):	264	156



Compliance:

Comments

Sample remolded to 90% relative compaction.



Twining, Inc.- Long Beach Lab
3310 Airport Way, Long Beach, CA 90806
Ph: 562.426.3355
Fax: 562.426.6424
www.twininginc.com

Direct Shear Test Report

Report No: MAT:W01-26-01297
Printed Date: 2/1/2026 Issue No: 1

Customer: University of California, Riverside

Project: North District Student Housing

Project No: 250974.3

Permit No:

OSHPD:

DSA File #:

DSA AP #:

Jurisdiction:

Distribution List:

Approved by:  Doug Crayton
Sr. Staff Engineer

Sample Details

Sampled By: DL
Date Sampled: 1/12/2026
Sample Location: B-2
Sample Depth: 5 feet
Sampling Method: Ring

Date Received: 1/13/2026
Received By: Twining, Inc.
Material Description: Silty SAND
Source:
Test Method: ASTM D3080

Test Details

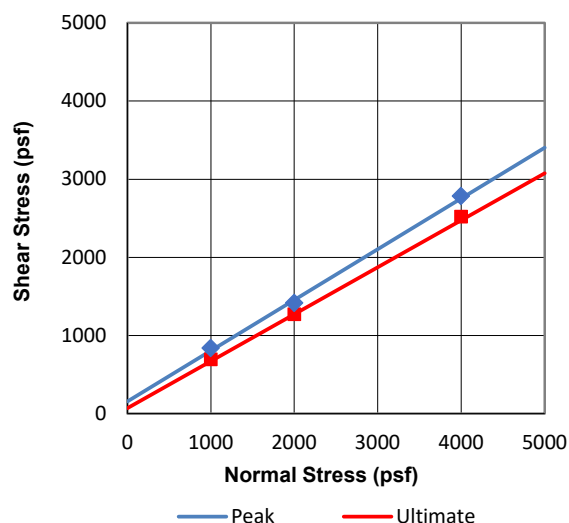
Preparation: Ring % Compaction: Shear Rate: Slow: .005 (in/min)

Tested By: BV/KH Date Tested: 1/21/2026

Specimen #	Wet Density (pcf)	Dry Density (pcf)	Initial Moisture (%)	Final Moisture (%)
1	133.7	118.8	12.5	14.7
2	133.7	118.8	12.5	13.7
3	133.7	118.8	12.5	12.8

Specimen #	Load (psf)	Peak (psf)	Ultimate (psf)
1	1000	840	696
2	2000	1416	1272
3	4000	2784	2520

	Peak	Ultimate
Friction Angle (degrees):	33	31
Cohesion, C (psf):	156	72



Compliance:

Comments



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Direct Shear Test Report

Report No: MAT:W01-26-01297
Printed Date: 2/1/2026 Issue No: 1

Customer: University of California, Riverside

Project: North District Student Housing

Project No: 250974.3

Permit No:

OSHPD:

DSA File #:

DSA AP #:

Jurisdiction:

Distribution List:

Approved by:  Doug Crayton
Sr. Staff Engineer

Sample Details

Sampled By: JAB
Date Sampled: 1/13/2026
Sample Location: B-3
Sample Depth: 2-5 feet
Sampling Method: BULK

Date Received: 1/14/2026
Received By: Twining, Inc.
Material Description: Silty SAND
Source:
Test Method: ASTM D3080

Test Details

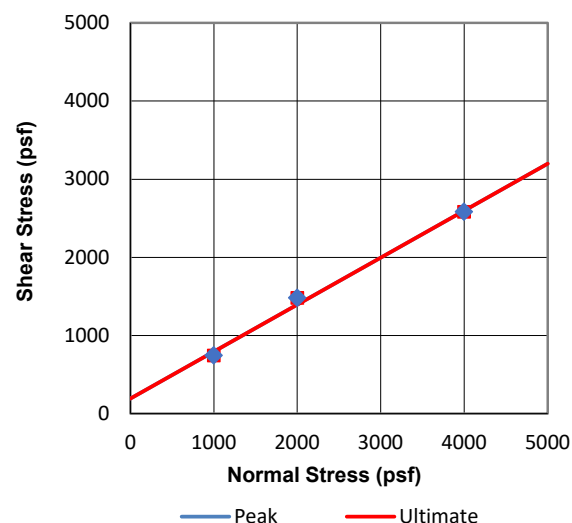
Preparation: Ring % Compaction: 90% Shear Rate: Slow: .005 (in/min)

Tested By: RP Date Tested: 1/20/2026

Specimen #	Wet Density (pcf)	Dry Density (pcf)	Initial Moisture (%)	Final Moisture (%)
1	123.0	112.4	9.4	18.4
2	123.0	112.4	9.4	17.3
3	123.0	112.4	9.4	17.6

Specimen #	Load (psf)	Peak (psf)	Ultimate (psf)
1	1000	744	744
2	2000	1483	1483
3	4000	2582	2582

	Peak	Ultimate
Friction Angle (degrees):	31	31
Cohesion, C (psf):	195	195



Compliance:

Comments

Sample remolded to 90% relative compaction.



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Direct Shear Test Report

Report No: MAT:W01-26-01297
Printed Date: 2/12/2026 Issue No: 1

Customer: University of California, Riverside

Project: North District Student Housing

Project No: 250974.3

Permit No:

OSHPD:

DSA File #:

DSA AP #:

Jurisdiction:

Distribution List:

Approved by: 
Doug Crayton
Sr. Staff Engineer

Sample Details

Sampled By: DL
Date Sampled: 1/12/2026
Sample Location: B-4
Sample Depth: 15 feet
Sampling Method: Ring

Date Received: 1/13/2026
Received By: Twining, Inc.
Material Description: Silty SAND
Source:
Test Method: ASTM D3080

Test Details

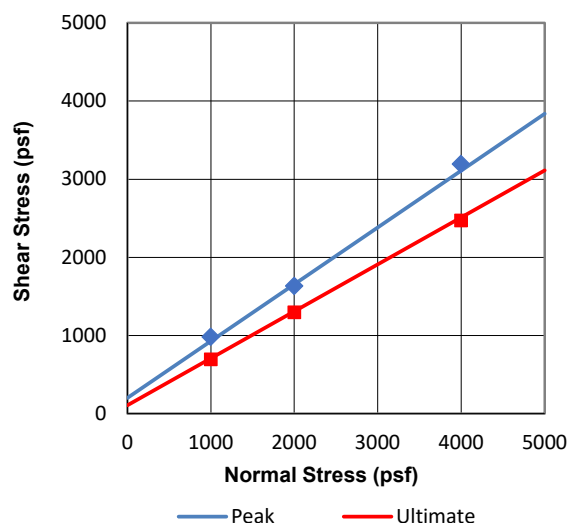
Preparation: Ring % Compaction: Shear Rate: Slow: .005 (in/min)

Tested By: BV/KH Date Tested: 2/2/2026

Specimen #	Wet Density (pcf)	Dry Density (pcf)	Initial Moisture (%)	Final Moisture (%)
1	131.1	123.2	6.4	18.2
2	131.1	123.2	6.4	17.7
3	131.1	123.2	6.4	15.9

Specimen #	Load (psf)	Peak (psf)	Ultimate (psf)
1	1000	984	696
2	2000	1632	1296
3	4000	3192	2472

	Peak	Ultimate
Friction Angle (degrees):	36	31
Cohesion, C (psf):	204	108



Compliance:

Comments



Twining, Inc.- Long Beach Lab
3310 Airport Way, Long Beach, CA 90806
Ph: 562.426.3355
Fax: 562.426.6424
www.twininginc.com

Direct Shear Test Report

Report No: MAT:W01-26-01297
Printed Date: 2/1/2026 Issue No: 1

Customer: University of California, Riverside

Project: North District Student Housing

Project No: 250974.3

Permit No:

OSHPD:

DSA File #:

DSA AP #:

Jurisdiction:

Distribution List:

Approved by: 
Doug Crayton
Sr. Staff Engineer

Sample Details

Sampled By: DL
Date Sampled: 1/12/2026
Sample Location: B-6
Sample Depth: 5 feet
Sampling Method: Ring

Date Received: 1/13/2026
Received By: Twining, Inc.
Material Description: Silty SAND
Source:
Test Method: ASTM D3080

Test Details

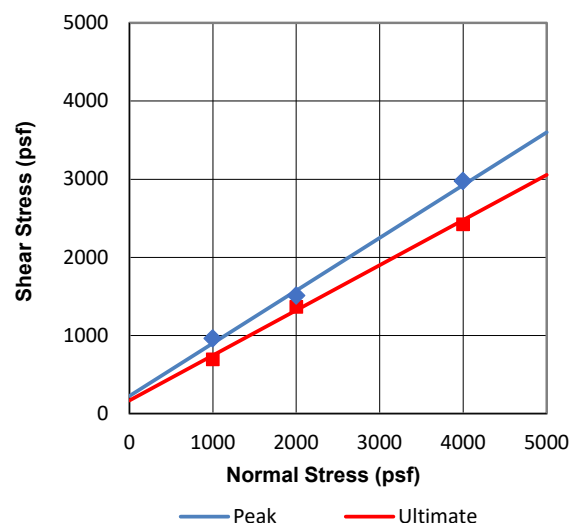
Preparation: Ring % Compaction: Shear Rate: Slow: .005 (in/min)

Tested By: BV/KH Date Tested: 1/22/2026

Specimen #	Wet Density (pcf)	Dry Density (pcf)	Initial Moisture (%)	Final Moisture (%)
1	133.7	125.8	6.3	14.5
2	133.7	125.8	6.3	14.2
3	133.7	125.8	6.3	14.7

Specimen #	Load (psf)	Peak (psf)	Ultimate (psf)
1	1000	960	696
2	2000	1512	1368
3	4000	2976	2424

	Peak	Ultimate
Friction Angle (degrees):	34	30
Cohesion, C (psf):	228	168



Compliance:

Comments



Proctor Report

Twining, Inc. - Long Beach Lab
3310 Airport Way, Long Beach, CA 90806
Ph: 562.426.3355
Fax: 562.426.6424
www.twininginc.com

Report No: PTR:W01-26-01297-S01

Date of Issue: 2/1/2026

Issue No: 1

Customer: University of California, Riverside
UCR Capital Programs
Riverside, CA, 92507
Project: UCR, North District Student Housing
900 University Ave
Riverside, CA, 92521

Project No.: 250974.3

Permit No.:

HCAI:

DSA File #:

DSA AP #:

Jurisdiction:

Distribution: Melissa Garrety [Client]

Twining utilizes the "Binary Statement for Simple Acceptance Rule" (ILAC G8:09/2019) for statements of conformity.

Approved Signatory: Douglas Crayton (Staff Engineer)

Sample Details

Sample ID: W01-26-01297-S01
Date Sampled: 1/12/2026
Source: Onsite
Material: Native
Specification: Report Only
Sampling Method: Composite Sample
Sampling Location: B-5 @ 1'-5'
Sampling Depth: 1'-5'

Field Sample ID:

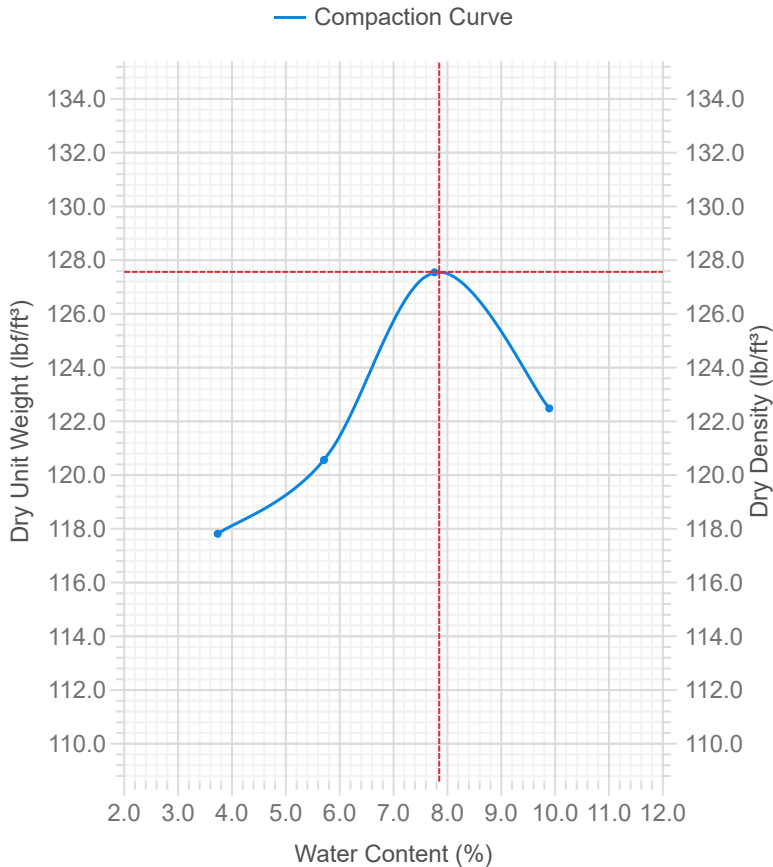
Sampled By: Twining Consulting

Material Description: reddish brown silty sand w/ some gravel / clay

Tested By: Bryson Hayes

Date Tested: 1/21/2026

Dry Unit Weight - Water Content Relationship



Test Results

ASTM D1557

Mod. Maximum Dry Unit Weight (lb/ft³):	127.6
Mod. Optimum Water Content (%):	7.8
Retained on No.4 Sieve (%):	2
Passing No.4 Sieve (%):	98
Method:	A
Preparation Method:	Moist
Rammer Type:	Automatic
Determined By:	Estimated
Tested By:	Bryson Hayes
Date Tested:	1/21/2026

Remarks:

The Material Tested
With the Project Requirements

☒ Complies ☐ Does Not Comply



111 Main Street, Unit A
Riverside CA 92501

Tel 909.383.6660
Fax 562.426.6424

APPENDIX C

GEOPHYSICAL SURVEY



Advantage Geophysics, Inc.
Gilbert, Arizona
San Diego, California
Vancouver, Washington
www.advantagegeophysics.com

February 5, 2026

Mr. Daniel Lee
Twining Consulting
4811 Airport Plaza Drive, Suite 220
Long Beach, CA 90815

**Subject: Geophysical Evaluation
 900 University Avenue
 Riverside, California
 Project No. 2026011**

Dear Mr. Lee:

Advantage Geophysics, Inc. (Advantage) has performed a geophysical evaluation pertaining to the subject UC Riverside project at 900 University Avenue in Riverside, California. The purpose of our evaluation was to develop a one-dimensional (1-D) shear wave velocity profile through the collection of active and passive source surface wave data. Our field services were performed on January 15, 2026. This document presents our evaluation methodology, equipment used, analysis, and results.

SCOPE OF SERVICES

Our scope of services for the project included:

- Performance of a co-located surface wave study for determination of site seismic Site Class (V_{s100} in feet or V_{s30} in meters) utilizing passive and active source surface wave data collection at locations PSW-1 and ASW-1.
- Compilation and analysis of the data collected.
- Preparation of this document presenting our geophysical evaluation results, conclusions, and recommendations.

SITE AND PROJECT DESCRIPTION

The site is located northwest of the intersection of West Linden Street and Florida Street in Riverside, California (Figure 1). The study area consists of a lightly vegetated dirt lot (Figure 2).

The profile alignment was adjusted in the field based on site accessibility and surface conditions. Figure 2 and Figure 3 depict the profile locations and general site conditions observed during the study. Based on our discussions with you, it is our understanding that the data collected during this study will be utilized to support design and construction considerations by others for the property.



EVALUATION METHODOLOGY AND ANALYSIS

1-D Surface Wave Evaluation and Analysis

The surface wave evaluation of seismic Site Class utilized both passive and active seismic source surface wave data collection techniques which use recorded surface waves (specifically Rayleigh waves) to develop 1-D surface wave velocity profiles of the study area down to a depth below ground surface (bgs), in this current analysis about 100 feet bgs. An estimate of ASCE/SEI 7-22 shear wave velocity (V_{s100}) is also provided by our analysis. The depth of exploration is dependent on the length of the line and the frequency content of the surface waves. The results of our passive and active seismic source surface wave methods represent the average condition across the length of the lines performed. These methods do not require an increase of material velocity with depth; therefore, significantly thick low velocity zones overlain by faster zones (velocity inversions) are detectable.

Our passive and active seismic source surface wave evaluation included the use of a 24-channel seismograph and 24, 4.5-Hz vertical component geophones. The geophones were spaced 10 feet apart for a total line length of 230 feet for each array due to site access and geometric limitations. Passive surface wave data collection of ambient ground vibration noise was utilized along both profiles. Additionally, a non-triggered hammer active seismic source shot point was conducted at 60 feet off both ends of the passive seismic array to supplement the recorded passive seismic data. Our surface wave data collection and analysis also included active source records with a triggered seismic hammer source at various shots located at 50, 40, 30, and 10 feet off-end of the line. These shot locations of active surface wave data were evaluated for near and far-field effects in the triggered active source records. The active source of off-end surface wave shot data was then combined with passive surface wave data in our joint inversion analysis.

Passive and active surface wave data were processed using Surface Plus 9.1 (Geogiga Technology Corp., 2025) to estimate Rayleigh wave dispersion characteristics and shear wave velocity (V_s) structure. Data was collected using a linear geophone array, and dispersion analysis was performed using complementary surface wave techniques appropriate for linear array geometry.

Active triggered hammer seismic source Multichannel Analysis of Surface Waves (MASW) dispersion images were computed in the frequency velocity domain using the phase-shift method (Xia et al., 1999), which transforms multichannel time-offset records into phase velocity space to identify frequency dependent Rayleigh wave propagation.

Passive surface wave data recorded on the linear array were analyzed using slowness frequency (p-f) spectral analysis of ambient seismic noise, which estimates Rayleigh wave dispersion from coherent surface wave energy propagating across the array (Louie, 2001).

During portions of the passive data acquisition, non-triggered active sources located beyond the ends of the array contributed additional broadband surface wave energy. But because the non-triggered hammer seismic source signals were not time-synchronized with the recording system, they were treated as part of the ambient wave field during otherwise passive data record collections.

The resulting dispersion curves from our data collections and analyses were inverted using a layered model and a global search algorithm to estimate a V_s profile of velocity vs. depth below ground surface for the location we evaluated.



RESULTS

1-D Surface Wave Results

As previously discussed, the purpose of our geophysical evaluation was to develop shear wave velocity profiles to be used for design and construction at the study site. Tables 1 and 2 present the results of our passive and active profile PSW-1 and ASW-1, respectively, including ICC and ASCE/SEI 7-22 seismic Site Class. Additionally, Figure 4 graphically displays the results for the 1-D passive and 1-D active shear wave velocity profiles. When the 1-D surface wave velocity results (analogous to shear wave) show an ICC or ASCE/SEI 7-22 Vs100 velocity value that is close to the "borderline" boundary between two Vs100 Site Classes, the project geotechnical engineering consultant of record should be consulted regarding existing available site information and whether obtaining additional new geotechnical evaluation data such as boreholes, surface to downhole seismic (ASTM D7400), cross hole seismic (ASTM D4428), or additional 1-D surface wave data collections would be advisable. The project geotechnical engineering might also wish to consider the subsurface geologic stratigraphy and structure, soil mechanics, and soil modulus, along with the initial 1-D surface wave results when assessing near "borderline" seismic site class and whether additional evaluations are needed.

Table 1: 1-D Passive Surface Wave Results PSW-1

Line No.	Depth (feet)	Shear Wave Velocity (feet/second)	Average Shear Wave Velocity (Vs100)	Site Class (ICC, 2024; ASCE, 2022)
PSW-1 (N-S)	0-8	1,286 ft/s	Vs=1,563 ft/s	C
	8-27	1,300 ft/s		
	27-75	1,545 ft/s		
	75-100	2,054 ft/s		

Table 2: 1-D Active Surface Wave Results ASW-1

Line No.	Depth (feet)	Shear Wave Velocity (feet/second)	Average Shear Wave Velocity (Vs100)	Site Class (ICC, 2024; ASCE, 2022)
ASW-1 (N-S)	0-2	1,381 ft/s	Vs=1,578 ft/s	C
	2-4	1,485 ft/s		
	4-7	1,560 ft/s		
	7-11	1,380 ft/s		
	11-15	1,087 ft/s		
	15-21	1,159 ft/s		
	21-28	1,575 ft/s		
	28-36	1,774 ft/s		
	36-47	1,225 ft/s		
	47-100	1,828 ft/s		



SELECTED REFERENCES

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LIMITATIONS

The field evaluation and geophysical analyses presented within this document have been conducted in general accordance with current practice and the standard of care exercised by consultants performing similar tasks in the project area. The results of geophysical analyses are based on the interpretation of collected data, which may be subject to varying degrees of accuracy. No guaranty is made regarding the exactness of the analysis results and no warranty, express or implied, is made regarding the conclusions and opinions presented within this document. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist, and conditions not observed or described in this document may be present.

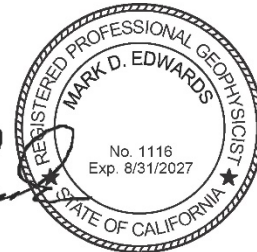
This document is intended to be used only in its entirety. No portion of the document itself is designed to completely represent any aspect of the project described herein. Should the reader require additional information or have questions regarding the content, interpretations presented, or completeness of this document please contact the undersigned for clarification. This document is intended exclusively for use by the client. Any use of or reuse of the findings, conclusions, or recommendations presented herein by parties other than the client is undertaken at said parties' sole risk.

We appreciate the opportunity to be of service. Should you have questions, please contact the undersigned at your convenience.

Respectfully submitted,
Advantage Geophysics, Inc.

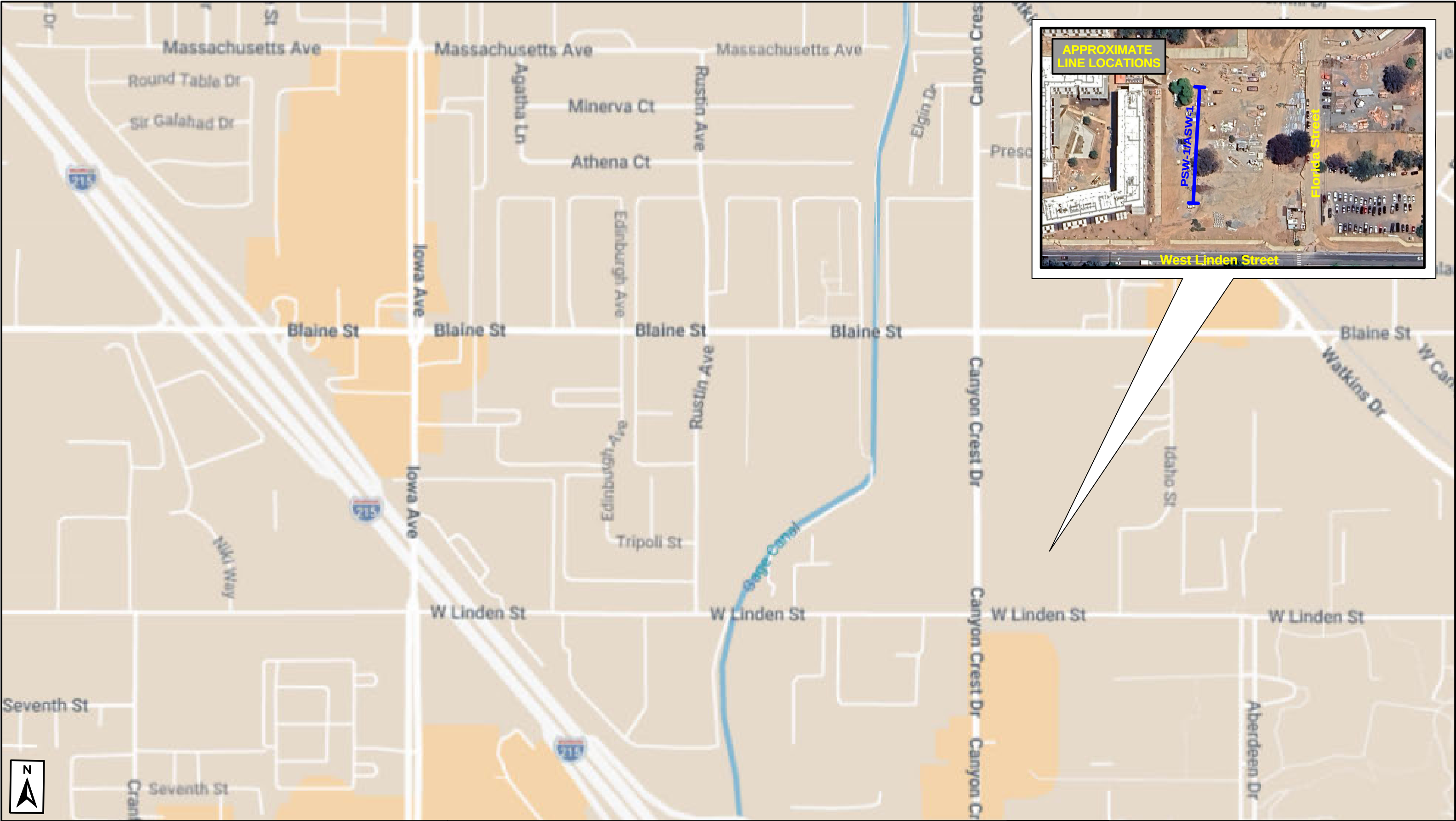
Scott Williams, MS, MBA
Project Geologist/Geophysicist

Mark D. Edwards, RG (AZ) PGp 1116
Principal Geologist/Geophysicist



Attachments: Figure 1: Site Location Map
 Figure 2: Line Location Map
 Figure 3: Site Photograph
 Figure 4: 1-D Passive/Active Results , PSW-1 and ASW-1

Distribution: dlee@twiningconsulting.com



Site Location Map

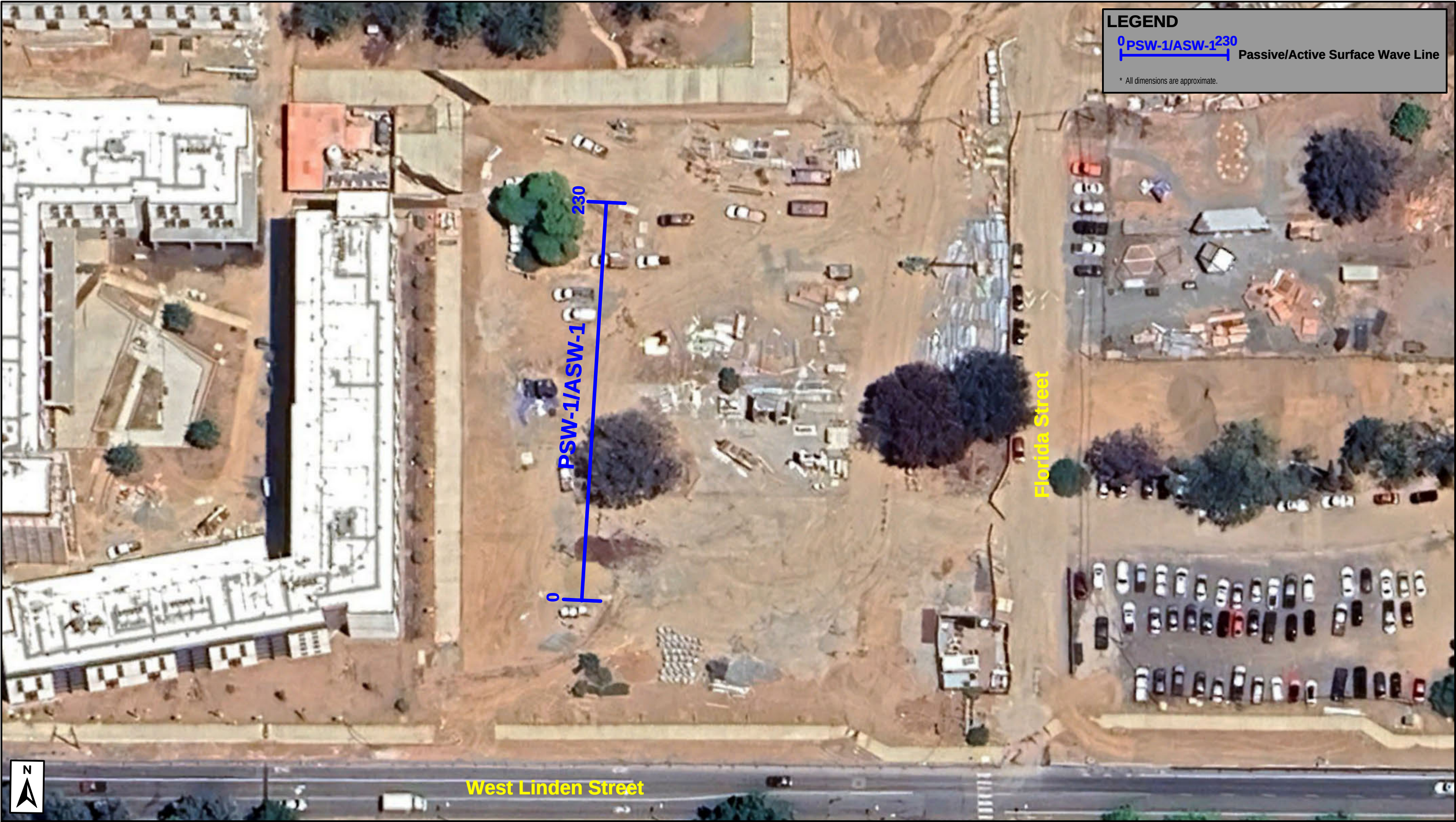
900 University Avenue
Riverside, California

Project No.: 2026011

Figure
1

Date: 02/26





Line Location Map

900 University Avenue
Riverside, California

Project No.: 2026011

Figure
2

Date: 02/26





Site Photograph

900 University Avenue
Riverside, California

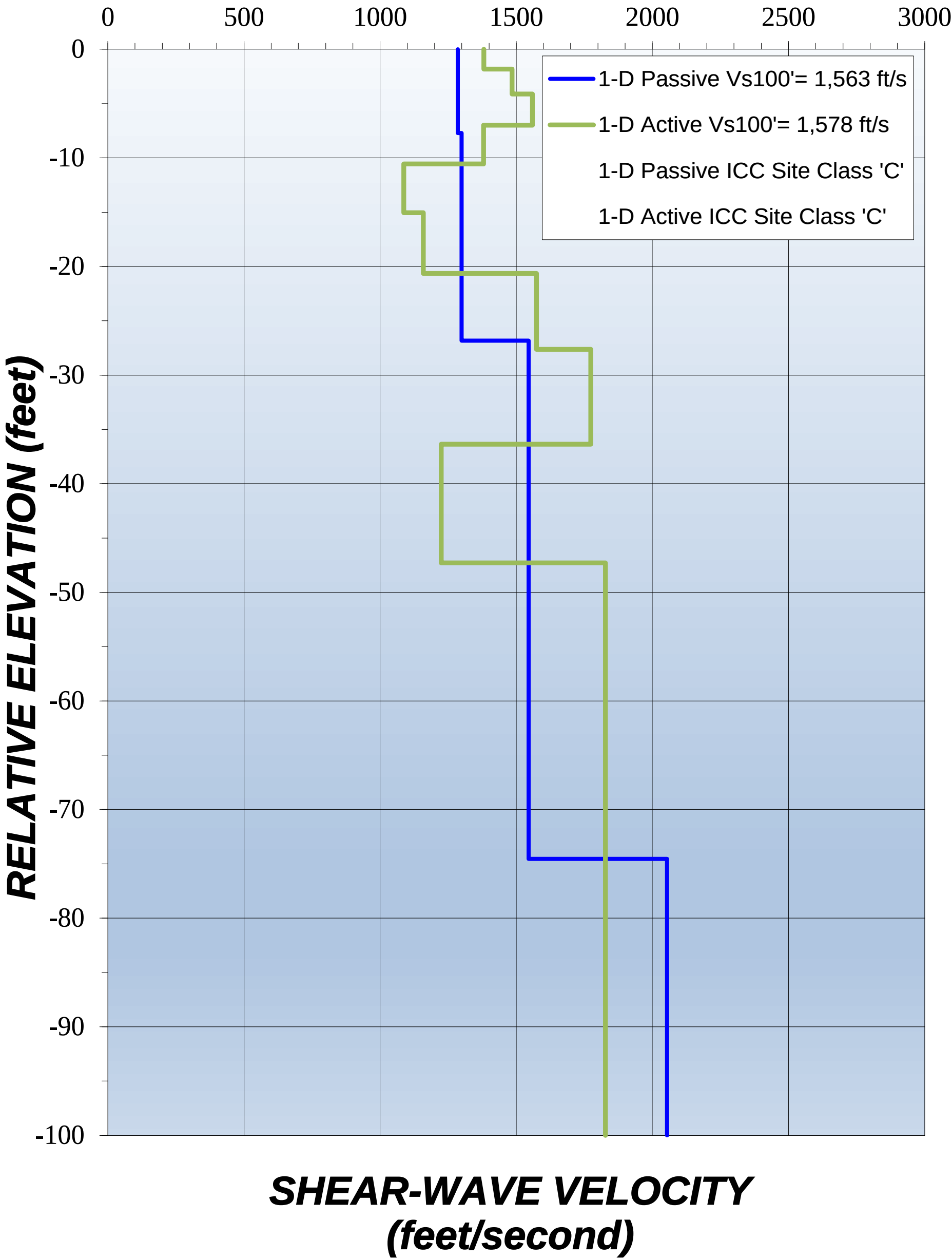
Project No.: 2026011

Figure
3

Date: 02/26



Vs Model



Appendix C

Geotechnical Investigation Report - Proposed Parking Structure



TWINING

Engineering a Better Tomorrow

Geotechnical Investigation Report

**Proposed Parking Structure
University of California, Riverside
Riverside, California**

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December 23, 2025 (**Revised 1/14/26**)
Project No.: 250872.3



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Project No.: 250872.3

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Subject: Geotechnical Investigation Report
Proposed Parking Structure
University of California, Riverside
Riverside, California

Dear Ms. Garrety,

In accordance with your request and authorization, we are presenting the results of our geotechnical investigation for the proposed Parking Structure project located at the southwest corner of Blaine Street and Watkins Drive at the University of California, Riverside in Riverside, California. The purpose of our investigation is to characterize subsurface conditions of the site and evaluate seismic and geologic hazards at the site.

This report was prepared in accordance with the requirements of the 2025 California Building Code (2025 CBC) and ASCE 7-22 (ASCE, 2022). The geotechnical engineer of record from the Design/Build team shall utilize this report and provide geotechnical recommendations for the construction and design of the proposed project.

We appreciate the opportunity to be of service on this project. Should you have any questions regarding this report or if we can be of further service, please do not hesitate to contact the undersigned.

Respectfully submitted,
TWINING, INC.

Doug Crayton
Sr. Staff Engineer

Paul Soltis, PE 56140, GE 2606
Vice President, Geotechnical Engineering

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1. INTRODUCTION

This report presents the results of the geotechnical investigation performed by Twining, Inc. (Twining) for the proposed Parking Structure project located at the southwest corner of Blaine Street and Watkins Drive at the University of California, Riverside in Riverside, California. A description of the site and the proposed improvements is provided in the following section. The objectives of this investigation have been to characterize subsurface conditions of the site and evaluate seismic and geologic hazards at the site. Our investigation was performed in conformance with the 2025 California Building Code (2025 CBC) and ASCE 7-22 (ASCE, 2022).

2. SITE DESCRIPTION AND PROPOSED DEVELOPMENT

The project site is located at the existing surface parking lot at the southwest corner of Blaine Street and Watkins Drive on the University of California, Riverside campus in Riverside, California, as shown on Figure 1 – Site Location Map. The approximate site coordinates are latitude 33.98241°N and longitude 117.32701°W, on the Riverside East, California 7½-Minute Quadrangle, according to the United States Geological Survey (USGS) topographic maps (USGS 2022). The site is bound by Blaine Street to the north, Watkins Street and the Child Development Center to the east, a vacant lot to the south, and Idaho Street to the west. The site covers approximately 5.2 acres. The site gently slopes from east to west, with a surface elevation that varies from approximately 1,087 feet mean sea level (msl) on the east side to 1,070 feet msl on the west side.

The proposed project will consist of the construction of a parking structure. Associated improvements such as new flatwork, landscape areas, and utilities are also expected. We note that a conceptual plan layout of the proposed development was not available at the time of preparation of this report. The scope of our report is to provide a comprehensive evaluation of the site; we note that additional borings/investigation may be required depending on the actual locations of the new structures relative to completed boring locations. A site plan and the locations of our borings are depicted on Figure 2 – Site Plan and Boring Location Map.

3. SCOPE OF WORK

Our scope of work included review of background information, pre-field activities and field exploration, laboratory testing, and report preparation. These tasks are described in the following subsections.

3.1. Literature Review

We reviewed readily available background data including published geologic maps, topographic maps, aerial photographs, seismic hazard maps and literature, and flood hazard maps relevant to the subject site. Relevant information has been incorporated into this report. A partial list of literature reviewed is presented in the “Selected References” section of this report.

3.2. Pre-Field Activities

Before starting our exploration program, we performed a geotechnical site reconnaissance to observe the general surficial conditions at the site and to select field exploration locations. After exploration locations were delineated, Underground Service Alert was notified of the planned locations a minimum of 72 hours prior to excavation.

3.3. Field Exploration

The field exploration consisted of drilling, testing, sampling, and logging of 9 exploratory borings (B-1 through B-7, P-1, and P-2) and percolation testing in 2 of the borings (P-1 and P-2) conducted at the site on November 24 and 25, 2022. The approximate exploration locations are shown on Figure 2 – Site Plan and Boring Location Map.

The borings were advanced to approximate depths of 5 to 51.5 feet below ground surface (bgs) using a CME-95 truck-mounted drill rig equipped with 8-inch-diameter hollow-stem-auger (HSA). All borings were first excavated to 5 feet bgs using a hand-auger to clear potential underground utilities.

Drive samples of the soils were obtained from the borings using a Standard Penetration Test (SPT) sampler without room for liner and a modified California split-spoon sampler. The samplers were driven using a 140-pound automatic hammer falling approximately 30 inches. The blow counts to drive the samplers were recorded, and subsurface conditions encountered in the borings were logged by a Twining field engineer or geologist under the supervision of a California Registered Geotechnical Engineer. Bulk samples were collected from the upper 5-foot soil cuttings. The samples were transported to Twining's geotechnical engineering laboratory in Long Beach, California for examination and testing.

In-situ percolation testing was performed in borings P-1 and P-2, which were advanced to 5 and 20 feet bgs, respectively, to provide estimates of infiltration rate of the site soils. The results of the infiltration testing are discussed in Appendix A – Field Exploration.

Upon completion of exploration, the borings deeper than 5 feet were backfilled with soil cuttings. The surface was repaired to match existing conditions.

Detailed descriptions of the field exploration and the soils encountered during the current and previous drilling are presented in Appendix A – Field Exploration.

Additionally, a geophysical contractor collected Refraction Microtremor (ReMi) and Multichannel Analysis of Surface Waves (MASW) data at the site to develop a one-dimensional (1-D) shear-wave velocity profile at the site. Their report is presented below in Appendix C – Geophysical Survey.

3.4. Geotechnical Laboratory Testing

Laboratory tests were performed on selected samples obtained from the borings to aid in soil classification and to evaluate the engineering properties of site soils. The following tests were performed in general accordance with ASTM and Caltrans standards:

- In-situ moisture and density (ASTM D2937),
- #200 Wash (ASTM D1140),
- Atterberg Limits (ASTM D4318),
- Expansion Index (ASTM D4829),
- Consolidation (ASTM D2435),
- Direct shear (ASTM D3080),
- Maximum dry density and optimum moisture content (ASTM D1557),
- Resistance value (R-value) (ASTM D2844), and
- Corrosivity (Caltrans test methods CT417, CT422, and CT 643).

Detailed laboratory test procedures and results are presented in Appendix B – Laboratory Testing.

3.5. Report Preparation

We compiled and analyzed the data collected from our field exploration and laboratory testing. We performed engineering analyses based on our literature review and data from field exploration and laboratory testing programs. Our analyses included the following:

- Site geology and subsurface conditions,
- Groundwater conditions,
- Geologic hazards and seismic design parameters, and
- Liquefaction potential and seismic settlement.

We prepared this report to present our conclusions from this investigation.

4. GEOLOGY AND SUBSURFACE CONDITIONS

The regional and site geology and subsurface conditions are described in this section, based on our data review and field investigation. A portion of the geologic map is reproduced as Figure 3 – Geologic Map. Detailed subsurface conditions are presented in Appendix A – Field Exploration.

4.1. Regional Geology

The project site is located within the central portion of the Perris Block, a relatively stable terrain which is bounded on the north by the Cucamonga fault zone, on the east by the San Jacinto fault zone, on the south by the San Felipe fault zone, and on the west by the Elsinore fault zone. The Perris Block, in turn, is situated within the northern portion of the Peninsular Ranges geomorphic province. The Peninsular Range province occupies the southwestern portion of the state, south of the Transverse Ranges and west of the Colorado geomorphic provinces.

The Peninsular Ranges province is characterized generally by northwest-trending mountains and valleys, traversed by northwest-trending faults. Within the Perris Block, the predominant rock exposures comprise a multitude of Cretaceous-age plutonic emplacements known collectively as the southern California batholith. Locally these plutons intruded Jurassic-age metavolcanic and metasedimentary rocks and Paleozoic-age limestone, schist, and gneiss. Valleys are mantled by Quaternary-age alluvial fan deposits and recent alluvium derived from erosion of the adjacent mountains.

According to geologic mapping published by the Dibblee Geological Foundation (Dibblee, 2003), the project site is underlain by Pleistocene alluvial fan deposits (map symbol: Qoa). These deposits are described as “deposits of sand, minor gravel, tan to light reddish brown.” A portion of this geologic map is reproduced as Figure 3, Regional Geologic Map.

4.2. Surface and Subsurface Conditions

Earth materials encountered during our subsurface investigation generally consist of a thin layer of undocumented fill underlain by alluvial fan deposits which extend to the total depth of exploration. Based on our field observations, the undocumented fill consists of silty sand on the order of 1 to 3 feet in thickness, with the depth being approximately 6 feet at B-5. It should be noted that the undocumented fill thickness may vary across the site. The alluvial deposits consist predominantly of medium dense to very dense sand with varying amounts of fines.

Detailed information regarding the exploratory excavations is presented in Appendix A - Field Exploration.

4.3. Groundwater

Groundwater was not encountered within our exploratory borings drilled to a maximum depth of approximately 51½ feet below the existing grade. Based on our review of the California Water Resource website, the groundwater level is reportedly situated at a depth greater than 100 feet below the ground surface. Groundwater conditions may vary across the site due to stratigraphic and hydrologic conditions and may change over time because of seasonal and meteorological fluctuations, or of activities by humans at this and nearby site.

5. GEOLOGIC HAZARDS AND SEISMIC DESIGN CONSIDERATIONS

The site is in a seismically active area, as is the majority of southern California, and the potential for strong ground motion in the project area is considered high during the design life of the proposed development. The hazards associated with seismic activity in the vicinity of the site area discussed in the following sections.

5.1. Active Faulting and Surface Fault Rupture

The subject site is not located within a State of California Alquist-Priolo Earthquake Fault Zone (Alquist-Priolo EFZ, formerly known as a Special Studies Zone) (Hart and Bryant, 1997). The closest known active fault to the site is the San Jacinto fault, located approximately 5 miles to the northeast from the project site. It is our opinion that the likelihood of fault rupture occurring at the site during the design life of the proposed improvements is low.

5.2. Liquefaction Potential

Liquefaction is the phenomenon in which loosely deposited granular soils with silt and clay contents of less than approximately 35 percent, and non-plastic silts located below the water table undergo rapid loss of shear strength when subjected to strong earthquake-induced ground shaking. Ground shaking of sufficient duration results in the loss of grain-to-grain contact due to a rapid rise in pore water pressure and causes the soil to behave as a fluid for a short period of time.

Liquefaction is generally known to occur in loose, saturated, relatively clean, fine-grained cohesionless soils at depths shallower than approximately 50 feet. Factors to consider in the evaluation of soil liquefaction potential include groundwater conditions, soil type, grain size distribution, relative density, degree of saturation, and both the intensity and duration of ground motion. Other phenomena associated with soil liquefaction include sand boils, ground oscillation, and loss of foundation bearing capacity.

The California Geological Survey (CGS) has not published literature or maps within the project site that would indicate a state-designated Zone of Required Investigation for Liquefaction. However, Riverside County has mapped the site in an area of "Low" concern for liquefaction. Based on the depth of groundwater greater than 100 feet bgs, and site subsurface conditions, it is our opinion that liquefaction potential at the site is low. A portion of this Riverside County map is reproduced as Figure 4, Liquefaction Zones Map.

5.3. Seismic Settlement Potential

Seismic settlement can occur when loose to medium dense granular materials densify during seismic shaking and liquefaction. Seismic settlement may occur in dry, unsaturated, as well as saturated soils. Based on the results of our field exploration, we believe that seismic settlement is possible at the site. The geotechnical engineer of record for the Design/Build team should evaluate the possibility of seismic settlement at the site.

5.4. Landslides

The area of the project site is not within an area with the potential for earthquake-induced landslides. Considering the site is relatively flat and not close to significant slopes, the potential for earthquake-induced landslides to occur at the site is considered negligible.

5.5. Flooding

The Federal Emergency Management Agency (FEMA) has prepared flood insurance rate maps (FIRMs) for use in administering the National Flood Insurance Program, effective September 26, 2008. Based on our review of online FEMA flood mapping, the site is located within Zone X with minimal flood hazard.

5.6. Deaggregated Seismic Source Parameters

We performed a seismic hazard de-aggregation analysis for the peak ground acceleration with a probability of exceedance of 2% in 50 years. The analysis used the USGS Unified Hazard Tool based on the 2023 USGS seismic source model. The results of the analysis indicate the controlling modal moment magnitude and fault distance are 7.7 Mw and 5.6 miles (9.1 km), respectively.

5.7. Site Class for Seismic Design

Based on the results of the geophysical testing performed, it is our opinion that Site Class C may be used for the project seismic design according to Chapter 20 of ASCE 7-22. The site classification was determined using the shear wave velocity (VS30) determined by the ReMi and MASW testing. The report prepared by the geophysical contractor is attached below in Appendix D – Geophysical Survey.

5.8. Seismic Design Parameters

Seismic Design Parameters according to ASCE 7-22 are provided in Table 1, based on coordinates of latitude 33.98241°N and longitude 117.32701°W. The 5%-damped multi-period MCER and design response spectra are provided in Table 2. The two-period MCER and design response spectra can be developed following Section 11.4.5.2 of ASCE 7-22.

Table 1 – ASCE 7-22 Seismic Design Parameters

Design Parameters	Value
Site Class	D
Mapped Spectral Acceleration Parameter at Period of 0.2-Second, S_s (g)	1.92
Mapped Spectral Acceleration Parameter at Period 1-Second, S_1 (g)	0.70
Adjusted MCE_R^1 Spectral Response Acceleration Parameter, S_{MS} (g)	2.03
Adjusted MCE_R^1 Spectral Response Acceleration Parameter, S_{M1} (g)	1.00
Design Spectral Response Acceleration Parameter, S_{DS} (g)	1.36
Design Spectral Response Acceleration Parameter, S_{D1} (g)	0.67
Peak Ground Acceleration, PGA_M (g)	0.74
Seismic Design Category	D
Long-Period Transition Period, T_L (seconds)	8

Table 4 – ASCE 7-22 Multi-Period Spectrum

Period, T (second)	5%-Damped Spectral Acceleration, S_a (g)	
	MCE_R Spectrum	Design Spectrum
0	0.59	0.89
0.01	0.59	0.89
0.02	0.6	0.9
0.03	0.64	0.96
0.05	0.79	1.19
0.075	1	1.5
0.1	1.14	1.71
0.15	1.34	2.01
0.2	1.49	2.24
0.25	1.51	2.26
0.3	1.42	2.12
0.4	1.26	1.9
0.5	1.14	1.72
0.75	0.86	1.29
1	0.67	1
1.5	0.45	0.67
2	0.33	0.5
3	0.23	0.34
4	0.17	0.26
5	0.14	0.21
7.5	0.087	0.13
10	0.058	0.063
S_a at other T values less than 10s should be determined by linear interpolation.		

6. LIMITATIONS

This report presents geotechnical data and seismic design criteria for the proposed project site. The information may be used by the project design team to develop recommendations based on the information provided. The designer should supplement this data with additional data as the deem necessary to provide thorough geotechnical design recommendations.

Due to the limited nature of our field explorations, conditions not observed and described in this report may be present on the site. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. It should be understood that conditions different from those anticipated in this report may be encountered during grading operations.

Site conditions, including groundwater elevation, can change with time as a result of natural processes or the activities of man at the subject site or at nearby sites. Changes to the applicable laws, regulations, codes, and standards of practice may occur as a result of government action or the broadening of knowledge. The findings of this report may, therefore, be invalidated over time, in part or in whole, by changes over which Twining, Inc. has no control.

Twining performed its evaluation using the degree of care and skill ordinarily exercised under similar circumstances by reputable geotechnical professionals with experience in this area in similar soil conditions. No other warranty, either express or implied, is made as to the conclusions and recommendations contained in this report.

7. SELECTED REFERENCES

American Society of Civil Engineers, 2022, Minimum Design Loads and Associated Criteria for Buildings and Other Structures: ASCE Standard ASCE/SEI 7-22.

ASTM, current latest version, "Soil and Rock: American Society for Testing and Materials," vol. 4.08 for ASTM test methods D-420 to D-4914; and vol. 4.09 for ASTM test methods D-4943 to highest number.

California Buildings Standards Commission, 2025, 2025 California Building Code, California Code of Regulations, Title 24, Volume 2 of Part 2, Effective January 1, 2026.

California Geological Survey (CGS), 2008, Guidelines for Evaluating and Mitigating Seismic Hazards in California.

Dibblee, T.W., and Minch, J.A., 2003, "Geologic map of the Riverside East/South ½ of San Bernardino South quadrangles, San Bernardino and Riverside County, California," 1:24,000 scale, Dibblee Geological Foundation, Map DF-109.

U.S. Geological Survey (USGS), 2022, USGS 1:24000-scale Riverside East Quadrangle, California, 7.5-Minute Series.



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FIGURES



APPROXIMATE LOCATION OF PROJECT

SCALE IN FEET



REFERENCE: USGS (2022)



TWINING

SITE LOCATION MAP

PARKING STRUCTURE
UNIVERSITY OF CALIFORNIA, RIVERSIDE
RIVERSIDE, CA

PROJECT NO.
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REPORT DATE
December 2025

FIGURE 1



NOTE: ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE

LEGEND

B-4
TD=31.4'



APPROXIMATE LOCATION OF
BORING BY TWINING
TOTAL DEPTH IN FEET

P-1
TD=5'



APPROXIMATE LOCATION OF
PERCOLATION TEST
TOTAL DEPTH IN FEET



REFERENCE: GOOGLE EARTH (2025)

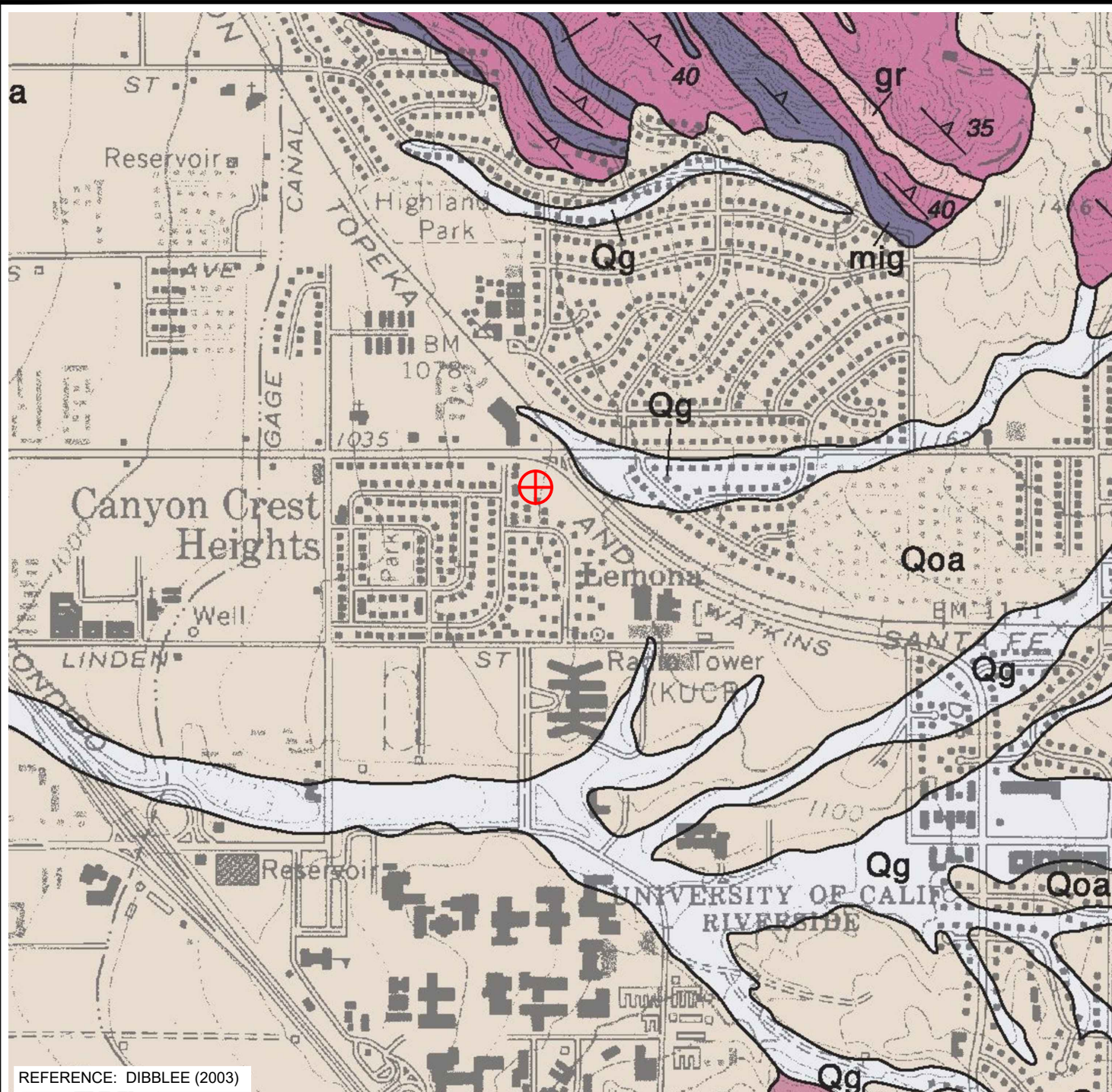
SITE PLAN AND BORING LOCATION MAP

PARKING STRUCTURE
UNIVERSITY OF CALIFORNIA, RIVERSIDE
RIVERSIDE, CA

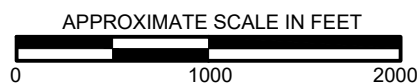
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FIGURE 2



- Qoa** OLDER ALLUVIUM
- Qg** GRAVEL AND SAND OF MAJOR STREAM CHANNELS
- Gr** GRANITE
- mig** METASEDIMENTARY ROCKS



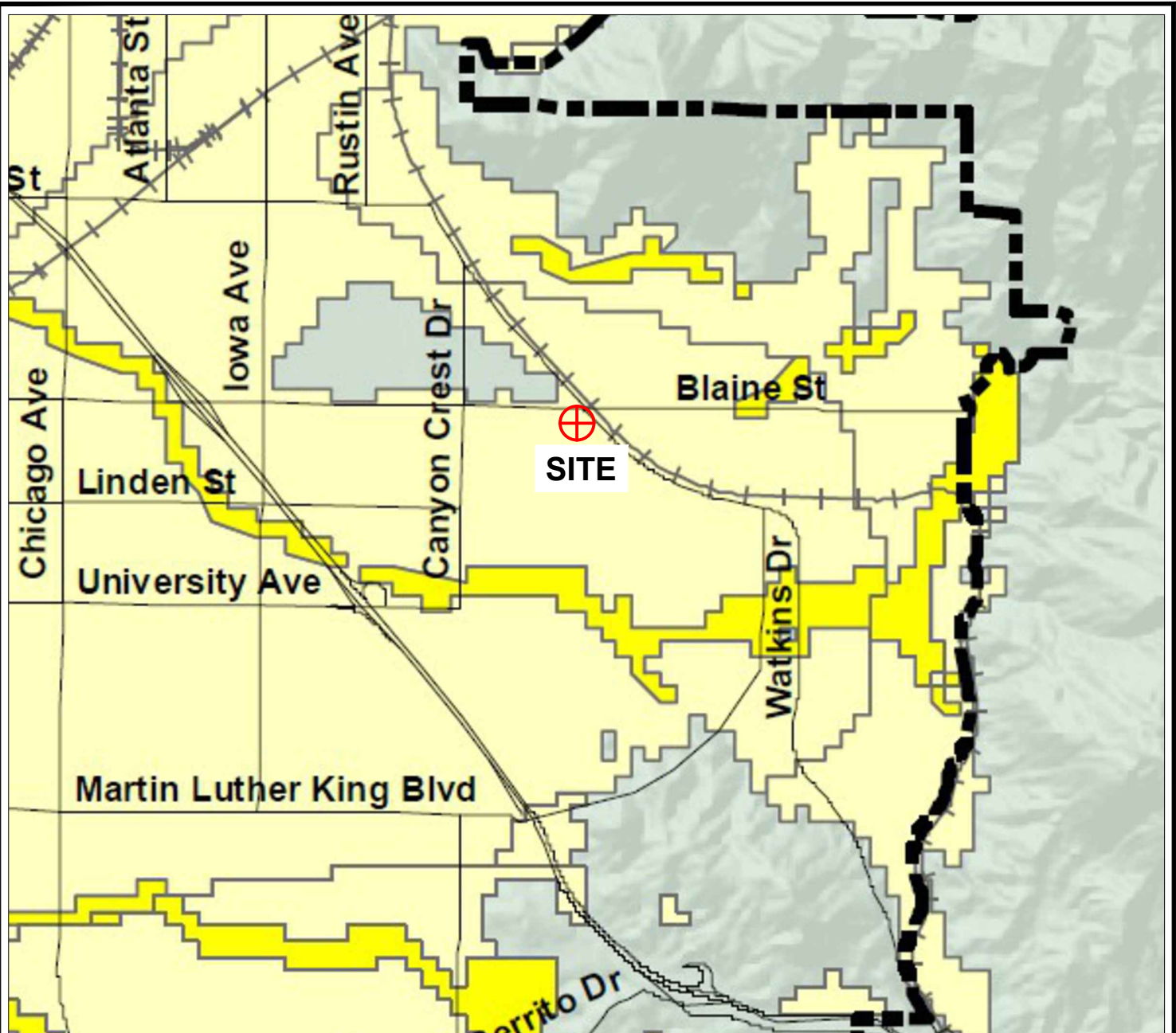
REGIONAL GEOLOGIC MAP

PARKING STRUCTURE
UNIVERSITY OF CALIFORNIA, RIVERSIDE
RIVERSIDE, CALIFORNIA

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250872.3

REPORT DATE
December 2025

FIGURE 3



LEGEND

- VERY LOW
- LOW
- MODERATE
- HIGH
- VERY HIGH



REFERENCE: CITY OF RIVERSIDE COUNTY (2018)



LIQUEFACTION ZONES MAP

PARKING STRUCTURE
UNIVERSITY OF CALIFORNIA, RIVERSIDE
RIVERSIDE, CALIFORNIA

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FIGURE 4



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APPENDIX A FIELD EXPLORATION

Appendix A Field Exploration

General

The field exploration for the proposed project consisted of drilling, testing, sampling, and logging of nine exploratory borings (B-1 through B-7, P-1, and P-2) and performing percolation testing in two of the borings (P-1 and P-2). The approximate locations of the exploration are shown on Figure 2 – Site Plan and Boring Location Map.

The borings were first excavated to 5 feet below ground surface (bgs) using a hand-auger to clear potential underground utilities. Upon completion of exploration, the borings were backfilled with soil cuttings. The surface of all locations was repaired to match existing conditions, and the paved locations were patched with Portland cement concrete to match existing conditions.

Exploratory Borings

Drilling operation for the borings was performed by Baja Exploration of Escondido, California using a CME-95 truck-mounted drill rig equipped with 8-inch diameter hollow-stem-auger (HSA). The borings were advanced to a maximum depth of 5.0 to 51.5 feet bgs on November 24 and 25, 2025.

An explanation of the boring logs is presented below. The boring logs from the current drilling follow. The boring logs describe the earth materials encountered, samples obtained, and show the field and laboratory tests performed. The logs also show the boring number, drilling date, and the name of the logger and drilling subcontractor. The borings were logged by a Twining engineer or geologist using the Unified Soil Classification System under the supervision of a registered California Geotechnical Engineer. The boundaries between soil types shown on the logs are approximate because the transition between different soil layers may be gradual. Drive and bulk samples of representative earth materials were obtained from the borings.

Disturbed samples were obtained from select depths using a Standard Penetration Test (SPT) sampler. This sampler consists of a 2-inch O.D., 1.4-inch I.D. split barrel shaft without room for liner. Soil samples obtained by the SPT sampler were retained in plastic bags. A California modified sampler was also used to obtain drive samples of the soils from select depths. This sampler consists of a 3-inch outside diameter (O.D.), 2.4-inch inside diameter (I.D.) split barrel shaft. The samples were retained in brass rings for laboratory testing.

When the boring was drilled to a select depth, the sampler was lowered to the bottom of the boring and then driven a total of 18 inches into the soil using an automatic hammer weighing 140 pounds dropped from a height of 30 inches. The number of blows required to drive the samplers the final 12 inches is presented on the boring logs. Where sampler refusal is encountered and the sampler does not advance 18 inches, the total number of blows per number of inches advanced is presented. The blow counts given are field raw blow counts that have not been modified to account for field and/or depth conditions.

Percolation Testing

Percolation testing were performed in borings P-1 and P-2. P-1 was advanced to 5 feet bgs using a hand-auger. P-2 was advanced to 5 feet bgs using a hand-auger and then was drilled to 20 feet bgs using an 8 inch-diameter, truck-mounted, hollow-stem auger. The borings were drilled under the observation of a field engineer or geologist who logged the subsurface conditions encountered and collected samples of the subsurface materials encountered.

The percolation test holes were prepared by placing approximately 1 inch of gravel at the bottom of the hole. A 3-inch diameter perforated PVC pipe was placed in the hole and the annular space around the pipe was backfilled with gravel.

After preparing the percolation test holes, the percolation was performed in accordance with the requirements of Riverside County. After presoaking, the test holes were filled with water to at least 12 inches above the bottom of the excavation. Measurements were recorded at 10-minute or 30-minute intervals depending on the results of the "sandy soil criteria test." A minimum of 6 intervals were measured. The minimum value over the last 3 readings was used to determine the infiltration rate at each test location. Detailed test data is attached to this appendix.

The raw infiltration rate is shown below. No factor of safety has been applied. A summary of test results is presented in Table A-1, and the detailed test data is attached as Appendix A.

Table A-1 – Raw Infiltration Rate

Location	Depth (feet)	Infiltration Rate (in/hour)
P-1	5	0.17
P-2	20	1.07

UNIFIED SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS	
			GRAPH	LETTER		
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES, LITTLE OR NO FINES	
		SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING ON NO. 4 SIEVE	CLEAN SANDS (LITTLE OR NO FINES)		SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)		SP	POORLY-GRADED SANDS, GRAVELLY SAND, LITTLE OR NO FINES
				SM	SILTY SANDS, SAND - SILT MIXTURES	
				SC	CLAYEY SANDS, SAND - CLAY MIXTURES	
		FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
					CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
	OL			ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY		
	SILTS AND CLAYS LIQUID LIMIT GREATER THAN 50			MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
			CH	INORGANIC CLAYS OF HIGH PLASTICITY		
			OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS		
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

COARSE-GRAINED SOILS

Relative Density	SPT (blows/ft)	Relative Density (%)	Consistency	SPT (blows/ft)
Very Loose	<4	0 - 15	Very Soft	<2
Loose	4 - 10	15 - 35	Soft	2 - 4
Medium Dense	10 - 30	35 - 65	Medium Stiff	4 - 8
Dense	30 - 50	65 - 85	Stiff	8 - 15
Very Dense	>50	85 - 100	Very Stiff	15 - 30
			Hard	>30

NOTE: SPT blow counts based on 140 lb. hammer falling 30 inches

FINE-GRAINED SOILS

Sample Symbol	Sample Type	Description
	California Modified	2.4 in. I.D., 3.0 in. O.D. driven sampler
	SPT	1.4 in I.D., 2.0 in. O.D. driven sampler
	Bulk	Retrieved from soil cuttings
	Thin-Walled Tube	Pitcher or Shelby Tube

LABORATORY TESTING ABBREVIATIONS

ATT	Atterberg Limits
C	Consolidation
CORR	Corrosivity Series
DS	Direct Shear
EI	Expansion Index
GS	Grain Size Distribution
K	Permeability
MAX	Moisture/Density (Modified Proctor)
O	Organic Content
RV	Resistance Value
SE	Sand Equivalent
SG	Specific Gravity
TX	Triaxial Compression
UC	Unconfined Compression



TWINING

EXPLANATION FOR LOG OF BORINGS

Twining, Inc.
4811 Airport Plaza Dr Suite 220
Long Beach, CA 90815



Parking Structure

B-1

3308 Utah St, Riverside, CA 92507, USA

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Drilling Co.:	Baja Exploration	Project No.:	250872.3	Comments: Backfilled with cuttings. Surface patched with dyed-black Quikcrete.
Logged By:	JAB	Date Drilled:	11/25/2025	
Checked By:	-	Boring Depth:	31.5'	
Equipment:	CME-95	Boring Elevation:	N/A	
Hammer Type:	Auto	Latitude, Longitude:33.98273, -117.32763		
Drilling Method:	8" HSA	▽ Water Level At Time Of Drilling		N/A
		Cave-in At Time Of Drilling		N/A

Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-P)
5			17 33 50/5"	SM	Approximately 5 inches of asphalt concrete over 8 inches of aggregate base			45.0	26-14-12
				SC	Artificial Fill: (SM) Silty SAND, reddish brown, moist, fine to coarse sand Older Alluvium: (SC) Clayey SAND, very dense, reddish brown, slightly moist, fine to coarse sand, some mica				
5			17 33 50/5"	SM	(SM) Silty SAND, very dense, dark yellowish brown, slightly moist, fine to coarse sand, some mica	7.9	130.2		
10			15 27 40		-- very dense			36.7	
15			25 50/4"		-- very dense, some clay, water added	10.9	119.2		
20			13 17 18		-- dense, sample wet from water added				
25			16 27 45		-- dense, slightly moist to moist	5.2	123.1		
30			14 16 20		-- dense, becomes yellowish brown				
35									



Parking Structure

B-2

3308 Utah St, Riverside, CA 92507, USA

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Drilling Co.:	Baja Exploration	Project No.:	250872.3	Comments: Backfilled with cuttings. Surface patched with dyed-black Quikcrete.
Logged By:	JAB	Date Drilled:	11/24/2025	
Checked By:	-	Boring Depth:	50.80'	
Equipment:	CME-95	Boring Elevation:	N/A	
Hammer Type:	Auto	Latitude, Longitude:33.98274, -117.32638		
Drilling Method:	8" HSA	▽ Water Level At Time Of Drilling		N/A
		Cave-in At Time Of Drilling		N/A

Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-P)
					Approximately 10 inches of asphalt concrete over 6 inches of aggregate base				
				SM	Artificial Fill: (SM) Silty SAND, brownish gray, moist, fine to coarse sand, some fine gravel, some organics, trace construction debris, slight organic odor				
5			2 2 3		Older Alluvium: (SM) Silty SAND, loose, reddish brown, moist, fine to coarse sand, some mica			28.2	
10			10 28 40		-- dense	11.1	117		
15			8 8 10		-- medium dense, dark yellowish brown, some caliche stringers, some clay			34.1	
20			23 40 50/5"		-- very dense	7.1	127.6		
25			21 24 45		-- very dense, increase in coarse sand, trace fine gravel, coarse quartz sand				
30			18 37 50/5"	SC	(SC) Clayey SAND, very dense, dark yellowish brown, moist, fine to coarse sand, some mica	10.4	125.2		
35			16 18 21	SM	(SM) Silty SAND, dense, yellowish brown, moist, some mica				



Parking Structure

B-2

3308 Utah St, Riverside, CA 92507, USA

Page 2 of 2

Drilling Co.:	Baja Exploration	Project No.:	250872.3	Comments: Backfilled with cuttings. Surface patched with dyed-black Quikcrete.
Logged By:	JAB	Date Drilled:	11/24/2025	
Checked By:	-	Boring Depth:	50.80'	
Equipment:	CME-95	Boring Elevation:	N/A	
Hammer Type:	Auto	Latitude, Longitude:33.98274, -117.32638		
Drilling Method:	8" HSA	▽ Water Level At Time Of Drilling		N/A
		Cave-in At Time Of Drilling		N/A

Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-P)
40		▲	20 31 50/5"	SM	-- very dense	7.0	124.8		
45		⊗	12 15 17	SC	(SC) Clayey SAND, dense, dark yellowish brown, moist, fine to coarse sand, some mica			37.7	
50		▲	34 50/4"	SM	(SM) Silty SAND, very dense, yellowish brown, moist, fine to coarse sand, some mica	6.7	121.8		
55									
60									
65									
70									



Parking Structure

B-3

3308 Utah St, Riverside, CA 92507, USA

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Drilling Co.:	Baja Exploration	Project No.:	250872.3	Comments: Backfilled with cuttings. Surface patched with dyed-black Quikcrete.
Logged By:	JAB	Date Drilled:	11/24/2025	
Checked By:	-	Boring Depth:	31.5'	
Equipment:	CME-95	Boring Elevation:	N/A	
Hammer Type:	Auto	Latitude, Longitude:33.98242, -117.32743		
Drilling Method:	8" HSA	▽ Water Level At Time Of Drilling		N/A
		Cave-in At Time Of Drilling		N/A

Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-PI)
					Approximately 9 inches of asphalt concrete over 5 inches of aggregate base				
				SM	Artificial Fill: (SM) Silty SAND, reddish brown, moist, fine to coarse sand, some clay, trace roots			33.9	
5			32 50/4"		Older Alluvium: (SM) Silty SAND, yellowish brown, slightly moist, fine to coarse sand, some mica -- very dense	4.3	120.3		
10			50/5"		-- very dense				
15			18 50/5"		-- very dense	4.9	122.4		
20			13 17 17		-- dense, increase in moisture			20.3	
25			28 50/5"		-- very dense, dark yellowish brown, moist, increase in silt	14.8	108.0		
30			18 28 30		-- very dense, slightly moist				
35									



Parking Structure

B-4

3308 Utah St, Riverside, CA 92507, USA

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Drilling Co.:	Baja Exploration	Project No.:	250872.3	Comments: Backfilled with cuttings. Surface patched with dyed-black Quikcrete.
Logged By:	JAB	Date Drilled:	11/25/2025	
Checked By:	-	Boring Depth:	31.40'	
Equipment:	CME-95	Boring Elevation:	N/A	
Hammer Type:	Auto	Latitude, Longitude:33.98238, -117.32680		
Drilling Method:	8" HSA	▽ Water Level At Time Of Drilling		N/A
		Cave-in At Time Of Drilling		N/A

Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-P)
5				SM	Approximately 8 inches of asphalt concrete over 5 inches of aggregate base Artificial Fill: (SM) Silty SAND, reddish brown, moist, fine to coarse sand, trace roots			40.4	
				SC	Older Alluvium: (SC) Clayey SAND, dark reddish brown, moist, fine to coarse sand, some mica -- loose				
10			31 50/3"	SM	(SM) Silty SAND, very dense, yellowish brown, slightly moist, fine to coarse sand, some mica	7.7	125.8		
15			28 38 43		-- very dense, dry to slightly moist, less silt			18.6	
20			50/6"		-- very dense, increase in silt	5.3	119.0		
25			16 23 30		-- very dense, dark yellowish brown, moist				
30			25 32 50/5"		-- very dense	5.2	130.1		
35									



Parking Structure

B-5

3308 Utah St, Riverside, CA 92507, USA

Page 1 of 2

Drilling Co.:	Baja Exploration	Project No.:	250872.3	Comments: Backfilled with cuttings. Surface patched with dyed-black Quikcrete.
Logged By:	JAB	Date Drilled:	11/25/2025	
Checked By:	-	Boring Depth:	51.50'	
Equipment:	CME-95	Boring Elevation:	N/A	
Hammer Type:	Auto	Latitude, Longitude:33.98193, -117.32771		
Drilling Method:	8" HSA	▽ Water Level At Time Of Drilling		N/A
		Cave-in At Time Of Drilling		N/A

Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-P)
5			9 14 21	SM	Approximately 5.5 inches of asphalt concrete over 6 inches of aggregate base Artificial Fill: (SM) Silty SAND, dark brownish gray, moist, fine to coarse sand, some roots, some construction debris, slight organic odor	5.3	127.3		
10			21 22 23	SC	Older Alluvium: (SC) Clayey SAND, medium dense, dark yellowish brown, slightly moist, fine to coarse sand, some mica				
15			10 13 18	SM	(SM) Silty SAND, dense, yellowish brown, slightly moist, fine to coarse sand, some mica	4.1	115.1	40.2	
20			7 7 8		-- medium dense				
25			10 13 27		-- medium dense, dry to slightly moist	12.7	114.9		
30			12 16 25		-- medium dense, trace fine gravel				
35			13 41 50/5"		-- dense, dark yellowish brown, moist			24.9	
					-- very dense	12.9	122.0		

		Parking Structure 3308 Utah St, Riverside, CA 92507, USA				B-5 Page 2 of 2			
Drilling Co.: Baja Exploration		Project No.: 250872.3		Comments: Backfilled with cuttings. Surface patched with dyed-black Quikcrete.					
Logged By: JAB		Date Drilled: 11/25/2025							
Checked By: -		Boring Depth: 51.50'							
Equipment: CME-95		Boring Elevation: N/A							
Hammer Type: Auto		Latitude, Longitude: 33.98193, -117.32771							
Drilling Method: 8" HSA		▽ Water Level At Time Of Drilling N/A							
		Cave-in At Time Of Drilling N/A							
Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-P)
40		✕	13 18 20	SM	-- dense				
45		▲	19 36 50/5"		-- very dense	6.4	123.7		
50		✕	16 22 26		-- dense, less silt			13.0	
55									
60									
65									
70									



Parking Structure

B-6

3308 Utah St, Riverside, CA 92507, USA

Page 1 of 1

Drilling Co.:	Baja Exploration	Project No.:	250872.3	Comments: Backfilled with cuttings. Surface patched with dyed-black Quikcrete.
Logged By:	JAB	Date Drilled:	11/24/2025	
Checked By:	-	Boring Depth:	31.50'	
Equipment:	CME-95	Boring Elevation:	N/A	
Hammer Type:	Auto	Latitude, Longitude:33.98192, -117.32643		
Drilling Method:	8" HSA	▽ Water Level At Time Of Drilling		N/A
		Cave-in At Time Of Drilling		N/A

Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-PI)
5			24 50/5"	SC	Approximately 4 inches of asphalt concrete over 8 inches of aggregate base				NP
					Artificial Fill: (SC) Clayey SAND, dark reddish brown, moist, fine to coarse sand Older Alluvium: (SC) Clayey SAND, dark reddish brown, moist, fine to coarse sand, some mica				
5					-- very dense	9.0	117.0		
10			10 13 17	SM	(SM) Silty SAND, dense, reddish brown, moist, fine to coarse sand, some mica				
15			11 23 50/6"		-- very dense, dark yellowish brown	7.0	119.2		
20			15 17 18		-- dense				
25			18 42 50/4"	SW-SM	(SW-SM) Well-graded SAND with Silt, very dense, dark yellowish brown, slightly moist, fine to coarse sand	3.8	121.2		
30			18 20 28	SM	(SM) Silty SAND, dense, dark reddish brown, slightly moist, fine to coarse sand				
35									



Parking Structure

B-7

3308 Utah St, Riverside, CA 92507, USA

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Drilling Co.:	Baja Exploration	Project No.:	250872.3	Comments: Backfilled with cuttings.
Logged By:	JAB	Date Drilled:	11/25/2025	
Checked By:	-	Boring Depth:	30.8'	
Equipment:	CME-95	Boring Elevation:	N/A	
Hammer Type:	Auto	Latitude, Longitude:33.98261, -117.32815		
Drilling Method:	8" HSA	▽ Water Level At Time Of Drilling		N/A
		Cave-in At Time Of Drilling		N/A

Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-P)
5			10 14 15	SM	Artificial Fill: (SM) Silty SAND, reddish brown, moist, fine to coarse sand, some fine subangular gravel			29.9	
					Older Alluvium: (SM) Silty SAND, dark yellowish brown, moist, fine to coarse sand, some mica -- medium dense				
10			16 29 50/6"		-- very dense, slightly moist	7.3	111.8		
15			12 15 18		-- dense, yellowish brown, dry to slightly moist, less silt, trace fine subangular gravel				
20			23 50/4"		-- very dense	4.2	115.7		
25			15 16 18		-- dense, dry				
30			25 50/4"		-- very dense, dry	3.4	117.4		
35									

		Parking Structure 3308 Utah St, Riverside, CA 92507, USA				P-1 Page 1 of 1				
Drilling Co.: Baja Exploration		Project No.: 250872.3		Comments: Backfilled with cuttings.						
Logged By: JAB		Date Drilled: 11/24/2025								
Checked By: -		Boring Depth: 5'								
Equipment: --		Boring Elevation: N/A								
Hammer Type: --		Latitude, Longitude: 33.98267, -117.32621								
Drilling Method: 5-inch Hand Auger		▽ Water Level At Time Of Drilling N/A								
		Cave-in At Time Of Drilling N/A								
Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results				
	Bulk / Grab	Driven	Blow Counts/6"			Graphic Log	Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-P)
5					SM	Artificial Fill: (SM) Silty SAND, dark reddish brown, very moist to wet, fine to coarse sand			34.4	
						Older Alluvium: (SM) Silty SAND, dark grayish brown, very moist to wet, fine to coarse sand, some organics, slight organic odor -- reddish brown, moist				



Parking Structure

P-2

3308 Utah St, Riverside, CA 92507, USA

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Drilling Co.:	Baja Exploration	Project No.:	250872.3	Comments: Backfilled with cuttings.
Logged By:	JAB	Date Drilled:	11/24/2025	
Checked By:	-	Boring Depth:	20'	
Equipment:	CME-95	Boring Elevation:	N/A	
Hammer Type:	Auto	Latitude, Longitude:33.98226, -117.32619		
Drilling Method:	8" HSA	▽ Water Level At Time Of Drilling		N/A
		Cave-in At Time Of Drilling		N/A

Depth (ft)	Samples			USCS	Visual Classification and Remarks	Lab Results			
	Bulk / Grab	Driven	Blow Counts/6"			Moisture Content (%)	Dry Density (PCF)	% Fines	Atterberg Limits (LL-PL-P)
5				SM	Artificial Fill: (SM) Silty SAND, dark reddish brown, very moist to wet, fine to coarse sand			22.4	NP
10			6 9 12	SC	Older Alluvium: (SC) Clayey SAND, medium dense, reddish brown, moist, fine to coarse sand -- very dense, dark yellowish brown	6.4	128.2	31.9	
15			8 9 10	SM	(SM) Silty SAND, medium dense, dark yellowish brown, moist, fine to medium sand, some mica -- dense	9.6	117.8	30.3	
20			15 20 35						
25									
30									
35									

Infiltration Rate Calculation Sheet

Project :	UCR Parking Structure	Project No. :	250872.3	Date :	11/24/2025		
Test Hole No.:	P-1	Tested by :	DP				
Depth of Test Hole, D_T (in):	60.0	USCS Soil Classification :	SM				
Test Hole Dimension (inches)			Length	Width			
Diameter (if round) (inches) =	5.00	Sides (if rectangular) =					
Sandy Soil Criteria Test*							
Trial No.	Start Time	Stop Time	Time Interval (min.)	Initial Depth to Water (in.)	Final Depth to Water (in.)	Change in Water Level (in.)	Greater than or Equal to 6" ? (Y/N)
1	8:11 AM	8:34 AM	23	10.2	17.2	7.0	Y
1	8:36 AM	9:00 AM	24	10.8	16.9	6.1	Y
<p>*If a consecutive measurement shows that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".</p>							
			Δt	H_o	H_f	ΔH	
Trial No.	Start Time	Stop Time	Time Interval (min.)	Initial Water Height (inches)	Final Water Height (inches)	Change in Water Level (inches)	Tested Infiltration Rate
1	9:05 AM	9:15 AM	10	42.84	41.40	1.44	0.25
2	9:20 AM	9:30 AM	10	41.16	39.72	1.44	0.26
3	9:32 AM	9:42 AM	10	46.68	44.52	2.16	0.35
4	9:44 AM	9:54 AM	10	44.28	42.84	1.44	0.24
5	9:56 AM	10:06 AM	10	42.72	41.52	1.20	0.21
6	10:08 AM	10:18 AM	10	41.40	40.44	0.96	0.17
Raw Infiltration Rate (no factor of safety) = 0.17 inch /hr							

Reference: Appendix VII. Infiltration Rate Evaluation Protocol and Factor of Safety Recommendations dated 12/20/13

Infiltration Rate Calculation Sheet

Project :	UCR Parking Structure	Project No. :	250872.3	Date :	11/24/2025		
Test Hole No.:	P-2	Tested by :	DP				
Depth of Test Hole, D_T (in):	240.0	USCS Soil Classification :	SM				
Test Hole Dimension (inches)			Length	Width			
Diameter (if round) (inches) =	8.00	Sides (if rectangular) =					
Sandy Soil Criteria Test*							
Trial No.	Start Time	Stop Time	Time Interval (min.)	Initial Depth to Water (in.)	Final Depth to Water (in.)	Change in Water Level (in.)	Greater than or Equal to 6" ? (Y/N)
1	9:18 AM	9:42 AM	24	50.2	78.6	28.4	Y
1	9:44 AM	10:09 AM	25	79.0	112.1	33.1	Y
<p>*If a consecutive measurement shows that six inches of water seeps away in less than 25 minutes, the test shall be run for an additional hour with measurements taken every 10 minutes. Otherwise, pre-soak overnight. Obtain at least twelve measurements per hole over at least six hours (approximately 30 minute intervals) with a precision of at least 0.25".</p>							
			Δt	H_o	H_f	ΔH	
Trial No.	Start Time	Stop Time	Time Interval (min.)	Initial Water Height (inches)	Final Water Height (inches)	Change in Water Level (inches)	Tested Infiltration Rate
1	10:11 AM	10:21 AM	10	153.36	141.12	12.24	0.98
2	10:23 AM	10:33 AM	10	137.76	121.68	16.08	1.46
3	10:35 AM	10:45 AM	10	119.64	104.40	15.24	1.60
4	10:47 AM	10:57 AM	10	102.72	93.24	9.48	1.14
5	10:59 AM	11:09 AM	10	123.36	112.68	10.68	1.07
6	11:11 AM	11:21 AM	10	111.72	101.16	10.56	1.17
Raw Infiltration Rate (no factor of safety) = 1.07 inch /hr							

Reference: Appendix VII. Infiltration Rate Evaluation Protocol and Factor of Safety Recommendations dated 12/20/13



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APPENDIX B LABORATORY TESTING

Appendix B Laboratory Testing

Laboratory Moisture Content and Density Tests

The moisture content and dry densities of selected driven samples obtained from the exploratory borings were evaluated in general accordance with the latest version of ASTM D2937. The results are shown on the boring logs in Appendix A and summarized in Table B-1.

No. 200 Wash Sieve

The amount of fines passing the No. 200 sieve was evaluated in accordance with ASTM D1140. The results are presented in Table B-2.

Atterberg Limits

Tests were performed on selected representative fine-grained soil samples to evaluate the liquid limit, plastic limit, and plasticity index in general accordance with ASTM D 4318. These test results were utilized to evaluate the soil classification in accordance with the Unified Soil Classification System. The test results are summarized in Table B-3.

Resistance Value (R-value)

R-value testing was performed on a select bulk sample of the near-surface soils encountered at the site. The test was performed in general accordance with ASTM D2844. The result is summarized in Table B-4.

Maximum Dry Density-Optimum Moisture Content

One selected bulk sample was tested to evaluate the maximum dry density and its optimum moisture content. The test was performed in general accordance with ASTM test method D1557. The results are attached below.

Expansion Index

The expansion index of a select soil sample was evaluated in general accordance with ASTM D4829. The specimen was molded under a specified compactive energy at approximately 50 percent saturation. The prepared 1-inch thick by 4-inch diameter specimen was loaded with a surcharge of 144 pounds per square foot and was inundated with tap water. Readings of volumetric swell were made for a period of 24 hours. The results of expansion index test is presented in Table B-5.

Consolidation

Consolidation tests were performed on selected modified-California soil samples in general accordance with the latest version of ASTM D2435. The samples were inundated during testing to represent adverse field conditions. The percent consolidation for each load cycle was recorded as a ratio of the amount of vertical compression to the original height of the sample. Test results are attached below.

Direct Shear

Direct shear tests were performed on a remolded sample and representative modified-California soil samples in general accordance with the latest version of ASTM D3080 to evaluate the shear

strength characteristics of the selected materials. The samples were inundated during shearing to represent adverse field conditions. Test results are attached below.

Corrosivity

Soil pH and resistivity tests were performed by Anaheim Test Lab, Inc. (ATLI) of Anaheim, California on a representative soil sample. The resistivity of the soil assumes saturated soil conditions. The chloride and sulfate contents of the selected samples were evaluated in general accordance with the latest versions of Caltrans test methods CT417, CT422, and CT 643. The test results are presented in Table B-6 and the ATLI report is included in this appendix.

Table B-1 - Moisture Content and Dry Density

Boring No.	Depth (feet)	Moisture Content (%)	Dry Density (pcf)
B-1	5	7.9	130.2
B-1	15	10.9	119.2
B-1	25	5.2	123.1
B-2	10	11.1	116.7
B-2	20	7.1	127.6
B-2	30	10.4	125.2
B-2	40	7.0	124.8
B-2	50	6.7	121.8
B-3	5	4.3	120.3
B-3	15	4.9	122.4
B-3	25	14.8	108.0
B-4	10	7.7	125.8
B-4	20	5.3	119.0
B-4	30	5.2	130.1
B-5	5	5.3	127.3
B-5	15	4.1	115.1
B-5	25	12.7	114.9
B-5	35	12.9	122.0
B-5	45	6.4	123.7
B-6	5	9.0	117.0
B-6	15	7.0	119.2
B-6	25	3.8	121.2
B-7	10	7.3	111.8
B-7	20	4.2	115.7
B-7	30	3.4	117.4
P-2	10	6.4	128.2
P-2	18.5	9.6	117.8

Table B-2 - No. 200 Wash Sieve

Boring No.	Depth (feet)	Percent Passing No. 200 Sieve
B-1	1-5' BULK	45.0
B-1	10	36.7
B-2	5	28.2
B-2	15	34.1
B-2	45	37.7
B-3	1-5' BULK	33.9
B-3	20	20.3
B-4	1-5' BULK	40.4
B-4	15	18.6
B-5	10	40.2
B-5	30	24.9
B-5	50	13.0
B-7	5	29.9
P-1	1-5' BULK	34.4
P-2	1-5' BULK	22.4
P-2	10	31.9
P-2	18.5	30.3

Table B-3 Atterberg Limits

Boring No.	Depth (feet)	Liquid Limit	Plastic Limit	Plasticity Index	U.S.C.S Classification
B-1	1-5' BULK	24	14	12	SC – Clayey SAND
B-6	1-5' BULK	NP	NP	NP	SM – Silty SAND
P-2	1-5' BULK	NP	NP	NP	SM – Silty SAND

Table B-4 Resistance Value (R-value)

Boring No.	Depth (feet)	R Value
B-6	1-5' BULK	25
B-7	1-5' BULK	25



111 Main Street, Unit A
Riverside CA 92501

Tel 909.383.6660
Fax 562.426.6424

Table B-5 - Expansion Index

Boring No.	Depth (feet)	Expansion Index	Expansion Potential
B-1	1-5' BULK	12	Very Low
P-2	1-5' BULK	8	Very Low

Table B-6 - Corrosivity Test Results

Boring No.	Depth (feet)	pH	Minimum Resistivity (ohm-cm)	Water Soluble Sulfate (ppm)	Water Soluble Chloride (ppm)
B-1	1-5' BULK	7.6	2,700	139	24
B-6	1-5' BULK	7.6	2,200	176	21



Twining, Inc.- Long Beach Lab
3310 Airport Way, Long Beach, CA 90806
Ph: 562.426.3355
Fax: 562.426.6424
www.twininginc.com

Direct Shear Test Report

Report No: MAT:W01-25-37234
Printed Date: 12/19/2025 Issue No: 1

Customer: University of California, Riverside

Project No: 250872.3

Project: Parking Structure

Permit No:

OSHPD:

DSA File #:

DSA AP #:

Jurisdiction:

Distribution List:

Approved by:  Doug Crayton
Sr. Staff Engineer

Sample Details

Sampled By: JAB

Date Received: 11/25/2025

Date Sampled: 11/25/2025

Received By: Twining, Inc.

Sample Location: B-2

Material Description: Silty SAND

Sample Depth: 1-5'

Source:

Sampling Method: BULK

Test Method: ASTM D3080

Test Details

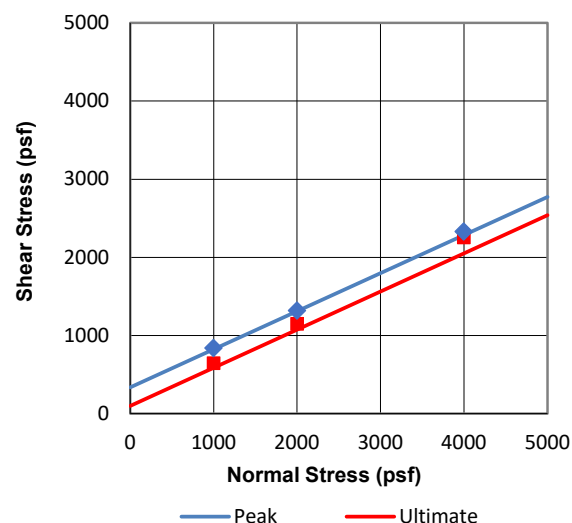
Preparation: Ring % Compaction: 90% Shear Rate: Slow: .005 (in/min)

Tested By: BV/KH Date Tested: 12/15/2025

Specimen #	Wet Density (pcf)	Dry Density (pcf)	Initial Moisture (%)	Final Moisture (%)
1	125.9	115.6	8.9	15.6
2	125.9	115.6	8.9	14.8
3	125.9	115.6	8.9	14.6

Specimen #	Load (psf)	Peak (psf)	Ultimate (psf)
1	1000	840	648
2	2000	1320	1152
3	4000	2328	2256

	Peak	Ultimate
Friction Angle (degrees):	26	26
Cohesion, C (psf):	336	100



Compliance:

Comments

Sample remolded to 90% relative compaction.



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Direct Shear Test Report

Report No: MAT:W01-25-37234
Printed Date: 12/19/2025 Issue No: 1

Customer: University of California, Riverside

Project No: 250872.3

Project: Parking Structure

Permit No:

OSHPD:

DSA File #:

DSA AP #:

Jurisdiction:

Distribution List:

Approved by: 
Doug Crayton
Sr. Staff Engineer

Sample Details

Sampled By: JAB

Date Received: 11/25/2025

Date Sampled: 11/24/2025

Received By: Twining, Inc.

Sample Location: B-3

Material Description: Silty SAND

Sample Depth: 5 feet

Source:

Sampling Method: Ring

Test Method: ASTM D3080

Test Details

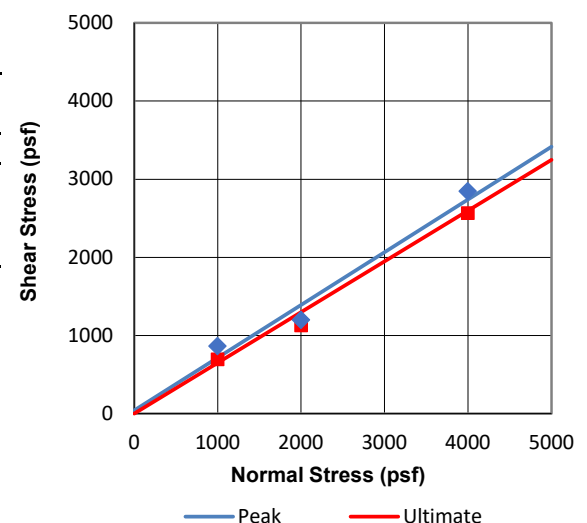
Preparation: Ring % Compaction: Shear Rate: Slow: .005 (in/min)

Tested By: BV/KH Date Tested: 12/11/2025

Specimen #	Wet Density (pcf)	Dry Density (pcf)	Initial Moisture (%)	Final Moisture (%)
1	125.5	120.3	4.3	14.0
2	125.5	120.3	4.3	13.2
3	125.5	120.3	4.3	12.7

Specimen #	Load (psf)	Peak (psf)	Ultimate (psf)
1	1000	864	696
2	2000	1200	1128
3	4000	2844	2568

	Peak	Ultimate
Friction Angle (degrees):	34	33
Cohesion, C (psf):	42	0



Compliance:

Comments



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Direct Shear Test Report

Report No: MAT:W01-25-37234

Printed Date: 12/19/2025 Issue No: 1

Customer: University of California, Riverside

Project: Parking Structure

Project No: 250872.3

Permit No:

OSHPD:

DSA File #:

DSA AP #:

Jurisdiction:

Distribution List:

Approved by: 
Doug Crayton
Sr. Staff Engineer

Sample Details

Sampled By: JAB

Date Sampled: 11/25/2025

Sample Location: B-4

Sample Depth: 10 feet

Sampling Method: Ring

Date Received: 11/25/2025

Received By: Twining, Inc.

Material Description: Silty SAND

Source:

Test Method: ASTM D3080

Test Details

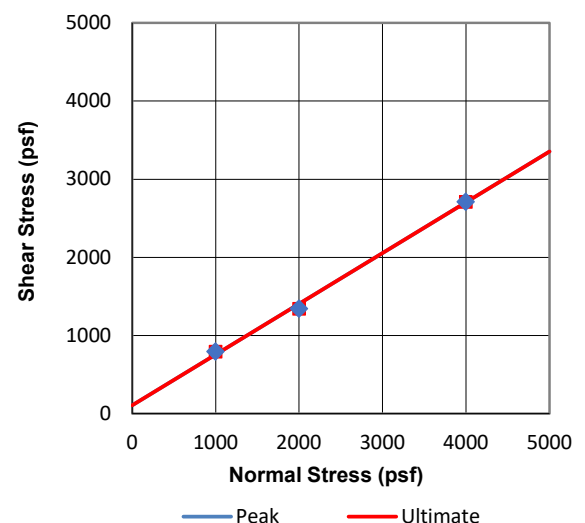
Preparation: Ring % Compaction: Shear Rate: Slow: .005 (in/min)

Tested By: BV/KH Date Tested: 12/12/2025

Specimen #	Wet Density (pcf)	Dry Density (pcf)	Initial Moisture (%)	Final Moisture (%)
1	135.5	125.8	7.7	19.3
2	135.5	125.8	7.7	18.5
3	135.5	125.8	7.7	17.9

Specimen #	Load (psf)	Peak (psf)	Ultimate (psf)
1	1000	792	792
2	2000	1344	1344
3	4000	2712	2712

	Peak	Ultimate
Friction Angle (degrees):	33	33
Cohesion, C (psf):	108	108



Compliance:

Comments



Twining Inc
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Fax: 562.426.6424
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Consolidation Test Report

Report No: MAT:W01-25-37234

Printed Date: 12/19/2025 Issue No: 1

Customer: University of California, Riverside

Project: Parking Structure

Project No: 250872.3

Permit No:

OSHPD:

DSA File #:

DSA AP #:

Distribution List:

Reviewed by: 
Doug Crayton
Sr. Staff Engineer

Sample Details

Sampled By: JAB
Date Sampled: 11/25/2025
Sample Location: B-1
Sample Depth: 5 feet
Sample Source:

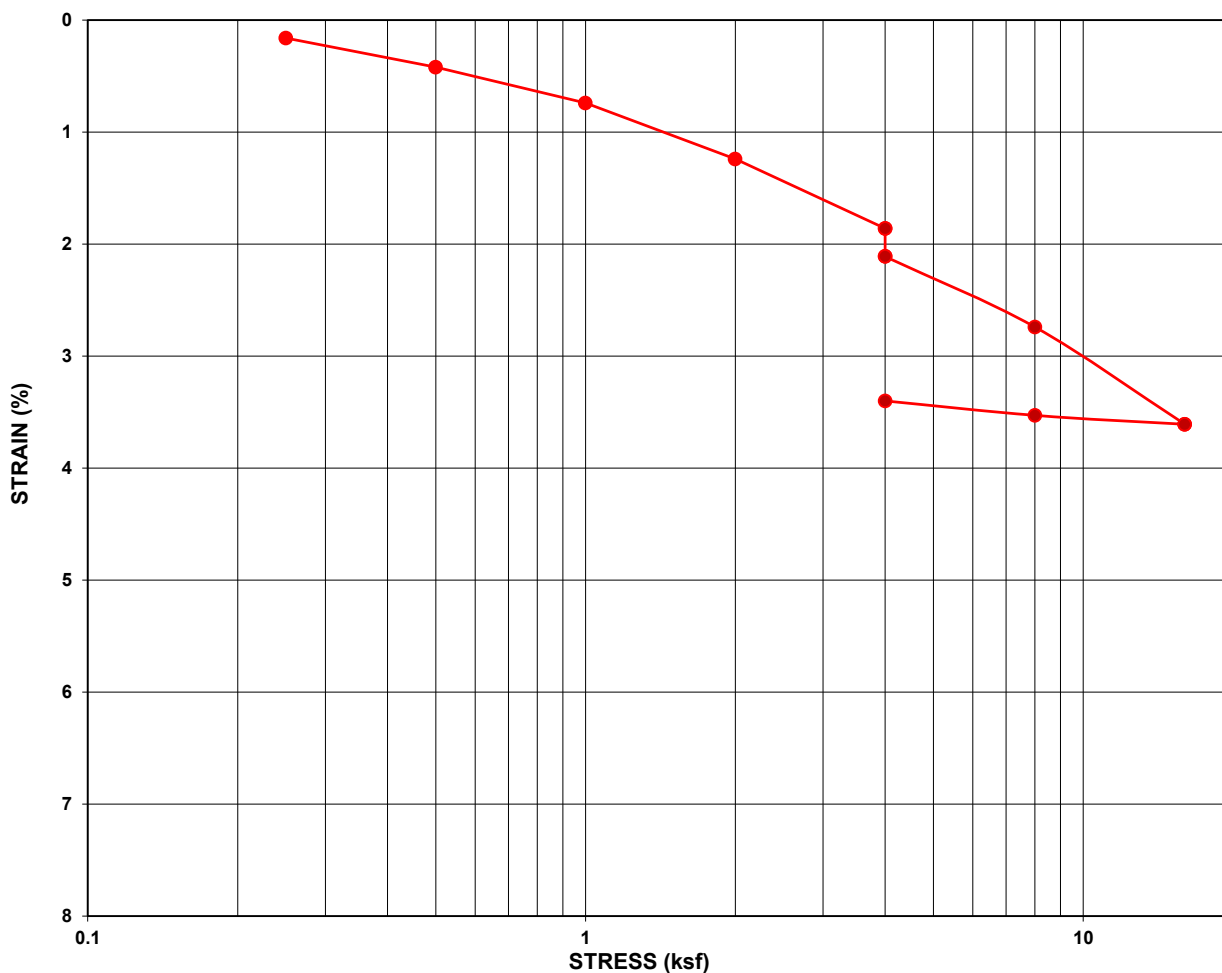
Date Received: 11/25/2025
Received By: Twining Long Beach Lab
Sample Description: Silty SAND
Dry Density (pcf): 130.2
Moisture Content (%): 7.9

Test Details

Test Method: ASTM D2435

Date Tested: 12/3/2025

Tested By: B. Vollnogle



Comments:

Water added at 4000 psf. Final moisture 10.6%.



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Consolidation Test Report

Report No: MAT:W01-25-37234

Printed Date: 12/19/2025 Issue No: 1

Customer: University of California, Riverside

Project: Parking Structure

Project No: 250872.3

Permit No:

OSHPD:

DSA File #:

DSA AP #:

Distribution List:

Reviewed by: 
Doug Crayton
Sr. Staff Engineer

Sample Details

Sampled By: JAB
Date Sampled: 11/24/2025
Sample Location: B-2
Sample Depth: 10 feet
Sample Source:

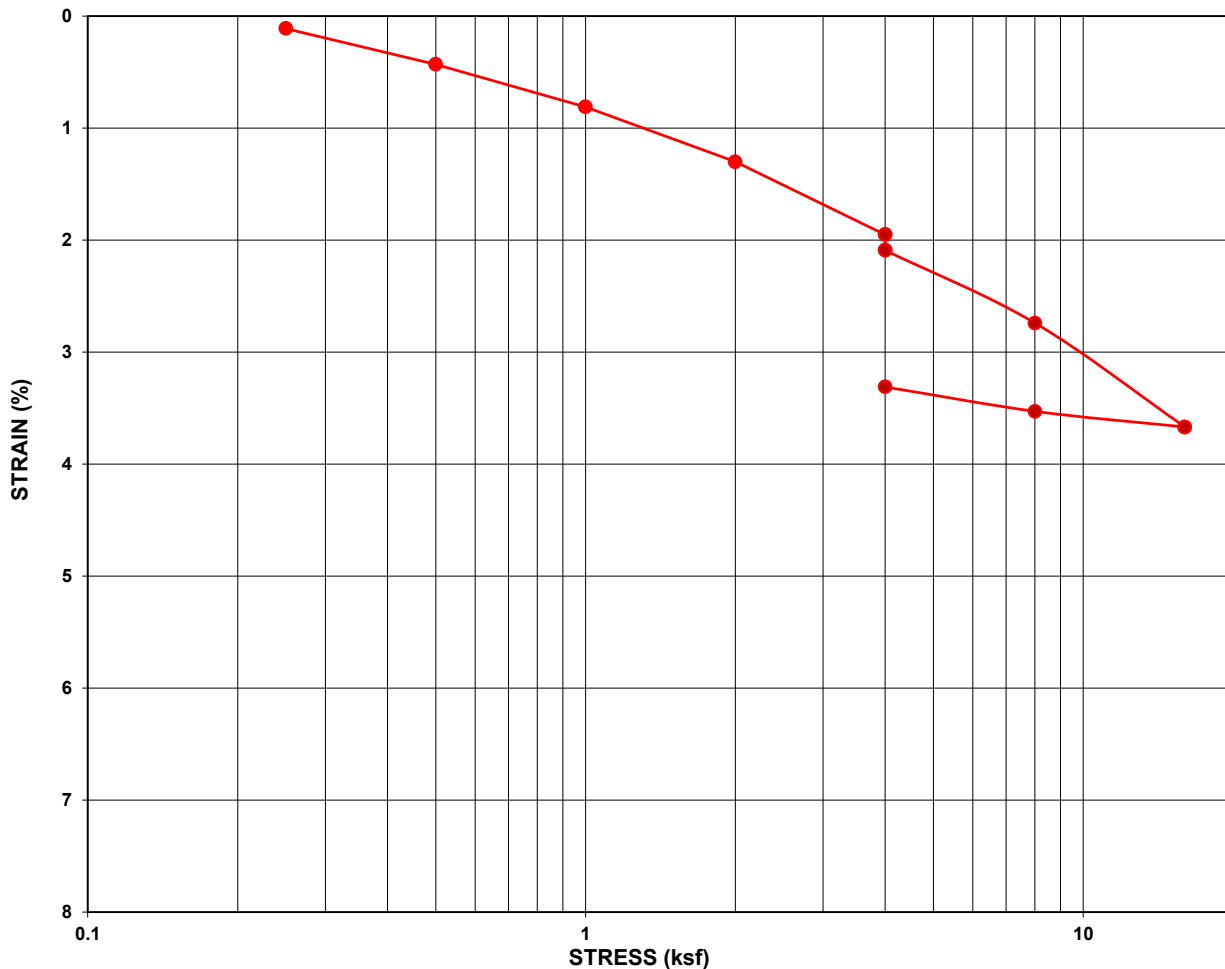
Date Received: 11/25/2025
Received By: Twining Long Beach Lab
Sample Description: Silty SAND
Dry Density (pcf): 117.0
Moisture Content (%): 11.1

Test Details

Test Method: ASTM D2435

Date Tested: 12/3/2025

Tested By: B. Vollnogle



Comments:

Water added at 4000 psf. Final moisture 12.6%.



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Consolidation Test Report

Report No: MAT:W01-25-37234

Printed Date: 12/19/2025 Issue No: 1

Customer: University of California, Riverside

Project: Parking Structure

Project No: 250872.3

Permit No:

OSHPD:

DSA File #:

DSA AP #:

Distribution List:

Reviewed by: 
Doug Crayton
Sr. Staff Engineer

Sample Details

Sampled By: JAB
Date Sampled: 11/25/2025
Sample Location: B-4
Sample Depth: 20 feet
Sample Source:

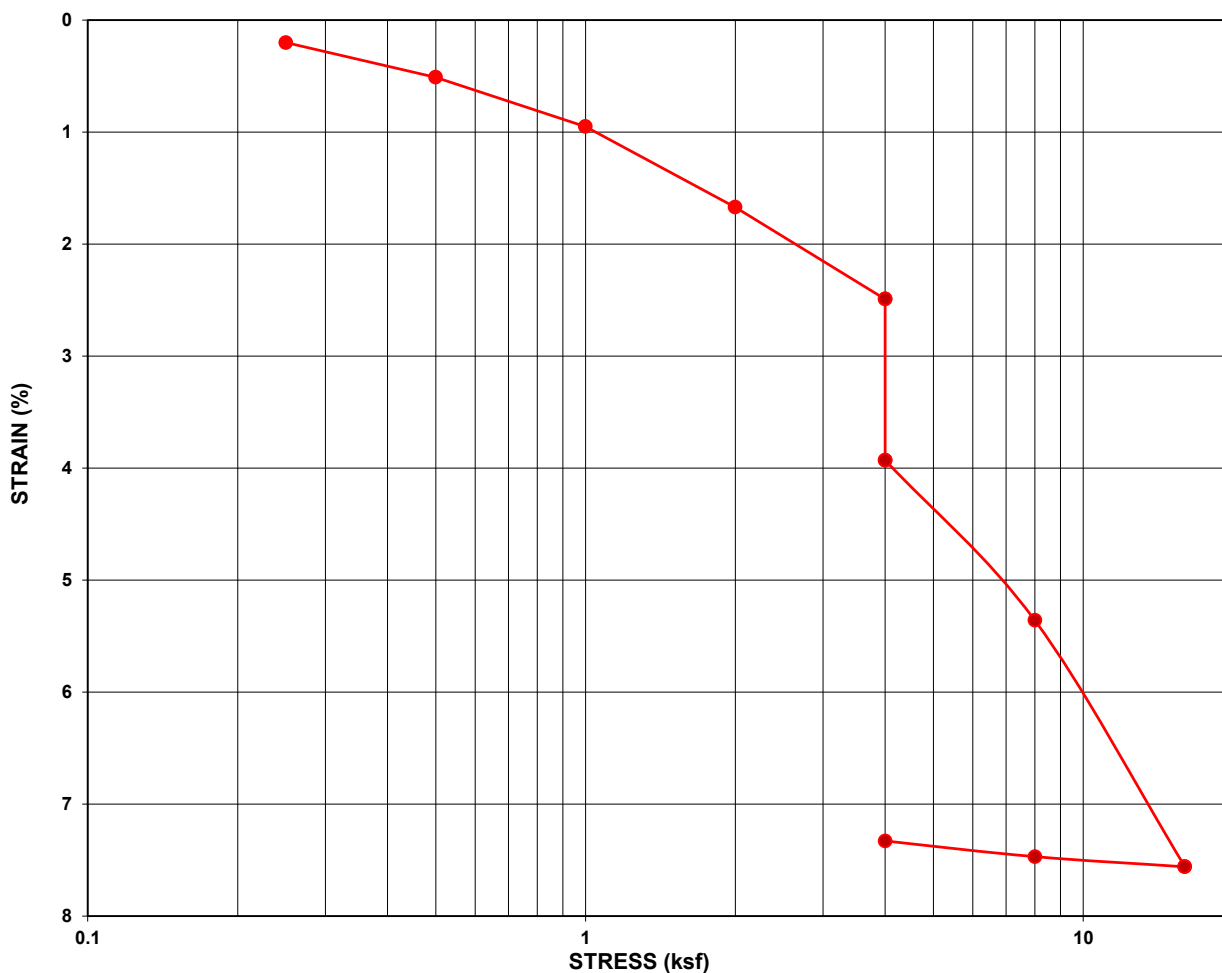
Date Received: 11/25/2025
Received By: Twining Long Beach Lab
Sample Description: Silty SAND
Dry Density (pcf): 119.0
Moisture Content (%): 5.3

Test Details

Test Method: ASTM D2435

Date Tested: 12/3/2025

Tested By: B. Vollnogle



Comments:

Water added at 4000 psf. Final moisture 11.9%.



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Consolidation Test Report

Report No: MAT:W01-25-37234

Printed Date: 12/19/2025 Issue No: 1

Customer: University of California, Riverside

Project: Parking Structure

Project No: 250872.3

Permit No:

OSHPD:

DSA File #:

DSA AP #:

Distribution List:

Reviewed by: 
Doug Crayton
Sr. Staff Engineer

Sample Details

Sampled By: JAB
Date Sampled: 11/25/2025
Sample Location: B-5
Sample Depth: 15 feet
Sample Source:

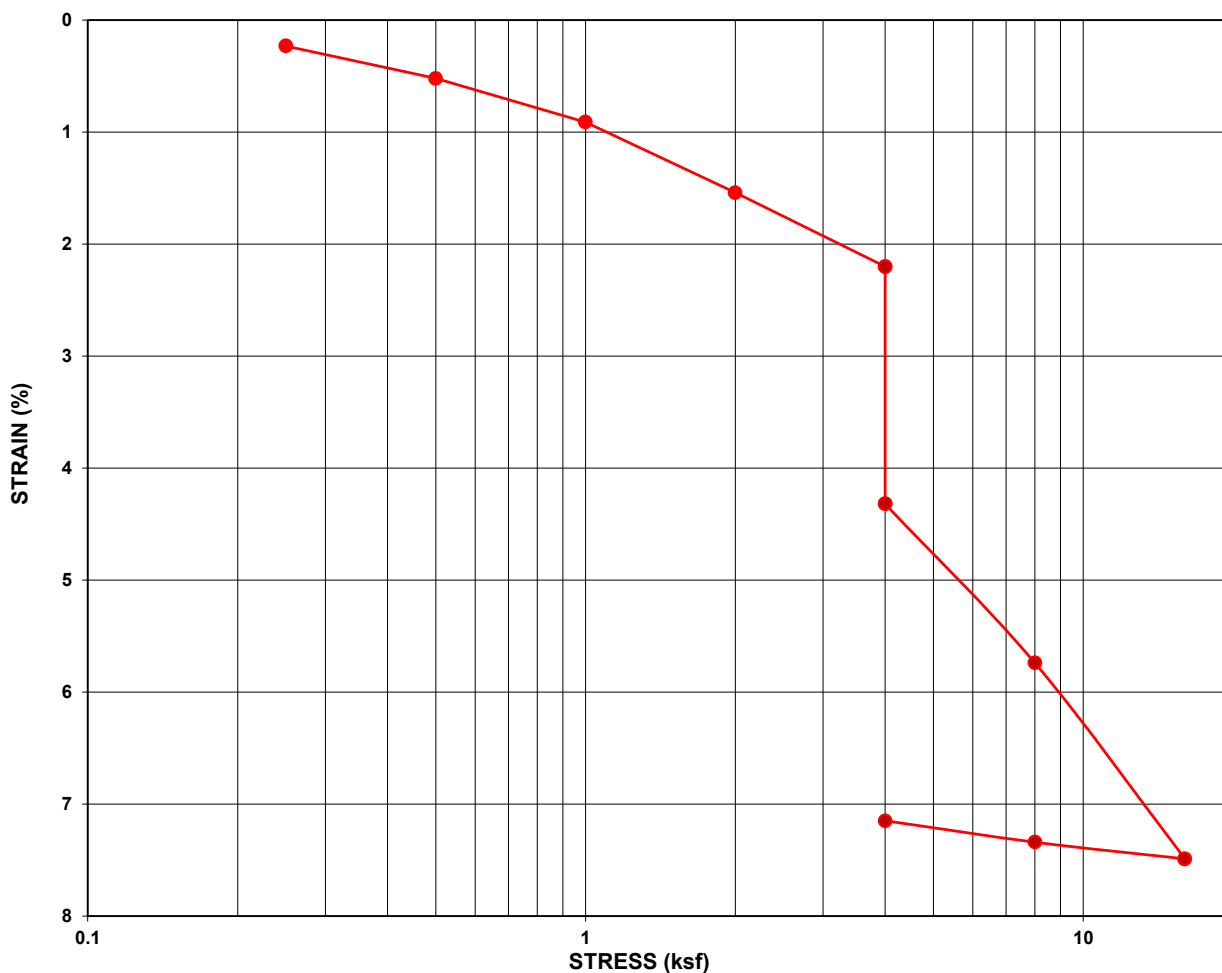
Date Received: 11/25/2025
Received By: Twining Long Beach Lab
Sample Description: Silty SAND
Dry Density (pcf): 115.1
Moisture Content (%): 4.1

Test Details

Test Method: ASTM D2435

Date Tested: 12/3/2025

Tested By: B. Vollnogle



Comments:

Water added at 4000 psf. Final moisture 13.5%.



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Consolidation Test Report

Report No: MAT:W01-25-37234

Printed Date: 12/19/2025 Issue No: 1

Customer: University of California, Riverside

Project: Parking Structure

Project No: 250872.3

Permit No:

OSHPD:

DSA File #:

DSA AP #:

Distribution List:

Reviewed by: 
Doug Crayton
Sr. Staff Engineer

Sample Details

Sampled By: JAB
Date Sampled: 11/24/2025
Sample Location: B-6
Sample Depth: 25 feet
Sample Source:

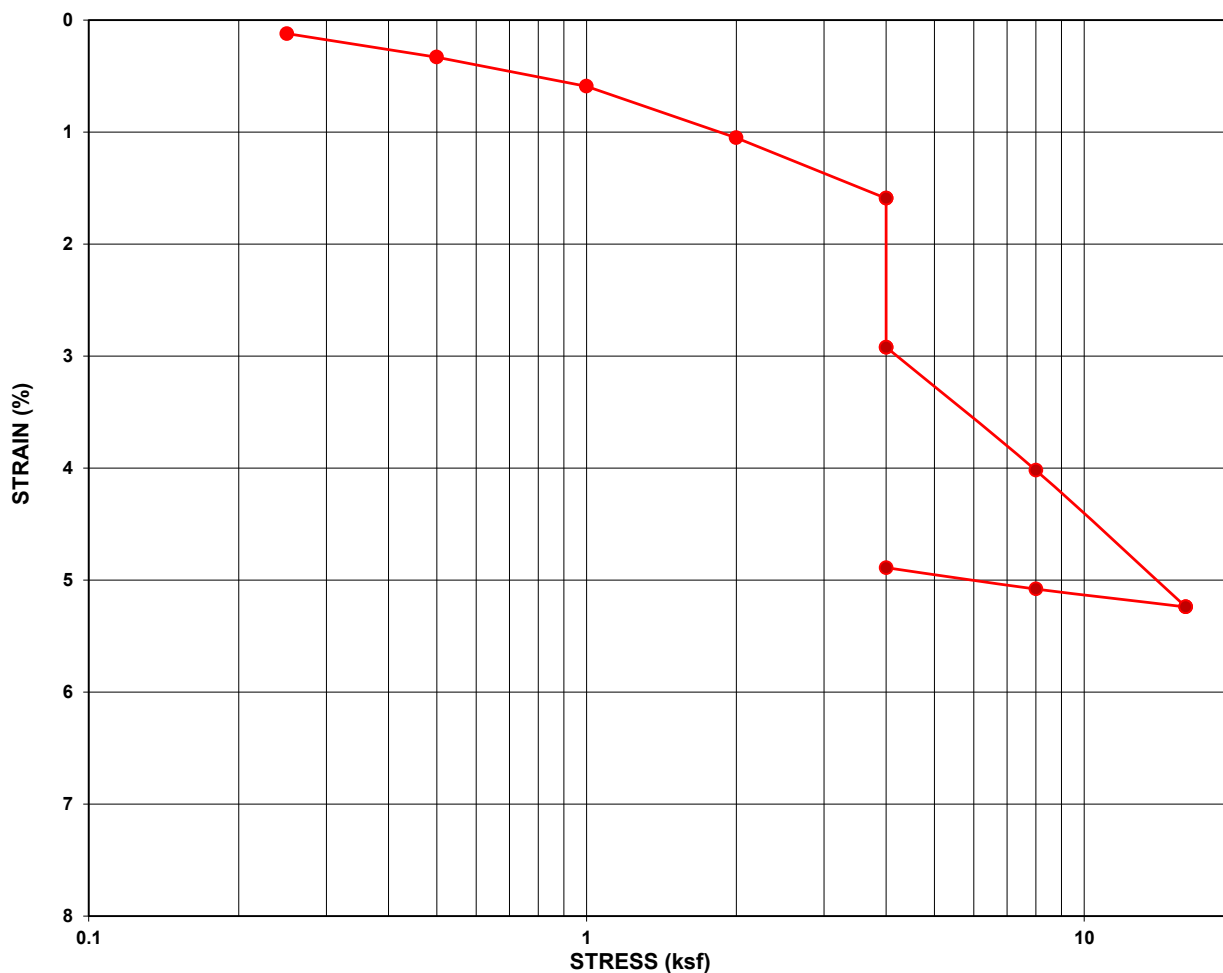
Date Received: 11/25/2025
Received By: Twining Long Beach Lab
Sample Description: Well graded SAND with silt
Dry Density (pcf): 121.2
Moisture Content (%): 3.8

Test Details

Test Method: ASTM D2435

Date Tested: 12/3/2025

Tested By: B. Vollnogle



Comments:

Water added at 4000 psf. Final moisture 12.9%.



Proctor Report

Twining, Inc. - Long Beach Lab
3310 Airport Way, Long Beach, CA 90806
Ph: 562.426.3355
Fax: 562.426.6424
www.twininginc.com

Report No: PTR:W01-25-37234-S01

Date of Issue: 12/20/2025

Issue No: 1

Customer: University of California, Riverside
UCR Capital Programs
Riverside, CA, 92507
Project: UCR, Parking Structure
900 University Avenue
Riverside, CA, 92521

Project No.: 250872.3

Permit No.:

HCAI:

DSA File #:

DSA AP #:

Jurisdiction:
Distribution:


Twining utilizes the "Binary Statement for Simple Acceptance Rule" (ILAC G8:09/2019) for statements of conformity.
Approved Signatory: Douglas Crayton (Staff Engineer)

Sample Details

Sample ID: W01-25-37234-S01
Date Sampled: 11/24/2025
Source: B-2 1-5' BULK

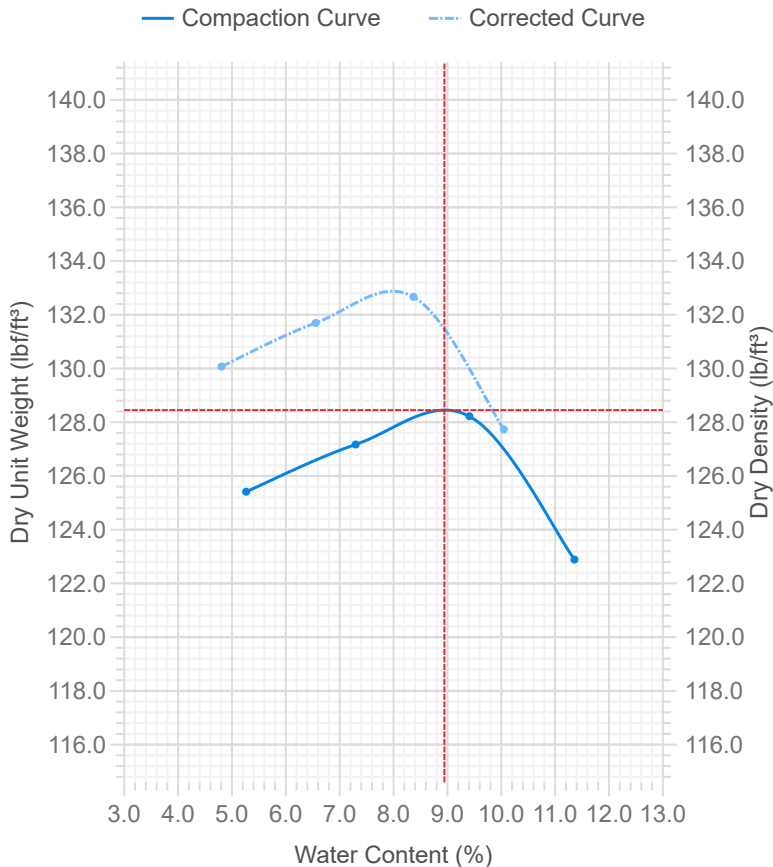
Field Sample ID:
Sampled By: Twining Consulting

Material:
Specification:
Sampling Method:
Sampling Location:
Sampling Depth:

Material Description:
Date Tested: 12/10/2025

Tested By: Bryson Hayes

Dry Unit Weight - Water Content Relationship



Test Results

ASTM D1557

Mod. Maximum Dry Unit Weight (lb/ft³): 128.4
Mod. Optimum Water Content (%): 8.9
Retained on No.4 Sieve (%): 14
Passing No.4 Sieve (%): 86
Method: A
Preparation Method: Moist
Rammer Type: Automatic
Determined By: Estimated
Tested By: Bryson Hayes
Date Tested: 12/10/2025

ASTM D4718

Corrected Maximum Dry Unit Weight (lb/ft³): 132.9
Corrected Optimum Water Content (%): 8.0
Oversize Specific Gravity: 2.70
Oversize Particles (%): 14

Remarks:

The Material Tested ☒ Complies ☐ Does Not Comply
With the Project Requirements



Proctor Report

Twining, Inc. - Long Beach Lab
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Ph: 562.426.3355
Fax: 562.426.6424
www.twininginc.com

Report No: PTR:W01-25-37234-S03

Date of Issue: 12/20/2025

Issue No: 1

Customer: University of California, Riverside
UCR Capital Programs
Riverside, CA, 92507
Project: UCR, Parking Structure
900 University Avenue
Riverside, CA, 92521

Project No.: 250872.3

Permit No.:

HCAI:

DSA File #:

DSA AP #:

Jurisdiction:

Distribution:

Twining utilizes the "Binary
Statement for Simple Acceptance
Rule" (ILAC G8:09/2019) for
statements of conformity.

Approved Signatory: Douglas Crayton (Staff Engineer)

Sample Details

Sample ID: W01-25-37234-S03

Field Sample ID:

Date Sampled: 11/24/2025

Sampled By: Twining Consulting

Source: B-5 1-5' BULK

Material:

Specification:

Sampling Method:

Sampling Location:

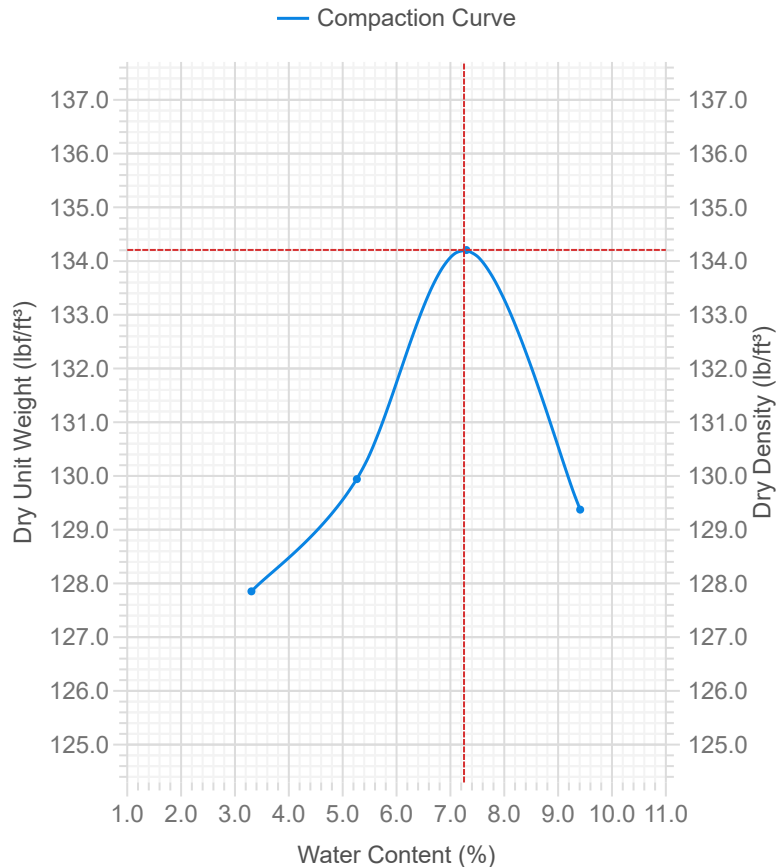
Sampling Depth:

Material Description:

Tested By: Bryson Hayes

Date Tested: 12/10/2025

Dry Unit Weight - Water Content Relationship



Test Results

ASTM D1557

Mod. Maximum Dry Unit Weight (lb/ft³): 134.2

Mod. Optimum Water Content (%): 7.3

Retained on No.4 Sieve (%): 3

Passing No.4 Sieve (%): 97

Method: A

Preparation Method: Moist

Rammer Type: Automatic

Determined By: Estimated

Tested By: Bryson Hayes

Date Tested: 12/10/2025

Remarks:

The Material Tested ☒ Complies ☐ Does Not Comply
With the Project Requirements

ANAHEIM TEST LAB, INC

196 Technology Drive, Unit D
Irvine, CA 92618
Phone (949) 336-6544

TWINING LABS
3310 AIRPORT WAY
LONG BEACH, CA 90806

DATE: 12/12/2025

P.O. NO.: Soils12052025

LAB NO.: C-9421, 1-2

SPECIFICATION: CT-643/417/422

MATERIAL: Soil

Project No.: 250872.3
Project: UCR Parking Garage
WO No.: W01-25-37234
Sample Date: 11/24/2025

ANALYTICAL REPORT

CORROSION SERIES

SUMMARY OF DATA

	pH	MIN RESISTIVITY per CT. 643 ohm-cm	SOLUBLE SULFATES per CT. 417 ppm	SOLUBLE CHLORIDES per CT. 422 ppm
1) B-1 @ 1-5' (Bulk)	7.6	2,700	139	24
2) B-6 @ 1-5' (Bulk)	7.6	2,200	176	21

RESPECTFULLY SUBMITTED



WES BRIDGER LAB MANAGER



111 Main Street, Unit A
Riverside CA 92501

Tel 909.383.6660
Fax 562.426.6424

APPENDIX C

GEOPHYSICAL SURVEY

December 5, 2025

Mr. Daniel Lee
Twining Consulting, Inc.
4811 Airport Plaza Dr Suite 220
Long Beach, CA 90815

**Subject: Geophysical Evaluation
 UC Riverside
 Riverside, California
 Project No. 2025320**

Dear Mr. Lee:

Advantage Geophysics, Inc. (Advantage) has performed a geophysical evaluation pertaining to the subject project in Riverside, California. The purpose of our evaluation was to develop two one-dimensional (1-D) shear-wave velocity profiles through the collection of Refraction Microtremor (ReMi) and Multichannel Analysis of Surface Waves (MASW) data at the project site. Our field services were performed on November 26, 2025. This data report presents our evaluation methodology, equipment used, analysis, and results.

SCOPE OF SERVICES

Our scope of services for the project included:

- Perform two co-located 1-D ReMi (RL-1) and 1-D MASW profiles (ML-1) at the site.
- Compilation and analysis of the data collected.
- Preparation of this document presenting our geophysical evaluation results, conclusions, and recommendations.

SITE AND PROJECT DESCRIPTION

The site is located south of Blaine Street and east of Idaho Street in Riverside, California (Figure 1). The study area consists of compacted soils adjacent to existing sidewalks with light vegetation, shrubs, and decorative rock (Figure 2).

The profile alignment was adjusted in the field based on site accessibility and surface conditions. Figure 2 and Figure 3 depict the profile locations and general site conditions observed during the study. Based on our discussions with you, it is our understanding that the data collected during this study will be utilized to support design and construction considerations for the property.

EVALUATION METHODOLOGY AND ANALYSIS

The 1-D ReMi and MASW techniques use recorded surface waves (specifically Rayleigh waves) to develop one dimensional shear-wave velocity profiles of the study area down to a depth, in this case, of



approximately 100 feet below ground surface. The depth of exploration is dependent on the length of the line and the frequency content of the surface waves. The results of our 1-D ReMi and MASW methods represent the average condition across the length of the lines performed. These methods do not require an increase of material velocity with depth; therefore, significantly thick low velocity zones overlain by faster zones (velocity inversions) are detectable.

Our 1-D ReMi and MASW evaluation included the use of a 24-channel seismograph and 24, 4.5-Hz vertical component geophones. The geophones were spaced 10 feet apart for a total line length of 230 feet for each array due to site access and geometric limitations. Passive ReMi data collection of ambient ground vibration noise was utilized along both profiles. Additionally, a non-triggered hammer seismic source shot point was conducted at 50 feet off one end of the 1-D ReMi array to supplement the passive records. Our MASW data collection and analysis also included active source records with a triggered seismic hammer source at various shot located at 50, 40, 30, 20, and 10 feet off-end of the line. These shot locations of active surface wave data were evaluated for near and far-field effects in the 1-D MASW records. The active source off-end-MASW shot data was then combined with passive ReMi data in our analysis of collected data.

The collected 1-D ReMi data was processed using Surface Plus 9.1 - Advanced Surface Wave Processing Software (Geogiga Technology Corp., 2020), which uses the refraction microtremor method (Louie, 2001) and other surface wave analysis methods. Additionally, the collected active source 1-D MASW data was combined with passive 1-D ReMi data and processed using SurfSeis® (Kansas Geological Survey, 2020). These programs generate phase-velocity dispersion curves for each record and provide interactive dispersion modeling tools to provide the best fitting model. The result is a one-dimensional seismic surface-wave velocity model of the site at the location we evaluated which, based on published studies, is typically 85 to 95 percent of the velocity of shear waves. Therefore, using the ReMi and MASW combined surface wave data analysis results in relatively conservative estimates of shear wave velocity.

RESULTS

As previously discussed, the purpose of our geophysical evaluation was to develop shear-wave velocity profile to be used for design and construction at the study site. Table 1-1 and Table 2-1, and Table 1-2 and Table 2-2 present the results of our ReMi and MASW profiles, respectively. Additionally, Figure 4-1 and Figure 4-2 graphically display the results for the 1-D ReMi and 1-D MASW profiles. When the 1-D ReMi surface wave velocity results (analogous to shear wave) show an ICC or ASCE/SEI 7-22 Vs100 velocity value that is close to the "borderline" boundary between two Vs100 Site Classes, the project geotechnical engineering consultant of record should be consulted regarding existing available site information and whether obtaining additional new geotechnical evaluation data such as boreholes, surface to downhole seismic (ASTM D7400), cross hole seismic (ASTM D4428), or additional 1-D ReMi data collections would be advisable. The project geotechnical engineering consultant might also wish to consider the subsurface geologic stratigraphy and structure, soil mechanics, and soil modulus, along with the initial 1-D ReMi and MASW results when assessing near "borderline" seismic site class and whether additional evaluations are needed. Our seismic velocity Vs100 results at RL-1 and RL-2 might be considered near borderline values in reference to seismic Site Class categories in ASCE/SEI 7-22. Our Vs100 results at ML-1 and ML-2 are not near borderline values.



Table 1-1: 1-D ReMi Results RL-1

Line No.	Depth (feet)	Shear-Wave Velocity (feet/second)	Average Shear-Wave Velocity (Vs100)	Site Class (ICC, 2024; ASCE, 2022)
RL-1 (E-W)	0-8	683 ft/s	Vs=1,461 ft/s	C
	8-17	1,095 ft/s		
	17-55	1,592 ft/s		
	55-72	1,600 ft/s		
	72-100	2,005 ft/s		

Table 1-2: 1-D MASW Results ML-1

Line No.	Depth (feet)	Shear-Wave Velocity (feet/second)	Average Shear-Wave Velocity (Vs100)	Site Class (ICC, 2024; ASCE, 2022)
ML-1 (E-W)	0-5	939 ft/s	Vs=1,532 ft/s	C
	5-12	957 ft/s		
	12-20	926 ft/s		
	20-30	2,093 ft/s		
	30-43	2,037 ft/s		
	43-59	1,111 ft/s		
	59-78	1,522 ft/s		
	78-100	3,759 ft/s		

Table 2-1: 1-D ReMi Results RL-2

Line No.	Depth (feet)	Shear-Wave Velocity (feet/second)	Average Shear-Wave Velocity (Vs100)	Site Class (ICC, 2024; ASCE, 2022)
RL-1 (NW-SE)	0-8	1,025 ft/s	Vs=1,488 ft/s	C
	8-27	1,172 ft/s		
	27-54	1,534 ft/s		
	54-75	1,537 ft/s		
	75-100	2,067 ft/s		

Table 2-2: 1-D MASW Results ML-2

Line No.	Depth (feet)	Shear-Wave Velocity (feet/second)	Average Shear-Wave Velocity (Vs100)	Site Class (ICC, 2024; ASCE, 2022)
ML-1 (NW-SE)	0-3	1,038 ft/s	Vs=1,493 ft/s	C
	3-6	1,171 ft/s		
	6-11	1,284 ft/s		
	11-17	1,106 ft/s		
	17-23	957 ft/s		
	23-32	2,054 ft/s		
	32-43	2,187 ft/s		
	43-57	1,133 ft/s		
	57-74	1,160 ft/s		
	74-100	3,398 ft/s		



SELECTED REFERENCES

- American Society of Civil Engineers (ASCE), 2022, ASCE/SEI 7-22, Minimum Design Loads and Associated Criteria for Buildings and Other Structures; Prepared by the Minimum Design Loads and Associated Criteria for Buildings and Other Structures Standards Committee of the Codes and Standards Activity Division of the Structural Engineering Institute of ASCE, 1,046 pp., available at <https://ascelibrary.org/doi/book/10.1061/9780784415788>.
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- Golden Software, Inc., 2022, Surfer, Surface Mapping System: Version 24.2.204.
- International Code Council, 2024, International Building Code (IBC-2024), effective date September 2024, available at <https://webstore.ansi.org/standards/icc/iccibc2024>.
- Iwata, T., Kawase, H., Satoh, T., Kakehi, Y., Irikura, K., Louie, J.N., Abbott, R.E., and Anderson, J.G., 1998, Array Microtremor Measurements at Reno, Nevada, USA (abstract): Eos, Trans. Amer. Geophys. Union, v. 79, suppl. to no. 45, p. F578.
- Kansas Geological Survey, 2020, SurfSeis© MASW (Multichannel Analysis of Surface Waves): Version 6.5.4.3
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- Mooney, H.M., 1976, Handbook of Engineering Geophysics, dated February.
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LIMITATIONS

The field evaluation and geophysical analyses presented in this document have been conducted in general accordance with current practice and the standard of care exercised by consultants performing similar tasks in the project area. The results of geophysical analyses are based on the interpretation of collected data, which may be subject to varying degrees of accuracy. No warranty, express or implied, is made regarding the conclusions and opinions presented in this document. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist, and conditions not observed or described in this document may be present. Uncertainties related to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface evaluations will be performed upon request.

This document is intended to be used only in its entirety. No portion of the document itself is designed to completely represent any aspect of the project described herein. Should the reader require additional information or have questions regarding the content, interpretations presented, or completeness of this

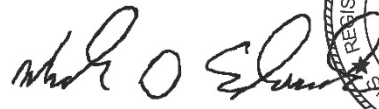


document please contact the undersigned for clarification. This document is intended exclusively for use by the client. Any use of or reuse of the findings, conclusions, or recommendations presented herein by parties other than the client is undertaken at said parties' sole risk.

We appreciate the opportunity to be of service. Should you have questions, please contact the undersigned at your convenience.

Respectfully submitted,
Advantage Geophysics, Inc.

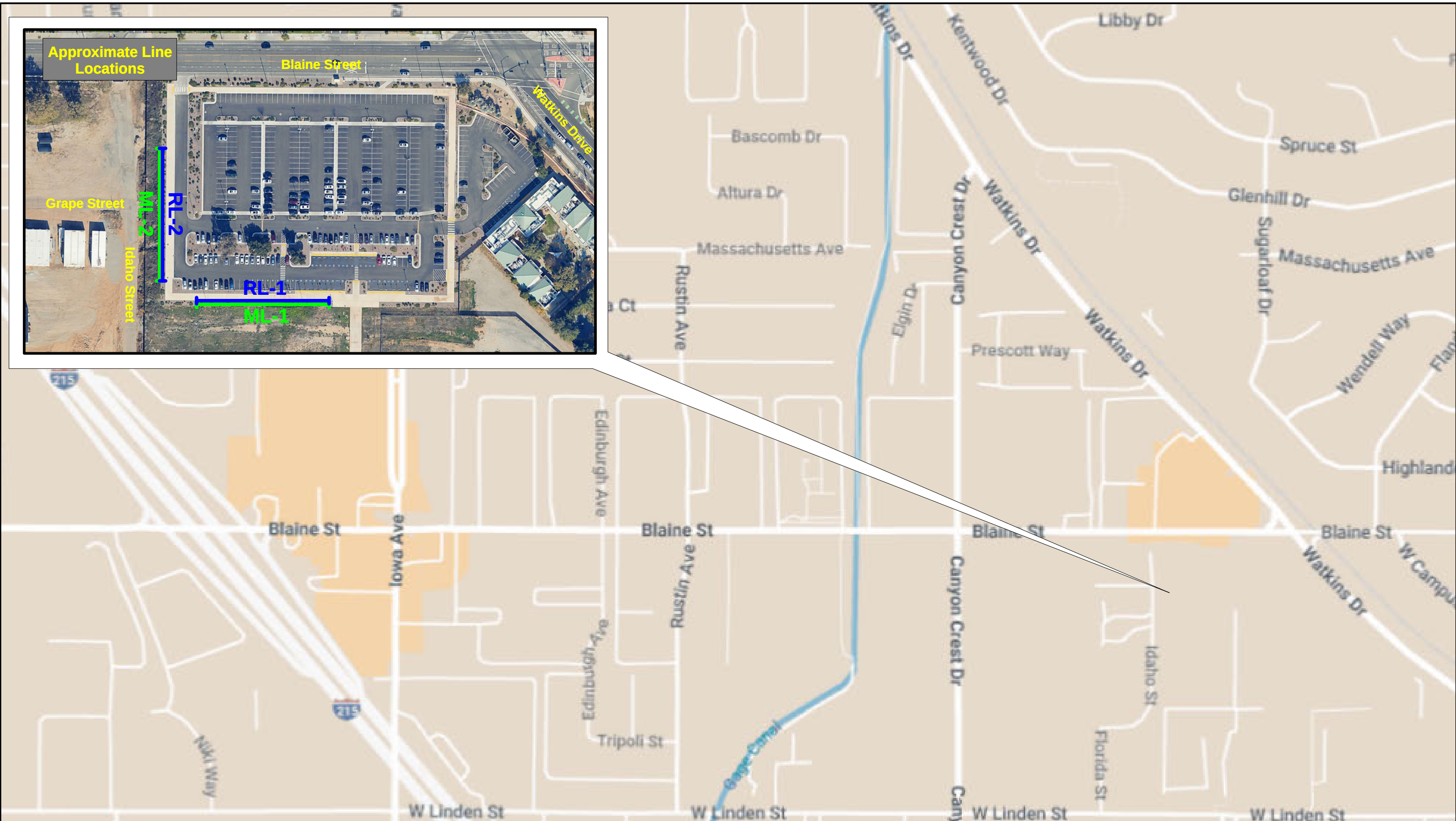
Scott Williams, MS, MBA
Project Geologist/Geophysicist



Mark D. Edwards, P.Gp. 1116
Principal Geologist/Geophysicist

Attachments: Figure 1: Site Location Map
 Figure 2: Line Location Map
 Figure 3: Site Photographs
 Figure 4-1: 1-D ReMi/MASW Results, RL-1/ML-1
 Figure 4-2: 1-D ReMi/MASW Results, RL-2/ML-2

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Site Location Map

UC Riverside
Riverside, California

Project No.: 2025320

Figure
1

Date: 12/25





Line Location Map

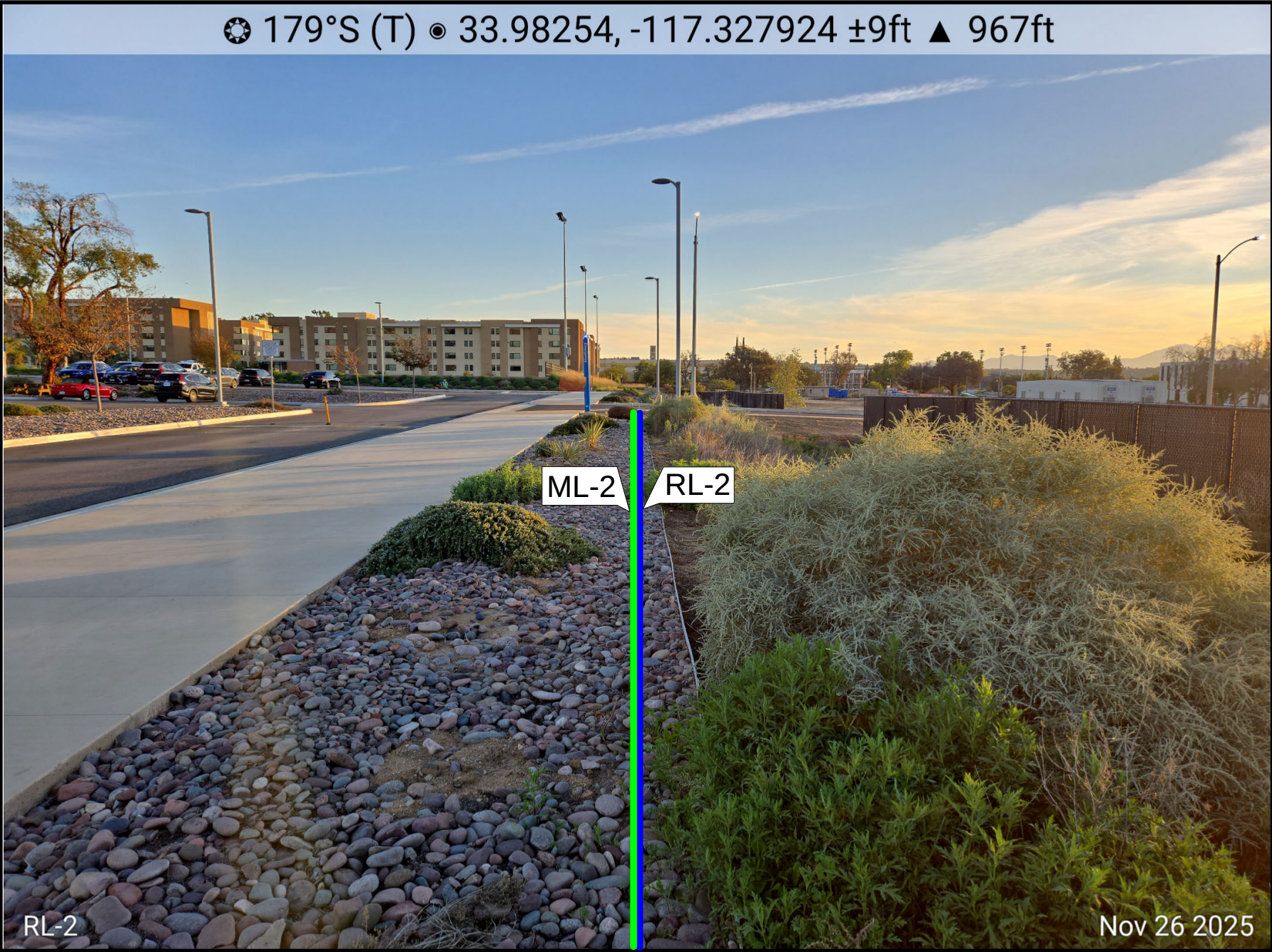
UC Riverside
Riverside, California

Project No.: 2025320

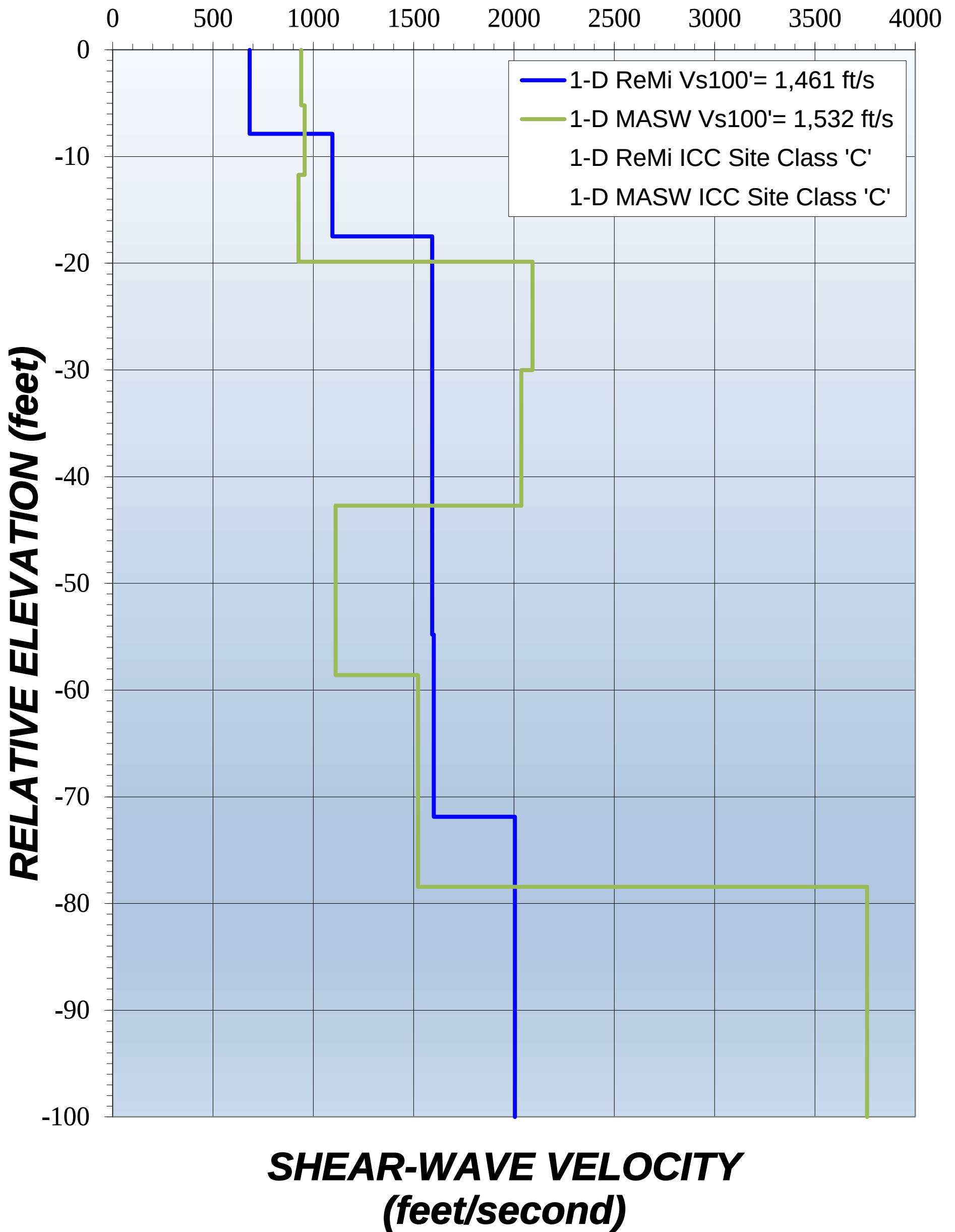
Figure
2

Date: 12/25

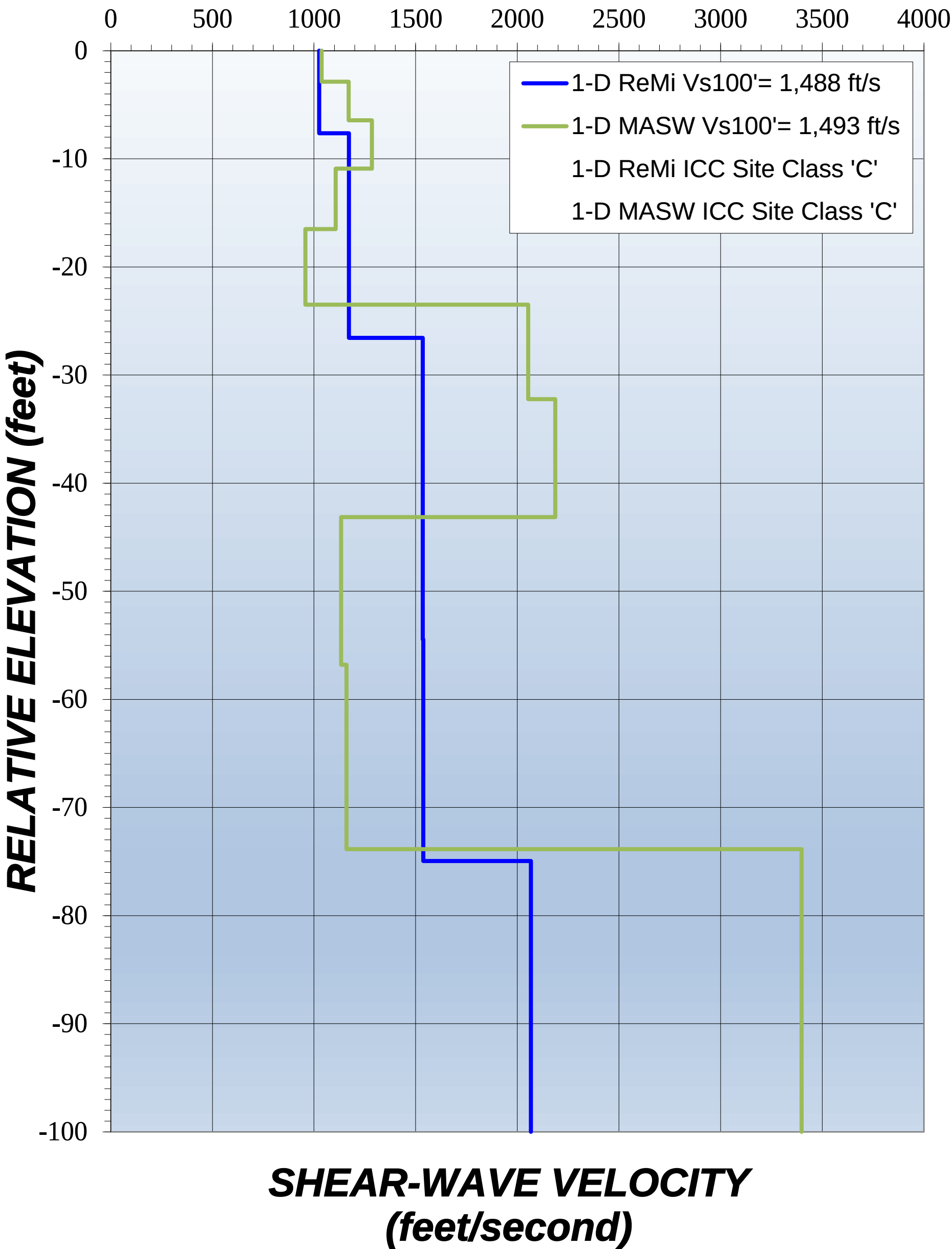




Vs Model



Vs Model



Appendix D

Noise Modeling Data

Attenuation Calculations for Stationary Noise Sources

KEY: Orange cells are for input.
 Grey cells are intermediate calculations performed by the model.
 Green cells are data to present in a written analysis (output).

Project Name: NDD Phase 3

STEP 1: Identify the noise source and enter the reference noise level (dBA and distance).

STEP 2: Select the ground type (hard or soft), and enter the source and receiver heights.

STEP 3: Select the distance to the receiver.

Noise Source/ID	Reference Noise Level			Attenuation Characteristics					Attenuated Noise Level at Receptor		
	noise level (dBA)	@	distance (ft)	Ground Type (soft/hard)	Source Height (ft)	Receiver Height (ft)	Ground Factor	Attenuation due to Intervening Structure? ⁵	noise level (dBA)	@	distance (ft)
Reference Noise Levels of Proposed CUP Equipment											
Heat Pump/Water Heater (80%)	69.2	@	3								
Chiller	69.2	@	3								
Heat Recovery Chiller 75%	83.0	@	3								
Air Source Heat Pumps	84.0	@	3								
Emergency Generator	75.0	@	23								
Reference Noise Levels of Proposed CUP Equipment (accounting for multiple sources)											
4 Heat Pump/Water Heater	75.2	@	3								
1 Chiller	69.2	@	3								
1 Heat Recovery Chiller	83.0	@	3								
2 Air Source Heat Pumps	87.0	@	3								
Reference Noise Levels of the Proposed Central Utility Plant											
CUP Mechanical Equipment Reference Noise Levels	88.7	@	3								
Emergency Generator	75.0	@	23								
Noise Levels at Sensitive Receptors											
CUP Mechanical Equipment Noise Levels (Abderdeen-Iverness Campus Housing)	88.7	@	3	hard	5	5	0.00	-5	33.2	@	1000
CUP Mechanical Equipment Noise Levels (Child Development Center)	88.7	@	3	hard	5	5	0.00	-5	36.0	@	730
CUP Mechanical Equipment Noise Levels (Stonehaven Apartments)	88.7	@	3	hard	5	5	0.00	-5	36.9	@	660
CUP Mechanical Equipment Noise Levels (Falkirk Student Housing)	88.7	@	3	hard	5	5	0.00	-5	33.7	@	950
CUP Mechanical Equipment Noise Levels (Nearest Off-Site Receptor)	88.7	@	3	hard	5	5	0.00	-5	40.2	@	450
Emergency Generator (Abderdeen-Iverness Campus Housing)	75.0	@	23	hard	5	5	0.00	-5	37.2	@	1000
Emergency Generator (Child Development Center)	75.0	@	23	hard	5	5	0.00	-5	40.0	@	730
Emergency Generator (Stonehaven Apartments)	75.0	@	23	hard	5	5	0.00	-5	40.8	@	660
Emergency Generator (Falkirk Student Housing)	75.0	@	23	hard	5	5	0.00	-5	37.7	@	950
Emergency Generator (Nearest Off-Site Receptor)	75.0	@	23	hard	5	5	0.00	-5	44.2	@	450
Proposed Parking Structure (Trash Compactor)	71.0	@	10	hard	5	5	0.00	-5	34.9	@	360

Notes:

Computation of the attenuated noise level is based on the equation presented on pg. 176 and 177 of FTA 2018.

Computation of the ground factor is based on the equation presented in Table 4-26 on pg. 86 of FTA 2018, where the distance of the reference noise level can be adjusted and the usage factor is not applied (i.e., the usage factor is equal to 1).

⁵ A typical noise reduction of 5 dBA was assumed for the proposed enclosure.

Sources:

Federal Transit Association (FTA). 2018 (September). Transit Noise and Vibration Impact Assessment. Washington, D.C. Available: <http://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf>Accessed: March 5, 2020.

Average Noise Level to CNEL Calculator

KEY: Orange cells are for input.

Grey cells are intermediate calculations performed by the model.

Green cells are data to present in a written analysis (output).

Project Name: NDD Phase 3

Noise Descriptor: Community Noise Equivalent Level

STEP 1: Identify the noise source and enter the reference noise level (dBA and distance).

STEP 2: Select the hours of operation for each noise source.

STEP 3: Select the ground type (hard or soft), and enter the source and receiver heights.

STEP 4: Select the distance to the receiver.

Noise Source/ID	Reference Noise Level							Attenuation Characteristics					Attenuated Noise Level at Receptor		
	Noise Level (dBA L _{eq})	@	feet	Day	Evening	Night	Total	Ground Type (soft/hard)	Source Height (ft)	Receiver Height (ft)	Ground Factor	Attenuation due to Intervening Structure? ⁵	CNEL (dBA)	@	distance (ft)
CUP Mechanical Equipment Noise Levels (Abderdeen-Iverness Campus Housing)	88.7	@	3	12	3	9	24	hard	5	5	0.00	-5	39.9	@	1000
CUP Mechanical Equipment Noise Levels (Child Development Center)	88.7	@	3	12	3	9	24	hard	5	5	0.00	-5	42.6	@	730
CUP Mechanical Equipment Noise Levels (Stonehaven Apartments)	88.7	@	3	12	3	9	24	hard	5	5	0.00	-5	43.5	@	660
CUP Mechanical Equipment Noise Levels (Falkirk Student Housing)	88.7	@	3	12	3	9	24	hard	5	5	0.00	-5	40.3	@	950
CUP Mechanical Equipment Noise Levels (Nearest Off-Site Receptor)	88.7	@	3	12	3	9	24	hard	5	5	0.00	-5	46.8	@	450
Emergency Generator (Abderdeen-Iverness Campus Housing)	75.0	@	23	12	3	9	24	hard	5	5	0.00	-5	43.9	@	1000
Emergency Generator (Child Development Center)	75.0	@	23	12	3	9	24	hard	5	5	0.00	-5	46.6	@	730
Emergency Generator (Stonehaven Apartments)	75.0	@	23	12	3	9	24	hard	5	5	0.00	-5	47.5	@	660
Emergency Generator (Falkirk Student Housing)	75.0	@	23	12	3	9	24	hard	5	5	0.00	-5	44.3	@	950
Emergency Generator (Nearest Off-Site Receptor)	75.0	@	23	12	3	9	24	hard	5	5	0.00	-5	50.8	@	450
Proposed Parking Structure (Trash Compactor)	71.0	@	10	12	3	9	24	hard	5	5	0.00	-5	41.5	@	360
Proposed Parking Structure (Auto Circulation)	37.7	@	290	12	3	9	24	hard	5	5	0.00	-5	39.4	@	290

Notes:

Computation of the CNEL based on 1-hour Leq measurements for each hour of a day are based on equation 2-24 on pg. 2-53 of Caltrans 2013.

Log factors for the CNEL penalties are provided in Table 2-11 on pg. 2-48 of Caltrans 2013.

Daytime Hours are the hours between 7:00 a.m. to 7:00 p.m., which confer a +0 dB adjustment

Evening Hours are the hours between 7:00 p.m. to 10:00 p.m., which confer a +3 dB adjustment

Nighttime Hours are the hours between 10:00 p.m. to 7:00 a.m., which confer a +10 dB adjustment

Source:

Federal Transit Association (FTA). 2018 (September). Transit Noise and Vibration Impact Assessment. Washington, D.C. Available: <http://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf>Accessed: March 5, 2020.

Increase over Existing Ambient Noise Levels



KEY: Orange cells are for input.

Grey cells are intermediate calculations performed by the model.

Green cells are data to present in a written analysis (output).

Project Name: NDD Phase 3

Receptor	Noise Levels (dBA)								Noise Levels (dBA, Leq/CNEL)			
	Existing		Projected		Existing + P							
	Leq	CNEL	Leq	CNEL	Leq	Change	CNEL	Change	Existing	Project	Existing Plus Project	Change (dBA)
CUP Equipment												
Abderdeen-Iverness Campus Housing	62.2	68.9	33.2	39.9	62.2	0.0	68.9	0.0	62.2/68.9	33.2/39.9	62.2/68.9	0/0
Child Development Center	55.5	62.2	36.0	42.6	55.6	0.0	62.3	0.0	55.5/62.2	36/42.6	55.6/62.3	0/0
Stonehaven Apartments	61.6	68.3	36.9	43.5	61.6	0.0	68.3	0.0	61.6/68.3	36.9/43.5	61.6/68.3	0/0
Falkirk Student Housing	59.6	65.3	33.7	40.3	59.6	0.0	65.3	0.0	59.6/65.3	33.7/40.3	59.6/65.3	0/0
Nearest Off-Site Receptor ¹	-5.0	-5.0	40.2	46.8	40.2	45.2	46.8	51.8	-5/-5	40.2/46.8	40.2/46.8	45.2/51.8
Emergency Generators												
Abderdeen-Iverness Campus Housing	62.2	68.9	37.2	43.9	62.2	0.0	68.9	0.0	62.2/68.9	37.2/43.9	62.2/68.9	0/0
Child Development Center	55.5	62.2	40.0	46.6	55.6	0.1	62.3	0.1	55.5/62.2	40/46.6	55.6/62.3	0.1/0.1
Stonehaven Apartments	61.6	68.3	40.8	47.5	61.7	0.0	68.4	0.0	61.6/68.3	40.8/47.5	61.7/68.4	0/0
Falkirk Student Housing	59.6	65.3	37.7	44.3	59.6	0.0	65.4	0.0	59.6/65.3	37.7/44.3	59.6/65.4	0/0
Nearest Off-Site Receptor ¹	-5.0	-5.0	44.2	50.8	44.2	49.2	50.8	55.8	-5/-5	44.2/50.8	44.2/50.8	49.2/55.8

Noise Level Descriptor:	Leq
Site Conditions:	Hard
Traffic Input:	Peak
Traffic K-Factor:	10

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Noise Level Descriptor:	CNEL
Site Conditions:	Hard
Traffic Input:	Peak
Traffic K-Factor:	10

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

*All modeling assumes average pavement, level roadways (less than 1.5% grade), constant traffic flow and does not account for shielding of any type or finite roadway adjustments. All levels are reported as A-weighted noise levels.

Conditions	Future (2025)
1. Market Penetration	1. Market Penetration
2. Product Development	2. Product Development
3. Market Development	3. Market Development
4. Diversification	4. Diversification

Input

Intersection 1					
60 110 20		20 520 140	Segment Vol.		
			Segment ID		(trips/hr)
			Segment	1N	340
			Segment	1S	840
40 490 170	180 90 150		Segment	1E	1340
			Segment	1W	1460
Intersection 2					
50 450 180		50 260 60	Segment Vol.		
			Segment ID		(trips/hr)
			Segment	2N	1010
			Segment	2S	1370
20 380 250	270 260 80		Segment	2E	1010
			Segment	2W	1230
Intersection 3					
			Segment Vol.		
			Segment ID		(trips/hr)
			Segment	3N	0
			Segment	3S	0
			Segment	3E	0
			Segment	3W	0
Intersection 4					
			Segment Vol.		
			Segment ID		(trips/hr)
			Segment	4N	0
			Segment	4S	0
			Segment	4E	0
			Segment	4W	0
Intersection 5					
			Segment Vol.		
			Segment ID		(trips/hr)
			Segment	5N	0
			Segment	5S	0
			Segment	5E	0
			Segment	5W	0

Output

Specific Roadway Segments	
Segment Volume	
Segment ID	(trips/hr)
1W	1460
1E	1340

Citation # Citations

- | | | |
|----|--|---|
| 1 | Caltrans Technical Noise Supplement. 2009 (November). Table (5-11), Pg 5-60. | Caltrans Technical Noise Supplement. 2013 (September). Table (4-2), |
| 2 | Caltrans Technical Noise Supplement. 2009 (November). Equation (5-26), Pg 5-60. | Caltrans Technical Noise Supplement. 2013 (September). Equation (4- |
| 3 | Caltrans Technical Noise Supplement. 2009 (November). Equation (2-16), Pg 2-32. | FHWA 2004 TNM Version 2.5 |
| 4 | Caltrans Technical Noise Supplement. 2009 (November). Equation (5-11), Pg 5-47, 48. | FHWA 2004 TNM Version 2.5 |
| 5 | Caltrans Technical Noise Supplement. 2009 (November). Equation (2-26), Pg 2-55, 56. | Caltrans Technical Noise Supplement. 2013 (September). Equation (2- |
| 6 | Caltrans Technical Noise Supplement. 2009 (November). Equation (2-27), Pg 2-57. | Caltrans Technical Noise Supplement. 2013 (September). Equation (2- |
| 7 | Caltrans Technical Noise Supplement. 2009 (November). Pg 2-53. | Caltrans Technical Noise Supplement. 2013 (September). Pg 2-57. |
| 8 | Caltrans Technical Noise Supplement. 2009 (November). Equation (5-7), Pg 5-45. | FHWA 2004 TNM Version 2.5 |
| 9 | Caltrans Technical Noise Supplement. 2009 (November). Equation (5-8), Pg 5-45. | FHWA 2004 TNM Version 2.5 |
| 10 | Caltrans Technical Noise Supplement. 2009 (November). Equation (5-9), Pg 5-45. | FHWA 2004 TNM Version 2.5 |
| 11 | Caltrans Technical Noise Supplement. 2009 (November). Equation (5-13), Pg 5-49. | FHWA 2004 TNM Version 2.5 |
| 12 | Caltrans Technical Noise Supplement. 2009 (November). Equation (5-14), Pg 5-49. | FHWA 2004 TNM Version 2.5 |
| 13 | Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (16), Pg 67 | |
| 14 | Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (20), Pg 69 | |
| 15 | Federal Highway Administration Traffic Noise Model Technical Manual. Report No. FHWA-PD-96-010. 1998 (January). Equation (18), Pg 69 | |

References

California Department of Transportation (Caltrans). 2009 (November). Technical Noise Supplement. Available: http://www.dot.ca.gov/hq/env/noise/pub/tens_complete.pdf. Accessed 2017.

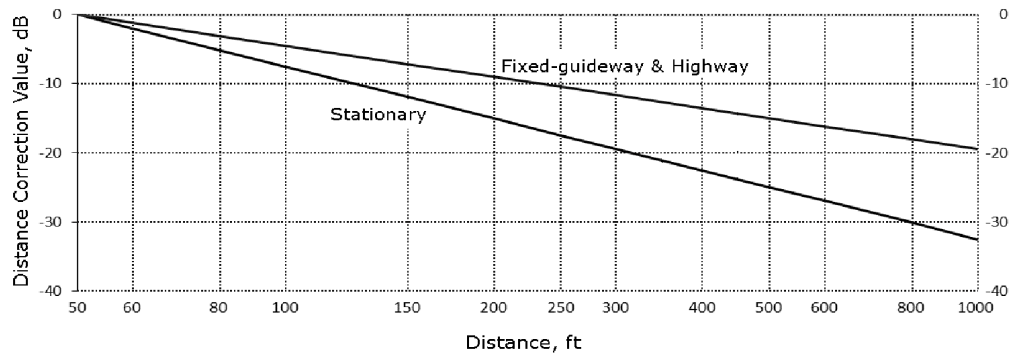
Parking & Ride Lot Noise Calculation

KEY: Orange cells are for input.
Green cells are data to present in a written analysis (output).

Source	Parking & Ride Lot
Source Type	Stationary
Reference Noise Level	101, dBA
Reference Distance	50 feet
Average number of automobiles per hour during day or night	1500
Average number of buses per hour during day or night	100
Volume Adjustment	6.9 dBA

Projected Noise Level = Reference Noise Level + Volume Adjustment - 35.6
Projected Noise Level: 72.3 dBA @ 50 feet

Location	Distance (feet)	Correction Factor	Barrier Adjustment?	Predicted Noise Level (dBA L_{eq})
Nearest Offsite Receptor	290	-19		53.4



Curves for Estimating Exposure vs. Distance in General Noise Assessment

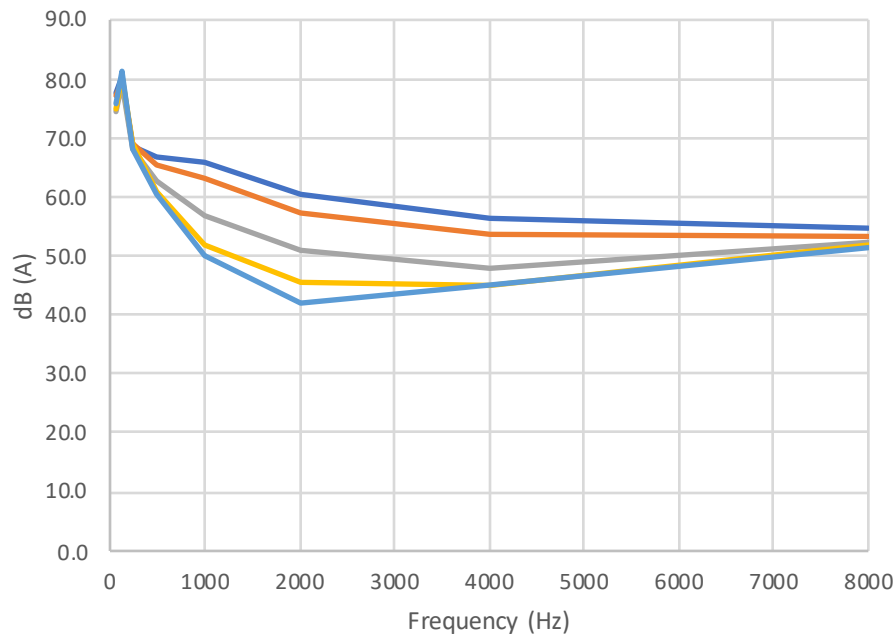
Source

Federal Transit Administration. 2018 (September). Transit Noise and Vibration Impact Assessment. Washington, D.C. Available: https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/research-innovation/118131/transit-noise-and-vibration-impact-assessment-manual-fta-report-no-0123_0.pdf. Accessed February 4, 2019. See pages 45–47, including Equation 4-14.

Sound Data - 500 Air

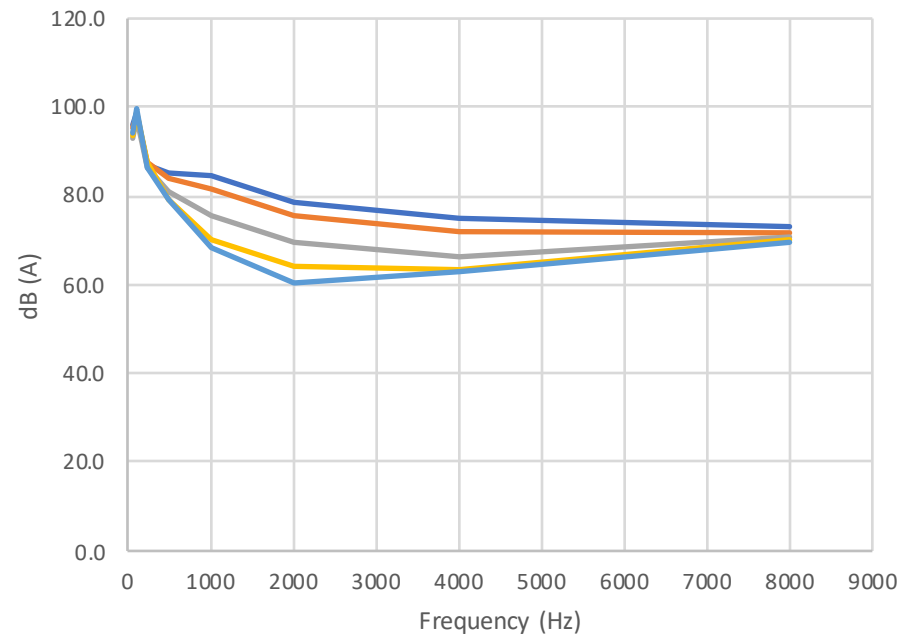
			Oactive Band (Hz)								dB (A) Total
	Fan Percent	Fan RPM	63	125	250	500	1000	2000	4000	8000	
Lp	100%	932	77.6	80.4	68.7	66.6	66.0	60.3	56.4	54.7	70.9
Lw			96.0	98.8	87.1	84.9	84.4	78.7	74.8	73.1	89.3
Lp	80%	832	77.1	79.6	68.9	65.3	63.1	57.2	53.5	53.3	69.2
Lw			95.5	98.0	87.3	83.7	81.5	75.6	71.9	71.7	87.6
Lp	60%	658	74.4	79.2	68.2	62.7	57.0	51.1	47.9	52.1	66.8
Lw			92.8	97.6	86.6	81.1	75.3	69.5	66.3	70.5	85.2
Lp	40%	468	75.0	80.5	68.9	60.9	52.0	45.6	45.0	51.9	66.9
Lw			93.4	98.9	87.3	79.2	70.4	64.0	63.4	70.3	85.3
Lp	30%	344	75.8	81.3	68.2	60.5	50.1	42.0	44.9	51.4	67.1
Lw			94.2	99.7	86.6	78.9	68.5	60.4	63.2	69.8	85.5

Sound Pressure @ 3 feet



Fan - 100% Fan - 80% Fan - 60% Fan - 40% Fan - 30%

Sound Energy



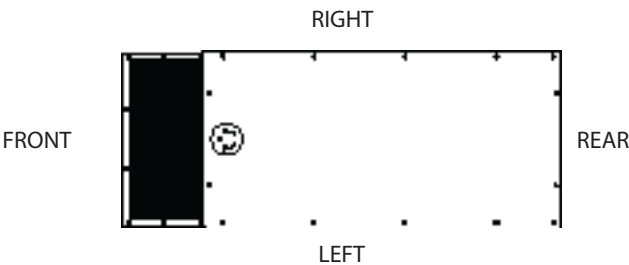
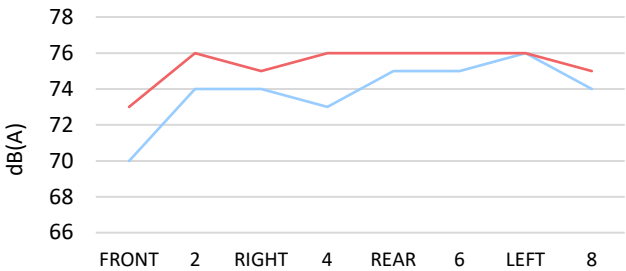
Fan - 100% Fan - 80% Fan - 60% Fan - 40% Fan - 30%

LEVEL 2 SOUND ATTENUATED ENCLOSURE

1000kW D30.6L

60Hz NO-LOAD, dB(A)										DISTANCE: 7 METERS
MICROPHONE LOCATION	OCTAVE BAND CENTER FREQUENCY (Hz)									
	32	65	125	250	500	1,000	2,000	4,000	8,000	dB(A)
FRONT	41	52	58	67	68	62	56	47	36	70
2	42	52	63	67	72	64	62	54	45	74
RIGHT	41	54	64	67	72	67	64	57	52	74
4	36	53	63	70	69	64	63	56	49	73
REAR	44	55	65	67	73	66	62	54	48	75
6	44	57	63	69	72	67	64	57	49	75
LEFT	42	57	66	70	73	67	63	58	53	76
8	37	54	63	68	72	65	62	55	47	74
AVERAGE	41	54	63	68	71	65	62	55	47	74

60Hz FULL-LOAD, dB(A)										DISTANCE: 7 METERS
MICROPHONE LOCATION	OCTAVE BAND CENTER FREQUENCY (Hz)									
	32	65	125	250	500	1,000	2,000	4,000	8,000	dB(A)
FRONT	45	53	62	69	71	63	57	49	41	73
2	45	56	65	71	73	65	63	56	51	76
RIGHT	41	59	65	69	71	66	64	59	57	75
4	42	59	68	71	71	66	66	59	55	76
REAR	50	56	68	68	74	67	64	56	54	76
6	46	59	67	69	73	67	67	59	58	76
LEFT	42	62	63	70	73	67	65	60	61	76
8	42	58	64	69	72	65	63	58	56	75
AVERAGE	44	58	65	70	72	66	64	57	54	75



- All positions at 23 feet (7 meters) from side faces of generator set.
- Test conducted on a 100 foot diameter asphalt surface.
- Sound pressure levels are subject to instrumentation, installation and testing conditions.
- Sound levels are ±2 dB(A).



Performance Report

Performance Specification

Project Name: **UC Riverside**Unit Tag: **CH-4**Qty.: **1**Model: **QTH10035**

Heat Exchanger Performance

Water to Refrigerant Heat Exchanger		Ambient Coils	
Evaporator Type	Braze Plate Exchanger	Number of Fans	2
Fluid Volume [USGAL]	3.1	Altitude* [ft]	0.00
Fluid Type*	Water	Total Air Flow [cfm]	23457
Fouling Factor* [h ft ² F/Btu]	0.000100	Fan Power [kW]	2.398
Fluid Connection Diameter [in]	2.5		

* Designates user specified input

Certified in accordance with the AHRI Air-Cooled Water-Chilling Packages Certification Program, which is based on AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Heat Pump Water-Heating unit is certified when operating in cooling. Certified units may be found in the AHRI Directory at www.ahridirectory.org. Auxiliary components included in total KW - Oil heaters, Chiller controls. Auxiliary power is already included in the compressor and fan power



Part Load Performance (Based on Multi-Step Unloading w/ User Specified % Load & Ambient Temp)

Percent Load	Ambient [°F]	Capacity [tons.R]	Power Input [kW]	Unit Efficiency [Btu/W.h]
100.0	102.0	34.40	44.33	9.313
75.0	102.0	25.76	28.61	10.81
50.0	102.0	17.17	17.87	11.53
25.0	102.0	8.436	7.508	13.48

Sound Power Levels (In Accordance with AHRI 370)

Percent Load	Ambient [°F]	Octave Band Center Frequency [Hz]								LWA
		63	125	250	500	1000	2000	4000	8000	
100.0	102.0	82.0	84.0	84.0	82.0	78.0	75.0	72.0	70.0	84.0
75.0	102.0	82.0	83.0	83.0	81.0	77.0	74.0	68.0	68.0	83.0
50.0	102.0	80.0	82.0	83.0	81.0	77.0	73.0	67.0	67.0	82.0
25.0	102.0	77.0	79.0	80.0	78.0	74.0	70.0	64.0	63.0	79.0

Note: Unit is equipped with Acoustic Blanket Required (Standard) and High Efficiency Fans with Variable Speed EC motor.

Measurement of sound pressure used to obtain the sound power data presented is based on AHRI-370.

Air-cooled chillers are rated in terms of sound power not sound pressure. Johnson Controls provides estimates of sound pressure, but this is not the rating metric.

For an air-cooled chiller, sound pressure calculated from sound power varies depending on how the chiller is assumed to behave, i.e. the radiation model. In other words, determining sound pressure from sound power requires making assumptions that result in different answers at a given distance from the chiller. The environment also influences sound pressure in the field installation. Sound pressure estimation radiation models pertaining to air-cooled chillers include the 'traditional' hemispherical model, parallelepiped model and equivalent hemispherical model.

Regarding sound power, Johnson Controls references tolerance limits based on ASHRAE guidelines. These are +/- 6dB in the 63Hz octave band, +/- 4dB in all other octave bands and +/- 3dB for the overall dBA.

Tolerance limits are based on uncertainties associated with:

1. Measurement Test Procedure
2. Repeatability
3. Production / Manufacturing Variability

Standard deviation associated with air-cooled chiller sound data is a measure of spread i.e. it indicates the range of probability of sound levels. Note that for operating conditions other than AHRI's Standard Rating Condition, higher levels of uncertainty can be expected.

Lead times for factory performance testing depend on test laboratory availability. Please confirm with Johnson Controls Customer Service.

Project Name: UC Riverside

Unit Guid: d26f5598-887d-4db6-9a36-e360e148d933

Rating Engine Version: REV.v9_33e.idd

Unit Name: CH-4-Copy

Version: SN26.04a

CHL2026-04.002

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Performance Report

Performance Specification

Project Name: **UC Riverside**Unit Tag: **CH-4**Qty.: **1**Model: **QTH10035**

Heat Exchanger Performance

Water to Refrigerant Heat Exchanger		Ambient Coils	
Evaporator Type	Braze Plate Exchanger	Number of Fans	2
Fluid Volume [USGAL]	3.1	Altitude* [ft]	0.00
Fluid Type*	Water	Total Air Flow [cfm]	28252
Fouling Factor* [h ft ² F/Btu]	0.000102	Fan Power [kW]	3.214
Fluid Connection Diameter [in]	2.5		

* Designates user specified input

Part Load Performance (Based on Heat Pump Multi-Step Unloading w/ User Specified % Load & Ambient Temp)

Percent Load	Ambient [°F]	Heating Capacity (Time-Averaged) [MBH]	Heating Capacity (Instantaneous) [MBH]	Power Input (Time-Averaged) [kW]	Power Input (Instantaneous) [kW]	Unit Efficiency (Time-Averaged) [kW/kW]	Unit Efficiency (Instantaneous) [kW/kW]
100.0	34.0	339.5	409.1	42.55	47.81	2.34	2.51
75.0	34.0	255.0	307.2	28.75	32.31	2.60	2.79
50.0	34.0	169.9	204.7	18.37	20.64	2.71	2.91
25.0	34.0	84.44	101.7	9.405	10.57	2.63	2.82

Time-Averaged values may include the effect of defrost cycling.

Sound Power Levels (In Accordance with AHRI 370)

Percent Load	Ambient [°F]	Octave Band Center Frequency [Hz]								LWA
		63	125	250	500	1000	2000	4000	8000	
100.0	34.0	83.0	86.0	85.0	83.0	80.0	76.0	73.0	71.0	85.0
75.0	34.0	82.0	84.0	84.0	82.0	79.0	75.0	69.0	69.0	84.0
50.0	34.0	74.0	74.0	74.0	73.0	69.0	65.0	61.0	61.0	75.0
25.0	34.0	71.0	71.0	71.0	70.0	66.0	62.0	58.0	58.0	72.0

Note: Unit is equipped with Acoustic Blanket Required (Standard) and High Efficiency Fans with Variable Speed EC motor.

Measurement of sound pressure used to obtain the sound power data presented is based on AHRI-370.

Air-cooled chillers are rated in terms of sound power not sound pressure. Johnson Controls provides estimates of sound pressure, but this is not the rating metric.

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Lead times for factory performance testing depend on test laboratory availability. Please confirm with Johnson Controls Customer Service.

Notes:

The product image shown is for illustrative purposes only and is not representative of selected options.

Project Name: UC Riverside

Unit Guid: d26f5598-887d-4db6-9a36-e360e148d933

Rating Engine Version: REV.v9_33e.idd

Unit Name: CH-4-Copy

Version: SN26.04a

CHL2026-04.002

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Performance Report

Performance Specification

Project Name: **UC Riverside**Unit Tag: **CH-4**Qty.: **1**Model: **QTH10035**

Heat Exchanger Performance

Water to Refrigerant Heat Exchanger		Ambient Coils	
Evaporator Type	Braze Plate Exchanger	Number of Fans	2
Fluid Volume [USGAL]	3.1	Altitude* [ft]	0.00
Fluid Type*	Water	Total Air Flow [cfm]	0
Fouling Factor* [h ft ² F/Btu]	0.000100	Fan Power [kW]	0.000
Fluid Connection Diameter [in]	2.5		

* Designates user specified input

Outside the scope of AHRI Water-Cooled Water-Chilling and Heat Pump Water-Heating Packages Using Vapor Compression Cycle Certification Program, but is rated in accordance with AHRI Standard 550/590 (I-P) and AHRI Standard 551/591 (SI). Auxiliary components included in total KW - Oil heaters, Chiller controls. Auxiliary power is already included in the compressor power

Part Load Performance (Based on Simultaneous Multi-Step Unloading w/ User Specified % Load & Ambient Temp)

Cooling Percent Load	Heating Percent Load	Ambient [°F]	Cooling Capacity [tons.R]	Heating Capacity (Time-Averaged) [MBH]	Heating Capacity (Instantaneous) [MBH]	Power Input (Time-Averaged) [kW]	Power Input (Instantaneous) [kW]	Unit Efficiency (Time-Averaged) [kW/kW]	Unit Efficiency (Instantaneous) [kW/kW]
100.0	100.0	102.0	31.69	524.9	524.9	43.42	43.42	6.11	6.11
75.0	75.0	102.0	23.77	393.7	393.7	29.20	29.20	6.81	6.81
50.0	50.0	102.0	15.85	262.5	262.5	20.56	20.56	6.45	6.45
25.0	25.0	102.0	7.923	131.2	131.2	11.15	12.52	5.67	5.30

Time-Averaged values may include the effect of defrost cycling.

Sound Power Levels (In Accordance with AHRI 370)

Percent Load	Ambient [°F]	Octave Band Center Frequency [Hz]								LWA
		63	125	250	500	1000	2000	4000	8000	
100.0	102.0	79.0	81.0	79.0	78.0	72.0	71.0	70.0	68.0	80.0
75.0	102.0	80.0	80.0	81.0	79.0	75.0	71.0	66.0	66.0	80.0
50.0	102.0	77.0	78.0	78.0	77.0	73.0	69.0	64.0	63.0	78.0
25.0	102.0	78.0	79.0	80.0	78.0	74.0	70.0	65.0	64.0	80.0

Note: Unit is equipped with Acoustic Blanket Required (Standard) and High Efficiency Fans with Variable Speed EC motor.

Measurement of sound pressure used to obtain the sound power data presented is based on AHRI-370.

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Rating Engine Version: REV.v9_33e.idd

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